UNIVERSITY OF MIAMI

A private, independent, international university
An equal opportunity/affirmative action employer

An announcement with information on administration, organization, admission and graduation requirements, and the courses of instruction in:

UNDERGRADUATE and GRADUATE STUDIES, 2009-2010

It is the policy of the University of Miami that no person within the jurisdiction thereof shall, on the basis of race, religion, color, sex, age, disability, sexual orientation, veterans status, or national origin, be excluded from, participation in, be denied the benefits of, or be subjected to discrimination or harassment (including sexual harassment) under any program or activity of the University. The University does not intend by this commitment to require compliance with this policy by governmental or external organizations that associate with but are not controlled by the University, except as required by law. The Director of Equality Administration is responsible for coordinating the University’s effort to implement the nondiscrimination policy and Affirmative Action Programs for employees and students. The Director may be contacted at the following address or telephone number: Equality Administration Office 1507 Levante Avenue; P.O. Box 248106; Coral Gables, Florida 33124-1411; 305-284-3064.

The University of Miami is authorized under Federal law to enroll non-immigrant alien students.

The University reserves the right to change any provision or requirement, including, but not limited to fees and tuition, at any time without notice. Degrees, courses, programs, activities, and like academic or non-academic offerings of the University may also be changed from time to time without notice. The University further reserves the right to require a student to withdraw at any time under University policies, as may be promulgated from time to time. Further, admission of a student to the University of Miami for any semester does not imply that such student will be enrolled in any succeeding academic semesters. It also reserves the right to impose sanctions on any student whose conduct is unsatisfactory. Any admission on the basis of false statements or documents is void when the misconduct is discovered, and the student is not entitled to any credit for work which the student may have done at the University prior to any discipline that may be taken as a result of such misconduct. When a student is dismissed or suspended from the University for cause, there will be no refund of tuition or fees paid. If a dismissed student has paid only a part of his tuition and fees, the balance due the University will be considered a receivable and will be collected.

There will be no refund of tuition, fees, charges or any other payments made to the University in the event the operation of the University is suspended at any time as a result of any act of God, strike, riot, disruption, or for any other reason beyond the control of the University.

The University of Miami is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award the baccalaureate, masters and doctoral degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-679-4500 for questions about the accreditation of the University of Miami.
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THE UNIVERSITY OF MIAMI MISSION STATEMENT

The University of Miami’s mission is to educate and nurture students, to create knowledge, and to provide service to our community and beyond. Committed to excellence and proud of the diversity of our University family, we strive to develop future leaders of our nation and the world.
ACADEMIC PROCEDURES AND INFORMATION - UNDERGRADUATE

While the University makes every effort to provide academic counseling to its students, its basic policy places the responsibility for planning an academic program upon the student.

The University of Miami relies on electronic means (email and myUM accounts) for correspondence with students. Students are required to maintain a working email address and are expected to update their personal biographical information annually via their myUM account. Students who fail to maintain a working email account may not receive critical university information.

Students are expected to familiarize themselves with the requirements of:
- the University,
- the schools in which they are enrolled, and
- their major department.

Requirements refer to those stated in the Bulletin at the time of admission to degree status, unless a student has not been continuously enrolled. In such cases, the Bulletin in effect at the time of re-admission is the one to be used. In such cases, the determination of the Bulletin in effect is made by the readmitting School or College.

Academic core requirements will not be waived for students under any circumstances.

The work of each student is under the supervision of an academic Dean and of the appropriate Scholarship Committee. A student who fails to maintain an adequate academic record may be dismissed from the University.

Admission of a student to the University of Miami for any semester does not imply that such student will be re-enrolled in any succeeding academic semesters. If a student whose record is unsatisfactory is for some reason permitted to continue in attendance, the appropriate scholarship committee or Dean may specify the standard that must be attained, and any other conditions to be met.

A student who graduates and plans to enter a graduate school or professional school at the University of Miami must apply for admission to the appropriate school of the University in accordance with application deadlines of respective schools.

Not all the regulations and procedures described below pertain to the Graduate School, the Law School, and the School of Medicine. The specific regulations of these schools are stated in their Bulletins.

STUDENT-RIGHT-TO-KNOW AND CAMPUS SECURITY ACT

The Student-Right-to-Know and Campus Security Act requires institutions to disclose information about graduation rates and crime statistics to current and prospective students. Students interested in obtaining this type of information should contact the Office of Admission, (305) 284-4323 or go to www.miami.edu/hea.
FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT (FERPA) (BUCKLEY AMENDMENT)

The purpose of this policy is to assure that students have access to their educational records and to assure the privacy of students by restricting the disclosure of information from education records to those persons authorized under the Act.

The policy is provided to all students in the Student Life Handbook and Daily Planner. Copies can also be printed from the website www.miami.edu/hea.

SECURITY OF STUDENT RECORDS

The Office of the Registrar is charged with the responsibility of maintaining the security and integrity of student records. Student records created before 1985 are stored either on microfiche or are on paper or have been electronically scanned. Those remaining on microfiche or on paper are stored in a secure room and/or in an off-site location. Both locations are available only to Registrar personnel. Student records created after 1985 are housed on an electronic database.

In order to maintain confidentiality, access to the student record system is limited to university personnel who have a legitimate need for this information. Each user is required to fill out an access form. A user name is created, and each user must also create a password that must be changed every 90 days. Periodic audits of records as well as reviews of who has access to the system are regularly scheduled to ensure a secure environment.

Students are assigned a UM ID number that is unique to them and they are encouraged to use it instead of their social security number. Students are required to provide their student ID or a photo ID when requesting academic record information from this office.

FERPA TRAINING

FERPA, the Family Educational Rights and Privacy Act, provides established guidelines for universities to ensure that students have access to their educational records as well as to ensure the privacy of said records by restricting the disclosure of information from educational records to those persons authorized under the Act. FERPA guidelines must be followed when dealing with the disclosure of student information.

All staff who use the student records system are required to complete an online FERPA tutorial. Periodic reviews are required; failure to complete this tutorial will lock a user out of the system. The Registrar’s Office also offers FERPA information sessions to parents of new students each fall during new student orientation.
ACADEMIC CREDITS

The University operates on the semester system and, for its measure of academic course work, uses academic credits (referred to as semester credits, semester hours, credit hours, hours, or credits).

An academic credit (of work) is given for one 50-minute period a week throughout an academic semester or its equivalent per week for a semester of fifteen weeks or its equivalent in summer session. Two or three laboratory hours each week throughout a semester are considered the equivalent of one lecture hour in counting credits earned in an undergraduate laboratory or studio course.

No grades or credits are given for audited courses.

CHANGE OR DROP OF COURSE

Course changes after the completion of registration must be approved by the student’s academic dean. Forms must be fully processed to make any approved changes official.

Dropping of any course for which the student has registered is official only when the appropriate approvals are obtained and the form has been processed by the Office of the Registrar. Failure to attend classes or merely giving notice to instructors of one’s absence will not be considered as an official withdrawal and may result in failure in the course.

The last day to drop a course is noted on the Academic Calendar located on the Office of the Registrar’s website at www.miami.edu/registrar. Students enrolled in a course after the withdrawal date must receive a final grade in the course.

During the academic year, a student may drop a course without having a W placed on his/her record until the 12th class day.

During a summer session, a student may drop a course until the 5th class day in summer I and until the 6th class day in summer II without having a W placed on his/her record.

During the academic year, changes in the credit-only option may be made until the 12th class day. During a summer session, changes may be made until the 5th class day in summer I and until the 6th class day in summer II.

CLASS ATTENDANCE AND ABSENCES

Regular and punctual class attendance is vital for all students. Instructors will distribute course syllabi which include policies regarding class attendance and missed or late work. Any student may be dropped from a course or receive a lowered grade for unauthorized absences in excess of those permitted by the instructor. It is each student’s responsibility to know and understand the instructor’s policies. It is also the student’s responsibility to give the instructor notice one week prior to any anticipated absence and to contact the instructor within one week after any unanticipated absence.

All students are responsible for material covered during their absence. However, the instructor must allow each student who is absent for a University-approved reason either
the opportunity to make up, or to be excused from, work missed, without any reduction in the student's final course grade as a direct result of such absence.

The following constitute University-approved reasons for absences:

1. Participation in an activity approved by the Academic Deans Policy Council, such as musical and debate activity, R.O.T.C. function, or varsity athletic trip; participation in a special academic activity such as a field trip or other special event connected with academic coursework. Verification of a student’s participation shall be issued by the sponsor when authorized by the Office of the Executive Vice President and Provost.
2. Observance of a major religious holy day. The University annually publishes a list of those dates it has designated as major religious holy days. Instructors and administrators shall endeavor not to schedule any examination or other graded class event, nor any major University activity, on a major religious holy day.

Other than absences for a University-approved reason, the instructor determines whether or not an absence is for an acceptable reason and whether or not students shall have the opportunity to make up missed work. If the instructor does not recognize the reason as acceptable, the student may appeal to the chair of the department in which the course is offered.

COURSE-NUMBERING SYSTEM

The following course-numbering system is used:

Courses in the 100 series are primarily for freshmen.
Courses in the 200 series are primarily for sophomores.
Courses in the 300 series are primarily for juniors.
Courses in the 400 series are primarily for seniors.
Courses in the 500 series are open only to qualified undergraduates and graduate students.
Courses in the 600 and 700 series are open only to graduate students.

Courses in some departments, with the specific numbers 100, 200, 300, 400 are offered, in most instances, on an experimental or trial basis. When listed in myUM’s Course Offerings, a more descriptive title will normally be attached.

CREDIT FOR SERVICE EXPERIENCE

Veterans of the military services may make application for academic credit for schooling received while in the armed forces. Credit may be awarded for work that the American Council on Education Guide regards as college level. Students must have credits approved by their departmental chairperson.

Credit for military service and experience is usually in the elective area and may not take the place of subjects required for graduation. Such work is not assigned quality points and is not included in quality point computations.
CREDIT ONLY OPTION

The credit only option has been established to encourage students to explore academic areas outside their major and minor fields of concentration. Students may use this option with free electives and receive a CR (Credit Received) or NC (No Credit). These courses become part of a student’s record, but they do not count in the grade point average as computed by the University of Miami.

Eligibility

To be eligible to enroll for courses under the CR/NC option, a student must:

1. hold the standing of Sophomore or above, and, if a transfer, must have completed one semester of residency at the University of Miami;
2. at the time of registration have a minimum cumulative grade point average of at least 3.00;
3. elect the CR/NC option within two weeks following the last day of registration for Fall and Spring semesters. Election of CR/NC options for Summer Sessions must occur no later than the fifth class day following the last day of registration. No changes except withdrawals from the course are permitted after this time.

Regulations and Restrictions

1. Eligible students may take one course per semester for credit only, to a maximum of 9 credits.
2. Only free electives may be taken under this option. Free electives are defined as courses not taken to fulfill the requirements for the major, minor, or general education requirements (including prerequisite course work) of the University and the individual schools.
3. ENGLISH 105 and ENGLISH 106 cannot be taken for credit only.
4. Grading standards for the credit only option are the same as for students who register for the course under the regular grading system. Letter grades will be submitted by instructors to the Office of the Registrar. The Office of the Registrar will change all grades A through C (including “C-”) to CR (Credit Received) for those enrolled under the CR/NC option.
5. A grade of NC (No Credit) will be recorded by the Office of the Registrar for all grades of D and F. The student will not receive credit hours or quality points for the grade of NC.
6. Should a student subsequently change his/her major, free electives taken for credit only prior to the declaration of this major may be counted toward fulfilling major, minor, or general education requirements at the discretion of the department chairman and the academic dean.

FINAL EXAMINATION POLICY

Final examinations may not be given during a regularly scheduled class period. No examinations shall be permitted during the reading period.

Final Examinations may be rescheduled only with the permission of the dean.
No student shall be required to take more than two final examinations on one day. A student having three or more final examinations scheduled during one day may request the instructor of the course with the smallest enrollment to reschedule the examination for that individual. The request shall be made no later than two weeks before the last class day.

A student who has a conflict between a final examination and a religious observance may request that the instructor reschedule that student’s examination. The request shall be made no later than two weeks before the last class day.

For the resolution of any problem pertaining to the scheduling of final examinations, students should first consult their instructor.

REGISTRATION

Registration dates are shown in the University Academic Calendar, and all students are expected to register on these days. If a student is permitted to register late, a fee is charged.

CANCELLATION OF COURSES

Students who select their courses and fail to make financial arrangements with the Office of Student Account Services (OSAS) will have their course schedules canceled. Once schedules are canceled, students are charged a reinstatement fee in addition to their other fees in order to reinstate their classes. These fees can only be waived by a staff member from OSAS or the Office of Financial Assistance Services. Reinstatement of classes can only occur after the cancellation stop has been removed due to payment of financial obligations.

REPEAT RULES

A student may repeat a course, but the repetition will not eliminate the previous grade from the record. A course may be repeated only once unless written authorization is provided by the chair of the department in which the course is offered or, in the case of an undepartmentalized school, by the dean.

ILLEGAL REPEAT

A student may not repeat a course in which a grade of C or higher has been earned. This is considered an illegal repeat.

GENERAL REPEAT RULE

- If the initial grade is D+ or lower (or a C- in cases where an academic unit requires a C or higher), both the initial grade and the repeat grade are included in the computation of the student’s cumulative grade-point average (CGPA).

- If the initial grade is a D or D+ (or a C- in cases where an academic unit requires a C or higher) and the repeat grade is passing, the number of credits required for graduation will be increased by the number of credits repeated.

- Registrations that involve repeating a course in which a grade of C or higher (or C- in cases where an academic unit does not require a C or higher) has already been earned do not earn quality points or credit hours, nor count as credits attempted.
Courses repeated after graduation will be posted to the transcript showing the grade received; however, the CGPA and credits earned will not be modified based on the grade received for the repeated course.

**FRESHMAN REPEAT RULE**

- A student may elect to repeat up to two courses that were taken at the University of Miami within that student’s first two semesters of college work and in which the student earned a grade of D or F. Each repeated course must be taken at the University of Miami, must be the same course as the course initially taken, and must be completed within 12 months after the end of the semester (or summer session) in which the initial course was first taken.

- No course may be repeated more than once under this rule. A course repeated more than once under the University’s General Repeat Rule will not qualify under the Freshman Repeat Rule.

- Enrollment for a second time in a course constitutes a repeat of that course for the purposes of this rule, unless the student withdraws from the course on or before the University’s published Last Day to Drop a Course date.

- For each repeated course, only the second grade (whether higher, or lower, or the same as the first grade) will be used in the computation of the student’s CGPA. The initial course will not count as credits attempted or earned, although the initial course grade will remain on the student’s permanent record.

- Students who plan to apply to graduate and/or professional school should be aware that such institutions may recalculate the CGPA to include the initial grade earned before the repeat.

**SCHEDULES**

Fifteen or sixteen semester hours constitutes a normal schedule at the University. Academic deans and advisors will determine the appropriate credit load for their students. (A schedule of charges for credits is found in the Financial Payment Policies section of this Bulletin.) The schedule of any student whose outside interests cause unsatisfactory scholastic attainment may be reduced by the dean.

Veterans and children of deceased or totally disabled veterans receive training allowance in proportion to the schedule carried. The full load required to receive full training allowance is 12 in undergraduate school (nine in Graduate School).

**TEMPORARY/PERMANENT WITHDRAWAL FROM THE UNIVERSITY**

In order to withdraw officially from the University, a student must notify the Office of the Registrar and complete the withdrawal process. This includes obtaining a signed Drop/Add form from his/her academic dean and completing the Withdrawing Student Responsibility Form. These documents must be submitted to the Office of the Registrar. Veterans and children of deceased or totally disabled veterans attending the University as students under the government’s educational benefit bills must also be cleared by the Veterans Affairs Certifying Official.
During the academic year, tuition will be refunded on a prorated basis depending on the date that is noted as the 'Total Withdrawal Date'. Tuition will be refunded on a prorated basis through 60 percent of the semester.

Dropping courses in a summer session, thereby reducing a student credit-hour load to zero, is not construed as a formal withdrawal from the University.

Title IV financial aid and tuition will be refunded on a pro rata daily basis through 60 percent of the semester. This date is determined based on the student notifying the Office of the Registrar of his/her intent to withdraw. If the student fails to notify the Office of the Registrar, federal guidelines for determining refunds will be followed. Please see the Refund Policy under the Financial Payment Policies section of this Bulletin.

**MILITARY WITHDRAWAL**

a. On the recommendation of the Dean of the school, students who withdraw after the 12th week of the semester because of official orders to active duty with the Armed Forces of the United States may either be awarded credit (CR) or an academic grade for any course in which they have achieved a C or better up to the time of withdrawal. Instructors must certify that the student had achieved satisfactory accomplishment on the basis of previous work in the course by awarding an appropriate grade. Accomplishment of less than C should be entered on the permanent record as a withdrawal without prejudice (W).

b. Credit granted for courses under this policy should count toward graduation.

c. There should be no refund of tuition for courses for which credit has been awarded. Refunds for courses not awarded credit should be on the same basis as complete withdrawals for military service.

d. The above recommendations are procedures for determining the awarding of credit and do not release the student from the usual withdrawal procedures.
GENERAL EDUCATIONAL REQUIREMENTS

PHILOSOPHY

The University of Miami and its faculty are committed to developing and nurturing within our students the ability to demonstrate critical thinking skills, communicate effectively, contribute knowledge, understand perspectives that differ from their own, and develop skills necessary to become effective leaders and active participants in the global society.

As an institution of higher learning in an increasingly diverse and global community our goals are to produce graduates who have been exposed to a broad spectrum of educational opportunities and to prepare them for successful participation in the world. The University’s General Education Requirements consist of coursework taken both before and in addition to students’ specialized study within their areas of concentration. The aims of the General Education Requirements are designed to ensure that graduates of the University will have acquired essential intellectual skills and exposure to a range of intellectual perspectives and academic disciplines. The University’s General Education Requirements focus on two student learning areas: 1) proficiency in English composition, writing, and mathematics and 2) knowledge of the natural world, people and society, and arts and humanities. By helping students strengthen their abilities to think with both words and numbers, they will develop the analytical skills basic to nearly all fields of advanced learning but exclusive to none. By deliberately introducing students to various intellectual achievements in major areas of human inquiry and creative endeavor, the University of Miami’s General Education Requirements provide a broad intellectual backdrop to students’ more focused studies in their majors and minors. Whereas the requirements of majors specified by Schools and Colleges within the University emphasize depth of learning, the General Education Requirements stress breadth of knowledge and the cultivation of intellectual abilities essential for the acquisition of knowledge.

Some schools and colleges may designate specific coursework to fulfill the areas of knowledge requirements listed below; students should consult the specific GER requirements for their school or college in the appropriate section of this Bulletin.

These requirements may be satisfied by courses taken for a letter grade, or by credits earned through Advanced Placement (AP) or International Baccalaureate (IB) examinations taken in high school. These credits may be applied to the 120 credits required for graduation.

AREAS OF PROFICIENCY

Proficiency requirements are intended to ensure that students either already possess, or will develop at the University, the ability to express themselves effectively, to use mathematics with facility, and to reason cogently.

1. English Composition

Good writing facilitates clear thinking, and clear thinking is the foundation of effective communication. It is the University’s expectation that our students become adept at using the English language as an effective tool for communication. Effective writing skills are representative of the educated person because they are instruments to advance ideas efficiently and persuasively. During their first year of study, students fulfill this requirement by satisfactorily completing English 105 and English 106 or the equivalent. Appropriate
Advanced Placement (AP) or International Baccalaureate (IB) scores in English composition may be used to satisfy the English 105/106 requirement. An appropriate score on the SAT or ACT verbal examination may earn a student exemption from, but not credit in, ENG 105.

**Students will be able to:**
- Gather information, synthesize data, compare various points of view, and present the results in writing.
- Develop the ability to read texts critically and to use textual evidence to support a sophisticated written argument.
- Consider audience, tone, organization, and standard conventions in relationship to specific rhetorical tasks.

2. Writing Across the Curriculum (W) 5 courses

In addition to English 105/106, students must complete five (5) courses designated as Writing Across the Curriculum (W) courses. The purpose of these courses is to help our students refine their writing abilities so that they are able to communicate their ideas clearly and effectively through the various styles of writing appropriate to the academic fields of their majors and minors. Courses designated as writing courses (“W” courses) require a substantial amount of writing and the preparation of papers that are corrected for diction, syntax, style, and content. Some courses satisfying this Writing Across the Curriculum requirement may simultaneously fulfill Areas of Knowledge requirements (described below).

**Students will be able to:**
- Demonstrate ability to write persuasively, using tools of argumentation and advocacy appropriate to subject, audience, and occasion.

3. Mathematics

In a world increasingly influenced by science and technology, it is important for students to acquire the capacity to use and understand essential mathematical applications. The mathematics requirement helps students learn to use quantitative methods in order to solve problems. The course requirements for mathematics emphasize the manipulation, interpretation, and application of quantitative data. Students fulfill this requirement by satisfactorily completing a course in mathematics numbered above MTH 101 (excluding MTH 107), or MAS 110, or an approved course in statistics. Exemption from the mathematics requirement or placement in prerequisite courses is based on any of the following tests: AP, IB, or an examination administered by the Department of Mathematics during Orientation.

**Students will be able to:**
- Select quantitative tools appropriate for the solution of problems.
- Use quantitative tools appropriate for the solution of problems.
- Interpret quantitative data in an appropriate manner for solving problems.

**AREAS OF KNOWLEDGE**

These requirements are designed to help students understand and appreciate the intellectual achievements in major areas of human inquiry and creative endeavor. The courses offered in the areas of knowledge provide a broad array of intellectual and cultural...
exploration. In satisfying these requirements students will explore the natural world, examine human development and behavior, and appreciate creative expression in the arts, literature, and philosophy. Courses satisfying these requirements are identified in the Bulletin under the Requirements for Graduation sections for each school or college.

1. Natural World (formerly Natural Sciences) - 6 credits
2. People and Society (formerly Social Sciences) - 6 credits
3. Arts and Humanities - 12 credits

Schools and colleges that do not have a language requirement may allow their students to satisfy the humanities requirement by taking a modern language course numbered 101-212 or Latin or Greek, so long as the language selected differs from the student’s native language, and if, when beginning with a 101-level course, they also take the 102-level course in the same language.

No more than six credit hours may be taken in any one department to satisfy the areas of knowledge requirement. There are pre-requisites for most courses above the 100-level.

The following general educational requirements are designed for general reference only. Please check with your advisor or the advising office in your school or college for specific requirements.

**Natural World**

The University believes a comprehensive curriculum maximizes our students’ capacity to understand the natural world through experimentation, observation, and quantitative analysis. Our purpose is to nurture our students’ curiosity regarding the natural world through the critical analysis of data as well as the evaluation of research. Students can satisfy the course requirements by selecting courses in Biology, Chemistry, Ecosystems Science and Policy, Geological Sciences, Marine Science, Physics, and Physical Science, as well as Anthropology 203, Geography 120, and Freshman Seminars in the Natural Sciences (FNS 190-199).

**Students will be able to:**

- Demonstrate ability to use experiment and observation quantitatively in order to analyze the natural world, to draw conclusions about it, and to understand modern scientific theories.

**People and Society**

This area of knowledge aims to help students understand and critically evaluate the organization of society and the patterns of social change, both in the past and in the contemporary world. Courses in the following areas may be used to fulfill this requirement: Africana Studies (AAS); American Studies (AMS); Anthropology (except APY 203); Economics (ECO); Education and Psychological Studies (EPS); Geography and Regional Studies (except GEG 120); International Studies (INS); Judaic Studies (JUS); History (HIS); Political Sciences (POL); Psychology (PSY); Sociology (SOC); Teaching and Learning (TAL); Women’s and Gender Studies (WGS), and the following courses: Broadcasting and Broadcast Journalism (CBR 102); Mass Media Communication in Society (COM 101); Communication Theory (COM 110); Interpersonal Communication (COS 112); Nonverbal Communication (COS 118); Political Communication (COS 336); Persuasion (COS 472); Freshman Seminars in the Social Sciences (FSS 190-199).
Students will be able to:
- Critically evaluate the organization of society both in the past and in the contemporary world.
- Critically evaluate patterns of social change, both in the past and in the contemporary world.

Arts and Humanities

The arts and humanities engage students in the study of some of the most enduring and influential works of art, imagination, and culture. Courses in this area help students learn to understand the deep insights and culturally formative works of philosophers, poets, novelists, artists, musicians, theologians, and playwrights. These courses will provide instruction and guidance to cultivate students’ abilities to interpret and critically evaluate the creative products of human expression. Courses in the following areas may be used to fulfill this requirement: Architecture; Music; Art and Art History; Theatre Arts; Motion Pictures and Photography; English (200-level or above): Modern Languages and Literature (300-level or above): Philosophy; Religious Studies; and the following courses: Public Speaking (COS 211); World History of the Dance (DAN 250); Freshman Seminars in the Arts and Humanities (FFA, FLT, FPR 190-199)

Students will be able to:
- Apply appropriate vocabulary and concepts for the description and analysis of artistic, literary, historical and philosophical or religious works.
- Interpret the creative products of human expression.
- Critically evaluate the creative products of human expression.

Assessment of General Education Competencies

All University of Miami students will be required to participate in a formal assessment of the General Education competencies at two points during their academic career: upon entry to UM and prior to graduation. Results will be used by the administration and faculty to ensure the continuous improvement of the educational experience provided to our students.
GRADES

ACADEMIC WARNING REPORT

Academic Warning Reports are sent to students who are doing D or F work in any course before the last day to drop a course. Faculty also have the option of providing students with constructive feedback relating to their attendance and the quality of their work. Academic Warning Reports are due on the 30th class day.

ACADEMIC STANDING, PROBATION, AND DISMISSAL

At the end of each semester the University shall determine whether a student is in Good Academic Standing, on Academic Probation, or subject to Academic Dismissal. Some schools and colleges may have exceptions to the Good Academic Standing, Academic Warning, Academic Probation and Academic Dismissal policies listed below.

Good Academic Standing

To be in Good Academic Standing a student must not be on Academic Probation or subject to Academic Dismissal.

Academic Warning

A student whose semester grade-point average (SGPA) or cumulative grade-point average (CGPA) falls below 2.0 shall receive an Academic Warning. All students who receive an Academic Warning must meet with their academic advisor prior to the following semester. The advisor may require a reduced course load.

Freshmen who receive a mid-term grade of D or F in any course shall receive an Academic Warning and must meet with their academic advisor within two weeks of the distribution of mid-term Academic Warnings.

Academic Probation

Students other than first-semester freshmen whose UM cumulative grade-point average (CGPA) in University of Miami courses is below the following levels shall be placed on Academic Probation.

<table>
<thead>
<tr>
<th>Credits earned*</th>
<th>CGPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fewer than 33 credits</td>
<td>1.7</td>
</tr>
<tr>
<td>33-64 credits</td>
<td>1.8</td>
</tr>
<tr>
<td>65-96 credits</td>
<td>1.9</td>
</tr>
<tr>
<td>More than 96 credits</td>
<td>2.0</td>
</tr>
</tbody>
</table>

* Total credits earned including work taken elsewhere and accepted by the University of Miami.

First-semester freshmen who have a semester grade-point average below 1.3 shall be placed on Academic Probation. In addition, students who fail to make satisfactory progress toward meeting the degree requirements specified by their School or College may be put on Probation by the Academic Standards Committee of the School/College. Students on
Academic Probation must meet with their academic advisor prior to the following semester and shall be restricted to a 13-credit load.

**Academic Dismissal**

A student who remains on probationary status after two consecutive semesters on Academic Probation shall be subject to Academic Dismissal. A student who has been on Academic Probation for one semester and has a CGPA below 1.0 shall also be subject to Academic Dismissal. The decision to dismiss shall be made by the Academic Standards Committee of the School or College in which the student is enrolled. If a decision is made not to dismiss, the student shall be on Academic Probation.

**APPEALS AND READMISSION**

Students who wish to appeal their Academic probation or dismissal for academic reasons, must do so in writing to the School or College Academic Standards Committee within thirty days of the notice of dismissal. Those who have been dismissed for academic reasons shall not be considered for readmission to any school or college at the University until at least two regular semesters have elapsed since their dismissal.

**Student Academic Appeals Process**

Appeals must be filed within a year of the occurrence of the academic action resulting in the appeal and prior to the completion of all degree requirements or withdrawal from the University. Exceptions to this deadline may be permitted by the Committee for good cause shown.

I. A student complaint regarding a faculty or administrative academic action must be addressed to the following entities or persons in this order:

a. The faculty member or administrator responsible for the course, program, or activity.

b. The department/program chair/director or administrative superior of the faculty member or administrator.

c. The Dean or designee of the school or college offering the course, program, or activity.

   If the school, college or administrative unit has a committee constituted to hear student appeals, the student must avail him/herself to that process.

d. The University Ombudsperson. The Ombudsperson will review the merits of the appeal, and attempt to resolve the matter. The Ombudsperson, as part of his/her review should give the student a preliminary assessment as to whether the matter, as presented by the student at that time, is reviewable by the Committee. If the matter is the appeal of a final grade, and only after all the other steps are taken, the Ombudsperson may refer the matter to the Office of the Provost and forward the materials submitted by the student as indicated in Section II, below.

e. The Executive Vice-President and Provost may request the Committee to review an appeal. If, but only if, s/he does so, the Committee shall have jurisdiction to review a grade-related appeal. As part of the request, the Executive Vice-President and Provost
shall forward to the Committee, via the Faculty Senate office, the materials submitted by
the student as indicated in Section II, below.

II. When bringing a matter before the Committee, the student should include the following:

   a. The conditions as seen by the student, and offering reasons for granting the
      appeal. It should also indicate if the student wishes to make a personal appearance
      before the Committee and, if so, the reasons.

   b. Documents of support (e.g., examinations, term papers, syllabi, or medical
      documentation of illness) that the student wishes the Committee to examine.

   c. All written decisions of individual faculty/administrators,
      departments/programs/administrative units, college or school committees, and
      deans which are available to the student or in the student’s possession.

If the appeal is based on or related to a charge made by the student of discrimination on
the basis of race, color, national origin, religion, sex, sexual orientation, age, or
handicap, a representative of the appropriate University office will be contacted and, as
appropriate, consulted by the Committee in the appeal process.

III. If the appeal is based on or related to a disability:

   a. The ADA Coordinating Committee shall serve in an advisory capacity to the
      Committee.

   b. The student is to include in the materials provided, the appropriate forms from the
      Offices of Disability Services documenting:

      (1) an evaluation of the disability

      (2) recommendations related to the disability

   c. The Committee does not consider appeals based upon the grant or denial of an
      accommodation by the Office of Accessibility Resources. Instead, any such appeal is
      as prescribed by the Accessibility Resources Internal Appeals Procedure only.

      The student is to provide all the information and documentation noted above to the
      Ombudsperson.

IV. The Committee will consider appeals, absent unavoidable delays, at the first scheduled
meeting that occurs after a date three weeks following the date on which it receives the
appeal from the Ombudsperson. The student may obtain the schedule of the meeting dates
of the Committee from the Ombudsperson.

V. The Committee will review the student’s written appeal, confer with the appropriate
faculty, administrators, and others as it deems necessary in making its recommendation to
the Executive Vice President and Provost. In the process of making its recommendation,
the Committee may request:
a. The student to be interviewed, provide additional information or access to records, or appear before the Committee;

b. Relevant faculty or administrators to be interviewed, provide additional information or access to records, or appear before the Committee;

VI. The Committee will communicate its findings and recommendations to the Executive Vice President and Provost. The final decision with respect to the appeal will be made by the Executive Vice President and Provost and communicated to the student in writing. Copies shall be provided to the Faculty Senate office and to the Chair of the Committee.
## The Grading System

The following symbols are used:

<table>
<thead>
<tr>
<th>A</th>
<th>Excellent attainment</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Good attainment</td>
</tr>
<tr>
<td>C</td>
<td>Fair attainment</td>
</tr>
<tr>
<td>D</td>
<td>Poor attainment (earns credit but may not fulfill requirement for a major)</td>
</tr>
<tr>
<td>F</td>
<td>Failure (effective Fall 1995)</td>
</tr>
<tr>
<td>W</td>
<td>Course dropped on or before the last day for withdrawing from classes as published in the official calendar of the University. Credit can be earned only by successful repetition of the course.</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete work in passing status with the instructor’s permission to complete the course. An “I” will be assigned only if the instructor is satisfied that there are reasonable non-academic grounds for the student’s incomplete work. <strong>An “I” is not intended to be assigned in order to permit a student to repeat a course without registration or to permit a student to do additional work in order to improve upon grades earned during the semester.</strong> The student who receives an “I” must complete the course with a passing grade within the time frame specified by the professor of the course but not longer than the end of one calendar year, or prior to graduation, whichever occurs first. An Academic Dean may approve an extension initiated by the course instructor. An “I” not completed prior to the student’s graduation shall be changed to an “IE” or “IF” by action of the student’s Academic Dean.*</td>
</tr>
<tr>
<td>IP</td>
<td>Denotes in progress grade assigned upon satisfactory completion of the first-semester of a two-semester sequence, with the final grade for both courses to be submitted at the end of the second semester of the sequence. Please note that all “IP”s must be converted to a letter grade or “IF” at graduation. “IP” will also be converted to “IF” upon any departure from the University for a period in excess of one year.*****</td>
</tr>
<tr>
<td>IF</td>
<td>Symbol indicating that an “I” grade was not appropriately completed.**** The symbol “IF” is equivalent to an “F” when computing a student’s average.</td>
</tr>
<tr>
<td>CR</td>
<td>Grade signifying that credit only is awarded based on a “C” average or better.</td>
</tr>
<tr>
<td>NC</td>
<td>Grade signifying that no credit is awarded based on a course average below a grade of “C”.</td>
</tr>
<tr>
<td>NG</td>
<td>Symbol assigned by the Office of the Registrar indicating that the instructor has not reported the student’s grade. For a student to receive credit for the course, the instructor must report a passing grade prior to the student’s graduation, or by the end of one regular academic semester, whichever comes first. An Academic Dean may approve an extension initiated by the course instructor. An “NG” not replaced by a passing grade, or by a “W”, prior to the student’s graduation shall be changed to an “F” by action of the student’s Academic Dean.***</td>
</tr>
</tbody>
</table>

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*For a student to receive credit for the course, the instructor must report a passing grade prior to the student’s graduation, or by the end of one regular academic semester, whichever comes first. An Academic Dean may approve an extension initiated by the course instructor. An “NG” not replaced by a passing grade, or by a “W”, prior to the student’s graduation shall be changed to an “F” by action of the student’s Academic Dean.***

**An “I” is not intended to be assigned in order to permit a student to repeat a course without registration or to permit a student to do additional work in order to improve upon grades earned during the semester.**
GRADE POINT AVERAGE

The grade point average is used to determine:

- class rank
- graduation and honor eligibility
- good standing, probation, and dismissal status
- scholarship eligibility

Your official grade point average is based only on the work you have completed at the University of Miami. The only exception to this policy is for determining whether a student qualifies for honors or has met the minimum grade point requirement at the time of graduation. For graduation purposes, cumulative grade point average is defined as either the average of all grades earned at the University of Miami or the combined average of all graded work taken at the University of Miami and elsewhere whether or not the transfer work is accepted toward a degree at the University of Miami, whichever is lower.

Quality points per credit are awarded as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Quality Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.00</td>
</tr>
<tr>
<td>A</td>
<td>4.00</td>
</tr>
<tr>
<td>A-</td>
<td>3.70</td>
</tr>
<tr>
<td>B+</td>
<td>3.30</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
</tr>
<tr>
<td>B-</td>
<td>2.70</td>
</tr>
<tr>
<td>C+</td>
<td>2.30</td>
</tr>
<tr>
<td>C</td>
<td>2.00</td>
</tr>
<tr>
<td>C-</td>
<td>1.70</td>
</tr>
<tr>
<td>D+</td>
<td>1.30</td>
</tr>
<tr>
<td>D</td>
<td>1.00</td>
</tr>
<tr>
<td>E (Prior to Fall 1995)</td>
<td>0.00</td>
</tr>
<tr>
<td>IE**</td>
<td>0.00</td>
</tr>
<tr>
<td>F (Effective Fall 1995)</td>
<td>0.00</td>
</tr>
<tr>
<td>IF</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Courses marked with an “IE” or “IF” count as credit attempted but are not counted in credits earned and do not carry quality points.*** Credits marked CR are counted as credits earned but are not counted in credits attempted and do not carry quality points. Courses marked with the symbols I, IP, W, NC, and NG do not carry credits attempted, credits earned, or quality points.

The grade point average is determined by dividing the total quality points earned by the total credits attempted.

Military service credit, some foreign university credit, correspondence course credit, credit by examination, etc., are not awarded quality points and do not enter the computation of the grade point average.

* Faculty Senate legislation #2000-24(B)
** Faculty Senate legislation #83032(B)
*** Faculty Senate legislation #85001(B)
**** Faculty Senate legislation #85005(B) and #97001(B)
***** Faculty Senate legislation #2001-29(B)
HONOR CODE

The Honor Code, initiated at the request of the Undergraduate Student Body Government, ratified by student referendum, approved by the Faculty Senate, by the President of the University, and administered by students, protects the academic integrity of the University of Miami by encouraging consistent ethical behavior among its undergraduate students. The Code provides standards that prohibit all forms of scholastic dishonesty, including cheating, plagiarism, collusion, and falsification or misrepresentation of experimental data. The Code covers all written and oral examinations, term papers, creative works, assigned computer related work, and any other academic work done at the University by an undergraduate student.

All undergraduate students are responsible for reading, understanding, and upholding the Honor Code. Signed pledges are required for written work submitted for evaluation, but the absence of a signed pledge does not free a student from the ethical standards required by the Code. Procedures for dealing with infractions of the Code, including provisions for appeals, are printed in the text of the Honor Code. Copies may be obtained from the Office of the Dean of Students or from the office of the Undergraduate Student Body Government, or on-line at www.miami.edu/honor-council.

In keeping with the traditional prerogatives of university faculties, nothing in the Code infringes on the faculty’s assignment of grades undertaken in a class. Instructors are informed when students have been found guilty of infractions involving their classes. Courses in which students have been failed for academic dishonesty may neither be dropped nor repeated under the terms of the freshman repeat rule.

The Dean’s List

The Dean’s List is composed of those undergraduate students who are enrolled in a degree-seeking program and have attained high scholastic achievement for the semester. To attain the Dean’s List, a student must, for the semester:

1. have registered for and have completed 12 or more graded credits (excluding the credits earned in courses taken for credit only);
2. have attained a quality point average of 3.50 or higher for the semester;
3. have no courses with pending grades (I or NG).

The Dean’s List will be announced by each college and school at the end of the semester. The Office of the Registrar will post this achievement to the student’s permanent record.

The Provost’s Honor Roll

The Provost’s Honor Roll is composed of those undergraduate students who are enrolled in a degree-seeking program and have attained a high scholastic achievement for the semester. To attain the Provost’s Honor Roll, a student must, for the semester:

1. have registered for and have completed 12 or more graded credits (excluding the credits earned in courses taken for credit only);
2. have attained a quality point average of 3.75 or higher for the semester;
3. have no courses with pending grades (I or NG).
The Provost’s Honor Roll will be announced by the Provost’s Office. The Office of the Registrar will post the achievement to the student’s permanent record, and distribute the Provost’s Honor Roll Certificate.

**The President’s Honor Roll**

The President’s Honor Roll is composed of those undergraduate students who are enrolled in a degree-seeking program and have attained the highest possible scholastic achievement for the semester. To attain the President’s Honor Roll a student must, for the semester:

1. have registered for and completed 12 or more graded credits (excluding credits earned in courses taken for credit only);
2. have attained a quality point average of 4.0 for the semester;
3. have no courses with pending grades (I or NG).

The President’s Honor Roll will be announced by the Office of the Registrar who will post the achievement to the student’s permanent record, and distribute the President’s Honor Roll Certificate.
GRADUATION

DIPLOMAS AND TRANSCRIPTS

No diplomas or official transcripts are released from the Office of the Registrar without the approval of the Office of Student Account Services.

Official transcripts are issued only upon receipt of a secure electronic request through a student’s myUM account or a written request from the student and upon payment of the appropriate transcript fee.

Unofficial transcripts are available free of charge on myUM or for a fee if ordered in the Office of the Registrar, 121 UC. Those ordered in the Office of the Registrar will be available for pick-up within one week after the request is submitted.

GRADUATION AND DEGREES

It is the responsibility of the student to be sure he/she makes satisfactory progress toward, and fulfills requirements for, the degree he/she seeks. He/she may obtain help in the office of his/her Academic Dean.

To receive a Bachelor’s degree from the University, the student must earn at least 120 semester hours of credit (more in some schools), with a C average (2.0) or better as well as a C average for all work done at the University of Miami.

Students must also meet all of the degree requirements of their respective schools and should not expect requirements in composition, mathematics, foreign languages, or other subject areas to be waived for any reason.

- Each student must complete the final 45 credits that are applied to his or her baccalaureate degree in residence at the University of Miami.
- In addition, each student must complete at least half of the credits specified for his or her major in residence at the University of Miami.
- Not more than 30 hours of correspondence work and extension work combined will be accepted toward a degree, and neither correspondence nor extension work may be credited as a part of the last 45 hours of the student’s program.
- Not more than 30 hours of credit based on military experience will be awarded toward the degree.
- Credits earned in a manner other than by course registration, i.e. proficiency examination, CLEP, placement tests, etc., may not be used to meet the final 45 credit hour residency requirement, however such credit by examination may be earned while the student is enrolled in the courses needed to meet the final 45 credit-hour residency requirement.
- To obtain two different undergraduate degrees, a student must complete all the requirements for each degree.
- A second undergraduate degree on the same level requires a different major and a different minor.
- If the degrees are in two different schools, a student must meet the requirements with distinctly different majors and minors, wherever applicable, in each school.

As a general rule, college credits more than 12 years old are not recognized for degree purposes. Students in this category should consult their academic deans.
A student must apply on myUM during the semester in which they expect to graduate.

A diploma must be issued in the name on the student’s academic record. Addition or omission of a middle name is acceptable. The addition of a middle name will be acceptable only as it appears on the student’s application for admission. If the middle name is not on the application or if the student wants another version, documented proof such as a birth certificate or legal name change must be presented to the Office of the Registrar located in the University Center, Room 121.

The last date on which application may be made for each graduation period is published in the Academic Calendar. The academic deans are the only officers authorized to approve placing the student’s name on the candidate degree list.

GRADUATION HONORS

University Honors (summa cum laude, magna cum laude and cum laude) will be determined by a minimum GPA unique to the school or college from which the student is graduating.

The GPA required will change each academic year and will be based on the cumulative GPA of the previous year's graduating class.

Visit the Honors Program and Office of Academic Enhancement website at www.miami.edu/honorsprogram for specific GPA requirements each academic year to determine eligibility for graduation with University Honors.

The top 5% of the graduating class will receive summa cum laude within each individual school or college; the next 10% will receive magna cum laude, and the next 10% cum laude.

Eligibility for University honors for each student is determined by the lower of two GPAs:

1. UM cumulative graduation GPA
2. Combination GPA (UM cumulative graduation GPA + Transfer GPA)

A student must meet the required GPA by the completion of the final semester within his/her school or college to be eligible to graduate with the honor.
STUDENT STATUS

ACADEMIC BANKRUPTCY

Students entering college sometimes perform at an unacceptable academic level. They either drop out or are dismissed. Some individuals with this experience re-evaluate their educational goals and desire to return to college. Their academic record, however, may present an insurmountable obstacle. In order to be considered for academic bankruptcy, a student’s combined college grade point average must be below 2.00 as calculated by the Office of Admission.

Undergraduate students in this category who want the opportunity for a fresh start at the University without this handicap may apply for admission or readmission with the request that their prior academic record be disregarded.

Application for Initial Admission to the University with Academic Bankruptcy

The applicant must apply to the Office of Admission and:

1. must have been admissible to the University as a senior in high school,
2. must have attended an accredited institution for at least one year and must not have attended any college or university for the preceding six months, and,
3. must not be admissible to the University based on his or her college-level work.

Application for Readmission to the University with Academic Bankruptcy

A University of Miami student who has dropped out or who has been dismissed may request Academic Bankruptcy on meeting these conditions:

1. The student must apply to the Office of the Registrar.
2. At least six months must have elapsed since the end of the semester in which the student was last in attendance at the University of Miami.
3. Detailed written evidence must be presented to the school in which reacceptance is sought, showing that the conditions or factors that caused the poor performance have changed sufficiently, so that there is a reasonable expectation of future satisfactory performance.

Conditions of Approval

1. If Academic Bankruptcy is approved, no course credits earned previously will be displayed on the transcript for credits attempted, credits earned, or quality points earned; however, all grades earned previously will remain on the transcript.
2. Readmission applicants with approval from the dean of the accepting school, may have Academic Bankruptcy apply only to those credits taken by the student when last in attendance at the University of Miami, so that credits earned at another institution subsequent to the date the student last attended the University are not affected.

Academic Bankruptcy can be granted only once for any student.
CERTIFICATION OF ENROLLMENT

Students who require certification of enrollment for insurance or financial lender purposes may obtain an enrollment letter via their myUM account or by submitting a request in writing to the Office of the Registrar. Students will be certified as currently enrolled once they have met their financial obligations. Students who require enrollment certification for scholarship purposes only, will be certified as course selected, until financial obligations are met.

CLASSIFICATION OF STUDENTS

Students are classified in three ways:

a. by course load (full- or part-time);

b. by objective (degree sought, non-degree, transient, audit, etc.);

c. by year.

By Course Load

A student is a full-time student if he/she carries not less than the minimum normal load, 12 semester hours per semester in most schools, nine semester hours in the Graduate School (please refer to the Graduate section for exceptions). The minimum semester hour credit loads in a summer session will vary for each category, according to the length of the sessions. (A typical full-time class schedule for fall and spring semesters not requiring override approval from an advisor consists of 15 semester hours. In some cases, students are recommended to enroll in fewer than 15 credits.) Please refer to the university’s full-time/half-time policy located at www.miami.edu/registrar. For spring semester, Intersession courses can be included when evaluating full-time status. It is important to note that tuition charges for Intersession courses typically are separate from and in addition to charges for the spring semester. Full-time status may vary from one college or school to another. Students should consult with the dean of his/her college or school for details.

By Objective

A degree student is one whose immediate educational objective consists wholly or principally of work normally credited to a University of Miami bachelor’s or higher degree. To qualify for this status, a student must meet the standards for admission.

A non-degree student is one who is not pursuing a degree program. Such students are those who, although eligible for degree candidacy, have requested permission to take a limited or special selection of credit courses without regard to requirements for a degree. This classification includes high school graduates and students with previous college credit

a. who do not want degree status;

b. whose applications for degree status are incomplete;

c. who are taking work toward teacher certification;

d. who are workshop applicants;

e. who are visiting summer school students.

(Students under 21 years of age who have not completed high school will not be admitted to this status.) Non-degree students are sub-classified as transient, special, etc.
An undergraduate non-degree student may petition the Director of Admissions to have his/her status changed to that of degree student. Up to 30 credits earned in non-degree status may be applied towards a degree, but only to the extent approved by the appropriate academic dean. It is therefore important that the degree student identify himself/herself as such, early in his/her program.

**Senior-Graduate**

University of Miami undergraduates within 30 credits of meeting the requirements for the Baccalaureate Degree may be considered for concurrent admission to graduate study in non-degree senior-graduate status, and in this status may take and receive credit for graduate courses while completing the requirement for the baccalaureate.

Admission to Senior-Graduate Status requires:

1. an academic record strong enough to justify regular admission to the department concerned on the basis of the academic record alone (at least 3.0 GPA);
2. the written approval of the Chairman of the Department, the Dean of the Undergraduate School or College, Financial Aid and of the Graduate Dean prior to registration;
3. the submission of a special form (which can be obtained at the Graduate School) that will not require the thirty-five dollar ($35.00) application fee.

The graduate credits earned may NOT be used to meet undergraduate graduation requirements or be used to meet the 120 credit hour requirements at the University of Miami. (Refer to the Graduate section for more information.)

No more than six (6) hours graduate credit may be taken in one semester, and no more than a total of twelve (12) hours credit may be taken in an academic year while in Senior-Graduate Status. Students may take no more than 15 credits of combined graduate and undergraduate courses per semester. Financial aid may be affected.

Admission to Senior-Graduate status does not automatically admit the student, upon graduation, to status as an applicant for a graduate degree at the University of Miami.

NOTE: Senior Graduate registration can only be executed at the Office of the Registrar, 121 University Center.

A graduate student is one who has been admitted to the Graduate School.

**Transient Student**

A transient student is one who is enrolled at the University of Miami with the sole intention of using credits earned toward graduation elsewhere.

**Audit Student**

An audit student is one who enrolls as an observer or listener only. Auditing is allowed only when there is space available in the class. Audit status may be restricted by the Dean in the case of laboratory, studio or performance courses where audit status is not appropriate. Audit students receive no credit, do not prepare written assignments or take examinations, are not eligible for residence in campus residence halls, and do not receive student
privileges except for the use of the library. No entries are made on the permanent academic record for audited courses.

Students wishing to change from audit status to credit status must obtain all necessary approvals within two weeks following the last day of registration for Fall and Spring semesters and no later than the fifth class day following the last day of registration for Summer Sessions. No changes except withdrawals from the course are permitted after this time.

Note: Fee for auditing a course is non-refundable. Please refer to financial information section of the bulletin.

By Year

A freshman is a degree student who has earned 0 to 29 credits.
A sophomore is a degree student who has earned 30 to 59 credits.
A junior is a degree student who has earned 60 to 89 credits.
A senior is a degree student who has earned 90 credits or more.

ELIGIBILITY FOR UNIVERSITY EXTRACURRICULAR ACTIVITIES

Full participation in University-sanctioned extracurricular activities and organizations is open to all full-time students who are not on academic probation and who have been assessed the Student Activity Fee. Extracurricular activities include, but are not limited to the following: academic, athletic, dramatic, or musical organizations or teams; student organizations registered with the Committee on Student Organizations (COSO); fraternities and sororities; student publications; program boards; and University committees.

Students on probation may participate in any activity required as partial fulfillment of their degree program; may attend meetings of organizations; and may play intramural sports. They may not otherwise compete, perform, or hold a leadership position. At the beginning of each fall semester, the activity’s faculty or staff advisor or appropriate committee chairperson shall determine with the Office of the Provost the eligibility of each participating student. Some activities apply stricter standards, and may monitor academic progress and review eligibility during the academic year. Students should consult with the individual activity for specific requirements.

READMISSION

Undergraduate students who have not attended the University for at least one semester should request readmission through the Office of the Registrar no later than two weeks before the beginning of classes, in the semester they wish to re-enroll. Readmission to the University is contingent upon approval of the Dean of the school/college the student is applying to and clearance from the Office of Student Account Services.

International students who seek readmission must receive clearance from International Admission and submit a bank letter to receive an I-20 from International Student and Scholar Services.

Students who have attended another college or university since they were last enrolled at the University of Miami, will be required to provide a transcript of their work. Failure to disclose all prior institutions attended may result in disciplinary action.
A student who is placed on the bachelor’s degree candidate list for a given semester will not receive registration materials for any subsequent semester until the student applies for readmission or admission to a new program. A candidate may wish to continue his/her studies in one of the following situations:

1. If the student fails to graduate and further registration is needed, they must delete their application for graduation in myUM and within twenty-four hours, registration for subsequent semesters or sessions should be available. Students should contact the Office of the Registrar if they experience problems.
2. If the student graduates and wishes to pursue a second bachelor’s degree, the student must apply for readmission, stating his/her new degree objective.
3. If the student graduates and wishes to take additional course work without a degree objective, the student must apply for unclassified status.

Proof of immunization must be provided to the Student Health Service before readmission to the University of Miami. Failure to do so may prevent you from registering for classes.

INACTIVE STATUS

Inactive status is for undergraduate, degree-seeking students who intend, and qualify, to re-enroll at the University of Miami after leaving the university for a designated period of time. Students interested in this option may obtain further information at www.miami.edu/registrar or by visiting the Office of the Registrar.

NON-UM PROGRAMS

Students who study through a non-UM program, domestic or study abroad, and would like to have those credits applied toward their UM degree, should apply for Non-UM Program status. Students may obtain the appropriate form and information through their Academic Dean and/or advisor.

STUDENT IDENTIFICATION NUMBERS

All students at the University of Miami will receive an identification number that is unique to them. This number supplements the social security number, which is also required by the university in order to provide information to the federal government and approved agencies. Access to social security numbers is limited to staff who have a legitimate need for that information.

TRANSFERS BETWEEN SCHOOLS AND COLLEGES

Undergraduate students who have compiled fewer than sixty (60) credits may transfer between schools and colleges provided that such students:

1. demonstrate their academic admissibility to the new program (as defined by class rank and SAT scores) at the time of their original matriculation at the University;
2. satisfy any special criteria required for admission by a particular program (e.g., auditions in the arts, portfolios in architecture, etc.); and
3. obtain the approval of the Dean of the receiving school or college.

It is a general policy of the University that students admitted to degree seeking status may not transfer to an unclassified status.
Students who have compiled 60 or more credits with an average of 2.0 or higher and who have satisfied all of the above three conditions may be eligible to transfer between schools and colleges pending space availability and additional program requirements.
ADMISSION

The University of Miami is a member of the National Association for College Admission Counseling and subscribes to its Statement of Principles of Good Practice.

ADMISSION TO THE FRESHMAN CLASS

The Admission Committee reviews applications and bases admission decisions on the following factors:

- **The Secondary School Record.** The applicant must be in the process of completing graduation requirements at an accredited secondary school or must be a graduate of an accredited secondary school. The applicant must have successfully completed a solid college preparatory program including English, Mathematics, natural sciences, social sciences and foreign language.

- **Standardized Tests.** Official results of the SAT or ACT must be submitted by all applicants. The results of these tests, together with the secondary school record, provide a better measure of the ability of a candidate to perform college level work successfully than can be obtained by either measure alone.

- **The Counselors Evaluation Form.** This form is to be completed by the applicant’s secondary school counselor and includes rank in class, test score information, and an evaluation of potential for academic success in the student’s area of interest.

- **The Essay.** Since each applicant is considered individually, the Essay provides the opportunity to present information that may assist the Admission Committee as it evaluates the application for admission.

See admission procedures for freshmen

Admission of transfer students

Transfer admission may be granted in most fields of study to students who have earned credit from other regionally accredited colleges or universities. Courses completed with **passing grades of C or higher** at other colleges and universities and acceptable for academic credit by the University of Miami, will be verified, and where appropriate, will be translated into University of Miami equivalents by the Office of Admission. However, the Dean of the College or School within the University from which the student plans to graduate determines which transferred courses may be counted toward meeting graduation requirements of that College or School.

**Transfer of credits to UM**

Work taken at other institutions will appear on the University of Miami transcript in separate entries as:

a. The total number of transferable credits attempted and quality points earned, regardless of grades, and

b. The total credits transferred, which shall be the total credits for which a grade of C or higher was earned.
Note: Only the transfer totals earned are added to the University of Miami totals. Total credits attempted and quality points earned elsewhere are not included in the University of Miami totals.

The University does not accept transfer credit for courses in which a grade of C- and below (or the equivalent grade) was earned. However, grades of C-, D, and F are used to calculate the transfer admission grade point average.

Credits are not transferred from institutions not accredited by the appropriate regional accrediting association. Limited exceptions may be made with the approval of the Dean in the College or School of the student’s major. Credits transferred from institutions not in existence long enough to attain regional accreditation must be validated by the attainment of a C average or better in the first 12 credits of course work taken at the University of Miami.

The University does not have a coursework forgiveness policy. The grades of any repeated courses will be averaged.

A student may not repeat a course in which a grade of C or higher has been earned. This is considered an illegal repeat.

Upper division course requirements (300 level or above) at the University may not be satisfied with community college courses.

**Required credits in residence at the University of Miami**

A student transferring credits from a 2-year community or junior college (this being the last school attended) must complete a minimum of **56 credits in residence** at the University of Miami to earn an undergraduate degree.

A student transferring credits from a 4-year college or university (this being the last school attended) must complete a minimum of **45 credits in residence** at the University of Miami to earn an undergraduate degree.

At least **half of the credits** required for the chosen Major or Minor must be completed at the University of Miami.

See [Admission procedures for transfer students](#)
ADMISSION OF UNDERGRADUATE INTERNATIONAL STUDENTS

ELIGIBILITY FOR ADMISSION

ADMISSION PROCEDURES FOR INTERNATIONAL STUDENTS

EDUCATIONAL DOCUMENTS

Diplomas, Certificates
Copies should be enclosed with the application. Students from countries following the British educational system must submit certified photocopies, or ask the examinations council to mail confidential results to the University of Miami. Reports of scores in school-leaving examinations (e.g., Baccalaureate) must also be submitted.

Transcripts, Statements of Marks
A transcript must contain the following information: subjects studied; marks (grades) awarded; length of class periods; number of periods per week for each subject; and grading scale with minimum passing mark. Year-by-year records of marks should be sent to the University of Miami directly from U.S. institutions. Certified records from foreign institutions may be submitted by applicants, but the University may sometimes insist that such transcripts be sent directly to the University of Miami from the issuing institutions. All secondary and tertiary transcripts must be submitted.

English Translations
Documents in a language other than English must be accompanied by certified English translations. Notarized translations will not be accepted. Translations supplement but do not replace original documents. Please remember to send both.

Syllabus of university study (description of each course or subject studied accompanied by certified English translations. Notarized translations will not be accepted).

A current (within the past six months) bank or government sponsorship letter guaranteeing payment for tuition and fees, books, room and board, medical insurance and personal expenses for one calendar year (two semesters and two summer sessions) is required.

EXAMINATIONS FOR INTERNATIONAL STUDENTS

All international students whose native language is not English, including those applying for transfer from U.S. institutions, are required to submit the results of the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS). The TOEFL code for the University of Miami is 5815.

The SAT score report is not required and should not be submitted for admission consideration from applicants who are attending schools outside the United States. Applicants should only submit an SAT score report if they qualify for merit scholarship consideration. The minimum combined score required for scholarship consideration is 1300 (critical reading and math sections only).
Score Requirements

<table>
<thead>
<tr>
<th>TOEFL</th>
<th>Minimum Passing Score</th>
<th>Concurrent Enrollment (IEP and Academic)</th>
<th>Full-time IEP</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBT</td>
<td>550</td>
<td>500-549</td>
<td>Below 500</td>
</tr>
<tr>
<td>CBT</td>
<td>213</td>
<td>173-213</td>
<td>Below 173</td>
</tr>
<tr>
<td>iBT</td>
<td>80</td>
<td>61-78</td>
<td>Below 60</td>
</tr>
</tbody>
</table>

Conditional admission: Academically qualified applicants who are unable to take the TOEFL, or who have scored less than the required minimum, may be offered admission to undergraduate programs with the condition that they successfully complete level five of the University of Miami Intensive English Program or obtain a 550 TOEFL and higher. University of Miami TOEFL code number is 5815.

Institutional TOEFL scores are designed for academic placement use at the University of Miami. Those needing TOEFL for admission to the University of Miami or for use elsewhere should take the TOEFL iBT instead. Visit www.ets.org/toefl/ for more information about the TOEFL iBT.

<table>
<thead>
<tr>
<th>IELTS</th>
<th>Minimum Passing Score</th>
<th>Concurrent Enrollment (IEP and Academic)</th>
<th>Full-time IEP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6.5</td>
<td>6.0 to 6.4</td>
<td>Below 6.0</td>
</tr>
</tbody>
</table>

IELTS is the International English Language Testing System. It measures ability to communicate in English across all four language skills – listening, reading, writing and speaking – for people who intend to study or work where English is the language of communication.

IELTS Course ID (codes): Undergraduate Admission – 4861; Graduate Admission – 4862. For more information, visit http://bandscore.ielts.org/course_info.aspx?OrgId=3187.

PROGRAMS OF STUDY

International students are eligible to apply for all programs offered at the University of Miami. It should be noted that medicine and law are studied at the graduate level in the United States, and it is therefore inappropriate for undergraduate international applicants to request these programs.

FINANCIAL INFORMATION

The University of Miami has no financial assistance for international students other than academic scholarships. International students must provide funds for all of their expenses during the entire period of study, including travel and vacations. Students who would not be able to cover their expenses are best advised not to apply for admission.
EARLY ADMISSION

A limited number of carefully selected students who are currently enrolled in high school and who have completed three years of study may be admitted to the University as freshmen. Early admission applicants typically have a very strong academic background and demonstrate a mature character.

Students who wish to apply under Early Admission must have the support of his/her parents, guidance counselor, and high school. Early applicants must also schedule an interview with the Director of Admission.

Early Admission applicants must submit official high school transcripts, SAT or ACT examination results, Counselor Evaluation Form and Essay as part of the admission process.

Early Admission applicants will be notified of an admission decision by June 1 or after receipt of grades from the final high school year completed.

Since every applicant must be appraised individually, no general qualifications can be listed. Students interested in early admission may send inquiries and requests for applications to the Office of Admission.

ADVANCED PLACEMENT AND/OR CREDIT GRANTED TOWARD GRADUATION

The University allows students to receive college credit toward graduation from the following programs: Advanced Placement, International Baccalaureate, and College Level Examination Program. To have Advanced Placement, International Baccalaureate, or College Level Examination Program credits evaluated, the student must submit an official test result report to the Office of Admission. The University of Miami does not give credit for CLEP Foreign Language and General Examinations.

The University will accept not more than 60 credits from these programs to count toward the 120 credits required for graduation.

SUBMITTING GED SCORES

An applicant may apply to the University upon completion of the GED in lieu of completing high school. When applying with the GED, the applicant must submit official high school transcripts up to the time of withdrawal, as well as the official GED score report and diploma.

Applicants submitting the GED must achieve the following scores to be considered for admission. These scores should be considered a guideline and do not guarantee admission to the applicant.

For exams taken in English:
Overall score of 2800
No subscore below 500

For exams taken in any language other than English:
Overall score of 3000
No subscore below 600

It is strongly suggested that applicants submitting the GED in any language other than English also submit a TOEFL score.

**NON-DEGREE ENROLLMENT**

**ADULT STUDENT ACCESS PROGRAM (A.S.A.P.)**

Students may take up to 30 credits in an undergraduate, non-degree seeking category, which may be applied to a degree program, after all application and degree-seeking requirements are met. In order to be enrolled in this category, students submit a one-page application and no other documents or transcripts; academic achievement is evaluated after 12 credits are earned. A 2.5 G.P.A. is required to continue in the program beyond 12 credits.

Students may take up to 6 credits maximum in a graduate, non-degree seeking category which may be applied to certain degree programs, after all application and degree seeking requirements are met. However, not all graduate departments participate in this program. In order to enroll in this category, students submit a one-page application and no other documents or transcripts, after securing the written permission of the participating graduate department and the Dean of the Graduate School. The application for enrollment may be found on the Web at [www.miami.edu/asap](http://www.miami.edu/asap).

For more information, contact: The Adult Student Access Program, Division of Continuing Studies, University of Miami, P.O. Box 248005, Coral Gables, FL 33124-1610, (305) 284-2727.
FINANCIAL ASSISTANCE

The Office of Financial Assistance Services administers federal, state, private and University financial assistance programs. Student employment, including the Miami Commitment Program, is managed by the Office of Student Employment.

FINANCIAL ASSISTANCE SERVICES

It is the purpose of the Office of Financial Assistance Services to provide needy and/or academically qualified students with financial aid in the form of scholarships, grants, loans and work programs to the extent that resources are available. In order to make the best use of limited funds, awards often consist of a combination of resources.

In addition, professional staff members are ready to help all students plan for the most efficient use of their financial resources for education.

Underlying the awarding of need-based financial assistance is the philosophy that the student and family have the primary responsibility for educational costs. Need-based financial assistance serves to supplement these primary resources.

- Students who require financial assistance in order to attend the University should apply for assistance while they are candidates for admission.
- Candidates should indicate their interest in financial assistance application information by checking the box provided for that purpose in the Application for Admission.
- The U.S. Department of Education’s Free Application for Federal Student Aid (FAFSA) on the Web is used to determine eligibility for assistance based on need. The FAFSA must be completed for each academic year.
- Entering freshmen should submit their FAFSA so that it is received by the federal processor by the February 1 preference date.
- Entering transfer and all graduate students should submit their regular or renewal FAFSA so that it is received by the federal processor by the March 1 preference date.
- Continuing undergraduate students should submit their regular or renewal FAFSA so that it is received by the federal processor by the February 1 preference date.
- Our office recommends the use of estimated financial information when completing the FAFSA on the Web in order to assure the February 1 preference date is met. Any estimated information must be updated by the applicant using FAFSA on the Web once final figures are available.

Financial aid applications are accepted throughout the year but it is important to note that the appropriate preference date for receipt of aid applications must be met. A new FAFSA on the Web must be submitted for EACH academic year.
STANDARDS OF ACADEMIC PROGRESS (Undergraduate and Graduate)

Yearly and Semester Review

- At the end of each spring semester, the Office of Financial Assistance Services reviews the academic progress of all University of Miami financial aid recipients.

- The academic records from both the fall and spring semesters are considered. If at that time it is determined that a student is not meeting the standards of academic progress for renewal of regular financial assistance and academic scholarships, a written notification is sent to the student. The notification includes information on the appeal process.

- Students granted a one-semester conditional appeal for scholarship and/or regular financial assistance by the Standards of Academic Progress Appeal Committee will be reviewed at the end of that semester.

Regular Financial Assistance

- In compliance with federal financial aid regulations, the University of Miami requires satisfactory progress towards a degree as an eligibility requirement for financial assistance.

- This policy is applicable to all undergraduate, graduate and doctoral students receiving financial aid through university, state, and federal aid sources, including the Federal Parent Loan for Undergraduate Students (PLUS).

Credit Requirements

- All full-time undergraduate students are required to register for and complete at least 24 (a minimum of 12 each semester) new credit hours at the University of Miami each academic year, defined as the fall and spring semesters.

- Full-time undergraduate students who enroll for only one semester are required to register for and complete at least 12 new credit hours during that semester.

- Graduate students must be enrolled at least half-time in order to receive federal financial assistance. A minimum of 5 graduate hours constitutes at least half time enrollment at the graduate level. The only exception to this credit requirement is enrollment in any of the 700 level research courses. Students enrolled in any of these courses are considered full-time and are eligible for federal loans.

- A student must have earned at least 75% of the total hours attempted during his/her overall academic career. Undergraduate and graduate level credits cannot be combined to meet the 75% standard; however, hours transferred into the University of Miami are used in the calculation. The percentage of earned hours is calculated by dividing earned hours by all attempted hours. Rounding does not apply. (e.g.: Student completes 18 of 24 attempted hours. Percentage complete is 18/24=75%)

- Withdrawals, incompletes, audits, and Fs are not considered earned hours.
Hours transferred in to the University of Miami will be counted as hours attempted and hours earned.

Reinstatement of aid eligibility can be obtained by earning additional University approved credits, achieving the 75% completion standard, or appealing as outlined later in this section. The University reviews progress once a year at the end of the spring semester. A student who completes courses that meet the requirements prior to the spring semester review may request, in writing, a review of their progress in advance of the end of year review. Aid eligibility will be restored upon determination that the progress requirements have been met.

Freshmen (0-29 credits) new to the University will be allowed a one academic year adjustment period.

A freshman that does not earn 75% of the hours attempted at the end of the initial academic year is considered to be on probation. Aid will not be withdrawn for the subsequent term, but at the end of that term, the student’s academic record will be reviewed by OFAS and appropriate renewal or termination actions will be taken.

Cumulative Grade Point Average Requirement

Undergraduate Students
All undergraduate students must meet and maintain the University of Miami credit and cumulative grade point average (CGPA) requirements to maintain satisfactory academic progress. The criteria listed below must be met to receive federal and institutional financial assistance administered by the Office of Financial Assistance Services.

<table>
<thead>
<tr>
<th>Semester Hours Earned</th>
<th>Minimum Cumulative G.P.A.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 32</td>
<td>1.7</td>
</tr>
<tr>
<td>33 to 64</td>
<td>1.8</td>
</tr>
<tr>
<td>65 to 96</td>
<td>1.9</td>
</tr>
<tr>
<td>97 +</td>
<td>2.0</td>
</tr>
</tbody>
</table>

This does not include University of Miami scholarships and State of Florida financial aid. State of Florida financial aid and University of Miami academic scholarships have their own CGPA requirements.

Graduate and Doctoral Students
All University of Miami graduate and doctoral students must maintain a minimum 3.0 cumulative grade point average (CGPA). Graduate students who fail to meet the minimum credit or cumulative grade point average requirements have failed to meet the satisfactory academic progress standards established by the University. Those in violation of the satisfactory progress eligibility requirements will be notified in writing of their eligibility status and right of appeal.

Maximum Period of Eligibility

Degree-seeking undergraduate and graduate students receiving federal aid must complete their degrees within 150% of the normal time for completion as determined by the school or college catalog under which the student was admitted. For example, if an academic program requires 120 credit hours, the student must complete the
program within 180 total credit hours. Credits used in this calculation include those accepted for transfer and those attempted at the University of Miami.

- Students receiving University scholarships and need-based grants are limited to four years of eligibility (five years for five-year degrees).

- William L. Boyd, IV, Florida Resident Access Grant (BFRAG) and Florida Student Access Grant (FSAG) recipients are limited to nine semesters of eligibility.

- Graduate students entering the dissertation or thesis stage of their degree program may receive federally funded assistance for only two years. Please note that these two years are included in the maximum periods previously listed.

- Graduate students who plan to enroll in a graduate degree program should keep in mind their aggregate loan limits. For more information, go to the National Student Loan Data System (NSLDS) at www.nslds.ed.gov. This site displays information on loan amounts, outstanding balances, loan statuses and disbursements.

**University Financial Assistance for Graduate Students**

In order to receive a graduate assistantship, fellowship or tuition scholarship, a graduate student must:

- Be admitted unconditionally to a post-baccalaureate degree program;
- Be enrolled for full-time study; and
- Maintain a cumulative graduate grade point average of 3.0 or above.

For additional information, please visit the Graduate School Website at www.miami.edu/grad. For specific information, contact the Graduate Advisor of each program. For information regarding loan and work-study opportunities, visit the Office of Financial Assistance website at www.miami.edu/ofas.

**SCHOLARSHIPS (Undergraduate only)**

- Students who are receiving any of the University of Miami academic scholarships must meet the same credit requirements as students receiving regular financial assistance.

- Reinstatement of academic scholarship eligibility can be obtained by earning additional University approved credits. The University reviews progress once a year at the end of the spring semester. A student who completes courses that meet the requirements prior to the spring semester review may request, in writing, a review of their progress in advance of the end of year review. Aid eligibility will be restored upon determination that the progress requirements have been met.

- Scholarship recipients, however, must maintain a CGPA of at least 3.0 for all credits earned at the University of Miami to retain their scholarship.
First-time freshmen are eligible for University of Miami academic scholarships for up to eight semesters; transfer students are eligible for up to four semesters. These scholarships are good for the fall and spring semesters only. Any requests to have an academic scholarship applied to summer or mini-mester terms need to be made in writing and submitted to our office.

Golden Drum/Ronald Hammond scholarship recipients should refer to their contract for renewal criteria provided by the Office of Multicultural Student Affairs.

Guaranteed Scholarship

First-time freshmen awarded a University of Miami academic scholarship, automatically retain their scholarship after their first year of school. The student must maintain a minimum 3.0 CGPA and complete at least 24 University of Miami credit hours during their second academic year to guarantee their scholarship for the remaining two years of undergraduate studies.

First-year transfer students awarded a University of Miami academic scholarship are guaranteed their scholarship if they:

- have completed 24 credit hours during their first academic year,
- have maintained a minimum 3.0 CGPA, and
- have registered as a full-time student for their second year of eligibility.

Transfer students meeting these requirements will be guaranteed their scholarship for four semesters or until they graduate, whichever comes first.

Any University of Miami academic scholarship will be guaranteed for the remainder of an undergraduate student’s eligibility if they are not on probation at the end of their 4th semester (2nd semester for transfer students).

Automatic Probation and Probationary Scholarship Assistance

Freshmen that fail to meet the scholarship academic progress standards at the end of the first academic year will receive a warning and are granted an additional year of eligibility under “Freshman Forgiveness.” Sophomores that fail to meet the scholarship academic progress standards at the end of the academic year are placed on probation, and may receive the scholarship for an additional semester as a probationary award. The student’s progress is reviewed at the completion of the semester. A student that fails to meet the scholarship academic progress standards at the end of the semester loses eligibility for the award the second semester, receives notification of the loss of eligibility, and is provided information on the appeal process.

A new transfer student receiving a University of Miami academic scholarship that does not meet the scholarship academic progress requirements at the end of the 2nd semester may receive a one-year probationary award. A student that fails to meet the scholarship academic progress standards at the end of the 4th semester loses eligibility for the award, receives notification of the loss of eligibility, and is provided information on the appeal process.
A student may receive probationary scholarship assistance only once. Any student who has received a scholarship under probation must meet the standard of academic progress requirements for that scholarship assistance by the end of the probationary period in order to maintain his/her eligibility for that scholarship in the future.

STATE OF FLORIDA AID

The Florida Department of Education, Office of Student Financial Assistance, has its own standards of progress for state financial assistance.

- All Bright Futures Scholarship recipients (includes Florida Academic, Florida Medallion, and Florida Gold Seal scholarships) recipients are eligible for up to 132 credit hours; however, eligible students may only receive up to 45 hours of credit per academic year.

A student that does not meet the minimum 12 credit hour (6 per semester) requirement at the end of the academic year will no longer be eligible for his/her Bright Futures award.

A student that fails to meet the minimum cumulative grade point average (3.0 for Florida Academic, 2.75 for Florida Medallion and Gold Seal) will no longer be eligible for his/her Bright Futures award. Florida Academic recipients that fail to achieve a 3.0 cumulative average, but achieve at least a 2.75 cumulative average will renew at the lower Florida Medallion amount. Recipients that fail to meet the progress requirements receive notice including information on the appeal process.

  - Award Reinstatement: an eligible student that did not receive scholarship funds for the last academic year (fall through spring), may request reinstatement of the award. The student must complete a Reinstatement/Restoration application available on the Florida Department of Education Office of Student Financial Assistance (OSFA) website at www.FloridaStudentFinancialAid.org.

  - Award Restoration: a student that failed to achieve a minimum 2.75 and became ineligible for funding may apply for restoration in an academic year after which the 2.75 cumulative GPA requirement was met. (The 2.75 GPA must be met before the fall term for which the student is applying.) The student must complete a Reinstatement/Restoration application available on the Florida Department of Education Office of Student Financial Assistance (OSFA) website at www.FloridaStudentFinancialAid.org.

- Recipients of the William L. Boyd, IV, Florida Resident Access Grant (BFRAG) and Florida Student Assistance Grant (FSAG) must complete at least 24 credit hours each academic year with a cumulative grade point average of at least 2.0. Classes taken in the previous summer may be included in calculating the completed hours (credit hours earned during summer of 2008 may be combined with the credit hours earned during the 2008-2009 academic year to meet the 24 credit hour requirement).

Students that do not meet the annual minimum 24 credit hours requirement for renewal, may not receive funding the following academic year. To be eligible for
renewal in a subsequent year, the student must meet the general eligibility requirements for renewal and have maintained/earned a cumulative GPA of 2.0.

Students enrolling for only one semester must complete at least 12 new credit hours while maintaining the required CGPA.

**THE APPEAL PROCEDURE**

Students that do not meet the academic progress requirements may submit a written appeal to request reinstatement of eligibility to receive aid. The student must complete the University of Miami’s Academic Progress Appeal Form. This petition requires the student to:

1. Submit a written explanation as to why he/she was unable to meet or maintain the academic progress requirements; and

2. Submit documentation that substantiates the student’s circumstances, such as a letter from a doctor or copies of medical bills if a student cites medical reasons for not meeting the requirements.

The appeal form may be downloaded from the financial assistance website. Submit the Appeal Form and all documentation to the Standards of Academic Progress (SOAP) Appeal Committee, c/o the Office of Financial Assistance Services. All appeals should be submitted no later than 30 days from notice of ineligibility. All appeals submitted completely and on time will be reviewed by the committee prior to the beginning of each semester. Decisions are made using the appeal documentation provided by the student in conjunction with the student’s academic record. All decisions by the committee are final.

A general description of the major financial assistance programs available through various departments as well as the Office of Financial Assistance Services can be found at [www.miami.edu/ofas](http://www.miami.edu/ofas).
FINANCIAL PAYMENT POLICIES

Policy
All semester charges (tuition, room, board and fees) are due by the date on the Registration Billing Notification, unless an established Monthly Payment Plan contract has been finalized with the Office of Student Account Services. Previously unbilled and new charges are due and payable when incurred. A student is responsible for his/her tuition and fees upon registration. Financial registration is considered complete only when all charges are paid or when satisfactory arrangements to pay have been finalized with the Office of Student Account Services.

Consequences of Non-Payment
The University will not process transcript and/or diploma requests if a student is delinquent in paying his/her student account and/or Monthly Payment Plan. Course selection will not be permitted for any past due accounts including Monthly Payment Plans. A late payment fee will be assessed on all delinquent accounts.

Finance Charges
No additional charges are imposed on an account once Account Balance payments are received by the payment due date. If, however, payment is received after the payment due date, a Finance Charge is assessed. Finance charges are computed on the average daily account balance at an Annual Percentage Rate of 16%.

Deferred Payments
If financial aid funds are not available at the time of registration, the student would normally be expected to cover these payments. However, financial aid awards will be automatically deferred under the following conditions:

- The Office of Financial Assistance Services (OFAS) is provided with a source of aid (other than College Work Study or Miami Commitment) on the student's award package.
- OFAS awards the corresponding amount on the student's award package. i.e., outside scholarship information must be provided to both the Offices of Financial Assistance and Student Account Services in order to defer payment.
- OFAS allocates the guaranteed award during the semester that the disbursement should be expected.
- Final guarantees have been processed by the appropriate alternative loan lender – preliminary approvals will not result in automatic alternative loan deferments.

Examples
Veterans Monthly Educational Benefit Checks: An amount not to exceed the total of the checks expected to be received during the semester (for Fall and Spring, this is typically three checks) may be deferred. Arrangements for this type of tuition deferment must be initiated with a representative of Veterans Affairs through the Office of the Registrar and the Office of Student Account Services. Students with VA benefits are required to sign a promissory note with the Office of Student Accounts in order to defer anticipated payments.

International Students with Government Sponsorships: Payment of all or a portion of charges that can be billed directly to corresponding government agencies may be deferred upon presentation of appropriate documentation from their government or embassy. In addition, international students who receive monthly stipends for living
expenses from their government may (if expenses are covered by the student’s sponsor) defer a portion of the payment of their room and board charges. However, no deferment is permitted to an international student having a previous balance at the time of registration or one receiving tuition remission. Arrangements for this type of tuition deferment must be initiated with a Third Party Advisor at the Office of Student Account Services.

Florida Prepaid Program

The University of Miami will assist with a student’s education expenses by billing for any available Florida Prepaid College Program funding directly to the Florida Prepaid College Board. As a Florida Prepaid participant, you may authorize the University of Miami to request various payment disbursement options that best match your needs and current savings in the plan. We encourage all participants to authorize a payment that will facilitate your overall financial planning objectives for your son or daughter's enrollment at the University of Miami.

The University of Miami requires new students to have completed the “Florida Prepaid College Program Authorization Form”. In addition to this form, all students who plan to use their prepaid funds must contact Florida Prepaid at 1-800-552-4723 option 2, and request a separate Florida Prepaid “Transfer Form”. Upon your request, Florida Prepaid will mail the Transfer Form to you. The purchaser of the plan must complete this form and return it directly to Florida Prepaid. It is necessary that Florida Prepaid have this Transfer Form on file in order for students to use Florida Prepaid funds at the University of Miami.

Questions in reference to Florida Prepaid should be sent to saccounts@miami.edu with "Florida Prepaid" in the subject line. The required authorization form for the University of Miami and an example can be downloaded from the following web site: www.miami.edu/osas

Process

Final arrangements for tuition deferments that do not appear on Registration Billing Statements must be made with representatives of the Office of Student Account Services. For further clarification and interpretation of the University’s tuition deferment policy, contact the Office of Student Account Services. You may e-mail Student Accounts at: saccounts@miami.edu.

Policy on previous and unpaid balances

Non-Payment

The University of Miami may declare due and payable at once the sum of all past due balances. In addition, the student will be responsible for interest accrued on all past due and unpaid amounts at the maximum rate permitted by law and any and all costs incurred by the University of Miami in enforcing its rights. The University reserves the right to withhold transcripts, diplomas, readmission, and future registration for non-payment of outstanding balances. The University’s Collection Department may also disclose the student’s outstanding indebtedness, along with other relevant information, to credit information bureaus. A non-refundable $100 reinstatement fee will be charged to reinstate each unpaid and cancelled semester.
Refund Policy

DEFINITIONS

Title IV Financial Aid or Title IV Programs refers to the following awards:

- Unsubsidized Federal Stafford Loans
- Subsidized Federal Stafford Loans
- Federal Perkins Loan, FFEL PLUS (Graduate Student), FFEL PLUS (Parent)
- Federal PELL Grant
- Academic Competitiveness Grant
- National Smart Grant
- Federal Supplemental Educational Opportunity Grant (SEOG)
- Federal College Work Study
- State Subsidy Incentive Grants

REFUND POLICY

Students who have advised the appropriate University department of their withdrawal, through 60 percent of the semester, will receive credit for tuition and eligible financial aid refunds using a pro-rated calculation based on the percentage of the semester attended by the student. Unearned Title IV funds will be returned in accordance with the refund policy established in Section 484B of the Higher Education Act of 1965, as amended (HEA) and provided for through the Student Assistance General Provisions regulations enacted on October 7, 1998. Fees are not refundable and will not be pro-rated.

The University refund schedule does not apply to students in the following on-campus and off-campus programs: The Executive MBA, the MBA Program for Working Professionals, and the Master of Science in Professional Management. Unless the student has completed official withdrawal procedures in writing with the Graduate Business Program office prior to the beginning of a course/term, tuition will be refunded on a prorated basis based on the number of class meetings attended through the effective date of withdrawal.

No tuition refund will be granted when class attendance has exceeded 50% of class meetings. This policy supersedes any information stated in the Graduate Bulletin and other university publications.

PROCEDURE

The amount of earned tuition and financial aid will be calculated on a daily pro-rated basis. Unearned tuition will be credited to the students account. Unearned, disbursed financial aid will be charged to the students account and refunded to the appropriate financial aid programs. Students who have not completed the verification process are ineligible to receive any financial aid and therefore no financial aid will have been earned. All disbursed financial aid will be charged to the students account and refunded to the appropriate financial aid program.

The return of financial aid will be refunded to the following sources used in the specific order as noted below until the total amount of the school’s responsibility has been satisfied:
- Unsubsidized Federal Stafford Loans
- Subsidized Federal Stafford Loans
- Federal Perkins Loans
- Federal PLUS Loans (Graduate Student)
- Federal PLUS Loans (Parent)
- Federal Pell Grant
- Academic Competitiveness Grant
- National SMART Grant
- Federal Supplemental Opportunity Grant (SEOG - Federal Portion Only)
- Any other Title IV Assistance
- State financial aid

In the event of an overpayment of unearned Title IV grants, the University will send the student a notification letter requesting payment in full or the establishment of a satisfactory payment arrangement with the University or the Debt Collection Services of the U.S. Department of Education. This notification letter will be processed within 30 days of the date of the University’s determination that the student withdrew.

If the student does not respond to the request for repayment within 15 days, the University will notify the Department of Education of any Title IV grant overpayment. If the student does not make satisfactory repayment arrangements for the repayment of Title IV grant aid, the student will then become ineligible for federal assistance on the 46th day from the date of the University’s repayment letter.

**WITHDRAWAL EXAMPLE**

A student notifies the Registrar of withdrawal on the 50th day of the semester. If the total number of calendar days in a semester were 108, the earned tuition and financial aid ratio would be 50 divided by 108 or 46.3 percent. The University would have earned 46.3 percent of the semester tuition and the student would have earned 46.3 percent of the approved federal aid that the student was originally scheduled to receive for the term. The remaining 53.7 percent of unearned tuition would be credited to the student’s account. The 53.7 percent of the student scheduled or disbursed aid remains unearned and must be returned to the Federal Program. If a student remains in school until the percentage of earned financial aid is 60% or more, then federal regulations consider the student to have earned 100% of their federal aid.

**POST WITHDRAWAL DISBURSEMENTS**

If the University determines that a student is eligible for Title IV funds that have not been disbursed, grant funds that the student is eligible for will be disbursed first. Federal aid that the student is eligible for will be credited to the student’s account and applied against any outstanding charges.

**ANNUAL TUITION**

In cases where tuition is assessed on an annual rather than semester basis (except for special contracted programs), the refund will be treated as though tuition were assessed in two equal halves, one for each of two semesters.
Reinstatement of cancelled classes

Classes are subject to cancellation if the student fails to complete Financial Registration at the start of the semester. A non-refundable $100.00 Reinstatement Fee will be assessed on the student account in order to reinstate canceled classes.

If the student does not reinstate his/her canceled classes prior to the end of the semester, the student will not be allowed to register for subsequent semesters. The student will be allowed to register only when he/she has paid the student account balance in full, with certified funds, and has reinstated all canceled classes.

Important Note: Students who are receiving financial assistance and have had their classes canceled for the semester may lose all or part of their financial aid for that semester.

Final arrangements for reinstatement of canceled classes must be made with a representative of the Office of Student Account Services.

Students must be reinstated into all classes in which they initially registered. Partial semester reinstatements will not be authorized.

Payment options

The University Cashier accepts cash, personal checks, traveler’s checks, cashier’s checks, certified checks, money orders, and checks drawn against lines of credit. Personal check and credit card payments are accepted online via myUM. Bank wire transfers are also accepted.

On-Line Payments:

**Web Checking Account (ACH) Payments:** Free on-line checking account payments are accepted through the myUM system. Students must sign onto myUM at (www.miami.edu/myum) and select the “Student” tab. The “Financial” link from the drop down menu should then be selected followed by clicking on the “Billing and On-Line Payment” link. Subsequent on-line instructions will then be provided. Once payment is processed, a confirmation email will be sent to the student’s email address noted in the University’s database. The student’s account will then be systematically updated with the payment. Please note that this option is only available on the myUM system and is at no charge to the student.

**On-Line Credit Card Payments:** Students must sign onto myUM (www.miami.edu/myum) and select the “Student” tab. The “Financial” link from the drop down menu should then be selected followed by clicking on the “Billing and On-Line Payment” link. Subsequent on-line instructions will then be provided. Once payment is processed, a confirmation email will be sent to the student’s email address noted in the University’s database. The student’s account will then be systematically updated with the payment. Please note that a non-refundable 2.5% convenience fee will be added to the amount charged by our credit card service provider.

**Checks and Money Orders**
Payments must be in U.S. Dollars and drawn on a U.S. bank. Payments must be made payable to the University of Miami and include the student’s identification number to ensure credit to the student’s account. Post-dated checks are not accepted.
IMPORTANT NOTE: Foreign drafts must be sent through a collection process requiring a 30-day process for collection purposes. Accounts will only be credited once confirmation of deposit has been received by the University’s bank. Collection fees, charged by the bank for processing these checks, will be charged to the students account.

_Returned checks policy_

All returned checks are deposited twice, automatically, and without notice. A Returned Check Fine will be assessed to the student’s account, as listed below, after the second attempt. Check cashing privileges will be canceled for those students who have three (3) or more returned checks.

A notification letter will be mailed to the maker of the check by the University’s Collection Department detailing the amount and fine for the returned check. Check cashing privileges will be restricted until cash or certified funds (money order or cashier’s check) are presented for payment. A personal check will not be accepted to replace a dishonored check.

_Returned check fines (includes on-line check payments through myUM):

<table>
<thead>
<tr>
<th>Check Type</th>
<th>Fines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check under $800.00</td>
<td>$20.00 fee</td>
</tr>
<tr>
<td>Checks over $800.00</td>
<td>2.5% of the check amount</td>
</tr>
<tr>
<td>Checks for Monthly Payment Plan</td>
<td>$25.00 Fee</td>
</tr>
</tbody>
</table>

_Wire Transfer of Funds_

Wire transfer of funds for payment on an account at the University of Miami may be processed through any full service bank. Please direct the transfer to:

Bank of America, N.A.  
1500 South Dixie Highway  
Coral Gables, Florida 33146

ABA Routing Number: 026009593  
For Credit to: University of Miami Account 5508319094  
For Further Credit to: Student Name and I.D. Number

The student’s name and the student’s identification number (C#) are required in order to properly credit funds to the student’s account.

_Tuition payment plans_

The Office of Student Account Services offers several tuition payment options to assist students and parents. The University’s payment options are designed to provide convenient alternative plans of budgeting and paying educational costs whether or not a financial assistance award is granted.

_MONTHLY PAYMENT PLAN (MPP)_

_Purpose:_ This plan allows you to divide all or part of your annual educational expenses (tuition, fees, on-campus housing, and meal plan less financial assistance) into ten
convenient monthly payments for a fall/spring combined plan; five months for a fall-only plan; and five months for a spring-only plan.

**Contract length:** This plan is offered on an annual basis for the fall and spring semesters combined, and the fall and spring separately as noted above. The minimum annual contract for any of these plans is $2,000.

**Fee:** A 3% non-refundable participation fee of the amount financed is charged and included in the established monthly payments.

**Conditions:** Payments are due on the 1st of each month with the exception of the first payment which is due upon signing the Monthly Payment Plan Agreement. The Monthly Payment Plan is completed online at www.miami.edu/osas/mppapp.html. This online process guarantees faster processing for financial registration purposes and automatically updates applicants via email notifications.

**TUITION STABILIZATION PLAN (TSP) (Undergraduates Only)**

The University of Miami Tuition Stabilization Plan (TSP) allows you to pre-pay up to four years of tuition at the current tuition rate. The TSP relieves students and parents of concerns relating to future tuition increases and may also offer substantial savings in future tuition expenses. This plan does not include mandatory fees.

The TSP is a sensible alternative for families and independent students paying for tuition from existing savings or investment accounts. With increases in tuition rates at most Universities running above current inflation rates, a participant’s savings in tuition increases may more than make up for the loss of investment income.

The TSP is designed to be used by full-time students for a minimum of two consecutive academic years and a maximum of four consecutive academic years; if a student withdraws from the University, the unused tuition will be refunded without penalty as outlined in the TSP agreement.

The TSP is designed to be used by students who are (a) are enrolled in a degree-seeking four-year program on a full-time basis and (b) do not receive any financial aid.

**TSP Contract Amount and Terms**

<table>
<thead>
<tr>
<th>Contract Type</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-year contract</td>
<td>$71,080.00</td>
</tr>
<tr>
<td>3-year contract</td>
<td>$106,620.00</td>
</tr>
<tr>
<td>4-year contract</td>
<td>$142,160.00</td>
</tr>
</tbody>
</table>

**TUITION GUARANTEE PLAN (TGP) (Freshmen Only)**

The University of Miami Tuition Guarantee Plan (TGP) is a four-year budgeting plan for families. The TGP allows families to plan for “tuition only” expenses over a four-year period.

The TGP guarantees a pre-determined tuition rate increase for each of the four years and schedules payments over 44 months without interest or finance charges. A non-refundable participation fee of 3% of the plan amount is charged and included in the monthly payments. This payment plan also requires consecutive semester enrollment.

The TGP is designed to be used by students who are (a) first semester freshman; (b) are enrolled in a degree-seeking four-year program on a full-time basis and (c) do not receive any financial aid.
Note:  A) Neither plan above (TSP/TGP) covers intersession classes, housing and/or meal plan charges. These charges must be paid separately.

B) The receipt of any awards noted above will be refunded to the account holder as long as required payments are current. Adjustments to monthly payments will not be processed on either plan as these payment plans will be fixed according to tuition rates in place at the time a contract is issued.

C) As noted below, the contracted amounts for the TGP include both tuition and fees. The TSP is inclusive of tuition only.

2009 – 2010 TGP Rate
TGP Contract Amounts and Terms

<table>
<thead>
<tr>
<th>Year</th>
<th>Contract Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009 – 2010</td>
<td>$36,188.00</td>
</tr>
<tr>
<td>2010 – 2011</td>
<td>$37,997.40</td>
</tr>
<tr>
<td>2011 – 2012</td>
<td>$39,897.27</td>
</tr>
<tr>
<td>2012 – 2013</td>
<td>$41,892.13</td>
</tr>
</tbody>
</table>

TOTAL $155,974.80

3% $4,679.24

Total Financed $160,654.04

(43 payments of $3,651.23 each starting 9/1/2009 and one last payment of $3,651.15 ending 4/1/2013)
TUITION and FEES

Tuition

The basic undergraduate tuition rate covers the normal student load and is increased if the student carries an overload. Private instruction, e.g., music lessons, carries extra charges.

For tuition charges in special programs and sessions, see announcements that are published concerning these components of the University’s academic program.

The following list of charges is effective for the academic year 2009-2010.

**UNDERGRADUATES (ALL COLLEGES AND SCHOOLS)**

<table>
<thead>
<tr>
<th>Number of Credits</th>
<th>Tuition (per semester)</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>$1,480.00</td>
</tr>
<tr>
<td>Two</td>
<td>$2,960.00</td>
</tr>
<tr>
<td>Three</td>
<td>$4,440.00</td>
</tr>
<tr>
<td>Four</td>
<td>$5,920.00</td>
</tr>
<tr>
<td>Five</td>
<td>$7,400.00</td>
</tr>
<tr>
<td>Six</td>
<td>$8,880.00</td>
</tr>
<tr>
<td>Seven</td>
<td>$10,360.00</td>
</tr>
<tr>
<td>Eight</td>
<td>$11,840.00</td>
</tr>
<tr>
<td>Nine</td>
<td>$13,320.00</td>
</tr>
<tr>
<td>Ten</td>
<td>$14,800.00</td>
</tr>
<tr>
<td>Eleven</td>
<td>$16,280.00</td>
</tr>
<tr>
<td>Twelve to twenty</td>
<td>$17,770.00</td>
</tr>
<tr>
<td>(Includes University Fee and Course Fees)</td>
<td></td>
</tr>
<tr>
<td>In excess of 20, per credit</td>
<td>$1,480.00</td>
</tr>
<tr>
<td>No credit towards degree (audit), per course, non-refundable</td>
<td>$1,480.00</td>
</tr>
</tbody>
</table>

Undergraduate students carrying both undergraduate and graduate courses will be charged tuition at the rate in effect for undergraduate credits taken and appropriate fees. For example, tuition for a student carrying a total of 15 credits, of which 3 are graduate and 12 are undergraduate, would be charged at the $17,770.00 rate.

Undergraduate students taking graduate level coursework that is priced at a special level will be billed separately for these courses. Students should check with their advisors and/or the appropriate school’s department for more details on their course pricing requirements.

Full-time fees will be assessed according to student classification as an undergraduate or graduate.

The University reserves the right to change without notice tuition, fees, room and all other charges at the beginning of any academic year, and the right to change activities and board fees at the beginning of any semester.
GRADUATE STUDENTS

| (Pre-Master’s, Post-Master’s, and Doctoral Students per credit | $1,480.00 |
| Research in Residence (720 or 750) or Continuous Registration-Master’s Study (725), per fall/spring semester | $1,480.00 |
| Research in Residence (720 or 750) or Continuous Registration-Master’s Study (725), per summer session (0 Research Credit Courses) | $740.00 |
| Audit Work (No degree credit) Tuition, per course, non-refundable. | $1,480.00 |

The Executive M.B.A. Program officially begins with the Orientation session each year. Tuition charges and deposits are non-refundable after the start of the Program which begins with the Orientation session. Refer to the current brochure for additional information or call (305) 284-2510.

Certain programs are conducted by the University under contract with the State of Florida. Florida residents who have been accepted as students in those contract programs are required to pay current state tuition for each credit hour taken and the state provides the University with additional funds in accordance with the terms of the contracts. Students involved in state contract programs should contact the appropriate school/college to ascertain the state tuition charge per credit hour that they are expected to pay.

Fees

Some fees depend upon full-time status. This is determined by the sum total of semester credits carried by the student in all divisions. Intersession classes are included with regular fall and spring semester classes in determining the student’s full- or part-time status. This determination will also result in the billing of required fees. Fees are subject to change.

Full-time undergraduate students are all students carrying 12 or more credits in a regular semester or five (5) or more credits in a summer session.

Graduate students are classified full-time if they carry nine (9) or more credits in a regular semester or three (3) or more credits in a summer session.

MANDATORY FEES

<table>
<thead>
<tr>
<th>FALL OR SPRING SEMESTER FEES (per semester)</th>
<th>Student Activity Fee</th>
<th>Athletic Fee</th>
<th>Wellness Center</th>
<th>University Fee</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate – full-time (12 or more credits)</td>
<td>$127.00</td>
<td>$57.00</td>
<td>$140.00</td>
<td>N/A</td>
<td>$324.00</td>
</tr>
<tr>
<td>Graduate, full-time (9 or more credits)</td>
<td>$35.00</td>
<td>N/A</td>
<td>N/A</td>
<td>$105.00</td>
<td>$140.00</td>
</tr>
<tr>
<td>Rosenstiel Graduate (9 or more credits)</td>
<td>$4.00</td>
<td>N/A</td>
<td>N/A</td>
<td>$100.00</td>
<td>$104.00</td>
</tr>
<tr>
<td>Medical Science Graduate (0 or more credits)</td>
<td>$4.00</td>
<td>N/A</td>
<td>N/A</td>
<td>$100.00</td>
<td>$104.00</td>
</tr>
<tr>
<td>Law Day Students (12 or more credits)</td>
<td>$52.00</td>
<td>N/A</td>
<td>$140.00</td>
<td>$105.00</td>
<td>$297.00</td>
</tr>
</tbody>
</table>

Doctoral Dissertation Fee (non-refundable fee) $125
### SUMMER SESSION FEES (per session)*
**Undergraduate, full-time (5 or more credits)**

<table>
<thead>
<tr>
<th>Fee</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Activity Fee</td>
<td>$9.00</td>
</tr>
<tr>
<td>University Fee (Health Service and Counseling Center only)</td>
<td>$40.00</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>$49.00</strong></td>
</tr>
</tbody>
</table>

*Summer fees are mandatory for students taking 5 or more credits.

You are not required to have the University sponsored health insurance plan in order to utilize the services of the Student Health Center. During the summer sessions the University Fee is mandatory and is automatically added to tuition for students enrolled for 5 or more credit hours. Students who are enrolled for fewer than five credit hours during the summer must request this fee to be charged to gain access to the Student Health Service.

Students who are not enrolled for the current semester but intend to enroll for the next semester and graduating seniors who want access to the Health Center for the first summer session, can pay the Health Care Fee in order to gain access to the Health Service.

### OPTIONAL FEES

#### FALL OR SPRING SEMESTER FEES (per semester)

<table>
<thead>
<tr>
<th>Category</th>
<th>Student Activity Fee</th>
<th>University Fee</th>
<th>Athletic Fee</th>
<th>Wellness Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate Students (1 to 11 credits)</td>
<td>$127.00</td>
<td>$107.00</td>
<td>$57.00</td>
<td>$140.00</td>
</tr>
<tr>
<td>Graduate Students (0-8 credits)</td>
<td>$35.00</td>
<td>$102.00</td>
<td>$57.00</td>
<td>$140.00</td>
</tr>
<tr>
<td>Graduate Students (9 or more credits)</td>
<td>N/A</td>
<td>N/A</td>
<td>$57.00</td>
<td>$140.00</td>
</tr>
<tr>
<td>Rosenstiel Graduate Students (0 to 8 credits)</td>
<td>$4.00</td>
<td>$100.00</td>
<td>$57.00</td>
<td>$140.00</td>
</tr>
<tr>
<td>Rosenstiel Graduate Students (9 or more credits)</td>
<td>N/A</td>
<td>N/A</td>
<td>$57.00</td>
<td>$140.00</td>
</tr>
<tr>
<td>Medical Science Graduate Students (0 or more credits)</td>
<td>N/A</td>
<td>N/A</td>
<td>$57.00</td>
<td>$133.00</td>
</tr>
</tbody>
</table>

#### SUMMER SESSION FEES (per session)*

<table>
<thead>
<tr>
<th>Category</th>
<th>Wellness fees (optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduates/Graduates</td>
<td>$70.00</td>
</tr>
</tbody>
</table>

*Summer fees optional for students taking less than 5 credit hours.
### OTHER FEES

<table>
<thead>
<tr>
<th>Diploma Fee</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Original Diploma</td>
<td>no charge</td>
</tr>
<tr>
<td>Replacement Covers</td>
<td>$5.00</td>
</tr>
<tr>
<td>Replacement – Bachelors, Masters, Masters, Ph.D.</td>
<td>$10.00</td>
</tr>
<tr>
<td>Replacement – Law, Medicine</td>
<td>$15.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transcript Fee</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mailed Transcripts</td>
<td>$6.00</td>
</tr>
<tr>
<td>Pick-up and Immediate Transcripts</td>
<td>$7.00</td>
</tr>
</tbody>
</table>

Note: Unofficial transcripts are available free of charge on myUM or for $3.00 each if ordered in the Office of the Registrar, 121 UC in writing. Those ordered in the Office of the Registrar will be available for pick-up within one week after the request is submitted.

### FEES CHARGED BY SONHS TO STUDENTS REGISTERED FOR CLINICAL COURSES

**(Annual, non-refundable, due at registration, estimated at time of publication)**

<table>
<thead>
<tr>
<th></th>
<th>Academic Year 2009-2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Liability Insurance</td>
<td>$270.00</td>
</tr>
<tr>
<td>Nursing Fees</td>
<td>$770.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$1040.00</strong></td>
</tr>
</tbody>
</table>

### PROFESSIONAL LIABILITY INSURANCE

(annual, non-refundable, due at registration, estimated at time of publication)

- Physical Therapy students (second and third year)  $195.00
- Clinical athletic training students  $75.00/semester

### MUSIC CHARGES FOR NON-MUSIC MAJORS OR MINORS (LESSONS IN APPLIED MUSIC)

Fees, in addition to regular tuition, per credit per semester  $200.00

### READMISSION FEE

$100.00

### INACTIVE STATUS FEE

$50.00/semester

### NON-UM PROGRAM STATUS FEE

$50.00/semester

### GRADUATE APPLICATION FEE

(estimated at time of publication, subject to change)  $65.00

### LATE REGISTRATION FEE (Permission to register required)

<table>
<thead>
<tr>
<th>Date</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/26/2009-9/1/2009</td>
<td>$100.00</td>
</tr>
<tr>
<td>9/9/2009 forward</td>
<td>$300.00</td>
</tr>
</tbody>
</table>
REINSTATEMENT FEE
Reinstatement Fee charged if classes are canceled AFTER Semester begins  $100.00

PROFICIENCY OR COMPETENCY EXAMINATION FEE
College of Engineering, School of Architecture, Division of Continuing and International Education, School of Music:

<table>
<thead>
<tr>
<th>Service</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examination Fee, per examination</td>
<td>$25.00</td>
</tr>
<tr>
<td>Recording Fee for Competency Examinations, per examination</td>
<td>$25.00</td>
</tr>
<tr>
<td>English Language Proficiency Test</td>
<td>$50.00</td>
</tr>
</tbody>
</table>
ALUMNI RATE and POLICY

Special Opportunity for UM Graduates

UM graduates may take undergraduate credit courses in the College of Arts and Sciences on a space available basis, at a special alumni rate. All University of Miami graduates are eligible for this special program.

Students may take whatever courses are of interest. From Anthropology to Theatre Arts and all the disciplines in between, participants may choose a course or collection of courses (maximum two courses per discipline) to meet professional or personal goals.

Interested students may call the Division of Continuing and International Education at 305-284-4000 to inquire about the benefit and/or the current tuition rate, request an application, or enroll in the courses. They will submit a simple, no-fee, one-page application, simply select an undergraduate course (open on a space available basis) and be on their way to continued learning at UM.

Policies Governing Enrollment in University of Miami Alumni Status

The University of Miami Alumni Status includes students who are not seeking a degree and meet the following requirements. Enrollment in a non-degree program and/or satisfactory completion of courses does not imply admission to a degree program.

a) University of Miami graduates (completed degree);

b) U.S. citizens or permanent U.S. residents.

I. Conditions applying to University of Miami Alumni enrollment

a) Students may enroll in a maximum of 12 undergraduate credits per semester.
b) Students are limited to two courses per academic department.*
c) Courses may be selected from the College of Arts and Sciences only.
d) International students will not be issued I-20 forms.
e) International students in B-1 (business) or B-2 (pleasure) visa status may engage in study as long as the educational activity is secondary to the principal activity for which the visa was sought.
f) Enrollment may be completed on a space-available basis only. (Course availability determined two days prior to semester start.)
g) Courses taken for undergraduate credit (including 500 level courses) will not be considered for graduate credit at a later date.

*Note: Not all courses and/or departments may be available.
ROOM RATES UNDERGRADUATES

<table>
<thead>
<tr>
<th>Residential Colleges</th>
<th>Semester</th>
<th>Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double</td>
<td>$3,161.00</td>
<td>$6,322.00</td>
</tr>
<tr>
<td>Small Single</td>
<td>$3,704.00</td>
<td>$7,408.00</td>
</tr>
<tr>
<td>Standard Single</td>
<td>$4,254.00</td>
<td>$8,506.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Apartment Area</th>
<th>Semester</th>
<th>Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double occupancy bedroom</td>
<td>$3,179.00</td>
<td>$6,358.00</td>
</tr>
<tr>
<td>Single occupancy bedroom</td>
<td>$4,133.00</td>
<td>$8,266.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>University Village</th>
<th>Fall Semester 2009 (Aug-Dec)</th>
<th>Spring Semester 2010 (Jan-May)</th>
<th>Summer Term 2010 (June-July)</th>
<th>Annual Rate (12-mos. agreement) in Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ibis Model (1:1)</td>
<td>$7,353.00</td>
<td>$7,353.00</td>
<td>$2,922.00</td>
<td>$17,628.00</td>
</tr>
<tr>
<td>Palm Model (2:2)</td>
<td>$4,901.00</td>
<td>$4,901.00</td>
<td>$1,940.00</td>
<td>$11,742.00</td>
</tr>
<tr>
<td>Cane Model (4:2)</td>
<td>$4,045.00</td>
<td>$4,045.00</td>
<td>$1,598.00</td>
<td>$  9,688.00</td>
</tr>
<tr>
<td>Villager Model (4:4)</td>
<td>$4,376.00</td>
<td>$4,376.00</td>
<td>$1,730.00</td>
<td>$10,482.00</td>
</tr>
<tr>
<td>Lake Model (4:4)</td>
<td>$4,460.00</td>
<td>$4,460.00</td>
<td>$1,764.00</td>
<td>$10,684.00</td>
</tr>
</tbody>
</table>

1. Freshmen are typically assigned to Hecht and Stanford Residential Colleges but may be assigned to another residential college based on availability.
2. Small Singles are only available in Hecht and Stanford Residential Colleges.
3. Standard single rooms are available only to returning upper-class students.
4. For upper-class students only (60+ academic credits completed); apartment area residents may stay in their apartments between semesters (Dec. 18, 2009 – Jan. 12, 2010) without additional charge.
5. Only available in ADA-modified apartments...special accommodation status required (obtained through the Office of Disability Services).
6. For upper-class students only—no freshmen or sophomores (60+ academic credits completed); annual (12-month) agreement for all Village residents—billed by semester/term through the Office of Student Account Services.

SUMMER SESSION (all air-conditioned)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Double Room (per person)</td>
<td>$ 850.00 per session</td>
</tr>
<tr>
<td>Small Single Room</td>
<td>$1,050.00 per session</td>
</tr>
<tr>
<td>Standard Single Room</td>
<td>$1,150.00 per session</td>
</tr>
</tbody>
</table>

GRADUATE HOUSING

Housing in on-campus housing is not available for GRADUATE students in addition to married students, single parents with children, law students, and medical students. The Department of Residence Halls does assist GRADUATE students with off-campus housing information and resources at http://www.miami.edu/housing.
LAW HOUSING

Housing in on-campus housing is not available for LAW students in addition to married students, single parents with children, graduate students, and medical students. The Department of Residence Halls does assist LAW students with off-campus housing information and resources at http://www.miami.edu/housing.
MEAL PLANS

The following are the Meal Plan rates for the 2009 - 2010 academic year. Meal Plan enrollment is for the full academic year but charged on a semester basis.

<table>
<thead>
<tr>
<th>Plan</th>
<th>Dining Dollars per Semester</th>
<th>Semester Cost</th>
<th>Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 Meal Plan</td>
<td>$50</td>
<td>$2239</td>
<td>$4478</td>
</tr>
<tr>
<td>14 Meal Plan</td>
<td>$150</td>
<td>$2140</td>
<td>$4280</td>
</tr>
<tr>
<td>8 Kosher Plus Meal Plan</td>
<td>$200 plus $500 Oasis Dollars</td>
<td>$2284</td>
<td>$4568</td>
</tr>
<tr>
<td>8 Meal Plan</td>
<td>$200</td>
<td>$1858</td>
<td>$3716</td>
</tr>
<tr>
<td>5 Meal Plan</td>
<td>$50</td>
<td>$974</td>
<td>$1948</td>
</tr>
</tbody>
</table>
PARKING AND TRANSPORTATION SERVICES

<table>
<thead>
<tr>
<th>Description</th>
<th>Permit Type</th>
<th>Price (tax included)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commuter Student</td>
<td>C</td>
<td>$444.00</td>
</tr>
<tr>
<td>Fall Only - Commuter</td>
<td>CF</td>
<td>$222.00</td>
</tr>
<tr>
<td>Resident Student</td>
<td>R</td>
<td>$478.00</td>
</tr>
<tr>
<td>Fall Only - Resident</td>
<td>RF</td>
<td>$239.00</td>
</tr>
<tr>
<td>Discount</td>
<td>D</td>
<td>$226.00</td>
</tr>
<tr>
<td>Visitor</td>
<td>V</td>
<td>$500.00</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>M</td>
<td>$88.00</td>
</tr>
</tbody>
</table>

Parking on the University of Miami’s Coral Gables campus is a privilege extended to those using the facilities of the University consistent with the terms of the University’s Motor Vehicle Parking Code and other policies of the University as they are set or amended by the Provost. Parking privileges are extended only to those eligible members of the university community including trustees, faculty, administrators, staff, students, vendors and visitors who have paid for, received and properly displayed a current and valid UM parking permit. In consideration of being allowed to use the University’s facilities for parking, the purchaser of a parking permit agrees to be bound by the rules set forth in the Motor Vehicle Parking Code, and agrees to pay to the University any fine or administrative charge assessed for non-compliance with this code.

Students, faculty, employees, and staff may not park in visitor parking spaces, and UM parking permits are not valid at parking meters.

First year resident students (students residing on the Coral Gables campus who are attending college on a full time basis for the first time) are restricted from purchasing a parking permit to park on the University of Miami’s Coral Gables campus. This policy applies to first year students living in University of Miami student housing on the Coral Gables campus.

Students, other than first year resident students as defined above, should purchase parking permits online in myUM through a charge to their student account, and specify convenient home delivery for a nominal handling/shipping fee. Students may purchase only the permit appropriate to their University domicile: Resident or Discount for an on-campus address; Commuter or Discount for an off-campus address. Annual permits are valid August 1, 2009 through August 15, 2010.
ACADEMIC RESOURCE CENTER

Located on the second floor of the University Center, the Academic Resource Center (ARC) offers free academic assistance to all UM students. The ARC offers individual tutoring by appointment in most subjects, walk-in tutoring in math via the Math Lab, study skills instruction, workshops, and many other valuable services. Please visit www.umarc.miami.edu or call 305-284-2800 to learn more or schedule an appointment.

Tutoring

At the ARC, all UM students can take advantage of free one-on-one peer tutoring to develop a deeper understanding of course work through additional, special, or corrective instruction. All tutoring is course specific and taught by nationally certified tutors. Students are eligible for two hours of tutoring per week for each course. Peer tutoring is available for more than 175 courses. Students may also receive individual tutoring in study skills or participate in a variety of workshops on topics such as time management, note taking, and preparing for midterms and finals.

Academic Workshops

Comprising 30- to 45-minute sessions, this free workshop series is designed to give an overview of various academic resources and methods geared toward improving student success. Workshop topics include reducing test anxiety, test-taking strategies, establishing effective relationships with professors, improving study strategies, and more. Topics are updated every semester, and students may attend unlimited sessions. Schedules are available at the beginning of each semester in the Academic Resource Center or online at www.umarc.miami.edu.

Advanced Academic Methods

Students are invited to make appointments with graduate students who have extensive knowledge of good study strategies and techniques to help students make the most of their study time. These specialists also meet with students to guide them in making good academic decisions. Students meet one on one with an Advanced Academic Methods Specialist, who develops an individualized plan based on the student’s needs. Students can fine-tune and enhance their academic skills in areas such as reading and comprehending college texts, annotation techniques, successful note-taking strategies, time management, and improving organizational skills.

Supplemental Instruction

Small group sessions are available to help students succeed in the University’s toughest courses. Tutoring is done on a weekly basis where students sit down to discuss course content in a small group setting with the tutor serving as a facilitator.

Math Lab

The Math Lab offers assistance with all levels of undergraduate math at no charge to students. Tutoring is available on a walk-in basis during the fall and spring semesters, Monday through Thursday. The Math Lab is staffed by graduate students, graduate teaching assistants, and undergraduate peer tutors. Students can use this
as a quick resource or a place to hold weekly study sessions. Immediate support is always available.
OFFICE OF DISABILITY SERVICES
www.umarc.miami.edu

The Office of Disabilities (ODS) is the primary University office responsible for the coordination of auxiliary aids and services for students with disabilities (Please also see information listed under the Academic Resource Center (ARC). Information is available to prospective and enrolled students, their parents and/or sponsors.

The Americans with Disabilities Act defines an individual with a disability as a person who
a) has a physical or mental impairment which substantially limits one or more of the person’s major life activities,
b) has a record of such an impairment or
c) is regarded as having such an impairment.

Students requesting services must submit current documentation to the Office of Disabilities along with a written request for services. The Office of Disabilities requires that documentation be current (within 3 years) and describe the nature of the disability, include a diagnosis by professionals in the field, outline the history of the disability and the treatment. Documentation should include a description of how the disability relates to the need for services. Auxiliary aids and services are provided on an individual basis, and may include, but are not limited to: letters to instructors outlining accommodation needs, note takers, testing accommodations and assistance with accessibility issues. Students should submit documentation at least one month prior to the start of classes to ensure time for the coordination of services. Academic accommodations are not applied retroactively and may only be provided to students officially registered with the Office of Disability Services. Confidentiality of records is maintained by the Office of Disabilities. Students seeking services should contact Office of Disabilities to discuss individual needs and obtain documentation guidelines specific to their disability.

The Office of Disability Services also reviews documentation for University housing accommodations. Students are required to complete all the necessary applications, pay all deposits, and meet all deadlines set forth by University Housing. Students must then submit documentation to the Office of Disabilities along with a written request for housing accommodations. Students are encouraged to submit requests early or prior to regular housing registration. Requests received after housing assignments have been published may not be considered until the following semester due to availability.

Documentation will only be reviewed once it is complete. Students are notified in writing of the decision. Documentation guidelines may be obtained by contacting the office or visiting our website.

Services of a personal nature (for example, readers for personal use or assistance in eating or dressing) are not provided through ODS. However, ODS counselors may make referrals, where possible, to other offices or agencies that may assist in providing nonacademic or personal services.
Office of Disabilities is located in the Academic Resource Center in Whitten University Center N201. ODS staff can be reached at 284-2374 (Voice), 284-3401 (TDD) or 284-1999 (Fax). Office hours are 8:30 am to 5:00 pm, Monday through Friday. Individuals may email the office staff at disabilityservices@miami.edu for quick responses to questions.

**Office of Disabilities Internal Appeals Procedure:**

The University of Miami, through the Office of Disability Services, has adopted a grievance procedure providing for prompt resolution of complaints by persons who believe they have been subjected to discrimination based upon their disability.

All complaints must be addressed to the University of Miami, Office of Disability Services, P.O. Box 249003, Coral Gables, Florida, 33124 or emailed to disabilityservices@miami.edu to the attention of the director.

1. All complaints must be in writing and must contain the name and address of the Complainant, and set forth specific facts in support of his/her complaint.

2. All grievances must be filed within 90 days of the alleged discriminatory event. If the complaint involves the denial of a student's request for auxiliary aids and services or other modifications, the grievance must be filed within five (5) days after the student receives notification that their request for auxiliary aids and services or other modifications has been denied.

3. An investigation, if appropriate, will be conducted by the Director of the Academic Resource Center (“the Director”) or a designee following receipt of the grievance. The Director may review information and documentation contained in a student's file, academic record and/or any other information an individual may submit in support of his/her grievance.

4. Within ten (10) working days of the receipt of the grievance, the grieving party will receive a written decision from the Director.

5. If the person does not agree with the decision, he/she may submit a final written appeal to the Vice Provost for Undergraduate Affairs or his designee, Ashe Building, Room 240, Coral Gables, Florida, 33124. The written appeal must: specifically state the issues to be considered and set forth “why” the individual disagrees with the Director's decision. This appeal must be received by the Vice Provost's office within ten (10) days of the date of the Director's decision. The individual may not include any new or additional information that was not presented in the initial grievance.

6. Although the University will make every effort to comply with the timelines set forth herein, circumstances such as school breaks, may justify an extension of time.

Retaliation against a person who files a grievance, or opposes a policy he/she believes to be discriminatory is prohibited.
Persons may contact the Assistant Director of Disability Services, who is responsible for coordinating the University's 504 compliance efforts at (305) 284-2374 (P.O. Box 249003, Coral Gables, Florida, 33124), with any questions or concerns.

Individuals, who believe that they were subjected to discrimination on the basis of disability by the University of Miami, are encouraged to use this grievance procedure to resolve their concerns. Individuals may, however, wish to file a complaint directly with the U.S. Department of Education, Office for Civil Rights, 61 Forsyth Street, Suite 19T70, Atlanta, Georgia, 30303 (404) 562-6350.
CANE CARDS

The Cane ID Card is an on campus student identification card. Students, faculty and staff must present appropriate identification when acquiring their card. The Cane ID Card provides access to on-campus student residences, the Otto G. Richter Library, computer laboratories, the swimming pool, the Student Wellness Center (for those who purchase a membership), and other facilities where access has been granted. The Cane ID Card is also used to control lending privileges at the library, access to athletic and other events (fee required), the purchase of discounted Metrorail tickets, and meal plan privileges.

All University of Miami students, faculty and staff are required carry their Cane Cards for identification purposes while on campus.
THE DEPARTMENT OF COMMUTER STUDENT INVOLVEMENT

The Department of Commuter Student Involvement (CSI) is located on the second floor of the University Center, Room 236. This department offers a variety of services and programs for the University of Miami commuter student. For more information, please visit our site at www.miami.edu/csi.

The Association of Commuter (ACS) is a second home for its members; a place to bond with fellow students and to participate in all that the University of Miami has to offer. ACS provides its members with a working knowledge of UM that gives them the opportunity to become fully involved in campus life. Brought together by a simple fact of life, commuting to school, ACS members have forged bonds that extend beyond this common circumstance. If you would like further information on joining this very active student group, please visit their website at http://www.miami.edu/studorgs/acs/.

The Commuter Advisory Board (CAB) is a group of students organized to voice the concerns of the off-campus/commuter to the administration and to plan programs focused specifically for the off-campus community. CAB offers leadership roles to commuter students as well as provides commuter students with information and guidance about off-campus life. CAB organizes the annual Commuter Community Meeting in addition to the Off-Campus Housing and Roommate Fair. If you are interested in joining, please visit the Commuter Student Involvement web site.

Great Start is an overnight, pre-orientation program designed to promote and emphasize college adjustment and campus involvement opportunities. The program's goal is to help you feel like a part of the University and give you a chance to meet other commuter students. Students who participated in Great Start have said the program greatly contributed to a positive transition from high school to college. Several of the participants return to the program to serve as Great Start Counselors. http://www.miami.edu/greatstart
OFF-CAMPUS HOUSING ASSISTANCE

www.miami.edu/housing

The Department of Residence Halls provides assistance to students, staff, and faculty with identifying off-campus housing options. A web-based search engine of community listings and information about off-campus apartment complex listings is available along with other resources such as:

- Individual consultations & appointments
- Over-the-phone guidance
- Knowledge of the greater Miami area & specific neighborhoods where students typically reside
- Roommate search assistance

For more information about assistance with off-campus housing, please see the Department of Residence Halls web page at www.miami.edu/housing. Their office telephone number is (305) 284-4505 and their e-mail address is housing@miami.edu.
COUNSELING CENTER

www.miami.edu/counseling-center

A college experience should be both productive and enjoyable, however, at times it can be stressful and overwhelming.

The Student Counseling Center has personal counselors who can help students effectively cope with the challenges of college life and facilitate learning, growing and socializing. The Counseling Center offers a wide range of services, including short-term individual counseling, career and educational counseling, outreach programs, and various groups aimed at enhancing personal growth and development. The Center is staffed by an experienced team of professionals from the fields of psychology, psychiatry, mental health counseling and social work.

Regular appointments are available Monday through Friday from 9 a.m. to 5 p.m. Students can call the Counseling Center directly at (305)284-5511 or come in person to request appointments. Generally, students can be seen the same day or the next day following their request for an appointment. The University Counseling Center is located in Building 21-R of the Center for Student Services. If a crisis occurs when the Center is closed, counselors can be reached by calling the University of Miami Police department at (305) 284-6666.

SEXUAL ASSAULT RESPONSE TEAM (S.A.R.T.)

The Counseling Center also coordinates the Sexual Assault Response Team (S.A.R.T.). Trained advocates can be reached for support related to a sexual assault at any time during the regular academic year by phoning (305) 798-6666.

STUDENT TRAINING

The Counseling Center participates in the Department of Psychology and the Department of Educational and Psychological Studies graduate training programs by making it possible for doctoral students in psychology to take part in the Center’s professional activities and to have first-hand contact with clinical problems. In addition, interns obtain professional training at the Counseling Center through the Dr. Jess Spirer Predoctoral Internship in Professional Psychology.
OFFICE OF THE DEAN OF STUDENTS - UNDERGRADUATE

www.miami.edu/dean-students

The Dean of Students Office houses the Honor Council and is also responsible for the administration and record keeping of all undergraduate student disciplinary programs. The Dean of Students Office staff advises and directs the efforts of students, faculty and administrators in disciplinary and Honor Code-related concerns.

The Dean of Students Office coordinates The Center for Alcohol and Other Drug Education and oversees the University Chaplains Association. Also, the Dean’s Office plays an integral role in the development of students by advising the Association of Greek Letter Organizations, the National Pan-Hellenic Council, Inc., the Interfraternity Council, the National Association of Latino Fraternal Organizations, Inc., the Panhellenic Association, Rho Lambda National Leadership Recognition Society for Sorority Women, Order of Omega Greek Leadership Honor Society, Gamma Sigma Alpha National Academic Greek Honor Society, Alpha Lambda Delta Freshmen Honor Society, BACCHUS and GAMMA.

The Dean of Students Office coordinates efforts in response to various student crises. Along with the Deans, the staff includes a Licensed Clinical Social Worker. The entire staff is knowledgeable and prepared to assist all students in their adjustments to campus life.

The Dean of Student Office is located in Building 21 (Center for Student Services), Suite H, (305) 284-5353.
GENERAL CAREER SERVICES

TOPPEL CAREER CENTER
www.miami.edu/toppel

The Toppel Career Center, located in the Whitten University Center, assists undergraduate students, graduate students and alumni in formulating their career plans and in pursuing graduate/professional school as well as full-time and internship opportunities.

It is the intent and desire of the University of Miami and the Toppel Career Center to provide equal employment opportunities for students and graduates regardless of race, color, national origin, religion, gender, sexual orientation, age or disabilities.

INDIVIDUAL CAREER ADVISING SESSIONS with professional career advisors are available to assist students with career questions, issues and concerns. Students are encouraged to meet with a professional staff member to discuss career goals and to obtain assistance in developing a career action plan (please call to make an appointment).

WALK-IN ADVISING is a service provided to students and alumni who need assistance with developing their resume and/or cover letter. No appointment is necessary for Walk-In advising - simply stop by Toppel Monday through Thursday, 10am - 4pm.

A series of PROGRAMS is offered throughout the academic year. Each session provides information and skill-building activities in the areas of resume development, interviewing skills, networking, securing internships, and much more.

THE TOPPEL INTERNSHIP PROGRAM is designed to provide valuable career-related work experience through internships with participating employers. Students can search CaneZone for hundreds of opportunities available to them. It is recommended that students complete at least two internships while in school. Students may take on an internship position beginning the second semester of their freshman year. The Toppel Internship Program can provide a zero-credit transcript notation that will be visible on University of Miami transcripts. Participating students will be registered for a course (UMI, University of Miami Internship) that will allow work experience related to major, career path, or possible career path/interest.

ON CAMPUS RECRUITING (OCR): Representatives from local, national and international businesses and industries, governmental agencies, military services, human services, and school systems visit the campus to meet with students and to interview and discuss career employment opportunities with graduating students and alumni. Individual interviews are scheduled with visiting employer representatives.

CAREER EXPOS AND EVENTS are open to all students and alumni and range from general events to major-specific fairs. CAREER EXPO is held twice a year - September 16, 2009 and February 10, 2010 - and is inclusive of all industries and majors. Special CAREER FAIRS are held for interested students in Accounting, Architecture, Education, Nursing and Health Sciences, Non-profit/Government, and Green Careers. Regardless of the focus, these EXPOS and FAIRS are intended to
provide students and alumni with an opportunity to network with recruiters from a wide variety of industries.

**CAREER LIBRARY RESOURCES:** The Toppel Career Center has established a comprehensive and current career resource and research facility, which contains career-related materials for use by University students and alumni in areas such as regional employment opportunities, salary surveys, descriptions of specific careers and the preparation necessary to attain them. Resource areas include:

- Job Postings
- Magazines and Periodicals
- Newspapers
- Career Resource Books
- Full and Part-time Job Binders

**A COMPUTER LAB** enables students to work on their job and internship search. CaneZone our Career Management System, an internet-based program, allows students to create a career profile, upload resumes, search for jobs and internships, and sign up for on-campus interviews. Students/alumni can also utilize TypeFocus, a computerized career information system, which is an excellent tool for career decision-making.

**The TIP Program** allows students who have already secured an internship a zero-credit transcript notation from the Toppel Career Center. The University of Miami Internship (UMI) course is offered fall, spring, and summer, and will allow you to have work experience related to your major, career path, or possible career path/interest and it will provide recognition of the internship experience on your official transcript. Part-time internships require at least 160 working hours while full-time internships require at least 320 working hours.

**The Launch Pad** is a career guidance component of the Toppel Career Center, providing resources to entrepreneurs and inventors at the University of Miami. They provide weekly information sessions and networking events, one-on-one facilitation to help students and alumni launch their ventures or help their companies grow, a venture coaching program, and an opportunity to join the Launch Pad Network, which will help you network with fellow entrepreneurs and inventors.
THE HONOR COUNCIL – UNDERGRADUATE

www.miami.edu/honor-council

The Honor Council is a standing committee of 29 undergraduate student representatives who are responsible for educating the University community on Honor Code related issues. The members promote academic integrity through a variety of educational programs and also investigate and adjudicate alleged violations of the Undergraduate Student Honor Code.

The purpose of the Honor Code is to protect the academic integrity of the University by encouraging consistent ethical behavior in assigned course work by students. Members of the University community who would like to request Honor Council programming or investigation of alleged academic dishonesty are encouraged to call the Secretary of the Honor Council at 284-5353.
THE DEPARTMENT OF INTERNATIONAL STUDENT AND SCHOLAR SERVICES (ISSS)

The Department of International Student and Scholar Services (ISSS) represents the needs and interests of the University of Miami international community and provides support services and programs for international students, scholars, observers and academic departments at UM. Over 1500 international students (undergraduate and graduate), 335 international scholars (professors and researchers), and 590 international observers from approximately 113 countries are studying, teaching, conducting research and observing at UM.

International students and scholars face some unique challenges as well as opportunities while pursuing their academic goals at UM. The professional and dedicated ISSS staff provides expert advice, services, programs, and information aimed at supporting their educational endeavors and enriching their U.S. experience over the entire course of their stay. ISSS support services and programs encompass:

- Pre-Arrival Information
- International Student Orientation
- International Scholar Orientation
- Immigration Advising for Students and Scholars in F-1 and J-1 Status
- Employment Information and Authorization
- CINTAX Online Tax Preparation Program
- Federal Income Tax Session
- Liaison with Sponsoring Embassies, Government and Agencies
- Short-Term, Small Emergency Loans
- Assistance with Personal and Adjustment Problems
- Assistance in Coping with Crises
- Advocacy
- Host-Family/Friends Program (HFFP)
- International Spouses Club (ISC)
- Advisory Committee of International Students (ACIS)
- Support for COISO: International Student Club and Cultural Student Clubs

On the ISSS website you will find detailed information regarding each of these services and programs. Please do not hesitate to contact us should you have any questions or require additional information. Our contact information is provided below. We look forward to assisting you.

**International Student and Scholar Services Staff:**

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td>Teresa de la Guardia</td>
<td><a href="mailto:tdelaguardia@miami.edu">tdelaguardia@miami.edu</a></td>
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<tr>
<td>Secretary</td>
<td>Marie Casimir</td>
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<tr>
<td>Secretary</td>
<td>Valarie Williams</td>
<td><a href="mailto:vwilliams@miami.edu">vwilliams@miami.edu</a></td>
</tr>
</tbody>
</table>
International Student and Scholar Services
University of Miami
5600 Merrick Drive, Building 21-F
Coral Gables, FL 33124-5550
Telephone: 305.284.2928
Fax: 305.284.3409
Email: isss@miami.edu
Website: www.miami.edu/internationalservices

The ISSS office is open Monday through Friday from 8:30 a.m. to 5:00 p.m.
LIBRARIES

The University of Miami Libraries provide support and services for students, faculty and staff. Please visit their website for detailed information.
OMBUDSPERSON AND UNIVERSITY TROUBLESHOOTERS PROGRAM

www.miami.edu/ombudsperson

The Ombudsperson acts as an independent representative of the University to listen to student grievances and complaints. The Ombudsperson listens to the concern, investigates the facts and attempts to resolve situations in the best possible way. The Ombudsperson neither makes University policy nor overrides it. However, because of extensive knowledge of the University, the Ombudsperson is in a position to interpret University policy to students and make recommendations to the central administration when policy changes are needed. The Ombudsperson expedites the decision-making process within the University and ensures that the University follows its own published policies and procedures.

The Ombudsperson Program was not established to bypass or circumvent those individuals who have responsibility for departments or classroom instruction. Nor is the Ombudsperson Program designed to eliminate certain structured grievance and appellate mechanisms already established by the University. Each academic department and each administrative unit has established a contact person, known as a University Troubleshooter, to assist students with academic and administrative related matters. These University Troubleshooters are faculty members and administrators who serve as a resource for students seeking assistance.

Academic Troubleshooters

Administrative Troubleshooters

When regular channels have not brought resolution to your problem and after you have spoken to the appropriate University Troubleshooter, you should contact the appropriate Ombudsperson. The Ombudsperson seeks to resolve matters informally before they become matters in a formal grievance-appeal proceeding and assists students in reestablishing communication with the person or persons with whom a complaint may have been filed.

The University Ombudsperson is Dr. Gail Cole-Avent. Academic cases are addressed by the Academic Ombudsperson, V. Chunoo. To access the University of Miami Ombudsperson and University Troubleshooters program, contact the Office of the Vice President for Student Affairs, Ashe Administration Building Room 244, or 305-284-4922. For more information, visit www.miami.edu/ombudsperson. Concerns may be submitted through an online form located on that website.
UNIVERSITY HOUSING/RESIDENCE LIFE
www.miami.edu/housing

The University of Miami offers undergraduate on-campus housing in five residential colleges, an apartment area consisting of seven buildings, and University Village that is comprised of seven buildings and two parking garages.

Each residential college has resident faculty members (Masters and Associate Masters), a student affairs professional staff member (Residence Coordinator) and student staff who live in the residential college with the resident students to support and promote student well-being, safety, academic achievement, student learning, and development. In addition, numerous social, educational, cultural, and recreational programs are offered throughout the academic year.

Special Interest Housing (SIH) is also available within the residential college system—existing programs, La Casa-The International Quarter and STRIVE, center around international languages & cultural immersion and volunteerism & leadership development. Additionally, for 2009-2010, three new SIH programs have been established (Canes Advocating a Substance Temperate Living Environment [CASTLE], Greeks at the U, and U Live U Learn) which consist of themes related to supporting a substance free lifestyle, developing a united community from various Greek organizations, and the promotion of academic exploration.

- The University has both single and double rooms. Singles are assigned based on seniority living on campus and, thus, entering students are assigned to double occupancy rooms. Effort is taken to assign roommates of similar age, class standing, and smoking preference.

- All non-local freshmen students are required to live in University housing for two academic semesters, as long as space is available. This policy does not apply to freshmen students living with parents or legal guardians in Miami-Dade or Broward Counties.

- The Apartment Area on campus offers two and three bedroom furnished apartments housing four to six students per apartment. Junior standing or above is required to reside in the Apartment Area.

- University Village, which is an apartment-style residential community with 12-month agreements, is an available option to juniors and seniors. The apartments are fully furnished and include in-apartment washers and dryers, full-size kitchen appliances (stove, refrigerator, microwave, & dishwasher), and free reserved parking. For general information on University Village, go on the web to http://www.miami.edu/universityvillage.

- All housing facilities are co-educational with men and women living on alternate floors or alternating separate suites or apartments.
All residential college rooms and apartment bedrooms are air-conditioned and equipped with a bed, dresser, desk, chair, trash can, and window coverings. 75+-channel cable television and local telephone service are also provided. Each residential college room and University Village bedroom is wired for internet access and wireless internet access is available in the Apartment Area.

Admitted undergraduate students, following verification of acceptance to the University and payment of the enrollment deposit, can apply for housing on-line in myUM. myUM is the University’s web-based, interactive information hub.

- Students are encouraged to apply for housing as soon as possible after paying the enrollment deposit. New freshmen housing applications should be submitted by May 1, 2009; applications received from new freshmen after May 1, 2009 will be accommodated on a space available basis.
- The $250 non-refundable deposit can be paid by credit card or electronic debit from a checking account at the time of application.
- Assignments to buildings, rooms, and specific roommates are made according to the date of application and receipt of the housing deposit.
- Whenever possible, requests for specific buildings, rooms, and roommates are honored. However, if specific preferences are not available, the University reserves the right to assign students to other locations and roommates.

The 2009-2010 housing agreement is for both fall and spring semesters (12-month annual agreement for University Village), unless the applicant is:

1. applying only for spring semester housing (not available in University Village)
2. applying only for summer session housing
3. graduating in December (and May as well for University Village)
4. participating in a University of Miami study abroad experience spring semester (or summer for University Village)
5. not enrolling in the University spring semester (or for subsequent fall semester in University Village)

Housing cancellations received through May 31, 2009 will result in the forfeiture of the $250 housing deposit. Cancellations received after May 31, 2009 will result in:
- the forfeiture of the $250 housing deposit; plus
- the canceling student remaining responsible for the fall semester housing charges, unless or until the vacancy created by the cancellation can be filled by another qualifying University student

*Note: Written notice of cancellations must be made to the Department of Residence Halls Office directly.

The dates of housing availability are:
- Fall Semester August 19, 2009 - December 18, 2009
- Spring Semester January 12, 2010 - May 15, 2010
The Department of Residence Halls also provides assistance to students, staff, and faculty with identifying off-campus housing options. A web-based search engine of community listings and information about off-campus apartment complex listings is available along with other resources such as:

- Individual consultations and appointments
- Over-the-phone guidance
- Knowledge of the greater Miami area & specific neighborhoods where students typically reside
- Roommate search assistance

For more information about housing on campus or assistance with off-campus housing, please see the Department of Residence Halls web page at www.miami.edu/housing. Their office telephone number is (305) 284-4505 and their e-mail address is housing@miami.edu.
STUDENT HEALTH SERVICE

The Student Health Service provides primary care, specialty care and pharmacy services to eligible University of Miami students. You are not required to have the Health Center sponsored insurance plan to utilize their services. Most services are available on a “drop-in” basis and many are provided free of charge. Appointments are available for specialty care and other services, if preferred.

The Student Health Service is located at 5513 Merrick Drive, Coral Gables, Florida 33146, (across from the Pavia Garage).

Contact numbers are:
Telephone: (305) 284-9100/Fax: (305) 284-4098

Hours of operation:
Fall and Spring semesters: 8:30 a.m. to 5:00 p.m., Mondays, Tuesdays, Wednesdays and Fridays. On Thursdays: 9:00 a.m. to 5:00 p.m. Sundays: 12:00 Noon until 4:00pm
Winter break, Spring break, and Summer sessions: Monday through Friday from 9:00 a.m. to 4:30 p.m.

The Health Service is closed on Saturdays and University holidays. After hours assistance is available by calling (305) 284-9100.

For sudden, severe illness or serious accident dial 911. For illnesses or injuries requiring immediate attention, students are urged to go to an Emergency Room. After hours assistance for urgent situations can be obtained by dialing (305) 284-9100. Students with UnitedHealthcare insurance may also contact the UnitedHealthcare Nurseline by calling (800) 436-7709 and selecting the Health Resources option. For less urgent conditions, you may visit one of the local Urgent Care Centers.

HEALTH INSURANCE

Domestic students enrolled in six or more credit hours per semester (or considered full time) are required to obtain adequate health insurance (see exceptions). The annual premium for the health insurance plan offered through the Student Health Service is added to each student's fees. Domestic students with adequate alternative coverage may request cancellation of the insurance fee via myUM. Insurance cancellation must be renewed each year via myUM.

Deadlines to waive the insurance are:
July 25 for the Fall semester,
January 25 for the Spring semester,
April 25 for Summer I,
June 25 for Summer II.

Domestic students can check the status of their insurance waiver/cancellation request via myUM. The insurance premium will be prorated for those students entering for the first time in the Spring or Summer semesters. No waiver and/or refund will be granted after the above dates.
Students who have previously waived the insurance charge can reinstate the insurance prior to the Spring semester or first Summer session by completing the reinstatement request form and checklist. Coverage can also be reinitiated at the start of the Fall semester by choosing not to re-waive the charge, or at other times during the academic year, if within 30 days of termination of other similar coverage, by completing the reinstatement request form and checklist. Documentation of termination may be requested.

Deadline for reinstatement of insurance is January 25th for the Spring. Please do not consider your reinstatement complete until reinstatement has been verified via myUM, the charge has been posted to your student account and all charges on your account have been paid.

All international students are required to enroll in the University sponsored health insurance program. The annual premium for this coverage is added to each student's fees.

Any additional questions regarding the health insurance requirement should be directed to the Student Health Service at 305-284-9100 or to studenthealth@miami.edu.

**IMMUNIZATION**

All new students are required to provide proof of immunization against measles, mumps and rubella. All new students must also provide proof of immunization against hepatitis B and meningococcal meningitis or sign a waiver declining these immunizations. An immunization form must be completed and returned to the Student Health Service prior to arrival on campus. For students less than 18 years old, the meningitis/hepatitis vaccine waivers must be signed by a parent or legal guardian.

All international students must also be screened for tuberculosis by completing page two of the immunization form.

Deadlines for submission of immunization records are Fall - August 22nd, Spring - January 15th, Summer - April 15th. Failure to comply with this requirement will interfere with registration. A $50.00 processing fee will be charged for any form received after the start of the semester. Forms will be processed within 48 hours of receipt, and immunization status can be verified via myUM.

Most students will be able to obtain the required immunization information from their prior medical providers or from their prior high school, college or university. Students who believe that they were previously immunized but are unable to provide proof of immunization may either obtain blood tests confirming immunity or obtain the necessary immunizations. Immunizations and blood tests documenting immunity are available at the Student Health Service. All charges are in addition to processing fees for late forms.

Immunization against varicella (chicken pox) and tetanus/diphtheria/pertussis are also suggested and are available at the Student Health Service for reasonable charges.

All students living on campus will also be asked to document receipt of hepatitis B and meningococcal meningitis immunizations, or to acknowledge both receipt of
information about these vaccines and preference against immunization, as part of the housing sign-up process.

**PHARMACY**

The pharmacy is located on the second floor of the Student Health Service, and can fill prescriptions from most local and out of town medical providers.

Prescription prices are often lower than at local drug stores, and most insurance plans are accepted. For students with the Student Health Service sponsored UnitedHealthcare insurance plan, low cost generic medications are available at the Student Health Service Pharmacy. Non-prescription medications, vitamins, nutritional supplements, personal care products, over-the-counter medications, and condoms are also available. New prescriptions can be dropped off or called or faxed by the ordering provider. Refill requests will be handled most promptly by having your prescription number available and calling the automated refill line at (305) 284-5922. Refills can also be requested via myUM.

- Students, spouses, and dependents may have their prescriptions filled at the Health Service pharmacy.
- Students with the Health Service sponsored insurance plan receive enhanced benefits if prescriptions are filled at the Health Service pharmacy.

Pharmacy telephone: (305) 284-5922; fax: (305) 284-4883.

Hours of operation:
Fall and Spring semesters are from 9:00 a.m. to 5:30 p.m., Monday through Friday. Winter break, Spring break, and Summer sessions, 9:00 a.m. to 5:00 p.m. Monday through Friday.

The pharmacy is closed on Saturdays, Sundays, and on University holidays.
UNIVERSITY DINING SERVICES

The University of Miami Dining Services program offers students a variety of food options conveniently located throughout the campus. Among these are the:

- **Hurricane Food Court** - featuring varied concepts including several well known national brands;
- **Sbarro** - a poolside Italian eatery;
- **Wellness Center Juice Bar** - featuring a variety of healthy food options;
- **Jenkins Snack Bar** – the perfect spot to grab a quick bite at the School of Business;
- **The Oasis** – our newest concept specializing in kosher deli products;
- **C-Store** – a full service convenience store;
- **Starbucks at Richter Library** – your favorite specialty coffee;
- **Carts** – for your convenience around campus.
- **University Village C-Store** – providing UV residents all your convenience store needs.

The University of Miami Dining Services program offers a variety of services that meet the individual student’s schedule of classes and extracurricular activities. Five different meal plan options are offered at the Hecht/Stanford and Mahoney/Pearson Cafeteria:

- 20-meal plan providing any 20 meals per week;
- 14-meal plan providing any 14 meals per week;
- 8-Kosher Plus meal plan providing any 8 meals per week;
- 8-meal plan providing any 8 meals per week;
- 5-meal plan providing any 5 meals per week;

Enrollment in any of the residential colleges (excluding Apartments and University Village) requires participation in either the 8, 8-Kosher Plus, 14, or 20 meal plans.
- Freshmen must choose from the 20, 14, or 8-Kosher Plus Meal Plans only.
- The 5-meal plan is open to Commuter, Apartment area or University Village students only. This plan provides five meals per week.
- Graduate and undergraduate students who are 25 or older as of September 1 of the contract year are excluded from this requirement.
- Apartment, commuter, and other students not enrolled in the residential colleges may participate in any meal plan.
- All meal plans are available seven days a week. Students have the opportunity to eat meals five times a day up to their weekly meal total.

Dining Dollars

- Dining Dollars provided with the meal plan may be used in approved food service locations for food purchases only. Usage is limited to $20 per day.
- Unused Dining Dollars at the end of the Fall Semester will carry into the Spring Semester.
- Unused Dining Dollars at the end of the Spring Semester are forfeited.
- Dining Dollars may be used at the Hurricane Food Court, Carts, The Oasis, Sbarro, Convenience Store, UV C-Store, Rathskeller, Subway, Jenkins Snack Bar, Starbucks, BankUnited Center and Wellness Center Juice Bar.
Dining Services Contract

- The Dining Services contract begins with the first meal of Fall Semester and extends through the last meal of Spring Semester.
- The student indicates choice of meal program on the Dining Contract or via myUM.
- The student’s signature on the Dining Contract or election via myUM signifies acceptance of that board plan for the period indicated.
- Students who do not enroll in any of the meal plans will be force enrolled. All terms and conditions will be binding upon the student.
- Meals are not served when the University is not in session, during official University vacation periods, or between semesters.
- The entire semester amount must be paid in full at the same time students pay other registration costs (tuition and fees) during or before the first week of classes.
- All students may make changes to their meal plan within the first week of the semester by notifying the Department of Dining Services or via myUM.
- Changes made to meal plans for the Spring Semester will be assessed a $40 processing fee.
- Charges will be prorated up to the end of the week.
- Meal plan weeks run Monday through Sunday.
- Releases will be subject to a $300 penalty plus full charges through the week of cancellation, and may result in a Dining Dollars surcharge fee.
- Approval is obtained solely through the Department of Dining Services.
- The University reserves the right to terminate the contract by written notice if a student fails to comply with any of the terms and conditions of the contract and all other University and Dining Services rules and regulations.

For more information on Dining Services write to University of Miami, Dining Services, P.O. Box 248106, Coral Gables, FL 33124-6909, call Dining Services at 305-284-3584, email diningservices@miami.edu or visit www.miami.edu/dining-services.
HONORS PROGRAMS

In 1957 the faculty of the University of Miami established the General Honors Program to provide an academically challenging course of study for outstanding students. The program was later expanded by the addition of departmental honors. Students who satisfactorily complete the requirements for general and/or departmental honors are graduated with General Honors and/or Departmental Honors; the award is noted on the graduates diploma and official transcript.

GENERAL HONORS PROGRAM

Over the past four decades since its foundation, the General Honors Program has grown. The program coordinates courses and sections each semester at the introductory through advanced levels, in a wide variety of fields in all colleges and schools of the University. In general, Honors courses are small classes taught as seminars with emphasis on interactive learning and discussion.

ADMISSION TO GENERAL HONORS

The University of Miami Honors Programs takes the initiative to invite the top 10% of the entering freshman class to join the General Honors Program. On receipt of an invitation, there is no further action required on the part of the student.

RETENTION AND REQUIREMENTS FOR GRADUATION WITH GENERAL HONORS

To remain in the General Honors Program a student must maintain an overall academic average of 3.500 and complete at least two Honors courses (six credits) per academic year.

To graduate with General Honors, a student must satisfy at least 24 credits in General Honors courses with a grade of “B” or better and have an overall grade point average of 3.500. Twelve of the 24 credits must be in courses at the 200 level or above. No more than 12 credits in the student’s major may be counted toward the 24 credits in General Honors.

WITHDRAWAL, DISMISSAL, AND REINSTATEMENT TO GENERAL HONORS

Students may withdraw from the program at any time at their discretion. They should notify the Honors Office in writing of their intention to withdraw. Honors students grade point averages and general performance are reviewed each academic year. Any student who fails to maintain the required cumulative grade point average or fails to take the required number of Honors credits will be excused from the program. Students may re-enter the program when their grade point average reaches 3.500; however, students must inform the Honors Office of the improved average and of their interest in re-entering the program.

DEPARTMENTAL HONORS PROGRAM

Among the departments offering approved programs for honors study at the junior-senior level for both majors and elective students are American studies, art and art history, biochemistry and molecular biology, biology, business administration, chemistry, computer science, engineering, English, finance, French, German, history, international finance and marketing, international studies, Judaic Studies, marine science, mathematics, meteorology,
microbiology and immunology, philosophy, political science, psychology, religious studies, sociology, Spanish, and women’s and gender studies. Admission into the program is by invitation, but any student who believes himself or herself qualified may apply to the Chairman or the Departmental Honors Advisor of the major department, preferably during the sophomore or early junior year. Upon successful completion of the required program and with approval by the faculty of the department, the notation Departmental Honors in ... is included in the candidate’s diploma and transcript.

Departmental Honors Programs are designed primarily to provide an opportunity for the superior student to intensify and deepen his or her knowledge of the major, to permit closer associations with professors in the student's area of concentration, and to prepare the student for research, thesis preparation, and other work at the graduate level in the major areas.

Minimal requirements for graduation with Departmental Honors are:
1. an over-all average of at least 3.300;
2. six credit hours or more in independent study, senior thesis, or designated advanced or special honors courses specified by the department, with grades of at least B;
3. an average in the major of at least 3.500.

Some departments specify additional requirements; the prospective Departmental Honors student should confer with the Honors Advisor within the department about specific requirements.

The College of Engineering offers a professionally oriented honors program which is described in their respective listing elsewhere in the Bulletin.

**FOOTE FELLOWS PROGRAM**

The Foote Fellows program, established in honor of former University of Miami President, Edward T. Foote II, each year allows a highly select group of incoming first-year undergraduate students an opportunity to explore a wide range of academic pursuits and interests across the curriculum. Foote Fellows, while completing specific requirements for their individual school or college, are exempted from university general education requirements. They also receive special academic mentoring and the opportunity to participate in many special education events and cultural activities.

**Honors Program in Exercise Physiology (HPEP)**

The Department of Exercise and Sport Sciences offers a 5-year program for promising students majoring in Exercise Physiology. Very highly qualified students are eligible to complete an accelerated 4-year program leading to a Bachelor of Science degree in Exercise Physiology followed by one additional year of graduate coursework.

The additional year of study will enable students to complete all requirements leading to a Master of Science degree in Exercise Physiology in the School of Education, (M.S. Ed.), in 5 years. To be considered applicants must be in the top 10% of their high school graduating class. Students must have a minimum SAT score of 1300 or an ACT score of 30 and an Unweighted GPA of 3.75. The HPEP application form and supporting materials must be submitted no later than November 1st of the applicant’s senior year. A review of completed applications will begin by the end of November.
HONORS PROGRAM IN LATIN AMERICAN STUDIES (HPLA)
The Honors Program in Latin American Studies (HPLA) is a dual degree program that allows students to receive a Bachelor of Arts and Master of Arts in five years following a rigorous, efficient, accelerated curriculum. This highly selective group of students will enjoy close faculty mentoring and the opportunity to engage in specialized research projects with faculty. Students will receive first-hand experience in their regions of focus by studying abroad. Most study abroad opportunities are for duration of six months. Applicants must be high school seniors in the top 10% of their class and must have a minimum SAT I score of 1360 or (ACT 31). In addition to the regular Application for Admission to the University, the applicant must complete a separate application form for the Honors Program in Latin American Studies. The HPLA application form and supporting materials must be submitted no later than November 1st of the applicant’s senior year. A review of completed applications will begin by the end of November.

For further information and application forms please go to the following web address: www.miami.edu/dualdegree.

HONORS PROGRAM IN MARINE GEOLOGY (HPMG)
The Honors Program in Marine Geology (HPMG) allows exceptional students to pursue an accelerated program in the undergraduate Geological Sciences and graduate Marine Geology and Geophysics programs. The degree consists of an undergraduate Bachelor of Sciences degree in Geological Sciences from the College of Arts and Sciences, combined with a graduate Master of Science degree from the Division of Marine Geology and Geophysics at the University of Miami Rosenstiel School of Marine and Atmospheric Science. Applicants must be high school seniors in the top 10% of their class and must have a minimum SAT I score of 1360 or (ACT 31). In addition to the regular Application for Admission to the University, the applicant must complete a separate application form for the Honors Program in Marine Geology. The HPMG application form and supporting materials must be submitted no later than November 1st of the applicant’s senior year. A review of completed applications will begin by the end of November.

For further information and application forms please go to the following web address: www.miami.edu/dualdegree.

HONORS PROGRAM IN MEDICINE (HPME)
The Honors Program in Medicine (HPME) provides an opportunity for outstanding high school seniors who are seeking careers in medicine or medical science to obtain the Bachelor of Science and Doctor of Medicine degrees in seven or eight years.

This program has been designed by the School of Medicine and the College of Arts and Sciences. It provides a plan whereby students entering the University of Miami are admitted simultaneously into the Honors Program and a special Privileged Studies Program in the College of Arts and Sciences which allows HPME students to participate in an enriched and challenging curricular experience without the strictures of conventional distribution requirements. HPME students are secure in the knowledge that they will have a place in the University of Miami School of Medicine as early as three years hence provided they maintain a cumulative grade point average of 3.700 in the sciences as well as an overall 3.700 GPA.
Applicants must have had in high school, or be in the process of completing at the time of application, four years each of English and mathematics and one year each of biology, chemistry, and physics. A course in calculus must be taken before beginning the program. Applicants who would like to be considered must have minimum scores of 1400 on the SAT I (or 32 ACT), be in the top 5% of their high school graduating class and have an unweighted GPA of 3.750. College Entrance Examination SAT II Subject Tests must be taken in mathematics, and either biology, chemistry, or physics and have a minimum score of 600. These tests must be taken no later than the October testing date of the applicant’s senior year in high school. In addition to the regular Application for Admission to the University, the applicant must complete a separate application form for the Honors Program in Medicine. The HPME application form and all supporting materials must be submitted by November 1 of the applicant’s senior year. A review of completed applications will begin by the end of November. Selected applicants will be invited for an on-campus interview with a member of the HPME Admission Committee.

For further information and application forms please go to the following web address: www.miami.edu/dualdegree.

HONORS PROGRAM IN PHYSICAL THERAPY (HPPT)

The University of Miami offers the Honors Program in Physical Therapy to high school graduates with high academic ability and achievement seeking careers in physical therapy. Participants may earn both the Bachelor of Science in Health Science (B.S.H.S.) and the Doctor of Physical Therapy (DPT) degrees in a six-year accelerated program, rather than the customary seven years.

The Honors Program in Physical Therapy is a cooperative venture of the School of Nursing and Health Studies and the School of Medicine, with students majoring in Health Sciences. Students pursue an enriched and highly challenging undergraduate curriculum, secure in the knowledge that they will have a place in the graduate physical therapy program after successful completion of three years of pre-physical therapy curriculum.

Applicants must be in the top 10% of their class and have a minimum SAT I score of 1360 (or ACT 31). These tests must be taken no later than the December testing date of the applicant’s senior year in high school. In addition to the regular Application for Admission to the University, the applicant must complete a separate application form for the Honors Program in Physical Therapy. The Honors Program in Physical Therapy application form and all supporting materials must be submitted no later than November 1st of the applicant’s senior year. A review of completed applications will begin by the end of November.

For further information and application forms please go the following web address: www.miami.edu/dualdegree.

HONORS PROGRAM IN LAW (HPLW)

The University of Miami offers the Honors Program in Law (HPLW) which allows excellent students with high academic ability to gain admission to both undergraduate study and to graduate study in the law school. Such an achievement eliminates the pressure of applying to law school and gives qualified students the chance to complete both Bachelor’s and Jurist Doctorate degree in 6 years. Applicants who wish to be considered for admission must be high school seniors in the top 5% of their class, have a minimum SAT I score of 1400 or (ACT 32) and an unweighted GPA of 3.750. In addition to the regular Application for
Admission to the University, the applicant must complete a separate application form for the Honors Program in Law. The HPLW application form and supporting materials must be submitted no later than November 1st of the applicant’s senior year. A review of completed applications will begin by the end of November.

For further information and application forms please go to the following web address. www.miami.edu/dualdegree.

COURSES OFFERED IN HONORS - Dept. Code: HON

A list of these courses varies from semester to semester; an accurate list of offerings for a particular semester may be obtained from the Honors Program website (www.miami.edu/honorsprogram) or myUM.

HONOR SOCIETIES

The following honor societies have chapters at the University of Miami:

Alpha Epsilon Delta (Pre-Med)
Alpha Epsilon Rho (Broadcasting)
Alpha Kappa Delta (Sociology)
Alpha Lambda Delta (Freshmen General Scholarship)
Alpha Pi Mu (Industrial Engineering)
Alpha Psi Sigma (Criminology)
Alpha Rho Chi (Architecture)
Beta Alpha Psi (Accounting)
Beta Beta Beta (Biology)
Beta Gamma Sigma (Business)
Chi Epsilon (Civil, Architectural and Environmental Engineering)
Eta Kappa Nu (Electrical and Computer Engineering)
Golden Key National Honor Society (General Scholarship)
Honors Students’ Association (General Scholarship)
Mortar Board (General Scholarship)
Omicron Delta Kappa (General Scholarship)
Phi Alpha Delta (Pre-Legal)
Phi Alpha Epsilon (Engineering)
Phi Alpha Theta (History)
Phi Beta Kappa (General Scholarship)
Phi Kappa Phi (General Scholarship)
Phi Lambda Pi (General Scholarship)
Phi Sigma Tau (Philosophy)
Pi Delta Phi (French)
Pi Kappa Lambda (Music and Music Education)
Pi Tau Sigma (Mechanical and Aerospace Engineering)
Psi Chi (Psychology)
Rho Rho Rho (Marine Science)
Sigma Delta Pi (Spanish)
Sigma Gamma Epsilon (Geological Sciences)
Sigma Pi Sigma (Physics)
Sigma Tau Delta (International English)
Sigma Theta Tau (Nursing)
Tau Beta Pi (Engineering)
Tau Sigma Delta (Architecture)
Theta Alpha Kappa (Religious Studies)

UNIVERSITY EXPERIENCE – DEPT CODE: UMX
UMX 101, 102, 104, 105, 106, 107, 109, 110, and 112. University Experience
1 cr. – Offered Fall

The courses are designed to promote a positive transition to university life; to facilitate a positive University of Miami experience; to foster community building and collegial networking; to provide information about campus resources; and to achieve success at UM and beyond. Sections will have particular emphasis on a particular academic theme. Special groupings include: general, athletes, psychology and neurobiology, international, nursing, education, sports and wellness, undecided arts & sciences, and pre-law/pre-MBA. Classes include both lecture and small group seminar meetings. Prerequisite: None; free elective. Not for major, minor, or required area of study requirement.

UMX 101. University Experience – General
1 credit Offered Fall and Spring Semesters
This course is designed to promote a positive transition to UM; to give students the information they will need to maximize their UM experience; and to foster community building and networking.

UMX 102. University of Miami Experience – Athletes
1 credit Offered Fall Semester
This course is designed to facilitate student athletes in the development and enhancement of academic and life skills for success in the university setting and beyond. Students will learn how to utilize existing campus resources to achieve their academic and personal goals.

UMX 104. University of Miami Experience – Psychology and NeuroBiology Majors
1 credit Offered Fall Semester
This course is designed to ease the transition to college life; to give freshman the information they will need to maximize their undergraduate experience; and to foster community building and networking within the psychology department.

UMX 105. University of Miami Experience – International Students
1 credit Offered Fall Semester
To promote a positive adjustment to university life; to facilitate a positive University of Miami experience; to foster community building and collegial networking; to provide information about campus resources; and to achieve success at UM and beyond. This course has a particular emphasis on the needs of an international student.

UMX 106. University of Miami Experience – Nursing/Health Science Majors
1 credit Offered Fall Semester
To promote a positive adjustment to university life; to facilitate a positive University of Miami experience; to foster community building and collegial networking; to provide information about campus resources; and to achieve success at UM and beyond. This course has a particular emphasis on the needs of a nursing/health science major.

UMX 107. University of Miami Experience – Education Majors
1 credit Offered Fall Semester
To promote a positive adjustment to university life; to facilitate a positive University of Miami experience; to foster community building and collegial networking; to provide information about campus resources; and to achieve success at UM and beyond. This course has a particular emphasis on the needs of an education major.

**UMX 109. University of Miami Experience – Sports and Wellness**  
1 credit  
Offered Fall Semester  
To promote a positive adjustment to university life; to facilitate a positive University of Miami experience; to foster community building and collegial networking; to provide information about campus resources; and to achieve success at UM and beyond. This course has a particular emphasis on sports and wellness.

**UMX 110. University Experience – Undecided Arts and Sciences**  
1 credit  
Offered Fall and Spring Semesters  
This course is designed to maximize a student’s potential to achieve academic success; to adjust responsively to the individual and interpersonal challenges of life at UM; and to foster community building and networking within the University.

**UMX 112. University of Miami Experience – Business Majors, Pre-Law/Pre-MBA**  
1 credit  
Offered Fall Semester  
To promote a positive adjustment to university life; to facilitate a positive University of Miami experience; to foster community building and collegial networking; to provide information about campus resources; and to achieve success at UM and beyond. This course has a particular emphasis on business majors who plan to pursue law school or an MBA.

**Freshman Seminars**  
FFA 190-199. Freshman Seminars in Arts  
FLT 190-199. Freshman Seminars in Literature  
FNS 190-199. Freshman Seminars in Natural Science  
FPR 190-199. Freshman Seminars in Philosophy/Religion  
FSS 190-199. Freshman Seminars in the Social Sciences

Conceived as alternatives to standard freshman survey courses, Freshman Seminars offer a limited number of students a small class focused on a specific topic. The seminars are interdisciplinary in nature and/or experimental in subject and design. Seminars are taught by distinguished faculty from a wide variety of academic disciplines. No student may take more than one. Freshman Seminars are 3 credit courses that may be used to fulfill general education requirements in natural sciences, social sciences, or humanities (literature, fine arts, philosophy, and religion).
RESEARCH AND SPONSORED PROGRAMS

OAK RIDGE ASSOCIATED UNIVERSITIES
Since 1956, students and faculty of the University of Miami have benefited from its membership in Oak Ridge Associated Universities (ORAU). ORAU is a consortium of 91 colleges and universities and a contractor for the U.S. Department of Energy (DOE) located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its members informed about opportunities for fellowship, scholarship, and research appointments; and to organize research alliances among its members.

Through the Oak Ridge Institute for Science and Education (ORISE), the DOE facility that ORAU operates, undergraduates, graduates, postgraduates, as well as faculty enjoy access to a multitude of opportunities for study and research. Students can participate in programs covering a wide variety of disciplines including business, earth sciences, epidemiology, engineering, physics, geological sciences, pharmacology, ocean sciences, biomedical sciences, nuclear chemistry, and mathematics. Appointment and program length range from one month to four years. Many of these programs are especially designed to increase the numbers of underrepresented minority students pursuing degrees in science- and engineering-related disciplines. A comprehensive listing of these programs and other opportunities, their disciplines, and details on locations and benefits can be found in the ORISE Catalog of Education and Training Programs, which is available at http://www.orau.gov/orise/educ.htm, or by calling either of the contacts below.

ORAU’s Office of Partnership Development seeks opportunities for partnerships and alliances among ORAU’s members, private industry, and major federal facilities. Activities include faculty development programs, such as the Ralph E. Powe Junior Faculty Enhancement Awards, the Visiting Industrial Scholars Program, consortium research funding initiatives, faculty research and support programs as well as services to chief research officers. For more information about ORAU and its programs, contact Dr. Helena Solo-Gabriele, ORAU Councilor for University of Miami at 305-284-2908; or contact Ms. Monnie E. Champion, ORAU Corporate Secretary, at 865-576-3306; or visit the ORAU Home Page (http://www.orau.org).

PATENT AND COPYRIGHT REGULATIONS
Discoveries or inventions, whether or not subject to patent or copyright, developed by students as a result of research done or in connection with theses, dissertations or problems pertaining thereto, or as a result of a program of research financed wholly or in part by University funds, or by funds under the control of the University shall be the exclusive property of the University except as may be otherwise required by the terms of research grants or contracts. The University Patent and Copyright policy provides for the inventor(s) to share in any royalties received for any patented or patentable discovery or invention in which the University has a property interest. Any such discovery or invention shall be so disclosed promptly, but in any event within a period of not more than two months, to the Office of Technology Transfer. For specific information regarding the Policy, contact the Office of Technology Transfer, Medical Campus, 243-5689.

USE OF HUMAN SUBJECTS IN RESEARCH
All research that involves the use of human subjects must be reviewed and approved by one of the University Institutional Review Boards for the Protection of Human Subjects in Research. This policy applies to both funded and non-funded faculty and student research.
Any individual student research project, including thesis or dissertation, that involves human subjects must be approved by one of the committees prior to initiation of the research. If there are any questions on whether or not a project constitutes human subjects research, please refer to the policies and procedures on human subject research which can be found at www.hsro.miami.edu. For additional information, contact the Human Subjects Research Office at (305) 243-3195.
VETERANS

VETERANS BENEFITS

The University of Miami maintains a Veterans Affairs Office in the Office of the Registrar, 121 University Center, to assist veterans and dependents of veterans who are entitled to V.A. educational benefits under Chapter 30, 31, 32, 33, or Chapter 35 of Title 38, U.S. Code, and Chapter 1606 or Chapter 1607, Title 10, USC. Anyone needing information on Veterans Benefits is advised to contact the Office of the Registrar or visit the Registrar’s website at www.miami.edu/registrar and select “Veteran Information”.

V.A. students with previous postsecondary educational training/experience must request official transcript(s) be sent to the school. If the transcript has not been received prior to the end of the student’s initial semester, or as specified in the guidelines under the program he/she is enrolled in, the Veteran Affairs Office will not re-certify the student for V.A. educational benefits. The Veteran Affairs Office may re-certify the student after the transcript has been received.

The V.A. student’s previous training and/or experience will be evaluated by the school. Should credit(s) be accepted and/or granted, the V.A. student’s tuition and training time will be reduced proportionally. The V.A. and the student will receive a written notice of the credit(s) allowed.

STANDARDS OF PROGRESS POLICY FOR VETERANS

Satisfactory progress is indicated by a Satisfactory Progress Average (SPA), which is a variation of the Quality Point Average (QPA). The SPA is computed by the following formula:

A=4
B=3
C=2
D=1
E=0
IE=0
F=0
IF=0
NG=0

Note that “E’s”, “F’s”, “IE’s” and “IF’s” are included in the SPA. A grade of CR will be counted as CR=2.

The SPA is determined by dividing the total quality points earned by the credits attempted.

When a course is dropped with a grade of W, the V.A. requires a student to repay any benefits received for that course unless the V.A. determines there are mitigating circumstances involved.

Benefits will not be paid for courses in which a student receives a NG or NC.

- An SPA of 2.0 or greater for undergraduate students, or 3.0 or greater for graduate students, is satisfactory progress.
- Less than 2.0 for undergraduate, and less than 3.0 for graduate students, is not satisfactory.
Law and M.D. students will be considered to be making satisfactory progress as long as they meet the academic standards set by their schools for retention in their degree programs.

The SPA is non-cumulative. It is computed each term on a one-term basis.

Any term a student’s SPA is less than 2.0 for undergraduate or 3.0 for graduate, he/she will be notified that he/she is not making satisfactory progress. He/she will be certified, in a probationary status, for only one additional semester.

If, at the end of this additional semester, his/her SPA for that semester is still below the satisfactory level, the V.A. will be notified of the unsatisfactory progress and his/her educational benefits will be terminated.

A student whose V.A. educational benefits have been terminated for unsatisfactory progress may petition the Veteran Affairs Office, 121 University Center, to be re-certified after one semester has elapsed.

The Veteran Affairs Office may re-certify the student for V.A. educational benefits only if there is a reasonable likelihood that the student will be able to attain and maintain satisfactory progress for the remainder of the program.

FOR V.A. PAYMENT OF BENEFITS PURPOSES

An “I” (Incomplete) designation for a course must be converted to a credit grade counting toward graduation, or a failing grade, by the end of **one calendar year** unless permission for a delay is granted by the Academic Dean.

An “NG” (no grade) designation for a course must be converted to a credit grade counting toward graduation, or a failing grade, by the end of **one regular semester** unless permission for a delay is granted by the Academic Dean.

If permission is obtained, a memo signed by the Academic Dean must be given to the Veteran Affairs Office during the semester in which the “I” or “NG” was to be removed. This memo should also state period of time for which delay is approved.

If a memo giving permission for a delay in the “I” or “NG” removal is not received by the end of the semester in which the “I” or “NG” was to be removed, the V.A. will be notified of the incomplete grade resulting in loss of educational benefits for that course.

Please consult with our office regarding regulations for “IP’s” received in Thesis, Research, or Dissertation.

There is an official period after each registration in which a student may drop a course without a “W” appearing on his/her grade report: two weeks for Fall and Spring and four class days for each Summer Session.

These periods are not to be confused with the last date to drop a course with a “W” grade, which occurs the eighth week of the Fall and Spring Semesters and the third week of class in the Summer Sessions.
CLASS ATTENDANCE AND ABSENCES

- Regular and punctual class attendance is vital for all students.
- It is the student’s responsibility to know the instructor’s policies regarding examinations, penalties for absences, and late or missed work.
- A copy of the student’s transcript will be placed in the student’s permanent file maintained by the Veteran Affairs Office.

Because of the far-reaching effects of these revisions in the V.A. educational benefits program, it is suggested that you exercise care and judgment in your program planning and in the selection of your courses.
INTRODUCTION

The School of Architecture offers a five-year, accredited professional program leading to the Bachelor of Architecture degree. The Bachelor of Architecture fulfills the educational requirements for professional registration. It offers specialized architectural study through upper-level studios and architecture electives, as well as opportunities for the study of liberal arts through the elective sequence leading to a minor.

MISSION

- Prepare students for professional leadership and lifelong learning in architecture, urbanism and related fields.
- Preserve and develop knowledge for the profession through research and practice.
- Share knowledge locally and internationally through community service.
- Promote building and community design goals of environmental responsibility, social equity and economic sustainability.

ACCREDITATION

The school is a member of the Association of Collegiate Schools of Architecture and the Association of Collegiate Schools of Planning, and is fully accredited by the National Architectural Accrediting Board, who asks each school to include the following paragraph on professional degrees in all literature:

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted a 6-year, 3-year, or 2-year term of accreditation, depending on the extent of its conformance with established educational standards. Master’s degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

The School of Architecture’s location in Coral Gables within the Miami metropolitan area provides an outstanding laboratory for research and advanced study; the challenges of conservation and development are intense in one of the nation’s fastest growing urban areas. These challenges result in an increasing demand for skilled professionals. Students have the opportunity to work with the faculty in the exploration of theoretical issues and in the resolution of practical problems. The School of Architecture values and sustains a creative, open and supportive environment, emphasizing personalized instruction in small classes and studio courses.
RESOURCES

The school’s resources, including a state-of-the-art computer laboratory, are enhanced by the interdisciplinary opportunities offered by the other schools and colleges of the University of Miami. A distinguished faculty is joined each semester by internationally renowned visiting scholars and designers.

Other programs that offer academic opportunities for undergraduate architecture students include: the Historic Preservation Certificate, the Suburb and Town Design, the BSAE/MARCH and the BARCH/MBA.

ACADEMIC POLICIES

Admission

Applications for incoming freshmen are processed and reviewed by the Office of Admission. Enrollment in the School of Architecture is selective and highly competitive. Application to the Bachelor of Architecture program is requested by February 1st. Early application is encouraged.

Freshman: Admission decisions are based on the following factors: portfolio, secondary school record, SAT/ACT score, counselor’s evaluation and the student essay.

Transfer Students: The academic accomplishments of each transfer student will be evaluated on an individual basis. A 3.0 G.P.A. is required for transfer admission. A portfolio is required for advanced placement in the design sequence of the Bachelor of Architecture Program. Application deadline for the School of Architecture program is March 1st.

Transfer Students

All transfer students requesting advanced placement in design must provide a portfolio of previous academic design and graphic work and three academic recommendations. Students accepted into third year design will be required to complete a transitional design course (ARC 301) during the summer prior to enrollment. The courses MTH 109 and PHY 103, or their equivalent be completed before admission into ARC 305.

Student Responsibilities

Students in the School of Architecture are responsible for planning their own programs and for meeting degree requirements. It is the student’s responsibility to understand and fully comply with all the provisions set forth in this Bulletin and written changes to their program of study. Students are provided assistance by advisors and faculty members. Written requests for variation from program or school requirements are reviewed by a faculty committee.

Academic Progress and Probation

The School of Architecture will review each student’s record at the end of each semester. When a students semester or cumulative average is less than stated below, or progress toward degree completion is unsatisfactory, the student will be placed on academic probation or warning in accordance with School of Architecture policies and procedures.
Students on probation are not permitted to enroll in more than 13 semester hours, shall meet on a monthly basis with their academic advisor, and may have a STOP placed upon their future enrollment until grades for work-in-progress are reviewed. First semester freshmen who have a semester grade-point average below 2.0 shall be placed on probation.

<table>
<thead>
<tr>
<th>Credits earned</th>
<th>CGPA</th>
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<tbody>
<tr>
<td>Fewer than 33 credits</td>
<td>2.0</td>
</tr>
<tr>
<td>33-64 credits</td>
<td>2.1</td>
</tr>
<tr>
<td>65-96 credits</td>
<td>2.2</td>
</tr>
<tr>
<td>More than 96 credits</td>
<td>2.3</td>
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</table>

Students must complete all Architecture Design studios with a grade of C- or higher. Students receiving two consecutive C- grades in architecture design studios will have to repeat the later course. Students receiving a grade of D+ or lower in an architecture design studio must repeat the studio and will be restricted to a 15 credit semester load. The student will meet with an academic advisor on a monthly basis and will be reviewed prior to continuation.

**Academic Dismissal**

A student in the School of Architecture whose CGPA or progress toward degree completion falls below the level of the minimum standards of the University of Miami may be dismissed. In the School of Architecture this includes a student who receives three grades of D+ or lower in design courses.

**Class Attendance and Absences**

Class attendance is mandatory for all architecture courses; three unexcused absences constitutes grounds for dismissal from the course and/or a failing grade. Students are required to be present for an entire design review, therefore, students arriving late or departing early from class will be considered absent. Excused absences require written notification and are granted by the instructor.

**Failing Grades or Incompletes**

A required architecture course in which a student receives a failing grade must be repeated during the first subsequent semester in which the course is offered. Incompletes can be given only for reasons of serious illness or exceptional hardship.

**Student Work**

The University may retain selected student work and may place it in the architecture archives for exhibition, publication, or other use as the University deems appropriate. Each student in architecture is encouraged to maintain a design portfolio of every project undertaken throughout the five-year program.

**Permission to Take Courses at Another University**

A form is available from the Office of Academic Services and should be completed and approved PRIOR to off-campus enrollment. Students are encouraged to provide complete documentation for each course request form. Each student requesting transfer credit must supply the University of Miami registrar with certified transcripts. Additionally, each student should review transfer evaluations to be certain that all courses are correctly evaluated for credit. The proper transmission and transfer of credits is the responsibility of the individual.
student. The last 45 credits towards the degree must be completed at the University of Miami.

Changes to Academic Requirements

The School reserves the right to change academic requirements.

Computer Requirement

Undergraduate students entering their third year and all graduate students are required to purchase their own computers for use in the design studio. The School of Architecture computing resources are accessible via a wireless network with an approved device and subject to School and University policy. System requirements are published on the School of Architecture web site.

REQUIREMENTS FOR GRADUATION

The following courses are part of the required curriculum for all students pursuing the Bachelor of Architecture degree:

A. AREAS OF PROFICIENCY

*English Composition:* ENG 105 - English Composition I and ENG 106 - English Composition II

*Mathematics:* MTH 109 - Introductory Calculus

*Writing across the curriculum:* (minimum 15 credits required)
All required History of Architecture and Architecture Theory courses in the B.Arch. curriculum

B. AREAS OF KNOWLEDGE (24 credits required)

*Arts:* (6 credits required):
ARC 101 - Architecture Design I, ARC 111 Drawing I

*Humanities:* (6 credits required):
ARC 121 - Architecture and Culture, ARC 267 History of Architecture I: Ancient, Medieval and Renaissance

*Natural World (Natural Sciences):* (6 credits required):
PHY 103 - General Physics, and another course from the University’s approved master list of Natural Science courses taken as a non architecture elective.

*People and Society (Social Sciences):* (6 credits required):
Any History course

BACHELOR OF ARCHITECTURE MINOR REQUIREMENT

The Architecture curriculum requires a minor outside the School of Architecture, to be taken as non-architecture elective courses. The minor may not be satisfied with architecture elective courses. Many programs at the University award minors for twelve or more credits of study. Students are advised to consult the Bulletin and the chair of the appropriate department for details.
## DEGREE PROGRAMS - UNDERGRADUATE

### BACHELOR OF ARCHITECTURE CURRICULUM

Tabular listing of the course requirements for the Bachelor of Architecture degree. Specific procedures and policies are detailed in the student handbook available from the Office of Academic Services.

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th></th>
<th></th>
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<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td><strong>Second Semester</strong></td>
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</tr>
<tr>
<td>ARC 101 Architecture Design I</td>
<td>6</td>
<td>ARC 102 Architecture Design II</td>
</tr>
<tr>
<td>ARC 111 Drawing I</td>
<td>3</td>
<td>ARC 112 Drawing II</td>
</tr>
<tr>
<td>ARC 121 Architecture and Culture</td>
<td>3</td>
<td>ARC 122 Architecture and Behavior</td>
</tr>
<tr>
<td>MTH 109 Introductory Calculus</td>
<td>3</td>
<td>PHY 103 General Physics</td>
</tr>
<tr>
<td>ENG 105 English Composition I</td>
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<td>ENG 106 English Composition II</td>
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<tr>
<td><strong>Total Credits</strong></td>
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<td><strong>Total Credits</strong></td>
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<tr>
<th>SECOND YEAR</th>
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<tr>
<td><strong>First Semester</strong></td>
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<tr>
<td>ARC 203 Architecture Design III</td>
<td>6</td>
<td>ARC 204 Architecture Design IV</td>
</tr>
<tr>
<td>ARC 223 Architecture and the Environment</td>
<td>3</td>
<td>ARC 213 Computing I</td>
</tr>
<tr>
<td>ARC 261 Building Construction</td>
<td>3</td>
<td>ARC 231 Building Structures</td>
</tr>
<tr>
<td>ARC 267 History of Architecture I: Ancient, Medieval and Renaissance</td>
<td>3</td>
<td>ARC 268 History of Architecture II: Baroque through Contemporary</td>
</tr>
<tr>
<td>History Elective</td>
<td>3</td>
<td>History Elective</td>
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<tr>
<td><strong>Total Credits</strong></td>
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<td><strong>Total Credits</strong></td>
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<tr>
<th>THIRD YEAR</th>
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<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td><strong>Second Semester</strong></td>
<td></td>
</tr>
<tr>
<td>ARC 305 Architecture Design V</td>
<td>6</td>
<td>ARC 306 Architecture Design VI</td>
</tr>
<tr>
<td>ARC 362 Building Systems I</td>
<td>3</td>
<td>CAE 313 Behavior of Structural Systems II</td>
</tr>
<tr>
<td>CAE 213 Behavior of Structural Systems I</td>
<td>3</td>
<td>ARC 363 Building Systems II</td>
</tr>
<tr>
<td>Natural Science Elective</td>
<td>3</td>
<td>Non Architecture Elective</td>
</tr>
<tr>
<td>Non Architecture Elective</td>
<td>3</td>
<td>Architecture Elective</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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<td><strong>Total Credits</strong></td>
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<tr>
<th>FOURTH AND FIFTH YEARS</th>
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<tbody>
<tr>
<td>ARC 407 Architecture Design VII</td>
<td>6</td>
</tr>
<tr>
<td>ARC 408 Architecture Design VIII</td>
<td>6</td>
</tr>
<tr>
<td>ARC 452 Practice of Architecture II</td>
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<tr>
<td>ARC Professional Practice Elective</td>
<td>3</td>
</tr>
<tr>
<td>ARC History Elective</td>
<td>3</td>
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<tr>
<td>ARC 371, 372, 373, 374, 390, 475, 476, 554, 570</td>
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</tr>
<tr>
<td>ARC 509 Architecture Design IX</td>
<td>6</td>
</tr>
<tr>
<td>ARC 510 Architecture Design X</td>
<td>6</td>
</tr>
<tr>
<td>Minor</td>
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<tr>
<td>Architecture Electives</td>
<td>18</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td>63</td>
</tr>
<tr>
<td><strong>TOTAL CREDITS FOR DEGREE</strong></td>
<td>171</td>
</tr>
</tbody>
</table>

### Curriculum Notes

The School reserves the right to retain all student projects done in for academic credit. MTH 109 AND ENG 105 are entry-level courses. Courses taken to achieve entry-level status cannot be considered towards the total credits required for the B.Arch. Degree.
Electives

The program requires four types of electives:

Architecture electives (7 courses)
Investigations in areas of architectural interest beyond the core requirements
Professional practice elective (1 course)
Focused examination of a topic related to practice
Non-Architecture electives (2-3 courses)
Explorations of general University offerings
Minor (4-5 courses)
Concentrated study in an area outside of architecture

A minor or its equivalent is required for all students. Areas are selected in consultation with faculty advisors.

MINOR

A minor in architecture is available to non-architecture majors as an option in the undergraduate architecture program. The purpose of the minor is to provide a general understanding and appreciation of the discipline of architecture. The minor does not satisfy professional requirements in architecture but does offer an introductory basis for further study at the undergraduate or graduate level. The program requires 12 credit hours in architecture courses.

Four architecture electives from the following list of courses: ARC 121, 122, 141, 191, 223, 267, 268, 294, 323, 371, 372, 373, 374, 390, 475, 476, 521, 551, 554, 590 may be taken to complete the requirements for the minor.

HONORS

Henry Adams Medal
Awarded in conjunction with the American Institute of Architects to the highest-ranking graduating student for scholarship and excellence in a professional architecture program.

Henry Adams Certificate
Awarded in conjunction with the American Institute of Architects to the second highest-ranking graduating student for scholarship and excellence in a professional architecture program.

Other honors, distinctions, and awards are presented annually for excellent student performance.

Architecture Course Listing
INTRODUCTION

The College of Arts and Sciences offers courses leading to the degrees of:

Bachelor of Arts
Bachelor of Science
Bachelor of Fine Arts
Bachelor of Liberal Arts

Graduates with one of these degrees will have had a sound liberal arts introduction to the major fields of human knowledge. In addition to this background, each bachelor’s candidate has the opportunity to select an area of academic or of occupational interest. Within the degree may be built certain professional or pre-professional curricula leading to certification in teaching, medical technology, chemistry, or to dentistry, medicine, law, etc.

MISSION

The College of Arts and Sciences at the University of Miami is a community of scholars and students that encourages the quest for a deeper understanding of the human experience and fosters a personal commitment to lifelong learning, intellectual growth, and the enduring values of the liberal arts.

The College is dedicated to helping students develop analytical and communication skills, creative abilities, and a sense of civic responsibility needed in an increasingly complex society. It strives to provide them with a rigorous grounding in their chosen field, an awareness of the interconnectedness of disciplines, and an exposure to the discovery of new knowledge.

The College seeks to create an intellectual environment that enhances individual growth and supports scholarly activities and creative endeavors that augment human knowledge and understanding.

ACADEMIC POLICIES

The College of Arts and Sciences follows the general university academic policies outlined in the General Academic Information section of this Bulletin.

REQUIREMENTS FOR GRADUATION

BACHELOR OF ARTS AND BACHELOR OF SCIENCE DEGREES

Candidates for B.A. and B.S. degrees in the College of Arts and Sciences must complete the credit hours of work and achieve the quality point average specified for students in the University at large. These requirements are indicated in the Academic Procedures and Information section of this Bulletin.
I. Required Areas of Study. Courses taken for the major, the minor, and the writing requirement may also be used to satisfy the Areas of Study requirements of the College. In each department and program, the applicable prerequisites must be met before upper division courses can be taken. No more than six credits in any discipline may be used to satisfy the Areas of Study requirements.

A. English Composition  
B.A. and B.S. degrees: 3-6 credits

Students must take English 105 and 106, or their approved equivalents, in the first year of residence.

Students with an appropriate score on the Advanced Placement [AP] language and literature examination, or with an appropriate score on the International Baccalaureate [IB] higher level English examination, may earn 6 credits in English 105 and English 106. Those with an appropriate score on the SAT verbal or ACT verbal exams may be exempted from English 105. Those with transfer credit for English 105 will take English 106 or its equivalent in the first year of residence.

B. Languages  
B.A. and B.S. degrees: 3-9 credits

Students must earn at least 3 credits of a language other than English at the 200 course level or higher. Special 100- and 200-level Spanish courses are required of heritage Spanish speakers who choose to fulfill the language requirement by taking Spanish. Students may fulfill the language requirement from the following: Arabic, Chinese, French, German, Greek, Hebrew, Italian, Japanese, Latin, Portuguese and Spanish.

C. People and Society (Social Sciences)  
B.A. and B.S. degree: 12 credits

B.A. and B.S. degree candidates must earn twelve credits in the following social science disciplines: Africana Studies, American Studies (AMS only), Anthropology (except APY 203), Economics, Ecosystem Science and Policy (except ECS 111, 112 and 301), Geography and Regional Studies (except GEG 120), History, International Studies, Judaic Studies, Political Science, Psychology, Sociology, Urban Studies and Women’s and Gender Studies. No more than six credits may be earned in any one discipline.

One approved First Year seminar course may be taken for the Social Sciences requirement.

D. Arts and Humanities  
B.A. and B.S. degree: 12 credits

B.A. and B.S. degree candidates must earn twelve credits in the three areas listed below. At least three credits must be earned in each area.

Fine Arts: any courses in the departments of Art and Art History, Dance (except DAN 101-104), Musicology, Music Theory, and Theatre Arts count toward this requirement.

Literature: Literature courses in the departments of English (200-level and higher) and Modern Languages and Literatures (300-level and higher) count toward this requirement.

Philosophy and Religious Studies: courses in the departments of Philosophy and Religious Studies count toward this requirement.

One approved First Year seminar course may be taken for the Arts and Humanities requirement.
E. Mathematics

B.A. degrees: 3-6 credits
B.S. degrees: 11-12 credits

B.A. degree candidates who do not place out of MTH 101 must take MTH 101 or MTH 107 during their first year in the College. In addition, all B.A. degree candidates must take one of the following MTH courses: MTH 103, MTH 108, MTH 109, MTH 111, or MTH 131.

B.S. degree candidates must earn 11-12 credits, consisting of two semesters of Calculus: MTH 110-112, MTH 111-112, MTH 131-132 and either a) one semester of a computer course approved by the major department; or b) a statistics course approved by the major department.

F. Natural World (Natural Science)

B.A. degrees: 9 credits
B.S. degrees: 4-8 credits

B.A. degree candidates must earn nine credits in two of the following disciplines: Biology, Chemistry, Ecosystem Science and Policy (except ECS 113 and 302), Geological Sciences, Marine Sciences (except MSC 313 and 314), Physical Sciences, and Physics. APY 203 and GEG 120 may also be taken for this requirement.

B.S. degree candidates minoring in one of the subjects approved as a B.S. major must earn 4 additional credits, and those minoring in other subjects must earn 8 additional credits, in one of the following departments: Biology, Chemistry, Geological Sciences or Physics. These credits must be taken in a department other than the major or the minor, and must be earned in courses that count toward a major in that department.

II. Writing

Every student must complete five (5) writing-oriented (W) courses beyond ENG 105 and 106. Students are required to write at least 4000 words in each W course. Writing assignments will be graded on both content and style. All literature and modern language literature courses receive writing credit. No more than 2 writing courses may be transferred and used toward the required writing intensive courses. The remaining 3 courses must be completed at the University of Miami.

III. Major

Every candidate for a degree must choose a major field. To find the requirements for the major, consult this Bulletin under the discipline concerned, and confer with the designated departmental representative. The candidate for the B.A. degree may choose a major from among the disciplines offering majors in the College of Arts and Sciences, from the Department of Economics in the School of Business Administration, and from Elementary Education and Special Education in the School of Education. The candidate for the B.S. degree must choose a major from the following areas: Biochemistry and Molecular Biology, Biology, Chemistry, Computer Science, Ecosystem Science and Policy, Geological Sciences, Microbiology and Immunology, Neuroscience, Physics, or Psychology. The choice of a major field should be made not later than the beginning of the junior year and must be approved by the major department. Any student making unsatisfactory progress in a major may be required to change his/her major or to relinquish candidacy for the degree.
All students (except for those majoring in Ecosystem Science and Policy) must complete a minor. For information about the selection of an appropriate minor, please see an advisor in the department of your major.

If the candidate for the B.A. degree presents Biology, Chemistry, Computer Science, Geological Sciences, or Mathematics as a major, the minor may not be selected from among these disciplines or from Biochemistry and Molecular Biology, Marine Sciences, Microbiology and Immunology, Physics, or Engineering. Subject to the foregoing, students may select a minor from any discipline in the College of Arts and Sciences, or from any School or College within the University offering a minor: College of Engineering, Schools of Architecture, Business Administration, Communication, Education, Marine and Atmospheric Science, Music or Nursing. Courses taken for the minor may also be used to satisfy the Areas of Study requirements of the College up to the limit of each area. Students planning a minor in Music should contact the School of Music for information regarding placement examinations in theory and applied music requirements.

V. Other Requirements.

Credit Only. Only free electives may be taken under this option. Courses which satisfy the major, the minor, the distribution requirements of the College and the general education requirements of the University may not be taken for credit only.

Exemption. Exemption from a course or courses refers specifically to the following: a) credit by examination through the Advanced Placement (AP) or International Baccalaureate (IB) programs; b) advanced placement by proficiency examinations or test scores, with no credit earned; c) advanced standing and/or placement, with credit granted.

Transfer Credits. Credits transferred from other institutions may not count towards the completion of a major or minor without the written approval of the department or program.

General Electives. Sufficient for a total of 120 credits. Electives may be chosen from any courses offered by the University except certain specific unapproved courses such as activity courses in the School of Education. The student should consult an advisor before selecting elective courses.

DEGREE PROGRAMS

BACHELOR OF FINE ARTS DEGREE

I. The candidate for the degree of Bachelor of Fine Arts must complete 120 credit hours with an overall quality point average of 2.0 or above as specified in departmental and program sections of this Bulletin.

II. The student must satisfy the College of Arts and Sciences distribution requirements for the Bachelor of Fine Arts by:

A. Satisfactory completion of six credits of English Composition (English 105 and 106 or its equivalent). Admission to English 105 requires a placement test score acceptable to the Department of English. A high test score may exempt a student from English 105 but not from 106 or its equivalent.
B. Satisfactory completion of the General Education Requirements from the areas of study listed below.
1. ENG 105 and ENG 106
2. MTH 101 and a course in math numbered above 101 (MTH 107 does not fulfill this requirement).
3. 5 writing oriented courses above ENG 105 and 106.
4. 6 credits in Humanities (from Literature, Philosophy, or Religious Studies)
5. 6 credits in Natural Sciences
6. 6 credits in Social Sciences

III. Students must satisfy the requirements of a major as determined by the Department of Art and Art History or the Department of Theatre Arts. Students must maintain at least a 3.0 average in their major.

BACHELOR OF LIBERAL ARTS DEGREE

I. The candidate for the degree of Bachelor of Liberal Arts must complete 120 hours with an overall quality point average of 2.0 or above.

II. He/she must satisfy the General Education Requirements of the University as set forth elsewhere in this Bulletin.

III. At least 60 of the 120 credit hours required must be in 300, 400, or 500-level courses. Of these, 30 credits must be completed in the College of Arts and Sciences.

IV. Not more than 40 hours in 300-level or higher courses may be taken in any one department. No more than 52 hours (in total credits) may be earned in any one department.

V. Up to 30 of the 120 hours may be courses from other schools and colleges of the University of Miami except for those courses expressly excluded from recognition by the College. These credits include both lower and upper division courses. Students who exceed this maximum will have the number of credits required to graduate increased by the number earned over 30 credits.

VI. The student may, but is not required to, elect a major in a department. If a student fulfills the departmental requirements for the major, it will be recorded on the official transcript. No minor may be elected.

PRELAW PREPARATION

Although no specific curriculum is required in preparation for Law School, the Pre-Law Committee of the American Bar Association strongly recommends that students considering a career in Law should have a well-balanced education. This education should include courses requiring intensive writing, logical reasoning and critical thinking and reading skills.

The College of Arts and Sciences Student Academic Services Office located in Room 200 in the Ashe Building, provides a variety of services to all students interested in attending Law School. These services include:

1. Pre-Law Advising: confidential advising in preparation for law school (i.e. application process, general information, discussion of your concerns).
3. Pre-Law Newsletter: information about programs and events.
4. LSAT and LSDAS registration booklets (for juniors and seniors).
5. Campus-wide programs for pre-law students such as Law Day.
6. Programs and seminars in coordination with other University of Miami departments such as: School of Law Career Planning Center, School of Law Center for Ethics and Public Service, Toppel Career Planning and Placement, the Counseling Center, and the Reading and Study Skills Center.

In order to take advantage of the services listed above a student should complete a Pre-Law registration card at the beginning of the academic year.

**PREMEDICAL PREPARATION**

The Committee on Premedical Studies, located in the College of Arts and Sciences (Ashe Building 205), assists students who plan to enter medicine (allopathic or osteopathic), dentistry, podiatry, optometry, chiropractic, or veterinary medicine. The Director of Premedical Studies provides guidance and also prepares a composite letter of recommendation in support of the application to health professional school.

Freshmen are encouraged to attend the premedical orientation in August and to set up a group appointment with the Director of Premedical Studies in the spring semester of their freshman year. At this time they will receive a copy of the “Premedical Student Guidelines” which details the process of opening, building and completing a file with Premedical Advising Office. Students are welcome to view the guide at www.as.miami.edu/premed.

For further guidance in curriculum planning, students should examine the requirements of the individual health professions. The Premedical Advising Office maintains a library of health professions admissions requirements and information on summer programs and related graduate programs.

In general, however, premedical students should take:
- English, two semesters
- College Mathematics, two semesters
- General Biology with lab, two semesters
- General Chemistry with lab, two semesters
- Organic Chemistry with lab, two semesters
- Physics with lab, two semesters
- Biochemistry, one semester

Other recommended courses are:
- Physiology
- Genetics
- Cellular and Molecular Biology
- Microbiology
- Psychology

Most medical schools advise against the study of science subjects to the exclusion of broadening courses in a College of Arts and Sciences; therefore, students should include
classes in literature, philosophy, religious studies, history, and languages other than English.

MINORS

Please see minor information located under the “Academic Policies” sub heading for the College of Arts and Sciences.

CONCENTRATIONS

Please see department sections for specific information relating to concentrations within a department in the College.

HONORS

Please see the section titled “HONORS PROGRAM” located in the General University Information section of the Bulletin for general honors program information and general departmental honors information. Please contact Honors Advisors within a department for any additional requirements.

OTHER

The Max and Peggy Kriloff Fund is a fund that provides travel support for students earning degrees from the College of Arts and Sciences. The fund provides support for students to present papers, or posters at professional conferences worldwide. Students will need to fill out an application form available in Ashe 200 and submit it, along with the necessary supporting documentation to the Office of Graduate and Administrative Services in the Ashe Building.
UNDERGRADUATE ACADEMIC PROGRAMS

AEROSPACE STUDIES - Dept. Code: AIS
www.miami.edu/aerospace-studies

INTRODUCTION
The Department of Aerospace Studies represents the Air Force Reserve Officer Training Corps (AFROTC), at the University of Miami. Providing academic instruction and training experiences leading to commissioned service in the United States Air Force.

SCHOLARSHIPS
A variety of AFROTC scholarships for one, two, three, and four years are available on a competitive basis and include a $900 textbook allowance per year plus a non-taxable $300 - $500 stipend each month during the school year. Some scholarships provide full college tuition while others begin at $15,000 per year. In selected academic areas, scholarships may extend to meet a five year degree program recognized by the college. The one year program is for students preparing for occupations for which the Air Force has a special need. The majority of two to four year scholarships are for students pursuing degrees in certain fields of engineering, science and math, with a limited number going to other academic degrees. A number of scholarships are also available to students enrolled in certain non-technical degree programs such as business administration, accounting, economics, and management. Scholarships for careers in the medical field are also offered.

Additionally, University of Miami undergraduates enrolled in the Air Force ROTC program are assured annual combined University grant and/or scholarship resources amounting to one quarter* of the University’s tuition for up to four years. Students must maintain continuous enrollment in the AFROTC program and full time enrollment in one of the University’s undergraduate degree program. No application required. Awards are made automatically based on information provided by the University’s AFROTC detachment.

*Assured amount is lower if the total of all scholarships, grants and/or stipends received by the student would exceed the student’s cost of attendance for the academic year, as determined by the University of Miami Office of Financial Assistance Services.

ENROLLMENT
There is no military obligation to sign up for AFROTC. To take classes students must be U.S. citizens or resident aliens. It is possible to begin AFROTC as a resident alien and earn a commission once citizenship is obtained. AFROTC cadets must also pass the Air Force Officer Qualifying Test, a physical fitness test including a 1.5 mile timed run, push-ups, sit-ups and pass a Department of Defense physical exam in order to be eligible for scholarships and ultimately commissioning.

BENEFITS
All AFROTC cadets receive uniforms, books and equipment for ROTC classes at no cost. Upon being commissioned a Second Lieutenant in the Air Force, you will receive a starting salary and allowances worth more than $40,000 per year. Free medical and dental care, 30 days annual vacation with pay tax deferred Federal Government-sponsored retirement savings and investment plan (similar to a “401(k)” plan) and added educational benefits are also part of the compensation package.
EDUCATIONAL OBJECTIVES

AFROTC is an educational program designed to give men and women the opportunity to become Air Force officers while completing a Bachelor’s degree. Although flying is a critical mission of the Air Force, it forms only a part of the 160-plus career specialties available to new officers. Today, since science and technology are a large part of the national defense, the Air Force needs the best scientists and engineers the nation can produce. It also needs other professional men and women with a broad range of knowledge and skills. Most young officers who enter the Air Force today do not expect to be pilots or astronauts. They want to be part of the large research and development program of the vast support organization that keeps our country strong and progressive. Exciting job opportunities exist everywhere in the Air Force. In addition to the recurring need for pilots, the Air Force also needs personnel to work in navigation, space and missile operations, engineering, mathematics, physics, computer science, and in the support fields of personnel, administration, logistics, finance, education, security forces, health, and others. In the years ahead, Air Force ROTC will continue to concentrate on preparing men and women to assume important and responsible positions of leadership in the modern Air Force.

AFROTC offers several routes to an Air Force commission. Optimally, the program lasts four years, but it can be completed in three, two or even just one year if you are majoring in a critically needed area. Depending on the program chosen, attendance at either a four-week or six-week summer field training course is required. AFROTC cadets will receive junior officer training, career orientation, and learn how the Air Force operates. Travel to and from the base where field training occurs is paid for by the Air Force. The end product of the AFROTC program is to produce Second Lieutenants for the Air Force upon graduation. For more information, contact the detachment at 305-284-2870.

MINOR

MINOR IN AEROSPACE STUDIES

- A minor in Aerospace Studies consists of 16 credits.
- You must take all AIS courses listed under the Aerospace Course Listing
- A grade of C- or higher, with an overall GPA of 2.0, is required in each course taken for the minor.

Aerospace Course Listing
AFRICANA STUDIES - Dept. Code: AAS
www.as.miami.edu/africanastudies
www.as.miami.edu/ids

INTRODUCTION

The Program in Africana Studies (AAS) provides opportunities for students to learn about the experiences of people of African descent in North and South America, the Caribbean and continental Africa. Courses are presently offered leading to a major or minor in Africana Studies. Students are encouraged to pursue these courses, even if they are not majors or minors, in order to achieve a balanced education in keeping with the stated goals of the University of Miami.

EDUCATIONAL OBJECTIVES

a) To help students research, acquire, and disseminate information about the historical and social experiences of Africans and people of African descent on all sides of the Atlantic basin, but with special emphasis on the United States.
b) To facilitate students’ understanding of the multi-cultural, multi-ethnic, globalized society of our time.
c) To help students think critically about the global black experience.
d) To prepare students for graduate work and professional careers.

DEGREE PROGRAMS

Bachelor of Arts

MAJOR

MAJOR IN AFRICANA STUDIES
- A major in Africana Studies consists of 30 credits.
- Twelve of the 30 credits must be completed at the 300 level or above.
- A grade of C- or better with an overall GPA of 2.0 is required in each course taken for the major.
- Africana majors must complete the following core courses: AAS 150, AAS 490, HIS 201, and HIS 209 or HIS 210.
- Africana majors must complete one course in Caribbean Studies (ENG 361, APY 385, GEG 212, HIS 318).
- The remaining courses must be selected from the list of acceptable courses approved by the program, in any school or college within the university.

MINOR

MINOR IN AFRICANA STUDIES
- A minor in Africana Studies consists of 15 credits.
- Africana minors must complete the following courses: AAS 150 and HIS 201 or HIS 209.
• The remaining courses must be selected from the list of acceptable courses approved by the program, in any school or college within the university.
• A grade of C- or higher with an overall GPA of 2.0, is required in each course taken for the minor.
• The remaining courses must be selected from the list of acceptable courses.
• A minimum of six credits must be numbered 300 or higher.

DEPARTMENTAL HONORS

Carter G. Woodson Award - Best all-round student who combines intellectual excellence and community service.

Africana Studies Course Listing
INTRODUCTION

The Program in American Studies at the University of Miami fosters the interdisciplinary study of American culture and society, and explores the place of the United States in an increasingly interconnected world. Our faculty come from a wide range of fields, including history, literature, religion, art, philosophy, law, music, ethnic studies, anthropology, architecture, sociology, communications, and education. What unites them is the commitment to examining the U.S. from multiple perspectives, highlighting the diversity of people, cultures, and experiences that have shaped the past and present United States. The Program places analysis of globalization at its center, and encourages a hemispheric perspective that allows students and faculty to explore interests in the United States, the Caribbean, Latin America, the Pacific Rim, and other border crossings.

EDUCATIONAL OBJECTIVES

The undergraduate curriculum in American Studies encourages students to bridge the divide between disciplines by examining specific themes and topics in an engaging, dynamic, interdisciplinary manner. By exposing students to courses that place questions of cultural diversity, regional difference, ethnic and racial identity, gender and sexuality, class dynamics, and popular culture at the forefront of intellectual investigation, the Program in American Studies enables them to situate their own experiences in a wider context. It also exposes them to a multiplicity of perspectives that inform our understanding of the United States and its place in a global society. The Program strongly encourages its majors to study abroad, and faculty members help students plan their curriculum to make that option feasible.

DEGREE PROGRAMS

Bachelor of Arts

MAJOR

MAJOR in American Studies (30 credits):

A major in American Studies consists of at least 30 credits in American Studies courses (core, co-listed, or cross-listed) with a grade of C- or better in each course, with a cumulative GPA of at least 2.0 in AMS courses. These credits must include at least 18 at the 300 level or above. All majors must complete AMS 101: Introduction to American Studies; AMS 310: The U.S., Transnationalism, and Globalization; at least two other AMS core courses; at least one course in American history, and at least one course in American literature.
Students must take three courses, chosen in consultation with an American Studies advisor, in a specialized area of American Studies (200 level or higher). Students may work in areas including, but not limited to, Ethnic Studies, Caribbean Studies, Latino/a Studies, Environmental Studies, Communication Studies, Women's Literature, Urban Studies, Africana Studies, Religious Studies, or Material Culture Studies. At least one of these courses must be either comparative or non-U.S.-based.

Students must take courses from at least three different departments in order to fulfill the requirements for the major.

In addition, all majors must complete AMS 501: Senior Project. This capstone course can take the form of an individual research project or an internship at a local cultural or civic institution. For the research option, students will identify an appropriate faculty member to supervise and grade the project, and then obtain approval from the program director before proceeding with the project. The student must produce a substantial written report or research paper, the format of which will be determined by the faculty member and student in consultation with the program director. For the internship option, students will partner with any number of local institutions and produce a creative and/or scholarly project for evaluation. The internship will be arranged through the program director, in consultation with the Butler Center. The final product will be evaluated by the program director.

MINOR

MINOR in American Studies (15 credits)

A minor in American Studies consists of at least 15 credits in American Studies courses (core, co-listed, or cross-listed) with a grade of C- or better in each course, with a cumulative GPA of at least 2.0 in AMS courses. These credits must include at least 9 at the 300 level or above. All minors must complete AMS 101: Introduction to American Studies; AMS 310: The U.S., Transnationalism, and Globalization; at least one other AMS core course; and at least one course in American history or American literature.

DEPARTMENTAL HONORS

American Studies majors with a cumulative GPA of at least 3.5 in AMS courses and an overall GPA of at least 3.0 may earn departmental honors by completing AMS 505: Honors Thesis. Candidates for departmental honors are responsible for finding a faculty member to serve as thesis advisor. Students then must complete a thesis proposal of approximately 500 words that must be approved by the thesis advisor and the program director. The format and length of the thesis will vary according to the nature of the project. Students would take AMS 501 in the fall semester of the senior year and AMS 505 in the spring to complete the honors thesis.

American Studies Course Listing
INTRODUCTION

Anthropology is the scientific study of humankind, from its beginnings to the present. Of the many sciences that study aspects of humans and their behavior, only anthropology attempts to understand and integrate the entire panorama of human biology and culture in all times and places.

The Anthropology Department offers a wide range of courses for students in pursuit of the Bachelor of Arts degree, from the basic four fields of cultural anthropology, linguistics, physical anthropology, and archaeology, to advanced study of topics such as underwater archaeology, medical anthropology, Caribbean cultures, primatology, and Iron Age Europe.

The science of anthropology holds that to understand the principles of human behavior, we must compare our own behaviors with those of people from other times and places around the world. These comparisons demand evolutionary, cross-cultural studies of human behavior, constantly changing, ever intriguing us.

The field is especially suited to a multi-ethnic, multi-lingual, and multi-cultural urban center such as Miami, and the research programs of the department faculty reflect the compositions and concerns of the larger community.

Anthropological knowledge has taken an increasing role in the solution of practical problems in public health, cultural resource management, economic development in the Third World, business relations with immigrant and overseas populations, State and Federal programs, and many other areas. Anthropology majors may become professionals in the field by continuing their training in one of the many excellent graduate programs around the country.

EDUCATIONAL OBJECTIVES

Students who graduate from our program in anthropology will have achieved:

1) Basic familiarity with each of the four subfields of our discipline: archaeology, cultural anthropology, linguistic anthropology, and physical or biological anthropology.

2) Extended familiarity with one or more of these subfields in terms of knowledge of content, e.g. area ethnology in Latin America and/or the Caribbean, topical knowledge such as Drugs and Culture, Ritual and Sacrifice, Sex and Culture, Food, Primate Behavior, Iron Age Civilizations, or World Languages, or methodological skills involving field research in one or more of the subfields.

3) The ability to articulate the anthropological view of the human condition in terms of an operational definition of culture and a holistic perspective on how humans behave.

4) Sufficient skill in research to be able to produce a research paper on an anthropological topic.
DEGREE PROGRAMS

The Department of Anthropology offers a major and a minor in the University’s array of Bachelor of Arts Degrees.

MAJOR

- A major in Anthropology consists of 30 credits in Anthropology, passed with a grade of C- or higher with an overall GPA of 2.0.
- APY 201, 202, 203, 204 (or approved alternatives), and a minimum of four anthropology courses at the 300 level or higher are required. APY 208 may count as one of the six courses taken in addition to the four basic courses.
- The remainder of the program will be developed with the student’s departmental advisor.

MINOR

A minor in Anthropology consists of 15 or more credits, passed with a grade of C- or higher with an overall GPA of 2.0 including any two 200-level anthropology courses.

Any two of the following courses in other departments may be applied to the major in Anthropology; any one to the minor:

- ARH 239, 241, 242, 243, 249, 250, 330, 332
- MCY 554
- COS 545
- MAF 515, 526
- MAF 501 or MAF 505.

DEPARTMENTAL HONORS

A student with a cumulative grade point average of 3.5 or higher may earn honors in anthropology by writing a qualifying thesis paper under the direction of a member of the faculty in the Department of Anthropology.

Anthropology Course Listing
ART AND ART HISTORY - Dept. Codes: ART, ARH
www.as.miami.edu/art

EDUCATIONAL OBJECTIVES

The Department of Art and Art History provides facilities and instruction to serve equally the needs of the general student for participation in and appreciation of the visual arts and those of students with specialized interests and abilities preparing for careers in the production, teaching, utilization, and interpretation of Art and Art History.

DEGREE PROGRAMS

The Department of Art and Art History offers two degrees: the Bachelor of Arts with tracks in Art History, General Study and Studio Art and the Bachelor of Fine Arts with specializations in Painting, Sculpture, Printmaking, Photography/Digital Imaging, Graphic Design/Multimedia and Ceramics. The B.A. requires a minimum of 36 credit hours in the department with a grade of C or higher. The B. A. major is also required to have a minor outside the department. Minor requirements are specified by each department and are listed in the Bulletin. The B.F.A. requires a minimum of 72 credit hours in the department, a grade of C or higher in each course, a successful portfolio review, and at least a 3.0 average in departmental courses. The B.F.A. major is not required to have a minor outside the department.

MAJOR

DEGREE REQUIREMENTS

BACHELOR OF ARTS - ART HISTORY

Foundation Courses: 6 Credits
ART 101. Introduction to Drawing I
ART 104. Three-Dimensional Design

Art History Foundation Courses: 9 credits
ARH 131. Survey of Western Art I and
ARH 132. Survey of Western Art II and
ARH 133. Art of Non-Western Cultures or
ARH 134 Ancient American Art

Area of Study: 21 credits
Art History: six courses from 200 level or higher, plus one art history seminar course

Total: 36 credits

BACHELOR OF ARTS - GENERAL STUDY

Foundation Courses: 6 credits
ART 101. Introduction to Drawing I and
ART 109. Introduction to Electronic Media
Art History Courses:  
ARH 131. Survey of Western Art I or  
ARH 133. Art of Non-European Cultures or  
ARH 134 Ancient American Art and  
ARH 132. Survey of Western Art II  
One course from 100, 200, or 300 level

General Study Courses:  
Any seven courses from the following areas:  
Art History  
Drawing  
Painting  
Sculpture  
Printmaking  
Graphic Design/Multimedia  
Photography/Digital Imaging  
Ceramics/Glass

Total: 36 credits

BACHELOR OF ARTS STUDIO ART

Foundation Courses:  
ART 101. Introduction to Drawing I and  
ART 109. Introduction to Electronic Media

Art History Courses:  
ARH 131. Survey of Western Art I or  
ARH 133. Art of Non-European Cultures or  
ARH 134 Ancient American Art and  
ARH 132. Survey of Western Art II  
One additional course at the 100, 200, or 300 level

Studio Art Courses:  
Seven Studio courses from the following areas:  
Drawing  
Painting  
Sculpture  
Printmaking  
Graphic Design/Multimedia  
Photography/Digital Imaging  
Ceramics/Glass

Total: 36 credits

BACHELOR OF FINE ARTS

PORTFOLIO REVIEW
All students who anticipate graduating with a Bachelor of Fine Arts (BFA) degree must submit a portfolio consisting of 15-20 images of their work on either a CD/DVD or in slides for review by the faculty. Students can apply as incoming freshmen or anytime within their first years. NO STUDENT IS OFFICIALLY CONSIDERED A BFA CANDIDATE UNTIL THE PORTFOLIO IS APPROVED BY THE FACULTY. If the BFA portfolio is not submitted at the proper time or fails to be passed by the faculty, the student will be advised and registered as a Bachelor of Arts (BA) candidate.
BFA EXHIBITION

Unless otherwise instructed, each BFA candidate will take part in an exhibition of work screened and approved by a faculty member from their area of specialization, accomplished as an art major at the University of Miami, in the Fall or Spring semester of the senior year. The BFA exhibitions are held in the College Gallery.

At the time the candidates BFA exhibition is hung, a formal critique will be arranged between the student and the art faculty.

BFA COURSE REQUIREMENTS

General Foundation Courses: 6 credits
ART 101. Introduction to Drawing I and
ART 109. Introduction to Electronic Media

Art History Courses: 15 Credits
ARH 131. Survey of Western Art I or
ARH 133. Art of Non-European Cultures or
ARH 134 Ancient American Art and
ARH 132. Survey of Western Art II
ARH 343. Modern Art or
ARH 344. Contemporary Art
Two courses from 100, 200, or 300 level

Note: ARH 346 - History of Graphic Design is required for Graphic Design/ Multimedia majors.
ARH 107 – History of Photography is required for Photography majors.

Art Electives 12 Credits
12 Credits to be taken in the Department outside of area of specialization.

Areas of Concentration (one entire sequence required) 39 Credits

Primary concentrations can be taken in Painting, Printmaking, Graphics-Multimedia, Photo Digital, Ceramics and Sculpture.

Secondary and Tertiary concentrations can be taken in Painting, Printmaking, Graphics-Multimedia, Photo Digital, Ceramics, Sculpture, Introductory Art Studio (ART 102, 103, 104, 108), and Drawing (ART 102, 105, 107, 305).

TOTAL: 72 Credits

BFA Minor in Art History
All BFA studio majors automatically minor in art history. A minor outside the department is not required.

BFA Double Specialization
Double Specialization requires the completion of an entire sequence in a second area of specialization.

A BFA student is limited to a maximum of 21 credits in any one studio area – Painting, Printmaking, Graphics-Multimedia, Photo Digital, Ceramics, Sculpture. Courses beyond the 21 credit primary concentration limit will not be counted toward graduation.
A student may not exceed the required 72 credits within the Department of Art and Art History.

Students must maintain at least a 3.0 average in their major.

**MINOR**

A minor in Art and Art History consists of 15 credits (6 of which must be from the University of Miami) in departmental courses passed with a C or higher.

**DEPARTMENTAL HONORS**

*Admission*

Admission is by invitation from the Department Chair. Students are invited the first semester of their junior year and are required to complete the program before their date of graduation.

*Requirements*

**Studio Art Majors** - Students must have passed the B.F.A. Portfolio Review and have a GPA of 3.5 or higher in the Art major.

**Art History Majors** - Students must be a declared Art History major, and have a GPA of 3.5 or higher in the Art History major.

Students must complete a minimum of six credit hours in designated honors courses (ART 499 or ARH 499) with a grade of B or higher.

Students must have an overall GPA of 3.3 or higher.

Students must submit the results of their honors study for approval to a Departmental Honors Committee.

**ART SCHOLARSHIPS**

Partial tuition scholarships are awarded on the basis of artistic ability and academic achievement. Students must be accepted for admission to the University of Miami in order to apply for an Art Scholarship. The deadline for submission of materials is March 1.

**AUDIT**

Due to the nature of studio courses, it is not possible for a student to audit courses offered in the studio areas.
ASTRONOMY

For courses in Astronomy see PHYSICS, in particular PHY 110, 316, 317, 545.
INTRODUCTION

Biochemistry is the chemistry of life. It includes or has large areas of overlap with molecular biology, structural biology, cell biology, metabolism, nutrition, genetics, etc. It tries to explain what happens in living organisms and how biological processes are regulated. It is a relatively young science. Our understanding is still developing and students (and faculty) can learn something that is totally new every day.

An Undergraduate Major in Biochemistry and Molecular Biology provides an excellent preparation for:

1. Medical School

2. Graduate Studies in all basic medical sciences:
   - Biochemistry
   - Molecular Biology
   - Cell Biology
   - Genetics
   - Neurobiology
   - Microbiology
   - Immunology
   - Pharmacology
   - Biophysics
   - Physiology
   - Bio-informatics
   - Biology
   - and others

3. Industry
   - Biotechnology
   - Pharmaceutical

4. Patent Law

5. Allied Health Professions
   - Nutrition
   - Dentistry
   - Forensics
   - Veterinary Medicine
   - Toxicology
   - Clinical Chemistry
   - Environmental Science

6. Non-Health Professions
   - Chemistry
   - Physics
   - Scientific Publishing

INTERESTING ARTICLES


EDUCATIONAL OBJECTIVES

The Department of Biochemistry and Molecular Biology intends to provide its students with the best possible opportunities to master the subject and become independent learners.
DEGREE PROGRAMS

The Department of Biochemistry and Molecular Biology offers an undergraduate B.S. degree as a member of the College of Arts & Sciences. It also offers the following graduate degrees: Ph.D. and combined M.D. and Ph.D.

MAJOR

A major in Biochemistry and Molecular Biology leading to a Bachelor of Science degree requires a thorough foundation in chemistry and biology or microbiology and background knowledge of physics and mathematics.

Minimum requirements:

1. 15 credits from the courses offered by the Department of Biochemistry and Molecular Biology plus at least 16 credits in chemistry and at least 19 credits in biology. Examples of courses that can be taken for the major are BMB 151, 251, 258, 506, 407 or 507, 501, 509, 511 and 545. Courses printed in bold letters are absolutely required. Courses printed in italics can be taken more than once. Only in exceptional cases will BMB 401 be accepted in place of BMB 506. Students are encouraged to take at least one semester of BMB 545 (laboratory research). The Department will make its own independent determination on a case-by-case basis concerning the equivalency of courses taken at other universities.

A UM cumulative grade point average of 2.9 is required to declare a biochemistry major or minor. Transfer students can only declare a biochemistry major if they have a grade point average of 3.5. A grade of C or better must be earned in each Biochemistry and Molecular Biology course.

2. Required Biology and/or Microbiology courses are:
   BIL 150, 151, 160, 250, 252 or 256 or 251 (252 is preferred), 255 plus
   BIL 355 (Developmental Biology) or MIC 301

3. Required Chemistry courses are CHM 111/113, 112/114, 201/205, and 202/206. Chemistry 331 is recommended.

4. Mathematics: MTH 111 and 112 or 131 and 132.

5. Physics:
   For students contemplating graduate studies: PHY 205, 206 and 207 or PHY 205 and 210.
   For students not contemplating graduate studies: PHY 101 and 102 are acceptable.

Variations of the above program are feasible for students entering with advanced standing on the basis of placement tests or for transfer students.
MINOR

Minimum requirements are:
1. 8 credits in Biochemistry and Molecular Biology. BMB 506 is required. Students must have all the courses that are a prerequisite for BMB 506 and a good working knowledge of chemistry and biology before they take BMB 506. The remaining credits may come from any of the courses offered by the Department. Only in exceptional cases will BMB 401 be accepted in place of BMB 506 with the permission of the undergraduate advisor. Students should become familiar with the credit sharing rules. Credits for a minor cannot be used for a major. Credits can be shared between two majors.

2. The Department will make its own independent determination on a case-by-case basis concerning the equivalency of courses taken at other universities.

A grade of C or better must be earned in each Biochemistry and Molecular Biology course.

For graduate programs or combined Ph.D.-M.D. programs, consult the Bulletin of the Graduate School.

Registration in all 500-level courses requires permission from the Biochemistry advisor or course coordinator.

DEPARTMENTAL HONORS

Departmental honors can be earned by biochemistry majors who have:
1. successfully completed two semesters of research (5 or 6 credits of BMB 545). This research must be described in a brief thesis that needs to be approved by three BMB faculty members.

2. a 3.5 or higher grade point average in all BMB courses.

3. at least a 3.3 average for all their courses taken at the University of Miami.

For general honors see elsewhere in this Bulletin.

Biochemistry and Molecular Biology Course Listing
BIOLOGY - Dept. Code: BIL
www.bio.miami.edu

INTRODUCTION

The Department of Biology offers undergraduate programs for students interested in a natural science education that will prepare them for careers in biological research, medicine and other health-related fields, teaching, environmental management and other fields that require a broad base of biological knowledge.

EDUCATIONAL OBJECTIVES

The Department of Biology trains students to understand and use the scientific method, and to engage in critical thinking and experimental design. We strongly encourage original laboratory and/or field research under the mentorship of biology faculty. The Bachelor of Science in Biology prepares the student for further training in natural science, such as biology graduate school, as well as medical, veterinary, dental or other health-care professions. The Bachelor of Arts degree prepares the student for a career in more humanities-related fields such as teaching or environmental law.

DEGREE PROGRAMS

Two undergraduate degrees are available in Biology: the B.S. and B.A. Both require a major in Biology of 34 credits with a minimum grade of C- in each course and an overall GPA of 2.0.

MAJOR

Bachelor of Science Degree

The B.S. degree is recommended in preparation for graduate schools, professional schools, marine biology, and high school or college teaching. In addition to the College of Arts and Sciences general degree requirements, the B.S. requirements are as follows:

1. BIL 150, 151, 160, 161
2. BIL 235, 250, 255, 265
3. Additional BIL electives to total 34 credits.
4. Two laboratory or field courses beyond 151, 161 are required as part of the 34 credits in BIL.

One course of up to four credits toward the major, but not the minor, may be selected from courses numbered 300 or higher from the following departments: Biochemistry and Molecular Biology, Marine Biology and Fisheries, or Microbiology and Immunology. BME 305 may be used instead of a course from BMB, MBF, or MIC.
A maximum of two credits of BIL 371 and BIL 372 and six credits of BIL 495, 496 and 497 may be applied towards the major.

One course only from BIL 495, 496 or 497 may be counted towards the laboratory course requirement for the B.S. degree.

A maximum of one credit in BIL 381 and one credit of BIL 382 may be applied towards the major, although these two courses may be taken more than once each for general elective credit.

A maximum of one credit in BIL 481 under any single subtitle may be applied towards the major. This course may be taken more than once for general elective credit only.

In addition, students must complete the following:

1. Select one course from the following: BIL 311, BIL 511, EEN 118, CSC 120, MTH 224, or PSY 204. This will fulfill the Mathematics-statistics/computer programming requirement under the College of Arts and Sciences General degree requirements.

2. One year of inorganic chemistry (111-112) with laboratory (113-114), one semester of organic chemistry with laboratory (201/205).

3. Two semesters of college physics with laboratory or three semesters of university physics with laboratory.

4. A minor in chemistry, physics, geological sciences, marine sciences, biochemistry and molecular biology, computer science, mathematics, or microbiology and immunology.

**Bachelor of Arts Degree**

The B.A. degree is recommended for students involved in interdisciplinary programs and for entrance to those professional schools and specific biological careers not requiring a B.S. degree with a major in Biology. In addition to the College of Arts and Sciences degree requirements, the B.A. requirements are as follows:

1. Biology 150, 151, 160, 161 plus BIL electives to total 34 credits.

2. One course of up to four credits toward the major, but not the minor, may be selected from courses numbered 300 or higher from the following departments: Biochemistry and Molecular Biology, Marine Biology and Fisheries, or Microbiology and Immunology. BME 305 may be used instead of a course from BMB, MBF, or MIC.

3. One semester of inorganic chemistry with laboratory (111/113 or 103/105) and one semester of organic chemistry with laboratory (201/205 or 104/106).

4. A minor in a department other than natural science.
MINOR

A biology minor consists of BIL 150/151 and BIL 160/161 plus BIL electives to total 18 credits, with a minimum grade of C- in each course. (Note: All courses in the minor must be in BIL. Courses from BMB, MBF, MIC, or BME may not be counted towards the minor.)

Overall GPA in the major or minor must be a minimum of 2.0.

One half of the credits required for a Biology major or minor must be earned in residence at the University of Miami.

DEPARTMENTAL HONORS

HONORS PROGRAM

See HONORS PROGRAMS elsewhere in this Bulletin for minimal requirements. In addition to the grade point averages specified in the minimal requirements, the following program constitutes the Biology Departmental Honors Program:

1. A minimum of two of the following: Biology 495, 496, 497 (2 credits each), involving a research project carried out under the supervision of a member of the Department of Biology faculty.

2. Biology 498, a senior thesis, of superior quality, on the results of the research.


4. A minimum of two BIL credits from the following list: 253, 257, 299, 374, 375.

5. A minimum of one course in the Department of Biology at the 500 level.

6. An overall GPA of 3.3 and a biology GPA of 3.5.

Advanced placement, and in certain situations, course credit can be earned through the College Entrance Examination Board program, placement examinations, and departmental proficiency examinations.

For Graduate programs, consult the Graduate School section of this Bulletin.

Variations within the above program may be permitted by the Department Chairman in special cases.

Biology Course Listing
INTRODUCTION

Each undergraduate chemistry degree program requires the core courses CHM 111, 112, 113, 114, 201, 202, 205, 206, and 304; one year of calculus; and at least two semesters of physics. The requirements for a major are flexible and should conform to the objectives of the student. A grade of C- or higher must be earned in all courses taken for major or minor credit, and the Chemistry GPA must be 2.00 or higher. Credits earned in CHM 381 and CHM 382 do not count toward the major or minor.

EDUCATIONAL OBJECTIVES

The mission of the Bachelors degree program in the Chemistry Department is to promote an understanding and appreciation of the role of chemistry in modern society, especially as it relates to and integrates with other biological and physical sciences and societal issues facing humanity today such as the environment, health issues and technological advances.

DEGREE PROGRAMS

Three programs lead to degrees with a chemistry major:

1. the B.A. degree
2. the B.S. degree
3. the B.S. degree with certification by the American Chemical Society Committee for Professional Training of Chemists.

MAJOR

1. The B.A. degree requires 27 credits of chemistry: the core courses; CHM 331 or 360; plus electives from the following sufficient to reach the required credit hours for the degree: CHM 316, 320, 365, CHM 401, CHM 531, 520 or BMB 401. This major is designed for premedical students, high school science teachers, and others who choose a non-science minor. It may be combined with business courses in an interdisciplinary program.

2. The B.S. degree requires 34 credits of chemistry: the core courses; CHM 360, 364, 365 and 316, 320; plus electives from the following sufficient to reach the required credit hours for the degree: CHM 401, CHM 441, 520, 563 or BMB 401 or 506. Two semesters of physics are required. This major meets the minimum entrance requirements of many graduate programs in chemistry.

3. The American Chemical Society certified B.S. degree consists of 44 credits: the core courses; 316, 320, 360, 364, 365, 441, 442, 464, BMB 506; CHM 520, and 563; at least two credits in CHM 488 or 490; either PHY 205/210; or PHY 205, 206, and 207; and both PHY 208 and 209. The Professional Chemistry Program is also available in the Engineering Science Department, College of Engineering. A senior research thesis is required by the ACS for awarding of this degree.
Variations within the above programs may be recommended by the Department. Transfer students must complete a minimum of half of the required major credits in residence in the Department. Students should make certain that math and physics prerequisites are fulfilled in a timely manner. For students who plan to do graduate work in physical chemistry, a double minor is recommended: Mathematics and Computer Science through 310 and 311, Physics through 350 and 360.

MINOR

A minor in chemistry consists of 8 credits in chemistry courses at the 200 level or above, taken at the University of Miami, exclusive of CHM 381, 382, 488 and 490.

Credit may be earned in only one of the courses Chemistry 103, 111 or 151. Credit may not be earned in both CHM 104 and CHM 201.

DEPARTMENTAL HONORS

Honors in Chemistry may be earned by students who are in good standing within the University’s Honors Program. In addition to the general requirements for University Honors, a student must also complete the core courses in Chemistry; CHM 360, 364, and 365; at least six credits of CHM 490; and any three of the following: CHM 316, 441, 520, 563, BMB 502, and BMB 401 or 506, all with an average grade of at least 3.30. A written Honors Thesis and oral defense on the subject of the Honors Research must be presented by the student and approved by a Department Honors Committee.

Chemistry Course Listing
INTRODUCTION

Every culture and civilization has its classics: those works of art that are seen as the best of their kind, have withstood the test of time, and embody the symbolic values of their society. In the western tradition, the study of 'Classics' has focused upon the literatures and cultures of ancient Greece and Rome, and their impact on the whole subsequent history of the western world.

The significance of the study of Classics to the history of the academy would be difficult to overstate. Indeed the entire notion of a 'university,' from the days of mediaeval Paris, Bologna, Oxford, and Heidelberg on, was founded consciously and explicitly upon the study of Greek and Latin literatures and thought. The discipline has been conceived in unusually broad terms; it is intended to encompass everything that can be known about the ancient Mediterranean world. Because of this, there is room in Classics for the study of areas as disparate as literature, science, sculpture, history, architecture, religion, philosophy, theater, economics, music -- in short, the entire panorama of human endeavor. It is no wonder that the study of Classics has always tended to attract some of the liveliest and most brilliant intellects; and it is equally unsurprising that students majoring in Classics find themselves extremely well-prepared for undertaking practically any type of career, whether that be in politics, law, teaching, commercial publishing, research of all kinds, medicine, journalism, banking, or the corporate world. A degree in Classics marks the UM graduate as a man or woman of superior analytical and critical skills, one who has proved able to cope with the most rigorous academic curriculum, and who is exceptionally broadly educated in the most fundamental aspects of what it means to be human.

EDUCATIONAL OBJECTIVES

The educational objectives of the Department of Classics may be stated in a variety of ways, and on a number of levels. In terms of linguistic competency, students majoring or minoring in Classics are required to reach an appropriate level of fluency in reading ancient Greek or Latin, or both. In terms of cultural literacy, students of the Classics are educated within a rigorous curriculum exposing them to the great literary works and material cultures of ancient Greece and Rome. In terms of critical thinking, students of the Classics are trained to hone the skills of memory, analysis, and synthesis, skills that they will be able to apply for the rest of their lives in any realm of thought whatsoever.

But -- stated in the most philosophical terms -- the goal of an education in Classics is to foster and inculcate an ever-burgeoning awareness of what Cicero referred to as *humanitas* -- in short, everything it is to be human. It is the mission of Classics to expose its students to the greatest thoughts and endeavors of the human race, and to encourage them to think about what that greatness consists in, and how to enlarge upon it. The profoundest educational objective of the Department of Classics is to preserve and study all that is important or beautiful about the past, in order best to prepare for the future.
DEGREE PROGRAMS

The Department of Classics offers the Major and the Minor in Classics; for details on these, see below.

MAJOR

The undergraduate Major in Classics at UM has four tracks. For more details on these four ways of earning the B.A. in Classics at UM, see the Department's website, specifically the page at [http://www.as.miami.edu/classics/undergraduate](http://www.as.miami.edu/classics/undergraduate).

MINOR

Students may instead elect to Minor in Classics at UM. For more details on the requirements for the Minor in Classics, see the Department's website, specifically the page at [http://www.as.miami.edu/classics/undergraduate/minor](http://www.as.miami.edu/classics/undergraduate/minor).

DEPARTMENTAL HONORS

Some Classics Majors may qualify to graduate with Departmental Honors in Classics. In order to earn Departmental Honors, the student must maintain a minimum average of 3.5 in all Classics courses (those labeled CLA, GRE, and LAT), plus an overall minimum GPA of 3.5. In addition, they must complete CLA 495 and CLA 496 with a grade of B or higher.

In addition, Classics Majors, Classics Minors, and other students who meet certain academic criteria are eligible for membership in Eta Sigma Phi, the National Honors Society for Classics.

[Classics Course Listing](#)
COMPUTER SCIENCE - Dept. Code:  CSC
www.cs.miami.edu

INTRODUCTION

The Department of Computer Science offers undergraduate and graduate education in Computer Science, and performs research in various areas of Computer Science. The Department has faculty with strong accomplishments in the fields of algorithm engineering, automated reasoning, bioinformatics, computational complexity, computational geometry & computer graphics, cryptography & network security, data mining, molecular computation, multimedia systems, music information retrieval, scientific computing, and wireless & mobile computing.

EDUCATIONAL OBJECTIVES

The Department of Computer Science educates students in the science of software development: the analysis of domain problems, the development of algorithms and programs, the use of specialist computing techniques, the system-software and hardware platforms, and the production and deployment of efficient and robust computer software. Instruction ranges from introductory programming classes and laboratories, through to research in various areas of computer science.

DEGREE PROGRAMS

The Department of Computer Science offers a Bachelor of Science, Bachelor of Arts, and a Medical Informatics major in Computer Science.

MAJORS

Bachelor of Science in Computer Science for students in the College of Arts and Sciences

Students must complete the Core, a Track, and the Science & Ethics requirements.

Core

Computer Science (20 credits)

- CSC 120 - Computer Programming I
- CSC 220 - Computer Programming II
- CSC 314 - Computer Organization and Architecture
- CSC 517 - Data Structures and Algorithm Analysis
- CSC 527 - Theory of Computing
- CSC 531 - Introduction to Software Engineering
Mathematics (17 Credits)

- MTH 111 - Calculus I
- MTH 112 - Calculus II
- MTH 210 - Vectors and Matrices
- MTH 224 - Introduction to Probability and Statistics
- MTH 309 - Discrete Mathematics I

Comprehensive Track (Available to all students)

- CSC 519 - Program Languages
- CSC 521 - Principles of Computer Operating Systems
- CSC 523 - Database Systems
- CSC 524 - Computer Networks
- At least 8 credits of approved electives (note: CSC 322 is prerequisite to CSC 521 and CSC 524)

The Comprehensive Track provides coverage of the topics in Computer Science prescribed by the Association of Computing Machinery curriculum and the ABET Computing Accreditation Commission.

Flexible Track (Available to all students)

- At least 20 credits of approved electives

Scientific Computing and Visualization Track

(Requires permission of the Director of Undergraduate Studies)

- CSC 529 - Introduction to Computer Graphics
- CSC 547 - Computational Geometry
- 3 credits from CSC 410 - Computer Science Project Planning-CSC 411 - Computer Science Project Implementation
- MTH 311 - Ordinary Differential Equations or MTH 515 - Ordinary Differential Equations
- MTH 320 - Introduction to Numerical Analysis or MTH 520 - Numerical Analysis I
- At least 5 credits of approved electives

Cryptography and Security Track

(Requires permission of the Director of Undergraduate Studies)

- CSC 507 - Data Security and Cryptography
- CSC 521 - Principles of Computer Operating Systems
- CSC 524 - Computer Networks
- 3 credits from CSC 410 - Computer Science Project Planning-CSC 411 - Computer Science Project Implementation
- MTH 505 - Theory of Numbers or MTH 509 - Discrete Mathematics II or MTH 561 – Abstract Algebra I
- At least 5 credits of approved electives (note: CSC 322 is prerequisite to CSC 521 and CSC 524)
Graphics and Games Track

(Requires permission of the Director of Undergraduate Studies)

- CSC 329 - Introduction to Game Programming
- CSC 529 - Introduction to Computer Graphics
- CSC 545 - Introduction to Artificial Intelligence
- 3 credits from CSC 410 - Computer Science Project Planning-CSC 411 - Computer Science Project Implementation
- At least 8 credits of approved electives. In addition to the generally approved electives, the following are approved for the Graphics and Games track:
  - EEN 596 – Maya Animation
  - MMI 504 - Audio Analysis & Synthesis
  - MMI 505 - Musician – Machine Interfaces
- The courses used to meet the Science requirement must include either
  - PHY 101 - College Physics I or
  - PHY 205 - University Physics I

Science & Ethics Requirement

The Computer Science major requires 13 credits of Science. The Science courses must include an approved two semester sequence of courses with laboratory. Courses may be taken in Biology, Chemistry, Environmental Science, Geological Science, Marine Science, Physics, and Physical Science. The Science courses must be acceptable for the Natural Science requirements in the College of Arts and Sciences, for Bachelor of Science students. The Computer Science major requires completion of the Ethics course PHI 115. This course is acceptable for the Arts & Humanities requirements of the College of Arts and Sciences.

Approved Electives

- Any CSC 3XX, CSC 4XX, CSC 5XX (maximally 6 credits from CSC 40X - Computer Science Practicum)
- CIS 360 - Analysis of Information Systems
- CIS 465 - Applied Software Project Development (instead of CSC410/CSC411)
- EEN 414 - Computer Organization and Design
- EEN 417 - Embedded Microprocessor System Design
- EEN 514 - Computer Architecture
- EEN 532 - VLSI Systems
- EEN 542 - Digital Integrated Circuits
- EEN 574 - Agent Technology
- EEN 577 - Data Mining
- MMI 505 – Musician – Machine Interfaces
- MTH 320 - Introduction to Numerical Analysis
- MTH 509 - Discrete Mathematics II
- MTH 520 - Numerical Analysis I
- MTH 521 - Numerical Analysis II
- MTH 524 - Introduction to Probability Theory
- MTH 525 - Introduction to Mathematical Statistics
- MTH 528 - Combinatorics
Medical Informatics Major for Bachelor of Science students in the College of Arts and Sciences

This program leads to a B.S. degree in Computer Science, tailored to the needs of students who are planning to work in a medical environment after graduation, including pre-medical, pre-dental, and pre-nursing students. The Medical Informatics program consists of three parts: (1) the basics of hardware and software systems, (2) information storing, retrieval, processing, and analysis, and (3) the application of the knowledge acquired in a medical environment. Students must complete the courses listed below, and an internship in medical information systems at a hospital or medical center. The Department will help students find an internship. Students in the Medical Informatics program will have enough flexibility to include all courses necessary for pre-medical or pre-dental curriculum within a 120 credit hour plan of study; students may wish to consult the University of Miami pre-medical guide.

Computer Science (26 credits)
- CSC 120 - Computer Programming I
- CSC 220 - Computer Programming II
- CSC 314 - Computer Organization and Architecture
- CSC 517 - Data Structures and Algorithm Analysis
- CSC 521 - Principles of Computer Operating Systems
- CSC 523 - Database Systems
- CSC 531 - Introduction to Software Engineering
- CSC 555 - Multimedia Systems

Mathematics (17 credits)
- MTH 111 - Calculus I
- MTH 112 - Calculus II
- MTH 210 - Vectors and Matrices
- MTH 224 - Introduction to Probability and Statistics
- MTH 309 - Discrete Mathematics

Other (9 credits)
- CIS 360 - Analysis of Information Systems
- MTH 542 - Statistical Analysis or
- IEN 312 - Applied Statistical Methods
- CSC 412 - Internship, approved by the Coordinator of the Medical Informatics Program

Bachelor of Science in Computer Science for students with a Second Major in Science, in the College of Arts and Sciences

Bachelor of Arts in Computer Science for students in the College of Arts and Sciences

Core

Computer Science (20 credits)
- CSC 119 - Computers and Society or
- CSC 210 - Computing for Scientists or
- 3 credits from CSC 3XX, CSC 4XX, CSC 5XX or
- CIS 120 - Introduction to Computer Information Systems or
- CIS 320 – Introduction to Programming or
- GEG 199 – Introduction to GIS or
- MSC 321 – Scientific Programming for Atmospheric Sciences
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- CSC 120 - Computer Programming I (note: MTH 108 is corequisite to CSC 120)
- CSC 220 - Computer Programming II
- CSC 314 - Computer Organization and Architecture
- CSC 322 - C Programming and UNIX
- CSC 531 - Introduction to Software Engineering

Mathematics (6 credits)
- MTH 111 - Calculus I
- MTH 309 - Discrete Mathematics

Electives

6 approved credits from
- Any CSC 3XX, CSC 4XX, CSC 5XX
- BIL 552 - Bioinformatics Tools
- CIS 360 - Analysis of Information Systems and
- CIS 423 - Database Management Systems
- CIS 430 - Business Telecommunications
- CIS 465 - Applied Software Project Development (instead of CSC410/CSC411)
- EEN 414 - Computer Organization and Design
- EEN 514 - Computer Architecture
- EEN 368 - Internet Computing I and
  EEN 568 - Internet Computing II or EEN 576 - Internet and Intranet Security
- EEN 567 - Database Design and Management (or equivalent) and
  EEN 577 - Data Mining
- MMI505 - Musician-Machine Interfaces (for Music Engineering students only)

Computer Science as a Second Major

A second major in Computer Science is available to all students. A second major in Computer Science requires completion of the requirements of either the 70 credit Bachelor of Science version or 33 credit Bachelor of Arts/second major version.

MINOR

A minor in Computer Science requires completion of the following:

- CSC 120 - Computer Programming I
- CSC 220 - Computer Programming II
- CSC 314 - Computer Organization and Architecture
- 6 credits from CSC 3XX, CSC 4XX, CSC 5XX

NOTES
- A grade of C- or better is required in all CSC courses in a major, honors, or minor.
- The overall GPA for CSC courses in a major must be 2.5 or better.
- For all Computer Science majors, at least 15 credits of CSC courses must be completed at the University of Miami.
- For the Computer Science minor, at least 9 credits of CSC courses must be completed at the University of Miami.

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DEPARTMENTAL HONORS

In addition to the University’s requirements for Departmental Honors, Departmental Honors in Computer Science requires completing a major and 6 additional approved credits (all CSC 4XX and CSC 5XX courses are approved). The major or additional credits must include at least 3 credits from CSC 410 and CSC 411.

Computer Science Course Listing
INTRODUCTION

The major in Criminology provides a comprehensive understanding of crime and the criminal justice system. The major prepares students to assume roles of leadership in this critical area of modern society. Courses are designed to review theory, research, and applications of knowledge regarding delinquency and crime, as well as to understand the manner in which offenders are processed. Students learn about the nature and extent of crime, different types of crime, and theories to explain crime. In addition, detailed analyses are made of the functions of the law, police, courts, and correctional systems and the ways in which these are linked to broader aspects of society. Students may also minor in Criminology. The Criminology major and minor are administered through the Department of Sociology.

EDUCATIONAL OBJECTIVES

CRIMINOLOGY courses have several broad objectives, including:

1. General education and development of critical thinking skills.
2. Undergraduate preparation for pursuing careers in such fields as law and society, in the local and state criminal justice systems (e.g., juvenile probation officer, pretrial services officer, crime analyst for criminal justice agencies), or in federal agencies (e.g., DEA).
3. Preparation for graduate study in criminology, criminal justice, sociology, or other social and behavioral sciences.
4. Preparation for law school.

DEGREE PROGRAMS

Students may earn a Bachelor of Arts degree in Criminology. The Department of Sociology also offers graduate degrees in Sociology (M.A., Ph.D.) with emphases in criminology and in other areas (race/ethnic relations and medical sociology).

MAJOR

The major in Criminology consists of 31 credit hours including SOC 101, SOC 210, SOC 211, SOC 212, SOC 371, and SOC 470. Fifteen additional credit hours in Sociology courses are required. It is highly recommended that students primarily take such classes that have criminological foci and emphases (e.g., SOC 370). Additional information and course descriptions are listed under the Department of Sociology in this Bulletin. All courses taken for credit toward the major must be passed with a grade of C- or higher with an overall GPA of 2.0. Normally students cannot transfer more than 12 credits toward the major.
MINOR

The minor in Criminology consists of 15 credit hours, including SOC 101 and SOC 371. A student majoring in Sociology may not minor in Criminology. All courses taken for credit toward the minor must be passed with a grade of C- or higher with an overall GPA of 2.0. Additional information and course descriptions are listed under the Department of Sociology in this Bulletin.

DEPARTMENTAL HONORS

Graduation with Departmental Honors is available to eligible students who fulfill the following:

1. Students desiring Departmental Honors in Criminology must maintain an overall GPA of 3.3 and a GPA of 3.5 in Criminology. They must also achieve a minimum of B in all Criminology courses. For transfer students, the Department uses the cumulative, combined GPA calculated by the Office of the Registrar.

2. A student seeking Departmental Honors is required to write an independent research paper which is submitted to the Undergraduate Committee in the Department of Sociology. The nature of the independent research project is determined by the faculty member(s) with whom the student works. This project is done in SOC 498 & SOC 499 (Honors I & II). The student should have the same professor for all six credits.

3. Recruitment of eligible students is by departmental invitation at the beginning of a student’s junior year.
ECONOMICS
www.bus.miami.edu

INTRODUCTION

Economics uses the idea of maximizing behavior to provide a unified framework for studying human action. The economics curriculum is designed to give students an understanding of economic theory and its application to a wide range of human behavior. The program provides excellent preparation for careers in business, in government, and in international agencies. It is particularly recommended for students planning graduate study or professional training in fields such as law, business, international studies, public administration, and economics.

MAJOR

The major in economics consists of at least 24 credits, which must include:
ECO211
ECO212
ECO301
ECO302
MTH109 or MTH111, is required of all Economics majors and minors. The calculus course must be completed before enrolling in ECO302.

MINOR

Arts and Sciences students may minor in economics and are required to take ECO211, ECO212, ECO302 and two additional economics courses for a total of 15 credits.

Note: All courses submitted for the major or minor must be completed with a grade of C- or higher and with an overall grade point average of C or higher.

Academically qualified students may elect to take courses from the Departments curriculum for Honors credit.

Economics Course Listing
ECOSYSTEM SCIENCE AND POLICY - Dept. Code: ECS
www.cesp.miami.edu

INTRODUCTION

The goal of the undergraduate program in Ecosystem Science and Policy (ECS) is to educate the next generation of environmental leaders. The ECS program provides students with a broad background in environmental issues from a variety of perspectives, along with in-depth education in an area of specialization.

EDUCATIONAL OBJECTIVES

The ECS major offers a series of problem-based learning courses, culminating in a capstone course in the senior year team-taught by scientist and non-scientist faculty, emphasizing integration of science and policy approaches to real-world environmental issues. This preparation gives students both the theoretical background and technical skills to pursue an environmental career, including teaching and research as well as for careers in government and private industries concerned with the environment.

DEGREE PROGRAMS

The Ecosystem Science and Policy program offers two undergraduate degree major programs: a Bachelor of Science (B.S.) and a Bachelor of Arts (B.A.). The ECS degree is a double major program. Students earning a B.S. in ECS must also complete a second major from one of the following disciplines: biology, biochemistry, chemistry, computer science, geological sciences, mathematics, microbiology, or physics. Students earning a B.A. in ECS must also complete a second major in a non-science area or the B. A. major in Geological Sciences or the B. A. major in Biology. Students are required to complete either a research internship with an environmental organization or a research project with the Center for Ecosystem Science and Policy or with other UM faculty. Students earning dual degrees, for example from the College of Engineering and College of Arts and Sciences, must complete the ECS major and a minor in another area (typically mathematics).

Only those courses passed with a grade of “C-” or better in the ECS core may be applied to the major or minor. All ECS majors are required to maintain an overall cumulative grade point average of 2.5 or better in order to graduate with a double major in ECS.

MAJOR

Bachelor of Science Degree: The B.S. degree is recommended in preparation for careers in science, including graduate schools, professional schools, technical careers in government and private industries concerned with the environment, and high school or college teaching. In addition to the College of Arts and Sciences general degree requirements, the B.S. requirements are as follows:
ECS Core:

ECS 111, 112, 113, (201 or 202), 301, 302, 403, and either ECS 401 (internship) or 402 (research)

In addition, students must take the following courses, which may fulfill the College of Arts and Sciences general education or second major requirements:

Science Core:

Biology: BIL 160, 161 and 235
Chemistry: CHM 111/113, 112/114
Environmental Pollution: CAE 240
Geological or Marine Sciences: One of GSC 110/114, or GSC 111 or MSC 111
Physics: PHY 101/106 or PHY 205, 206/208
Environmentally-related science electives to total 6 credits.

Mathematics:

As required by the College, all B.S. degree candidates must pass two semesters of calculus (MTH 110-112, MTH 111-112, or MTH 131-132) and one semester of a statistics course (MTH 224, PSY 204 or BIL 311).

Social Science Core:

Economics ECO 211 and 212 or Political Science POL 211 and 212
Environmentally-related social science elective to total 3 credits

Bachelor of Arts Degree: The B.A. degree is recommended in preparation for careers in law and government, including professional schools and careers in government and private industries concerned with the environment. In addition to the College of Arts and Sciences general degree requirements, the B.A. requirements are as follows:

ECS Core:

ECS 111, 112, 113, (201 or 202) 301, 302, 403, and either ECS 401 (internship) or 402 (research)

In addition, students must take the following courses, which may fulfill the College of Arts and Sciences general education or second major requirements:

Science Core:

Biology: BIL 103
Chemistry: CHM 101 or 111/113
Environmental Pollution: CAE 240
Geological Sciences: One of GSC 103, 105, 106 or GSC 110/114 or GSC 111
Marine Science: MSC 101 or 111
Environmentally-related science elective(s) to total 3 credits.

Mathematics:

As required by the College, all B.A. degree candidates must pass one of MTH 103, 108, 109, 111, or 131. All ESC majors must complete one semester of a statistics course (MTH 224, PSY 204 or BIL 311).
Social Science Core:
   Economics ECO 211 and 212 or Political Science POL 211 and 212
   Environmentally-related social science electives to total 9 credits (at least
   one of which must be at 300 level or above)

MINOR

Minor in Ecosystem Science and Policy:
   A minor in ECS is 15 credits and includes:
   ECS 111, 112, 113, one of 201 or 202, and two 300-level ECS courses (one of
   which must be either 301, or 302).

Ecosystem Science & Policy Course Listing
EDUCATION

INTRODUCTION

Degree in Teacher Education for Elementary and Secondary Schools

The School of Education in conjunction with the College of Arts and Sciences and the School of Music offers a degree program in teacher education. Students majoring in Elementary or Special Education may choose to earn their degree through the School of Education or the College of Arts and Sciences.

The program in Secondary Education enables a student to teach in a secondary school in the areas of English, Mathematics, Chemistry, Biology, Economics, Geography, History, International Studies or Political Science. Students wishing to earn certification in Secondary Education must complete a Bachelor of Arts or a Bachelor of Science degree in the College of Arts and Sciences with a major in Secondary Education. *

MINOR

TRADITIONAL EDUCATION MINOR

The requirements for a minor in education consist of 15-credits passed with a C or higher, with an overall GPA of 2.0 in courses selected from the list of acceptable TAL departmental courses. A minimum of six credits must be numbered 300 or higher. This minor does not lead to teaching credentials.

PROFESSIONAL TRAINING OPTION CERTIFICATE

The Professional Training Option (PTO) is a Florida Department of Education approved pathway for non-education majors to complete the Professional component, one of the requirements to become a certified teacher in the State of Florida.

The PTO minor consists of 18-credits. Upon completion of the program participants will receive a Certificate of Completion. UM transcripts will indicate that the student has completed a Florida State approved PTO program. Program completers will be eligible to apply for a Temporary Teaching Certificate in the State of Florida.

* For specific information regarding required coursework, field experiences, and State requirements, please see an academic advisor in the School of Education.
Courses for the PTO minor are:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAL101</td>
<td>Social and Cultural Foundations of Education</td>
</tr>
<tr>
<td>TAL103</td>
<td>Psychological Foundations of Education</td>
</tr>
<tr>
<td>TAL204</td>
<td>Building Positive Relationships in Diverse Inclusive Secondary Schools</td>
</tr>
<tr>
<td>TAL304</td>
<td>Content Area Reading and Learning Strategies</td>
</tr>
<tr>
<td>TAL540</td>
<td>Instruction and Assessment in the Secondary School</td>
</tr>
</tbody>
</table>

One course selected from the following list as appropriate for the subject area:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAL506</td>
<td>Issues and Strategies for ESOL</td>
</tr>
<tr>
<td>TAL524</td>
<td>Education and the Arts</td>
</tr>
<tr>
<td>TAL541</td>
<td>Instruction in Secondary English</td>
</tr>
<tr>
<td>TAL543</td>
<td>Instruction in Secondary Mathematics</td>
</tr>
<tr>
<td>TAL544</td>
<td>Instruction in Secondary Science</td>
</tr>
<tr>
<td>TAL545</td>
<td>Instruction in Secondary Social Studies</td>
</tr>
</tbody>
</table>

OTHER

All education programs are approved by the State of Florida Department of Education.

* For specific information regarding required coursework, please see an education advisor.
MINOR

The College of Engineering offers the student in the College of Arts and Sciences a variety of 15-credit minors designed to give the student a basic understanding of the technologies that support and shape our civilization. Minors may be elected in Civil, Architectural, Environmental, Electrical, Computer, Industrial, or Mechanical Engineering. The student is given considerable freedom in choosing courses in accordance with the student’s interests.

Faculty in the College are prepared to assist Engineering minors in the preparation of programs of study.

More detailed descriptions of these minors will be found in the COLLEGE OF ENGINEERING section of this Bulletin.
ENGLISH - Dept. Code: ENG
www.as.miami.edu/english

INTRODUCTION
The English Department offers programs for students interested in a liberal arts education directed toward careers in law, business, creative writing, secondary education, and university teaching and scholarship. Students who would like to learn more about any of these programs are encouraged to consult the Director of Undergraduate Studies in the Department of English, Ashe Bldg. 321.

EDUCATIONAL OBJECTIVES
English as a discipline offers an opportunity for a general humanistic education, and it develops skills in communication and analysis essential in most careers. An education in English teaches students to write, to think critically, to weigh values, and to communicate ideas; at the same time, it affords them a sense of beauty and informs them of the heritage of their own culture as well as others.

DEGREE PROGRAMS
The major in English leads to the degree of Bachelor of Arts.

MAJOR
Students majoring in English must earn 30 credits in English courses (36 credits for Departmental Honors) and must meet the requirements for one of the tracks described below:
The English Literature Major,
The Creative Writing Concentration,
The Concentration in British Literary History, or
The Women's Literature Concentration.

Credits earned for courses in freshman composition (ENG 105, 106, 107, and 208) may not be applied toward the total number of credits required for the major. In each English course, the English major must make a grade of C- or better, with an overall GPA in the major of 2.0.

ENGLISH LITERATURE MAJOR
Requirements for the English Literature Major are as follows:

1. Two of the following courses: English 201, 202, 205, 210, 211, 212, 213, 214, 215, 260, 261. (ENG 210 may be counted only once toward the fulfillment of this requirement.)

6 credits
2. Five literature courses numbered 300 or above, at least two of which must be numbered 400 or above, distributed as follows: two courses in literature before 1700, two courses in literature between 1700 and 1900, and one course in literature since 1900.  

3. Three additional English courses other than freshman composition (i.e., any three courses designated ENG and numbered 200 or above, excluding ENG 208).

Total: 30 credits

CREATIVE WRITING CONCENTRATION
Requirements for the Creative Writing Concentration are as follows:

1. Admission to the Creative Writing Concentration is based on a writing sample submitted to the Director of Creative Writing. (For information about the writing sample, see the English Department Web site, www.as.miami.edu/English).

2. Completion of one of the following workshop tracks:

   Fiction track:  
   ENG 290  
   ENG 390  
   ENG 404 (to be taken twice) or ENG 404 (taken once) plus ENG 408

   Poetry track:  
   ENG 292  
   ENG 392  
   ENG 406 (to be taken twice) or ENG 406 (taken once) plus ENG 408

3. Two of the following courses: English 201, 202, 205, 210, 211, 212, 213, 214, 215, 260, 261.

4. Four more literature courses numbered 300 or higher, at least two of which must cover literature earlier than 1900. Two of the four courses must be 400-level.

Total: 30 credits

CONCENTRATION IN BRITISH LITERARY HISTORY
Requirements for the Concentration in British Literary History are as follows:

1. English 211 and 212.

Total: 6 credits
2. Eight courses numbered 300 or above, at least four of which must be numbered 400 or above, distributed as follows:
   One course on Shakespeare;
   One course on the history of criticism or literary theory;
   Two additional courses in British literature (or a combination of British and other literatures) before 1800;
   Two additional courses in British literature (or a combination of British and other literatures) after 1800;
   Two electives.  
   **24 credits**

3. Recommended: ancillary courses in Art History, Music, History Philosophy, in consultation with departmental advisor.

**Total: 30 credits**

**WOMEN’S LITERATURE CONCENTRATION**

Students considering this concentration may want to take a special Women’s Studies section of English 106 in the freshman year.

Requirements for the Women’s Literature Concentration are as follows:

1. English 215 and two of the following courses: English 201, 202, 205, 210, 211, 212, 213, 214, 260, 261.  
   **9 credits**

2. Five **literature** courses numbered 300 or above, at least two of which must be numbered 400 or above, distributed as follows: two courses in literature before 1700, two courses in literature between 1700 and 1900, and one course in literature since 1900.  
   **15 credits**

3. Two additional English courses other than freshman composition (i.e., any two courses designated ENG and numbered 200 or above, excluding ENG 208).  
   **6 credits**

4. Three of the courses in 2 and 3, above, must be chosen from the following: English 372, 373, 374, 490, 494, or any English course numbered 200 or higher (other than ENG 215) cross-listed with Women’s and Gender Studies.  
   **Total: 30 credits**

**MINOR**

The student minoring in English completes, with a grade of C- or better in each course and with an overall GPA in the minor of 2.0, at least 15 credits at the 200-level or above beyond the credits earned for freshman composition. The 15 credits must be distributed as follows:

1. One **literature** course at the 200-level;  
2. A second **literature** course, at either the 200-level or the 300-level;  
3. A third **literature** course, at the 400-level;  
4. Two additional English courses other than freshman composition (i.e., any two courses designated ENG and numbered 200 or above, excluding ENG 208).
DEPARTMENTAL HONORS

DEPARTMENTAL HONORS IN LITERATURE
Students interested in seeking Departmental Honors in English should consult the Director of Undergraduate Studies in English, normally before the end of the junior year.

To enter the program a student must have achieved by the end of the junior year a 3.5 average in English courses and a 3.3 average overall. In addition to fulfilling the requirements for the English Literature Major, the candidate for Departmental Honors must:

1. Take at least three literature courses at the 400-level or higher in fulfilling requirement 2 of the English Literature Major.

2. Complete a six-credit Senior Thesis. This thesis is a documented essay of about 35 double-spaced typewritten pages on a literary subject. The student undertaking a Senior Thesis normally registers in ENG 497, Special Topics/Independent Study, for the first semester of the project, and in ENG 498, Senior Thesis, for the second semester. The student must receive a grade of B or higher in both courses in order to qualify for honors.  

3. Receive for the thesis a recommendation for honors by the director of the Senior Thesis and by one other faculty reader from the Department of English.

4. Achieve an average in the major of at least 3.5, and an overall average of at least 3.3.

Total: 36 credits

DEPARTMENTAL HONORS IN CREATIVE WRITING
To enter the program a student must have achieved by the end of the junior year a 3.5 average in English courses (including courses in creative writing) and a 3.3 average overall. In addition to meeting the requirements for the Creative Writing Concentration, the candidate for Departmental Honors must:

1. Take at least three literature courses at the 400-level or higher in fulfilling requirement 4 of the Creative Writing Concentration.

2. Complete a six-credit Senior Creative Writing Project. The student undertaking this project normally registers in ENG 497, Special Topics/Independent Study, for the first semester of the project, and in ENG 499, Senior Creative Writing Project, for the second semester. The student must receive a grade of B or higher in both courses in order to qualify for honors.

3. Receive for the project a recommendation for honors by the director of the Senior Creative Writing Project and by one other faculty reader designated by the Director of Creative Writing.

4. Achieve an average in the major of at least 3.5, and an overall average of at least 3.3.

Total: 36 credits
DEPARTMENTAL HONORS IN WOMEN’S LITERATURE
To enter the program a student must have achieved by the end of the junior year a 3.5 average in English courses and a 3.3 average overall. In addition to fulfilling the requirements for the Women’s Literature Concentration, the candidate for Departmental Honors must:

1. Take at least three literature courses at the 400-level or higher in fulfilling requirements 2 and 3 of the Women’s Literature Concentration.

2. Complete a six-credit Senior Thesis. This thesis is a documented essay of about 35 double-spaced typewritten pages on a literary subject. The student undertaking a Senior Thesis normally registers in ENG 497, Special Topics/Independent Study, for the first semester of the project, and in ENG 498, Senior Thesis, for the second semester. The student must receive a grade of B or higher in both courses in order to qualify for honors.  

3. Receive for the thesis a recommendation for honors by the director of the Senior Thesis and by one other faculty reader from the Department of English.

4. Achieve an average in the major of at least 3.5, and an overall average of at least 3.3.

Total: 36 credits

English Course Listing
INTRODUCTION

Geography and Regional Studies is concerned with the spatial or locational dimensions of environmental phenomena and organizational patterns of human activity on the earth’s surface. Concretely, geography deals with the analysis of topics ranging from environmental problems, political boundary disputes, and ethnic conflict to applied and more localized issues such as establishing new voting districts to provide better representation for ethnic minorities, determining where the next freeway link should be built, assessing the location of oil pipelines, or various matters regarding urban planning and governance.

Traditionally, geographers have regional expertise combining topical and geographic fields of knowledge: for example, population issues in the Caribbean, sustainable development in the Amazon basin, economic and political integration in Europe, territorial conflict in the Middle East, or the growth of megacities in South Asia.

Geographers are prepared for positions in teaching, government, private business, urban and regional planning, cartography, geographic information systems (GIS), conservation, and environmental analysis. The University of Miami’s Department of Geography and Regional Studies offers a wide range of specializations that relate to the social sciences at large and especially the field of international studies. Processes of globalization have increased the importance of the geographical analysis of human society and particularly the linkages between global processes and local outcomes and the growing interconnections of places across the globe.

EDUCATIONAL OBJECTIVES

The Department of Geography and Regional Studies offers specializations in areas such as:
- International migration
- Urban geography and international urbanization
- Environmental studies
- International and regional development
- Globalization

In addition, there is a range of courses on world regions such as Europe, the Middle East, Middle America, South America, etc. Finally, the department offers a set of courses that provide training in indispensable skills for everyone entering the present-day labor market:
- Research methodology
- Statistics
- Computer cartography
- Geographic information systems
- Remote sensing of the environment
MAJOR

GEOGRAPHY AS A FIRST MAJOR
REQUIREMENTS FOR GEOGRAPHY AND REGIONAL STUDIES
Students in the College of Arts and Sciences who take Geography and Regional Studies as a major must complete the following requirements:

I. Students must take at least 30 credits in geography courses.

II. For a geography course to count towards the major, the student must achieve a grade of C- or higher.

III. The overall GPA in courses toward the major must be 2.00 or higher.

IV. Majors must successfully complete three of the following courses:
   GEG 105
   GEG 110
   GEG 120
   GEG 199

GEOGRAPHY AS A SECOND MAJOR
Students who take Geography and Regional Studies as a second major must complete the following requirements:

I. Students must take at least 24 credits in geography courses.

II. For a geography course to count towards the major, the student must achieve a grade of C- or higher.

III. The overall GPA in courses counting toward the major must be 2.00 or higher.

IV. Majors must successfully complete two of the following courses:
   GEG 105
   GEG 110
   GEG 120 or GEG 121
   GEG 199

MINOR

Students in the College of Arts and Sciences who take Geography as a minor must meet the following requirements:

I. Completion of at least 15 credits in Geography courses.

II. For a Geography course to count towards the minor, the student must achieve a grade of C- or higher.

III. The overall GPA in courses counting toward the minor must be 2.00 or higher.

IV. At least 6 credits must be at the 300-level or higher.
OTHER

INTERNSHIP CREDIT

Students are encouraged to find a suitable internship experience with the Career Planning and Placement Center. Upon approval, 3 to 4 credits may be earned with an internship. These credits will be included in the fulfillment of major requirements (GEG 535).

OVERLAPPING COURSES AMONG DUAL MAJORS

Of the coursework at the 200-level or higher in Geography and Regional Studies, no more than 6 credits may count double towards the other major.

STUDY ABROAD

Majors are strongly encouraged to study abroad for a summer, a semester, or an entire year. Study abroad at carefully selected institutions will complement the student’s curriculum and area of specialization, will enhance fluency in the foreign language, and will result in heightened affinity for a foreign culture. The study abroad experience need not result in credit overloads or extended time spent in the program.

ACADEMIC STANDING

Only courses in which the grade of C- or better is attained may be counted towards the major or minor, and students must maintain a GPA of 2.00 or better in all required courses.

For more information, e-mail ssr@miami.edu, come by the Department of Geography and Regional Studies at 229 Ferre, or call (305) 284-4087, to make an appointment.

Geography and Regional Studies Course Listing
INTRODUCTION

Geological Sciences is concerned with Planet Earth, its origin, evolution, structure, internal and surface processes, mineral resources, environmental preservation, global dynamics, paleoclimate reconstruction, and life history. Geologists use their knowledge of chemistry, biology, physics and mathematics to solve Earth problems.

EDUCATIONAL OBJECTIVES

Geological Sciences undergraduates are prepared for careers in industry as well as graduate study in geosciences, the environmental sciences, and marine sciences. Career paths include research and teaching, as well as employment in the petroleum and mineral industries and in industries and government organizations concerned with energy resources, geodynamics, the marine environment, conservation, and climate change.

DEGREE PROGRAMS

The Department of Geological Sciences offers three undergraduate degree major programs and two double major programs:

Bachelor of Science (B.S.)
Bachelor of Arts (B.A.) in Geological Sciences
Five-year Master of Science Program (M.S.)
Geological Sciences/Marine Science (Double Major)
Geological Science/Ecosystem Science and Policy (Double Major)

For the Geoscience Graduate Program please see the Division of Marine Geology and Geophysics at the RSMAS campus.

MAJOR

BACHELOR OF SCIENCE (B.S.)

The B.S. in Geological Sciences is recommended as preparation for graduate school and careers in professional research and science teaching. As described in sections 3 and 4 below, a B.S. in Geological Science requires a strong foundation in mathematics and several applied sciences.

1. Students must complete a core curriculum of 34 credits (GSC 110 or 120; 114 or 115; 111; 260; 360; 380; 410 or 420; 440; 480, and 482) with a grade of C- or better and with an overall GPA of 2.0.

2. In addition, the B.S. candidates must complete a summer field course (GSC 580 or an approved field course through another university).
The field course (GSC 580 or an approved equivalent at another University) is required for B.S. students and encouraged for others in order to gain practical experience in the skills of observation, interpretation, measuring, sampling, mapping and report writing. This requirement, when completed, has proven to be a strong asset when applying for graduate work or employment.

3. As required by the College, all B.S. degree candidates must pass two semesters of calculus (MTH 111-112 or MTH 131-132) and either (a) one semester of a computer course or (b) a statistics course.

4. Students are also encouraged to take one or more of MTH 210, MTH 211, MTH 224, MTH 311, MTH 312. CHM 111 is required (CHM 112, CHM 113, and CHM 114 are all recommended). Two semesters of college physics (PHY 101-102) are required. Two semesters of university physics (PHY 205-206) are recommended in lieu of college physics. PHY 205-206 are also required for GSC 420 (Geophysics), and strongly recommended for the Honors degree.

5. All Geological Sciences majors must also complete the “Required Areas of Study” of the College (see under COLLEGE OF ARTS AND SCIENCES in this Bulletin).

6. B.S. students must choose a minor from the following:
   Biology
   Chemistry
   Computer Science
   Marine Science
   Mathematics
   Physics
   Ecosystem Science and Policy

**BACHELOR OF ARTS in GEOLOGICAL SCIENCES**

The B.A. in Geological Sciences is recommended for science oriented students who plan to use an understanding of Earth systems in their professional careers but desire a broader liberal arts education or are pursuing a dual major outside the sciences. B.A. students must complete a core curriculum of 24-27 credits including:

Two courses in the GSC 101, 102 or 111, 103 or 110 or 120 series; GSC 114 or 115; 260; 360; 482; two of 380, 410, 440, and 480 or 540 with a grade of C- or better and with an overall GPA of 2.0.

In addition, B.A. students are strongly encouraged to take the summer field course (GSC 580) and/or field courses offered during spring break (GSC 231 or GSC 311).

**FIVE YEAR B.S. /M.S. IN GEOLOGICAL SCIENCES AND MARINE GEOLOGY**

A 5-year B.S. /M.S. in Geological Sciences and Marine Geology allows qualified students to complete a master’s degree in one year of study beyond the B.S.

The B.S. degree in Geological Sciences is offered through the Department of Geological Sciences in the College of Arts and Sciences.

The Master of Science (M.S.) degree in Marine Geology and Geophysics is offered through the Division of Marine Geology and Geophysics in the Rosenstiel School of Marine and Atmospheric Science (RSMAS).
Undergraduate requirements are listed under the B.S. degree above with the Honors option. By the beginning of their junior year students should have obtained a graduate faculty advisor, selected an approved topic for research, and begun work on their senior thesis as preparation for the M.S. In the senior year, students will increase their focus on graduate courses and work closely with their graduate faculty advisor. Contact the Geological Sciences chair at the departmental office (305-284-4253) for more information.

**DOUBLE MAJOR**

Double majors are offered in cooperation with the Marine and Atmospheric Science Program and the Ecosystem Science and Policy Program.

1. Marine Science (MSC): This program consists of a major in the Geological Sciences and a major in Marine Science. Interested students should read the information under Marine and Atmospheric Science in this Bulletin and contact the Marine Science office (184 Cox Science or 284-2180) for details.

2. Ecosystem Science and Policy (ECS): This program consists of a major in Geological Sciences and a major in Ecosystem Science and Policy (ECS). Interested students should read the information under ECS in this bulletin and contact the ECS office (058 Cox).

**MINOR**

The minor requirements are specified by each department and are listed under Departmental headings in the Bulletin.

**DEPARTMENTAL HONORS**

Honors in Geological Sciences may be earned by students in good standing within the University Honors program. In addition to their general requirements, a student must have an overall GPA of 3.0 or better, and also perform research beginning prior to their senior year, resulting in a written Honor’s Thesis and oral defense approved by the student’s thesis advisor.
INTRODUCTION

History is the systematic study of the past. The study of history includes training in how to gather information, how to research issues and problems, how to analyze data and construct arguments, and how to communicate ideas in writing. These are essential skills, tools that are prized in the world beyond the university. A major in history is an excellent beginning and solid stepping stone to professional school and the business world. For goals ranging from law to journalism, and from medicine to the MBA, history serves as a versatile undergraduate major. Multinational businesses demand that their executives understand the peoples and cultures around them, and be able to communicate that understanding effectively. If an occupation demands critical thinking and analysis, a background in history is invaluable.

EDUCATIONAL OBJECTIVES

All history courses expose students to historical interpretation and critical analysis. Courses at the 100 and 200 levels are intended as introductions to broad fields of history and are open to students with no previous college-level history experience. All 300 level history courses are writing intensive, are graded principally through essay examinations and short papers, and count toward the fulfillment of the University of Miami writing across the curriculum requirement. The normal prerequisite for 300 level history courses is 3 credits in history at the college level. Courses at the 400 level are programs of individual directed study. Permission of the instructor is required in each case, and such permission is normally given only to students who have completed a lower-level course with the faculty member in question. Courses at the 500 level require a 300 level history course as prerequisite. All 500 level courses deal extensively with the historiography of their particular subjects, and all require a written research project as a major component of the work of the course.

MAJOR

A major in history consists of at least 30 credits in history with a grade of C- or better in each course, and with a cumulative GPA of at least 2.0 in history courses. These credits may include history courses taken for general distribution requirements, and must include at least 18 credits at the 300 level or above, of which at least 6 credits must be taken in the form of 500-level seminars. (HIS599 Independent Research does not count). All courses for majors will be selected by students in consultation with advisors designated by the department.

Credits from other institutions may be counted toward the major or minor, and to general distribution requirements as appropriate, but departmental approval is required in each case. Students who complete the Advanced Placement course in either United States or European history and pass the examination with a grade of 4 or 5 may receive credit in the appropriate history courses. Students who complete the International Baccalaureate program and pass the higher level history examination with a grade of 6 or higher will receive 3 credits in the appropriate entry-level history course. (However, in some cases
students will only receive elective credit). At least 18 credits of the major and at least 9 credits of the minor must be completed at the University of Miami.

The department offers a variety of study abroad options with credit toward the major or minor.

**MINOR**

A minor in history consists of at least 15 credits in history with a grade of C- or better in each course, and with a cumulative GPA of at least 2.0 in history courses. These credits may include history courses taken for general distribution requirements, and must include at least 9 credits at the 300 level or above. Courses for minors should be selected in consultation with a departmental advisor.

**DEPARTMENTAL HONORS**

History majors with a cumulative GPA of at least 3.6 in history courses may earn departmental honors by completing a research project of 6 credits judged worthy of honors by a departmental committee, provided that at least 6 courses worth 18 credits have been completed at the University of Miami.

**OTHER**

For the requirements of the M.A. and Ph.D. degrees in history see the Bulletin of the Graduate School.

[History Course Listing](#)
INTERNATIONAL STUDIES - Dept. Code: INS
http://www.as.miami.edu/international-studies

INTRODUCTION

The International Studies major provides a focused educational experience aimed at familiarizing students with the key structural features and dynamics of the international system and preparing them to enter the growing international job market. Processes of globalization, in part driven by global capital flows, expanding trade and the unrelenting development of communication and information technologies, have affected virtually everyone in every country, often in ways we are just beginning to understand. These developments often pose serious problems for government and other societal institutions, while also creating a demand for individuals who understand international processes. Jobs in virtually all sectors have acquired a decidedly international dimension, whether in trade, tourism, finance, public policy, government, or education. INS Graduates have moved on to the corporate world, the public sector, started their own businesses, or have continued their studies at the graduate level (i.e. Law, Business, and International Studies).

EDUCATIONAL OBJECTIVES

International Studies seeks to provide students with the ability to understand:

- International politics within the context of interstate relations and foreign policy.
- International economics and its sub-discipline international political economy, including such issues as trade and production, money and finance, and development.
- Social science research methods including qualitative, quantitative, comparative case study and formal modeling.

Students are encouraged to explore interdisciplinary options that further their understanding of international studies. This type of coursework can be taken in other disciplines offered at the university or taken outside the institution, either through exchange programs or other inter-institutional options provided by UM. Students will demonstrate the ability to synthesize the various thematic areas of the discipline through required participation in advanced seminars. Seminars will stress analytical participation, oral presentations and the ability to interpret and critique core theoretical readings.

DEGREE PROGRAMS

International Studies provides both a major and minor option for students. The flexibility of the program often allows students to double major without the need to extend their university studies. Students are encouraged to speak with the International Studies advisor to explore such possibilities.
MAJOR

Requirements for the Major in International Studies (30 credits)

The International Studies major consists of three components:
I. Core Requirements
II. Thematic Core
III. INS Electives

I. Core Requirements (12 credits)
INS 101* Global Perspectives – Introduction to International Studies.
INS 102 Global Economics.
INS 201* Globalization and Change in World Politics.
INS 202 Research Methods in International Studies.

* These courses must be completed before taking the Thematic Core courses.

II. Thematic Core (12 credits):
Students should choose at least one course from each of the following four fields. Additional classes will be counted toward the elective portion of the INS major, if taken. Other courses, including classes in other disciplines, may be taken with the approval of the INS Advisor.

International Politics, Foreign Policy and Peace Studies:
INS 341 Nationalism, Ethnicity and Conflict
INS 540 International Peace and Conflict Resolution
INS 542 Drug-Trafficking in the Americas
INS 560 US Foreign Policy
INS 561 Negotiation and Bargaining
INS 566 US-Latin American Relations

Comparative Studies of Politics and Societies in a Globalizing World:
INS 330 Introduction to Comparative Analysis
INS 335 Democratization
INS 533 Transnational Social Movements
INS 534 The Military, State and Society
INS 565 The World Before European Domination
INS 584 Latin American Thought

International Economics, Political Economy and Development:
INS 320 Global Economics II
INS 321 Global Political Economy
INS 322 Economics of Development and Environment
INS 420 Global Trade
INS 520 Environmental Economics and Policy
INS 571 International Development and Human Welfare

International Law, Organizations, and Global Governance:
INS 460 United Nations Seminar
INS 564 International Law
INS 570 Globalization and Health
INS 573 Disasters, Terrorism and Global Public Health
INS 591 The European Union
INS 595 European Social Movements
III. INS Electives and Interdisciplinary Options (6 credits):
Students are required to take a total of 6 additional credits of elective course work from INS courses at the 300 level or above. With the approval of the INS Advisor, students may take courses from other departments outside of INS such as Geography and Regional Studies, History, Anthropology, Sociology, Political Science, Economics, Religion, Art History, Foreign Languages, Environmental Science, et cetera. Appropriate study abroad courses, an approved internship (INS 519), or an honors thesis (INS 418 & 419) may also be used to fulfill elective credit requirements.

Important Advising Notes for all International Studies Majors

1) Double Counting
Of the combined courses in the Thematic Core and the INS Electives, no more than 6 credits may count double towards a second major. A student may not count any course used to fulfill the requirements of the INS major toward a minor requirement.

2) Study Abroad
Students are strongly encouraged to study abroad for a summer, a semester, or an entire year, depending on the program. Study abroad at carefully selected institutions will complement the student’s curriculum and area of specialization, will enhance fluency in the foreign language, and will result in heightened affinity for a foreign culture. The study abroad experience need not result in credit overloads or extended time spent in the program.

3) Internship Credit
Students are encouraged to find a suitable internship during their undergraduate career. Upon approval by an advisor in the International Studies Undergraduate Program Office, 3 credits may be earned with an internship (INS 519), either toward the major or as elective credits (depending on the relevance of the particular internship to the INS major). The University’s Toppel Career Planning and Placement Center regularly advertises internships.

4) Academic Standing
Only courses in which a grade of C- or better is attained, may be counted towards the International Studies major and students must maintain a GPA of 2.75 or better in all major requirements (30 credits).

MINOR

Requirements for the Minor in International Studies (15 credits)
The International Studies Minor consists of two parts: (I) a 6-credit set of introductory courses; (II) 9 credits in advanced courses.

I. Base (6 credits)
Two of the following core requirements must be taken:
INS 101 — Global Perspectives - Introduction to International Studies
INS 102 — Global Economics
INS 201 — Globalization and Change in World Politics
INS 202 — Research Methods in International Studies
II. Advanced courses (9 credits).
In order to graduate with a minor in International Studies, students must take three INS courses at the 300-level or above. Advanced level courses from other departments may be taken if approved by the INS advisor.

Only courses in which a grade of C- or better is attained may be counted towards the minor in International Studies, and students must maintain a GPA of 2.75 or better in all minor requirements (15 credits).

DEPARTMENTAL HONORS

The Department of International Studies encourages its majors to intensify and deepen their knowledge of the field through its departmental honors program. The program is designed to give students the opportunity to explore various topics and problems in international studies that are of particular interest to them, to work more closely with departmental faculty, to develop skills in research and thesis preparation, and in some cases to prepare for graduate work in international studies and related fields.

Minimal requirements for the program are as follows:
1) a cumulative grade point average of at least 3.30;
2) a cumulative grade point average in international studies of at least 3.50; and
3) a thesis that is approved, with a grade of at least B+, by a member of the departmental faculty.

After reaching agreement with a member of the faculty who will serve as the honors thesis advisor, students writing a senior honors thesis will enroll in INS 418 and 419, Honors Thesis, for a total of six credits [the credits may be spread over two semesters or taken in a single semester]. The thesis itself is expected to be an extended, coherent work of scholarship on an issue of relevance in the field of international studies.
THE GEORGE FELDENKREIS PROGRAM IN JUDAIC STUDIES – DEPT.
CODE: JUS
www.as.miami.edu/judaic

INTRODUCTION

The George Feldenkreis Program in Judaic Studies is a broad, flexible, interdisciplinary program designed for undergraduates to gain an understanding of Jewish civilization and its diverse cultural experiences. The program, which is non-theological in orientation, is an academic exploration of the multi-faceted, socio-historical, 4,000-year record of the Jewish people. Courses taught in, and cross-listed with the Program, highlight the variety of cultural, political, social, and religious experiences of Jews in different times and places.

EDUCATIONAL OBJECTIVES

The program is structured to provide an in-depth liberal arts education that will constitute a foundation for advanced academic study, professional careers in a variety of fields, and a more complex and rich understanding of the Jewish world. Judaic Studies courses frequently meet the requirements for both the Humanities and Social Sciences in the College of Arts and Sciences, the College of Engineering, the School of Communication and School of Business, and can be used to satisfy requirements by majors and non-majors.

MAJOR

THE MAJOR (ten courses – 30 credits):

1. Jewish Civilization: Society, Culture, and Religion (JUS 231). Its purpose will be to acquaint beginning students with the approaches and areas of inquiry common to the field of Judaic Studies.
2. An advanced seminar in Judaic Studies (JUS 401, JUS 410, or JUS 411).
4. A course in Hebrew at the 200-level or higher (which can be used simultaneously to fulfill the College of Arts and Sciences Language requirement).
5. One course in Ancient Jewish History and Society and one course in Modern Jewish History and Society. Courses will be designated appropriately by the Program Director each semester.
6. 15 more credits (5 courses) in classes listed in or cross-listed with Judaic Studies, 12 credits of which must be completed at the 300-level or higher. Students who complete HEB202 need only do 9 credits at the 300-level or higher.

MINOR

THE MINOR (five courses – 15 credits):

1. Jewish Civilization: Society, Culture, and Religion (JUS 231). Its purpose will be to acquaint beginning students with the approaches and areas of inquiry common to the field of Judaic Studies.
2. Survey of Jewish Literature (ENG 205).
3. A course in Ancient Jewish History and Society (to be designated as such by the Program Director each semester).
4. 3 more credits (1 course) in class listed or cross-listed with Judaic Studies, which must be completed at the 300-level or higher.
5. Any student who successfully completes the 5 courses in the UGalilee Program shall also be awarded a minor.

A grade of “C-” or better must be attained in each course taken for the major or the minor with an overall GPA of 2.0.

**NOTE:** The School of Education now offers a Minor in Jewish Education. For more information on this Minor, please see listing under the School of Education.

**DEPARTMENTAL HONORS**

Honors in Judaic Studies consists of the items listed above under the Major, plus an Honors Thesis and one additional elective at the 300 level or higher.

[Link to Judaic Studies Course Listing]
INTRODUCTION

Latin American Studies offers an interdisciplinary approach to learning about the cultures and societies of Latin America and the Caribbean. Undergraduate courses are offered in Africana Studies, American Studies, Anthropology, Architecture, Art and Art History, Biology, Communication, Economics, Geography, History, Journalism, International Studies, Marketing, English, Modern Languages and Literatures, Music, Musicology, Political Science, Religious Studies, Sociology, and Women’s and Gender Studies. The major in Latin American Studies is designed for the student who wants to acquire background knowledge about the area or who is interested in some aspect of Latin American and Caribbean affairs, such as government, law, business, research, journalism, or education. Students are strongly encouraged to spend at least one semester abroad on a program with a Latin American and Caribbean Studies component (see Office of International Education and Exchange Programs, 212 Allen Hall).

EDUCATIONAL OBJECTIVES

The goal of the BA in Latin American Studies is to acquire, advance and disseminate knowledge of the history, literature, culture, politics, economics, and natural and social sciences of the regions within an interdisciplinary framework, while at the same time emphasizing the languages and cultures of Hispanophone, Francophone and Lusophone Americas including the transnational study of Latin Americans, Caribbeans and their descendants in the United States. Students should leave the program with the following:

- the analytical and methodological tools needed to conduct interdisciplinary research;
- the ability to read, write and think critically about primary and secondary sources.
- a general knowledge of the different regions that comprise Latin America, the Caribbean and their Diaspora as well as a critical understanding that the geographic, political, and cultural boundaries that have traditionally defined the “area” as an object of study are not isomorphic and are connected to the interests of European and North American powers;
- a critical understanding of the competing ways in which Latin American and Caribbean peoples have represented themselves paying particular attention to race/ethnicity, class, gender and sexuality, language, religion, migration, transculturation, and other historical, social, economic, and political factors;
- a language competency in French, Spanish, or Portuguese at an intermediate level and with beginning competency in a language other than the above or in an indigenous language of Latin America and the Caribbean;
- a “Beyond the Books” experience that will bridge the gap between the university and the surrounding communities, and will help solidify a long-term interest in and commitment to the regions.

DEGREE PROGRAMS

Bachelor of Arts
MAJOR

MAJOR IN LATIN AMERICAN STUDIES (BA)
Program of Study:

1) First-year Seminar in LAS  
   (or an LAS-approved elective)  
   3 credits

2) 214 level (or higher) in French, Spanish, or Portuguese  
   and 105 (or equivalent) in a different one of  
   those languages (or in an indigenous language or Creole of  
   Latin America, with approval of the degree director)  
   6 credits

3) Gateway Course in LAS (LAS201)  
   3 credits

4) Six credits in Latin American history  
   6 credits

5) 15 credits (5 courses) in classes listed in LAS or cross-listed  
   with LAS, 12 credits of which must be completed at the  
   300-level or higher  
   (FRE, SPA, or POR 214 may count toward this requirement)  
   15 credits

6) Senior Seminar (LAS501) or Independent Study (LAS494)  
   3 credits

TOTAL 36 credits

**A C- or better for all major courses, with a GPA of 2.0

MINOR

Latin American Studies Minor
The minor in Latin American Studies may be obtained by completing 15 or more credits  
in courses on Latin America and the Caribbean, provided that they are selected from  
courses that fall outside the department of the student’s major. As part of the required  
15 credits, students must successfully complete LAS501 or LAS494 to obtain a minor.

FILAS (Fellows in Latin American Studies)

In this highly selective Honors Program, students follow a rigorous, accelerated curriculum to  
complete a dual degree (B.A./M.A.) in Latin American and Caribbean Studies in five years. The  
program provides exciting collaborative research, travel, and work opportunities.

Working with UM’s world-class faculty in various academic disciplines, FILAS participants design  
individualized curricula. In addition to the regular general education course requirements of the  
College of Arts and Sciences, FILAS students choose one focus track for their most advanced  
courses: Social Sciences, Literature & Culture, Communication, Environmental Studies, Public  
Health, or History. For broad-based, multi-disciplinary preparation, students choose courses  
that focus on Latin America and the Caribbean from the following categories (at least ten of  
these courses must be taken at the Master’s level):
• One gateway seminar in Latin American Studies
• Two History courses
• Two International Studies courses
• Two Economics courses
• Three advanced Languages and Literatures courses
• Seven courses in Study Abroad
• Two courses as internship/co-op credits
• Three courses above the 300-level (third-year) in a range of disciplines
• Ten courses in one focus track

150 total credits

FILAS students also write a thesis based on an original research project. In addition, they present their findings in a meeting of the UM Center for Latin American Studies in their final semester.

FILAS ADMISSION REQUIREMENTS
• SAT1 composite score of 1360 or ACT 31.
• Top 10% of high school graduating class.
• Regular Application for Admission to the University of Miami. We recommend students submit their applications by November 15.
• Recommendations from three high school teachers.
• Statement of interest in FILAS, emphasizing prior language or area study
• To continue through the Master’s level, students must maintain at least a 3.4 GPA and they must take the GRE Exam.

DEPARTMENTAL HONORS

Students with an appropriate GPA are encouraged to contact the program to apply for departmental honors.

Latin American Studies Course Listing
EDUCATIONAL OBJECTIVES

The aim of these degree programs is to provide students with a core knowledge of mathematics essential to the understanding of science and other disciplines. Students should gain substantial problem solving and critical reasoning skills and should develop an understanding of the conceptual underpinnings of mathematics. The knowledge gained through these programs should provide the necessary background in mathematics for those students planning to go on to graduate study in mathematics and related fields. This knowledge should also prepare those students who will be immediately entering careers in science, business, education or other fields which are increasingly making use of mathematics.

DEGREE PROGRAMS

Bachelor of Arts and Bachelor of Science

MAJOR

The requirements of a major in mathematics vary according to the objectives of the student. The seven courses required of all mathematics majors are 111 (or 131), 112 (or 132), 210, 230, 310, 461 (or 561), 433 (or 533). An additional four courses are required, selected from one of the following options:

- **General Mathematics**: four of 510, 512, 531, 532, 534, 551, 562.
- **Applied Analysis**: 311, 512, 513-514 or 515-516 (course work in physics is desirable).
- **Computational Mathematics**: 320, 517, 520-521.
- **Probability and Statistics**: 224, 524-525, 528 or 542.
- **Secondary School Teaching**: 224, 309, and two of: 502, 504, 505 (this option is only for those obtaining a teaching credential).
- **Mathematical Economics**: MTH 524-525, ECO 512 or ECO 520 or ECO 521, ECO 533.

It would be useful for students planning to do graduate study in mathematics to complete the following courses: 531, 532, 533, 534, 561, 562.

Students interested in **actuarial science** should choose the Probability and Statistics option; for these students a finance minor is recommended.
Transfer students will be permitted to apply up to 14 transfer credits towards the major; however, the courses 508 (or 509 or 561) and 533 must be completed at the University of Miami.

A combined major in meteorology and mathematics is available. For specific information please see the METEOROLOGY section of the Bulletin.

**MINOR**

A minor in mathematics requires three of the following courses which must be taken in the Department of Mathematics, University of Miami: 210; 211 or 310; 224, 230, 309, 311, 320; 500-level mathematics courses with departmental approval.

A grade of C- or better is required for each course applied toward the major or minor; the overall quality point average for the major or minor must be 2.5 or above.

**DEPARTMENTAL HONORS**

Requirements for departmental honors in Mathematics:
Three two-course sequences from 513-514, 515-516, 520-521, 524-525, 531-532, 533-534, 561-562; the student must attain at least a B in each course used to fulfill this requirement. In addition, the student must attain at least a 3.5 average overall all courses counted toward the mathematics major and an overall (university-wide) average of at least 3.3.

For requirements leading to the Master of Arts, Master of Science, or Doctor of Philosophy degrees, with a major in mathematics, see the Bulletin of the Graduate School.

[Mathematics Course Listing]
INTRODUCTION

Microbiology and Immunology is an ancillary department in the College of Arts and Sciences. Our primary goal is to educate students in their chosen field and instill into them a desire for lifelong learning. Research opportunities and laboratory engagement help create knowledge in our students while preparing them to become active members of the scientific and public communities. A major in Microbiology and Immunology requires thorough preparation in chemistry, biology, biochemistry, physics, and mathematics.

EDUCATIONAL OBJECTIVES

1. To expose students to the various disciplines within the field of Microbiology and Immunology, including virology, parasitology, microbial genetics, immunology and medical bacteriology.
2. To introduce students to special projects and/or research opportunities in laboratories at the School of Medicine.
3. To provide laboratory experience for the development of skills required for the conduct of research.
4. To make students aware of current cutting edge research in the field of Microbiology and Immunology by attending seminars of speakers from within and outside the University.

DEGREE PROGRAMS

A Bachelor’s of Science degree is awarded to all microbiology and immunology majors upon completion of the requirements.

MAJOR

Minimum requirements are:

A. A total of 24 credits are required for the major: MIC 301 and MIC 321 are required of all Microbiology and Immunology majors. The remaining 17 credit hours must be earned from: MIC 322, 323, 434, 436, 441, and 451-456. In addition, [BIL 352 or BIL 554] and/or [BIL 250 or BIL 255] may also be used. Honors students must take both the MIC 301 and MIC 302.

B. Required courses are: Chemistry 111/113, 112/114, 201/205, 202/206; BIL 150, 151, and 160, 161; Biochemistry and Molecular Biology 401; Physics 101/106 and 102/108 or PHY 205, 206, 207, 208 and 209; Mathematics 111 and 112 and one computer science or statistics course (CSC 120, MTH 224, PSY 204, SOC 211, EPS 553).
All MIC majors are required to have a minor (science or non-science). Students automatically get a CHM minor provided that they take one year of organic chemistry while in residence at UM.

Transfer students seeking a Microbiology and Immunology major must earn at least 10 credits taken in residence at UM beyond MIC 301 in the courses listed above for majors under A.

MINOR

A minor in Microbiology and Immunology consists of 12 credits. Seven for MIC 301, MIC 321, and at least five additional credit hours in the following courses: MIC 322, 323, 434, 436, and 441.

Variations in the above programs may, in special cases, be approved by the Microbiology and Immunology undergraduate advisor and Director. All courses in Microbiology and Immunology to be credited toward a Microbiology and Immunology major or minor must be completed with a grade of C- or better with an overall GPA of 2.0.

MIC courses 451-456 must have department Director approval before registration.

DEPARTMENTAL HONORS

See HONORS PROGRAMS elsewhere in this Bulletin for minimal requirements. In addition to the grade point averages specified in the minimal requirements, the following program constitutes the Microbiology and Immunology Honors Program.

1. Six credits of Special Projects carried out under supervision of a member of the Microbiology and Immunology faculty, culminating in a senior thesis that includes 15 references.

Microbiology and Immunology Course Listing
INTRODUCTION

The Army Reserve Officer Training Corps is a college elective that will help students succeed in their desired career, whether civilian or military. Students who complete all ROTC requirements may be commissioned second lieutenants and serve in the Army, Army National Guard or Army Reserve.

The military science department's Reserve Officers Training Corps (ROTC) program of instruction qualifies the student for a commission in the United States Army, Army National Guard, or United States Army Reserve. The curriculum does not provide technical training in a job specialty nor does it emphasize vocational training; rather, it complements and provides a base for normal progression in the commissioned officers' educational program.

Leadership and management objectives are included in academic periods of instruction. Practical leadership experience is gained in a field training environment by attendance at a 31-day summer camp, normally between the junior and senior years. Nursing students may attend a nursing internship at Army hospitals following the normal summer camp. A leadership laboratory also provides experience in a range of leadership positions during the school year. The department offers both a four-year and a two-year program, each with its own special advantages. Students are invited to visit or write the Department of Military Science to obtain additional information.

Core Program

The program requires four years of military science courses which consist of a two-year basic course and a two-year advanced course. Students can begin the four-year program as freshmen or as sophomores.

There is also a two-year ROTC program for those students with only two years of college remaining. The two-year course is designed for junior college and other non-ROTC college transfer students, but may be utilized by students who did not enroll in the basic course outlined below.

Graduate students may also qualify for enrollment in the two-year course. Additional information regarding eligibility requirements for the two-year program may be obtained by contacting the Department of Military Science.

Women are encouraged to enroll and will be commissioned as officers in the United States Army upon completion of the ROTC curriculum. Job opportunities for women officers in the Army are the same as those for men, excluding a few combat arms fields.

Basic Course

The basic course is normally taken as an elective subject by students in their freshman and sophomore years. The purpose of this instruction is to qualify students for entry into the advanced course by familiarizing them with the organization of the Army, military skills, and military tradition. Students do not incur any military obligation as a result of enrolling in the basic course. Enrollment in ROTC requires proof of a doctor's physical screening.
Participation in regularly scheduled physical training is required. In addition to classroom instruction, a one and a half hour leadership laboratory period is required every other week.

**Advanced Course**

Instruction in the advanced course includes leadership and management, the exercise of command, military teaching methods, tactics, logistics, administration, history, and military justice. Leadership experience and command experience are provided by assigning advanced course students as cadet officers and noncommissioned officers. Participation in regularly scheduled physical training is a required part of the leadership training. Classroom instruction consists of two one and a quarter hour (75 minutes) periods each week and one and a half hour (90 minutes) leadership laboratory period every other week. Only students who have demonstrated a definite potential for becoming competent officers will be selected for the advanced course.

**Army Nurse Corps Option**

Students enrolled in the School of Nursing curriculum leading to the degree of Bachelor of Science in Nursing may simultaneously qualify for commissions as Second Lieutenants in the Army Nurse Corps. Nursing students qualify for entry into the Officer Development Course through satisfactory completion of the General Military Course, the Basic Camp option or equivalent training. Nursing students participate in a summer Advanced Camp training program and an Army nurse training program. They provide practical and leadership experience in the clinical setting. The focus is to provide nursing cadets an experience which integrates clinical, interpersonal and leadership knowledge and skills. Emphasis is placed on practical experience under the direct supervision of an Army Nurse Corps Officer who acts as the cadet’s preceptor throughout the camp period.

**Professional Military Education**

In addition to basic and advanced ROTC courses, cadets must complete professional military education requirements consisting of one course in each of the following areas: written and oral communication skills, U.S. military history, and computer literacy. Students should consult with the professor of military science to determine those University courses suitable for fulfilling these requirements.

**Monetary Allowances**

Cadets selected for admission into the advanced course qualify for a nontaxable monetary allowance of $450–$500 per month for up to 20 months. Cadets may also qualify for the simultaneous membership program with the United States Army Reserve or National Guard, which can provide over $6,000 during the last two years of school. Both the United States Army Reserve and the National Guard offer additional monetary incentives for cadets who join their organizations.

**Army ROTC College Scholarship Program**

Financial assistance is available in the form of two- or three-year ROTC academic scholarships for selected students. Under the Army ROTC Scholarship Program, the students/cadets receive FULL Tuition and Fees. Additionally, Army scholarship recipients receive a flat-rate allowance of $1200 per year for textbooks and other expenses and $350–$500 per month stipend for up to 10 months per year. During the 32-day advanced course summer training between the junior and senior years, Army ROTC also pays attending
cadets $27 per day plus room and board. There are also numerous national and organizational scholarships that students may compete for as a member of Army ROTC.

**Uniforms and Textbooks**

All uniforms and items of insignia incident to membership in the Army ROTC Program are furnished by the Department of Military Science. Textbooks are provided at no cost to students/cadets enrolled in the basic course.

**Special Activities**

Cadets have the opportunity to join and participate in a number of military affiliated organizations and activities, both on a voluntary and a selective basis. The Pershing Rifle Society is a voluntary organization that functions as a military unit participating in military ceremonies and presenting the national colors at civic events. Cadets have the opportunity to qualify for and compete with cadets from other universities and colleges in a series of military events termed Ranger Challenge. Cadets may also join Scabbard and Blade, a military honors society comprising those cadets with qualifying grades that denote scholarship.

**Awards and Decorations**

Awards and decorations made available by national organizations, the University of Miami Army ROTC Alumni Association, and local and national military organizations, are presented to both basic and advanced officer course cadets each year. These plaques, trophies, medals, and ribbons symbolize superior achievement in Army ROTC and other University academic courses, and in outstanding campus and cadet corps leadership.

**Prerequisite for Admission to the Professional Officer Course**

1. Be at least 17 years of age at time of acceptance.
2. Be able to complete the professional officer course and graduate from the University of Miami prior to reaching the age of thirty (30) at the time of commissioning.
3. Selection by the professor of military science and acceptance by the University of Miami.
4. Execute a written agreement with the government to complete the professional officer course and accept an Army ROTC commission.
5. Enlist in the Army Reserve Component-ROTC (terminated upon receiving an Army officer commission).

Those students enrolled in the four-year Army ROTC program must complete the basic course or its equivalent, or have acceptable prior military service. Veterans and students with previous ROTC training are invited to write, visit, or call the Department of Military Science (305) 284-3329 or (305) 348-1619 to discuss their eligibility status.

Students desiring entry into the two-year Army ROTC program should contact the Department of Military Science one semester prior to the semester in which they wish to enroll in the professional officer course. This lead time is required to complete the application and a physical examination prior to enrollment in the professional officer course.
Leadership Laboratory

Leadership laboratory is open to students who are members of the Reserve Officer Training Corps or who are eligible to pursue a commission as determined by the professor of military science. Leadership laboratory is the formalized phase of leadership training conducted by the cadets. It is scheduled for one and one half (90 minutes) hours every other week for both the basic and advanced officer courses (non-contracted and contracted). All uniforms and equipment required for cadet activities are furnished.

EDUCATIONAL OBJECTIVES

To provide a base of knowledge in the areas of ethics, leadership, Communication skills, Military Leadership, U.S Military History, Tactics and Team building to include future Officer development.

DEGREE PROGRAMS

Students can receive degrees from any college in which their major falls under in addition to being in the Army ROTC program.

Military Science Course Listing
INTRODUCTION

The study of languages is integral to education in a global university. In addition to providing access to various cultural perspectives, multilingualism fosters success in business, economics, law, medicine, education, social sciences, politics, the arts, and literature. Language study most effectively enriches academic as well as personal experiences when students choose a language based on its relevance to possible careers, to research in particular fields, to personal heritage, or to the understanding of unfamiliar cultures. At the University of Miami, students can choose courses in Arabic, Chinese, French, German, Hebrew, Italian, Japanese, Portuguese, and Spanish.

Many students combine advanced modern language study with majors in other fields. Students majoring in a modern language often choose second majors in programs such as International Studies, Communications, History, Political Science (and other pre-law fields), Biology (and other pre-med fields), English, Finance, Latin American Studies, Anthropology, Psychology, Computer Science, Sociology, and Philosophy.

The Department has Undergraduate Advisors for each language. You are encouraged to consult with them for placement, and must consult with them if you plan to major, minor, or study abroad (contact the Department office for names and office hours). If you plan to double major, you must have an advisor from each of your fields.

Students may qualify for a wide range of departmental awards for excellence in linguistic and literary achievement. The Modern Languages and Literatures Awards Reception takes place annually during graduation week. Awards are designated for students studying any language as well as for advanced majors, and many include cash prizes or scholarship funds. Some awards are conferred through nomination by professors; others require an application. Students may obtain information on specific awards in the Department office. The annual deadline for applications is usually in early March.

PLACEMENT GUIDELINE FOR MLL COURSES

Most students studying a second language can determine their appropriate level by following these guidelines:

- If you have not studied Arabic, Chinese, French, German, Hebrew, Italian, Japanese, or Spanish in high school, or have completed one to two years of high school instruction, take 101; for Portuguese, take 105.
- If you have taken 101 or its equivalent at another institution, take 102.
- If you have completed three years of high school instruction in French or Spanish, or scored a 3 on the AP language exam take 105. If you have had three years of high school Arabic, Chinese, German, Hebrew, Italian, or Japanese, take 102.
- If you have taken four years of high school French or Spanish, scored a 4 on the AP exam or a 4 on the IB exam in French or Spanish, or took the equivalent of 102 or 105 at another university, take 211. If you have taken four years of high school
German, Italian or Portuguese, take 211. If you have taken four years of Arabic, Chinese, Hebrew, or Japanese, take 201.

- If you had five to six years of high school French, German, Italian, or Spanish, take 212.
- If you have taken the equivalent of 211 at another university, or scored a 5 on the AP exam, you have completed your language requirement. If you wish to continue your studies, take 212.
- If you took the equivalent of 212 in French or Spanish at another university or scored a 4 on the AP literature exam, you have completed your language requirement. If you wish to continue your studies, take 214. If you took the equivalent of 212 in German, Italian or Portuguese at another university, you have completed your language requirement. If you wish to continue your studies, take 301.
- If you scored a 5 on the AP literature exam in French, Italian or Spanish, you have completed your language requirement. If you wish to continue your studies, take 301.

The Department offers courses for native speakers of French, German, Italian, Portuguese, and Spanish. Native speakers may not enroll in 101, 102, 105, 201, 202, 211, 212, 214, or 301 in their language. If you are a native speaker of French, German, Italian, Portuguese, or Spanish and graduated from a high school where that was the official language of instruction, you may take any course above 301 (consult with the respective Undergraduate Advisor).

The Department of Modern Languages & Literatures identifies as heritage learners of Spanish those students who begin their university studies of the language with little or no prior instruction in Spanish but who, because of family background or social experience, can already understand much casual spoken Spanish and have a passive knowledge of the language (though they may not usually speak the language themselves). In the great majority of cases, they have been born and fully educated in the United States, and may have grown up speaking principally English (or a ‘mix’ of Spanish and English, i.e. ‘Spanglish’) in the home with their grandparents, parents and siblings. Heritage learners may or may not consider themselves as “bilinguals” or “native speakers”, since both of these terms carry very different connotations—linguistic, social, and psychological—for different individuals. Some state that they “do not really speak Spanish” even though they are able to comprehend much spoken language (i.e., they are “passive bilinguals”). In the great majority of cases, they self-identify as “Hispanic” or “Latino/a”.

HERITAGE LEARNERS OF SPANISH MUST BE PLACED IN ONE OF THE FOLLOWING FOUR COURSES:

SPA 143 Basic Spanish for Heritage Learners is for those students with little or no prior instruction in Spanish who, because of family background or social experience, can understand casual spoken Spanish and have a passive knowledge of the language although they do not usually speak the language themselves. Generally, their abilities to read and write Spanish are very weak. CLOSED TO STUDENTS WHO GRADUATED HIGH SCHOOL IN A SPANISH-SPEAKING COUNTRY.

SPA 243 Intermediate Spanish for Heritage Learners is for those students WHO HAVE ALREADY TAKEN AND PASSED SPA 143 or who have studied Spanish for AT LEAST TWO
YEARS IN HIGH SCHOOL. They can understand casual spoken Spanish and have some functional ability in speaking, reading and writing the language. CLOSED TO STUDENTS WHO GRADUATED HIGH SCHOOL IN A SPANISH-SPEAKING COUNTRY.

SPA 244 Advanced Spanish for Heritage Learners is for those students who have studied Spanish for four years in high school and who have developed functional abilities in speaking, reading and writing the language. Students who earned a score of 5 on the AP Spanish Language Exam should register for this course. CLOSED TO STUDENTS WHO GRADUATED HIGH SCHOOL IN A SPANISH-SPEAKING COUNTRY.

SPA 343 Introduction to Literary Studies for Native/Heritage Speakers is intended for those students who have completed secondary and/or university studies in a Spanish-speaking country and for those heritage learners who demonstrate an advanced level of productive competence (in the written and spoken modes) in Spanish because of prior formal study of the language. Many heritage learners who place directly into 343 have taken AP Spanish literature in high school and earned a score of 4 or 5.

>>> SPA 101, 102, 105, 211, 212 AND 214 ARE NOT FOR HERITAGE LEARNERS. ANY HERITAGE LEARNER WHO ENROLLS IN ONE OF THESE COURSES WILL BE OBLIGATED TO SWITCH TO A HERITAGE LANGUAGE COURSE (SPA 143, 243, 244 OR 343) DURING THE FIRST WEEK OF CLASS.

Arts and Sciences Language Requirement

The College of Arts and Sciences requires all B.A. and B.S. degree students to show competency in a language other than English by successfully completing an approved college language course at the 200-level or higher.

Humanities Literature and Writing Credits

The Department offers a variety of courses that fulfill these Distribution Requirements for students in most majors (please consult the guidelines of your School or College); students can easily fulfill some or all of these requirements by majoring or minoring in a foreign language. Any literature courses in French, German, Italian, Portuguese or Spanish on the 300-level or higher fulfills a Humanities Literature requirement and counts as a writing credit. In addition, all 300-, 400- and all 500-level courses, unless otherwise specified, are for writing credit. NOTE: Courses may simultaneously fulfill the Humanities Literature Requirement and Writing Credit, or the Foreign Language Requirement and Writing Credit. A course cannot simultaneously fulfill the Foreign Language Requirement and the Humanities Literature Requirement.

DEGREE PROGRAMS

Students pursuing a single major in Arts and Sciences earn a BA.

MAJOR

Goals of the major: The major is designed to allow students to gain advanced linguistic, literary and cultural competence in the given language. Students will develop analytical and critical skills. They will learn to build coherent arguments orally and in writing; to develop
tools for the interpretation of various texts; to perform research and write critical papers; to find and evaluate sources of information; to heighten their sensitivity to contexts of language, and to appreciate language as art. Students will also acquire a broad, structured knowledge of the history, literature and culture in the target language. Finally, they will learn to carry out cultural comparisons and to view their own culture with new eyes.

You do not have to be a student of the College of Arts and Sciences to major in a modern language; you need only the approval of your college or school advisor and to complete the departmental requirements. If you wish to complete a double degree, consult with an Arts and Sciences Advisor.

Students completing a major in a modern language are encouraged to study abroad. The International Education and Exchange Program (IEEP in Allen Hall, room 212) sponsors programs for French, German, Italian, Japanese, Portuguese, and Spanish. It is also possible to fulfill some Arts and Sciences distribution requirements abroad. In order to take full advantage of study abroad, students should visit IEEP early in their university careers, discuss course equivalencies with the Study Abroad Advisor for their chosen languages (contact the Department office for names and office hours), and consult with their major advisors. Credit toward the major for courses taken abroad will be determined on an individual basis.

**Majors in French, German, and Spanish**

A major consists of at least 30 credits beyond the 200-level, which must include the following distribution:

- at least 9 credits must be at the 300 level;
- at least 6 credits must be above the 300 level; of these, 3 credits must be at the 500 level (capstone course);
- Five writing intensive classes (W) in the department are required of all majors.
- Spanish majors must take one full 3-course sequence of survey courses in either Peninsular or Latin American Literature, or a combination of both that covers all three chronological periods. That is, Spanish majors must take 353 OR 363; 354 OR 364; and 355 OR 365.

6 credits may be taken in courses not in the target language (in MLL or not) that are relevant to the course of study; these course are determined in consultation with the advisor. FLL 505 (taught in English) may count toward the 30 credits, but cannot replace the capstone course in the target language. Only one professional Spanish course (SPA 432 or SPA 433) will count towards the Spanish major, although students are free to take both. Students with transfer credits at the 300-level must take at least 21 graded credits at or above the 300-level at the University of Miami; i.e., up to 9 credits at the 300- and 400-level may be transferred from another institution or a study abroad program not administered by UM. Up to 12 credits taken abroad in a UM-administered program may count towards any of the majors in the Department. Students must earn a grade of C- or higher in every course counting toward the major, and maintain a minimum overall average of 2.5 in the major.

**Capstone Courses**

All students are required to take a 500-level capstone course in residence during their last semester in the major. This course will:
Integrate the various skills acquired during the course of study (linguistic, analytical, knowledge-based);
Incorporate interpretive as well as presentational modes of communication;
Contain an over-arching and cohesive theme;
Include an element of collaboration among students.
It will constitute a moment of recapitulation of, synthesis, and reflection on a student’s experience in the major as well as a bridge towards graduate-level studies, should s/he decide to pursue them.

MINOR

You do not have to be a student of the College of Arts and Sciences to minor in a modern language; you need only the approval of your college or school advisor and to complete the departmental requirements. If you wish to complete a double degree, consult with an Arts and Sciences Advisor.

Students completing a minor in a modern language are encouraged to study abroad. The International Education and Exchange Program (IEEP in Allen Hall, room 212) sponsors programs for French, German, Italian, Japanese, Portuguese, and Spanish. It is also possible to fulfill some Arts and Sciences distribution requirements abroad. In order to take full advantage of study abroad, students should visit IEEP early in their university careers, discuss course equivalencies with the Study Abroad Advisor for their chosen languages (contact the Department office for names and office hours), and consult with their major advisors. Credit toward the major for courses taken abroad will be determined on an individual basis.

Minors in French, German, Italian, Portuguese, and Spanish

A minor in one modern language consists of a minimum of 12 credits in that language on the 300-level or above, earned according to the following guidelines: A minimum of 6 credits must be earned in courses taught by MLL faculty (in residence or abroad). Out of the remaining 6 credits, a maximum of three may be transferred from another institution or from a study-abroad program not administered by UM. The remaining 3 or 6 credits may be fulfilled in the MLL department or in a UM-administered study-abroad program. Students must earn a grade of C- or higher in every course counting toward the minor, and maintain a minimum overall average of 2.5 in the minor.

Minor in Modern Languages

The minor in two foreign languages consists of at least 24 graded credit hours with 12 credits in one language on any level and 12 credits in any other language, 6 of which must be on the 300-level or above. For example: Arabic 101, 102, 201 and 202 along with Spanish 212, 214, 301 and 322 would constitute a Minor in Modern Languages; so would French 212, 214, 301 and 332 along with Italian 101, 102, 211 and 212. Many other combinations are possible. This minor must include 6 graded credits per language from the University of Miami. Students must earn a grade of C- or higher in every course counting toward the minor, and maintain a minimum overall average of 2.5 in the minor.
DEPARTMENTAL HONORS

Departmental Honors in Modern Languages are possible in the three languages for which the major is offered: French, German and Spanish. In order to request admission to Departmental Honors, candidates must have completed at least twelve credits at the 300 level or above. They must have a GPA of 3.5 in all their major courses and a 3.5 overall average GPA. Both GPAs must be maintained in order to graduate with Departmental Honors.

During their junior year, candidates for honors will identify an honors thesis supervisor and a second reader and request admission to Departmental Honors. Admission to candidacy must also be approved by the Director of Undergraduate Studies for the appropriate language.

In addition to fulfilling the regular major requirements, students must register in their Senior year for FRE or GER or SPA 594-595, Senior Honors Thesis. This is a two-semester, six credit sequence: 594 for research and 595 for the actual writing of the honors thesis.

The honors thesis advisor and the second reader will determine whether the finished thesis merits Departmental Honors.

Modern Languages and Literatures Course Listing

Course Listings for:

Arabic, Chinese, French, German, Hebrew, Italian, Japanese, Portuguese, and Spanish
INTRODUCTION

Neuroscience (NEUX) is a rigorous, interdisciplinary major offered by the Departments of Biology and Psychology in conjunction with the Neuroscience Program at the Miller School of Medicine. This major is intended for students preparing for medical school or for graduate study in such fields as neuroscience, biology, neuroscience, psychology, or behavioral medicine.

For curricular advice and for course and transfer approval, etc., students should consult an advisor in the Office of Undergraduate Academic Services for Psychology, Flipse 508, (305) 284-3303.

EDUCATIONAL OBJECTIVES

The Neuroscience major seeks to provide undergraduate students with exposure to and a fundamental understanding of the neural and biobehavioral sciences. It seeks to deliver an integrative educational experience by promoting interactions among faculty, graduate students, and undergraduate students in basic scientific inquiry, advising, and mentoring.

DEGREE PROGRAMS

Neuroscience is offered as a major for the Bachelor of Science degree within the College of Arts and Sciences.

MAJOR

The total number of credit hours for the Neuroscience major is 49, distributed between the Departments of Psychology and Biology (as indicated below). The total number of credits for the degree is 130.

Core Courses

All Neuroscience majors, regardless of track, must complete a set of core courses. These are BIL 150/151, BIL 160/161, BIL 250, BIL 255, NEU 403, PSY 110, PSY 204*, and PSY 316. Students within each track then select courses particular to the track. The total number of credits for both tracks in the Neuroscience major is 49.

*UM alternates to PSY 204 include, BIL 311; SOC 211 and 212; and MTH 224. These courses are acceptable as prerequisites for PSY 316, but do not count toward the major. Thus, students opting to do these alternate courses must take another course in Psychology to total the number of credits expected for the major.
Tracks in Neuroscience
There are two tracks available in the major.
- Psychobiology (NEUP) emphasizes cognitive functions and behavior.
- Neurobiology (NEUB) emphasizes cellular and molecular approaches to understanding nervous system functions.

Psychobiology track (NEUP)
Students who choose the Psychobiology track must also take PSY 202, PSY 402, a Psychology elective at the 300-level or above, and three Biology electives (see below) at the 200-level or above. Each of these courses must be three credits. NEUP majors may not take BIL 268.

Neurobiology track (NEUB)
Students who choose the Neurobiology track must take BIL 268, NEU 342, NEU 465, NEU 468, a Biology elective at the 200-level or above, and a three credit Psychology or Biology elective (see below) at the 300-level or above.

Electives in both tracks
Electives in both the Neurobiology and Psychobiology tracks are limited to specific courses pertinent to the major. Choices in Psychology include PSY 305, PSY 332, PSY 352, PSY 420, PSY 440, and PSY 444. The Biology electives are limited to BIL 235, BIL 241, BIL 261, BIL 265, BIL 268**, BIL 341, BIL 355, BIL 360, BIL 361, BIL 365, BIL 369, BIL 511, BIL 530, and BIL 540. Biochemistry, BMB 401 or BMB 506, may also be substituted and count as a Biology elective. Neuroscience majors on the Psychobiology track may also take NEU 342, NEU 465, and NEU 468 as one of their electives. (Note that for the Neurobiology track, BIL 268, NEU 342, NEU 465, and NEU 468 are requirements rather than electives.)

**Note: NEUP majors may not take BIL 268.

In addition to the above courses in Biology and Psychology, all Neuroscience students must complete 16 credits in Chemistry including CHM 111/113 and CHM 112/114, and CHM 201/205 and CHM 202/206; MTH 111/112 or MTH 131/132; 10 credits in Physics including PHY 101/106 and PHY 102/108. (The 200-level, calculus-based physics sequence [PHY 205/206/207/208/209] can be substituted for the 100 level physics sequence and is highly recommended for any student considering pursuing Neuroscience at the Ph.D. level.)

Neuroscience students automatically earn a Chemistry minor if they complete the year of Organic Chemistry (CHM 201 and CHM 202) with labs (CHM 205 and CHM 206) here at UM. Those who choose not to minor in Chemistry must choose a minor from among Biochemistry and Molecular Biology, Computer Science, Engineering, Geological Sciences, Mathematics, Microbiology and Immunology, or Physics.

Grades and Scores Required to Declare and Continue
A student must have an SAT score of 1300 or above or an ACT of 30 or above to declare Neuroscience as an incoming freshman. Thereafter, students need a 3.5 GPA after 24 credits at UM to declare the major. At least 3 of these 24 credits must have been in a BIL or CHM course designed for majors. Students transferring from another college or university must have a cumulative grade point average of 3.8 or above. Students are strongly advised not to continue as a Neuroscience major if, after having completed 15 credits in the major, the GPA is less than 2.8.

Grades Required to Graduate
A grade of C- or better is required in all courses applied to the Neuroscience major, and the GPA in these courses must be at least 2.6.
Residency Requirement
Students must complete all upper division Biology and Psychology courses at U.M. With prior Departmental approval, 6 of these 15 credits may be completed through the U.M. Study Abroad Program.

Research Experience for Course Credit
Research credits do not count for the major. To obtain course credit for working with a faculty member in a research laboratory, speak with the Director of Neuroscience or the Neuroscience Advisor.

Research Participation
As an introduction to behavioral science, students enrolled in PSY 110 may be required to participate as subjects in research studies being conducted by faculty and/or graduate students, or by reading and writing about selected research reports. For details, consult the course syllabus and/or contact the Psychology Department’s Undergraduate Academic Services for Psychology.

Course Prerequisites
Students who have not taken a prerequisite course (or who have taken it and obtained a D or an F) may not enroll in the course for which it is a prerequisite. Students enrolled without prerequisites may be dropped from the class roll.

Transfer
Transfer students wanting courses taken elsewhere to count as Neuroscience courses at U.M. must obtain written approval during their first semester at U.M. This is a separate process from the Admissions Evaluation of Transfer Credit.

Freshmen
All declared Neuroscience majors receive their advising as a part of a year-long advising, orientation, and mentoring program known as FACT FORUM. All majors will be placed in a Freshman Experience section of FACT (Freshman Advising Contact Term). This is a one credit general elective course that is designed to integrate freshmen into the major by familiarizing them with the guidelines, opportunities and responsibilities of a Neuroscience major. During the second semester, freshmen enroll in a FORUM section (Faculty Overview of Research and Undergraduate Mentoring). This one credit general elective course helps to put the curriculum in context, and stresses the importance of, and opportunities for research.

MINOR
There is no minor in Neuroscience.

DEPARTMENTAL HONORS
Students wishing to graduate with magna, summa, or Honors in Neuroscience should speak with the Director of Neuroscience or the Neuroscience Advisor.

Neuroscience Course Listing
INTRODUCTION

The Philosophy Department offers a wide range of courses at the undergraduate level which cover every major area of philosophy as well as its history. Students can major or minor in the subject. In addition, the department sponsors two undergraduate philosophy organizations: the Philosophy Club, which is open to all UM undergraduates, and Phi Sigma Tau, a chapter of the National Honor Society in Philosophy. Both groups afford students regular opportunities to meet, eat, and talk philosophy with each other and with graduate students and faculty in the department. All undergraduates who are interested in philosophy are welcome to participate in these philosophical events.

EDUCATIONAL OBJECTIVES

Philosophy is the study of the most basic moral, scientific, legal, aesthetic, religious, and metaphysical concepts and theories by which we understand ourselves and our universe. It is a reasoned pursuit of fundamental truths, a quest for understanding, a study of principles of conduct. It analyzes the basic assumptions and concepts of other disciplines and the norms that govern interpersonal relations and the acquisition of knowledge. It seeks to establish standards of evidence, to provide rational methods of resolving conflicts, and to create techniques for evaluating ideas and arguments. Philosophers are dedicated to developing the following abilities: reasoning clearly, distinguishing between good and bad arguments, thinking through complicated questions, and using reason in situations that are often governed by emotions. Studies have shown that philosophy majors do extremely well on standardized tests, and in careers that require analytical abilities such as the practice of law and software development. But irrespective of career choice, philosophy deepens one's sense of the meaning and varieties of human experience, and enhances self-knowledge, foresight, and sense of direction in life.

MAJOR

A major in philosophy consists of a minimum of ten courses, each passed with a grade of C- or higher, with an overall GPA of 2.0. Elective courses may be chosen to fit individual needs. Required courses for the major are Philosophy 210 or 215, either 271 or 272, twelve credits at the 300 level (including one course from 330-332 and two courses from 340-345), and six credits at the 500 level.

MINOR

A minor in philosophy consists of a minimum of five courses, each passed with a grade of C- or higher with an overall GPA of 2.0. At least three of the courses must be at the 200 level or above, and at least one of these three courses must be at the 300 level or above.

The major and the minor should be planned with the advice of the department.
PRE-LAW MAJOR AND MINOR TRACKS

The Department offers major and minor tracks for students wishing to enhance their Pre-Law studies with relevant Philosophy coursework.

A Pre-Law Major Track in Philosophy consists of a minimum of ten courses, each passed with a grade of C- or higher, with an overall GPA of 2.0. Required courses for the track are either 210 (Formal Logic) or 215 (Logic and Law), either 271 or 272 (1 course in history of philosophy), either 330 (Ethics) or 331 (Social and Political Philosophy), either 332 (Philosophy of Law) or 333 (Philosophical Foundations of Criminal Law), two of either 340 (Epistemology), 341 (Philosophy of Language) or 343 (Philosophy of Science), 2 500-level courses, and any 2 additional PHI courses.

A Pre-Law Minor Track in Philosophy consists of a minimum of five courses, each passed with a grade of C- or higher, with an overall GPA of 2.0. Required courses for the track are either 210 or 215, either 330 or 331, either 332 or 333, one of either 340, 341 or 343, and any other PHI course.

PRE-MED MAJOR AND MINOR TRACKS

The Department also offers major and minor tracks for students wishing to supplement their Pre-Med work with relevant Philosophy coursework.

A Pre-Med Major Track in Philosophy consists of a minimum of ten courses, each passed with a grade of C- or higher, with an overall GPA of 2.0. Required courses for the track are 210 (logic), either 271 or 272 (1 course in history of philosophy), 330 (Ethics), 334 (Biomedical Ethics), 343 (Philosophy of Science), either 340 (Epistemology) or 344 (Philosophy of Mind), and 546 (Knowledge and Evidence in Medicine). Elective courses consist of one 500-level philosophy course and 2 other philosophy courses not listed above.

A Pre-Med Minor Track in Philosophy consists of a minimum of five courses, each passed with a grade of C- or higher, with an overall GPA of 2.0. Required courses for the track are 210, 334, 343, either 340 or 344, and 546.

DEPARTMENTAL HONORS

A program of work toward graduation with Honors in Philosophy is available for qualified students. Interested students should consult the Departmental Director of Undergraduate Studies during their sophomore or junior years. Further information may be found under the section entitled HONORS PROGRAM.

For requirements leading to the Master of Arts and Ph.D. degree, see the Bulletin of the Graduate School.

Philosophy Course Listing
PHYSICAL SCIENCES - Dept. Code: PSC

INTRODUCTION

Physical Science 101 is an interdisciplinary physical science course designed primarily for the non-science major. It may be used to satisfy a physical science requirement in some degree programs. Students should consult the degree requirements listed elsewhere in the Bulletin as well as their advisors for the appropriateness of this course for their programs. See also under PHYSICS 110, 160.

Physical Sciences Course Listing
INTRODUCTION

The requirements for a major or minor in the Department of Physics are flexible and may be adapted to the needs of the individual student:

MAJOR

1. Pure Physics

This sequence is recommended for those intending to enter a graduate school in Physics. It consists of a minimum of 34 credits in Physics at or above the 200 level, including four credits of laboratory and the courses PHY 205, 206, 207 (or 205, 210); 360, 362; 340, 321; 350, 351; 540, 560. The physics minor consists of University Physics, two credits of laboratory work, PHY 360, and three more credits at the 300-level or above.

2. Marine Science/Physics

This is one of the interdisciplinary majors offered in conjunction with RSMAS. It includes 31 credits from the core physics courses through PHY 560 together with a group of marine science and other courses detailed in the section of this Bulletin on MARINE SCIENCE.

3. Applied Physics

This sequence is available for those intending careers in applied physics, and consists of 22 credits in Physics plus nine credits of Engineering and Computer Science courses with prior approval of the Department of Physics. The Physics courses must be at or above the 200 level and include three credits of laboratory. The major includes PHY 205, 206, 207 (or 205, 210), 208, 209, 340, 350, 360.

4. Dual Physics Majors

Physics requirements: PHY 205, 206, 207 (or 205, 210), 208, 209, 360 and at least two of the following: PHY 321, 340, 350, 351. In the total of 22 credits of physics, 2 or 3 credits of advanced lab may be included, or another lecture course.

Students will have the full, normal major in Biology or Chemistry and provided that among those courses certain specific ones are included, they will also be able to have the dual major in physics. The specific courses are

Biology – Physics

Three of the courses BIL 358, 359, 554, CHM 360, 365

Chemistry – Physics

Three of the courses CHM 360, 365, 565, BIL 358, 359.
Note: Depending on the selection of the Physics courses in the Biology and Chemistry dual majors, more mathematics beyond two semesters of calculus is required for most of the physics courses.

5. Students in the College of Engineering who want a dual major in physics should consult the Physics Department Chairman. A major tailored to the student’s needs will be arranged. The minimum number of physics credits is the same as for the Applied Physics major.

In order to complete any Physics major sequence in four years, the student should begin elementary calculus in the first semester. The recommended mathematics sequence is MTH 110 or 111, 112 (or 131, 132); (310 or 211), 311; 210; (230, 533, 534 also recommended).

A grade of C- or better is required in all courses counted toward the major or minor with an overall GPA of 2.0. Any lecture course in the Physics department may be passed by means of a proficiency examination.

Requirements for the Master of Science and Doctor of Philosophy degrees will be found in the Bulletin of the Graduate School.

**MINOR**

The physics minor consists of University Physics, two credits of laboratory work, PHY 360, and three more credits at the 300-level or above.

[Physics Course Listing](#)
POLITICAL SCIENCE
www.as.miami.edu/politicalscience

INTRODUCTION

A political science major prepares students for work in a number of fields including law, politics, public policy, public administration, and international affairs, as well as employment in business and the non-profit sector.

EDUCATIONAL OBJECTIVES

Political science majors gain an understanding of American political and legal life, the workings of other countries’ political and economic systems, the relations among countries in the international arena, and key concepts in both political philosophy and social science methodology.

DEGREE PROGRAMS

Bachelor of Arts in Political Science

Five year program: Bachelor of Arts in Political Science and Masters of Public Administration

A special curriculum for students specializing in public administration enables them to complete the requirements for a Bachelor’s and Master’s degree in five years.

MAJOR

The political science major consists of at least 30 credits. At least 21 credits of these must be earned at the University of Miami.

To count toward the major, each course must be completed with a grade of C- or above, with an overall GPA of 2.0 or above.

1. Nine credits must be taken in departmental core courses, namely, POL 201, POL 202, and POL 203. POL 213 does not count toward the major.

The remaining credits must meet the following distributional requirements:

2. Six of the credits must come from two 500-level seminar courses offered by the University of Miami. This includes any 500-level seminar offered by the Department of Political Science or cross-listed with Political Science. The following 500 level courses are not seminars and do not fulfill this requirement:

   POL 520  Internship
   POL 521  Public Affairs Internship
   POL 563  Senior Honors Thesis (I)
POL 564  Senior Honors Thesis (II)
POL 599  Directed Readings
(Note that POL 599: Special Topics is a seminar and does fulfill this requirement.)

3. At least one course above the 200-level must be taken in three of the following five principal sub-fields of political science:

American Politics
Comparative Politics
International Relations
Public Administration, Policy, and Law
Political Theory and Methods

These can include courses used to fulfill requirement #1 above. Please note that some courses cover more than one sub-field. Students may not, however, use a single class to fill two sub-field requirements

American Politics:

POL 309  American Political Thought
POL 314  Legislative Process
POL 315  American Presidency
POL 332  Mass Media and Politics
POL 334  Campaigns
POL 335  Local Government
POL 342  State and Local Government and Politics
POL 343  Government in Metropolitan Areas
POL 349  U. S. Defense Policy
POL 351  Public Opinion
POL 352  Political Parties
POL 353  Interest Groups and Lobbying
POL 360  Congressional Representation
POL 408  The 2008 Election
POL 515  Media Content Analysis
POL 528  Advanced Seminar on Electoral Behavior
POL 530  Intelligence and National Security Decision Making
POL 536  U.S. Health Care Crisis: Politics and Policies
POL 540  Problems in American Foreign Policy
POL 542  American Constitutional Development
POL 548  Civic Participation and Democracy
POL 543  Urban Politics
POL 550  Advanced Seminar on American Politics
POL 552  Politics and Group Perspectives
POL 547  Congressional Representation
POL 553  The Environmental Movement: Groups, Beliefs and Values
POL 599  Special Topics: Congress, the President, and Spending

Other POL599: Special Topics classes may count as an American Politics course. See the Director of Undergraduate Studies for questions about POL599 courses not listed in the Bulletin.
Comparative Politics:

POL 380 Comparative Political Analysis
POL 381 European Governments and Politics
POL 382 Government and Politics of the Federal Republic of Germany
POL 384 Soviet and Russian Politics
POL 385 Politics and Society in Latin America
POL 386 Democratic Consolidation
POL 387 Politics of the Middle East
POL 388 Politics of Israel
POL 525 Comparative Public Policy and Administration
POL 531 Global Environmental Politics
POL 534 War Crimes Tribunals
POL 535 Comparative Legal Systems
POL 579 Ethnicity, Nationalism, and Secession
POL 580 The Politics of Post-Communist Transitions
POL 581 Comparative Political Economy of Post-Industrial Democracies
POL 582 Political Economy Development
POL 584 Contemporary Latin American Politics
POL 588 Politics in China

POL 599: Special Topics may count as a Comparative Politics course. See the Director of Undergraduate Studies for questions about POL599 courses not listed in the Bulletin.

International Relations:

POL 337 International Law
POL 345 The United States and Asia
POL 346 U. S.-Latin American Relations
POL 347 American Foreign Policy
POL 348 United States Relations with the Middle East
POL 349 U. S. Defense Policy
POL 391 Introduction to International Relations
POL 392 International Terrorism
POL 530 Intelligence and National Security Decision Making
POL 531 Global Environmental Politics
POL 540 Problems in American Foreign Policy
POL 544 Chinese Foreign Policy
POL 570 Uniting States in International Perspective
POL 577 Security in South Asia
POL 579 Ethnicity, Nationalism, and Secession
POL 586 Conflict in the Middle East and Africa
POL 591 Problems in International Politics and Organization
POL 592 International Political Economy
POL 593 International Relations of the Middle East
POL 599 Special Topics: Security in South Asia
POL 599 Special Topics: Security, Globalization, and Human Rights

Other POL 599: Special Topics courses may count as an International Relations course. See the Director of Undergraduate Studies for questions about POL599 courses not listed in the Bulletin.
Public Administration, Policy, and Law:

- POL 321 Public Policy and Administration
- POL 322 Environmental Politics and Policy
- POL 336 Politics of Crime
- POL 337 International Law
- POL 372 Introduction to Criminal Justice
- POL 373 Constitutional Law I
- POL 374 Constitutional Law II
- POL 375 Supreme Court Issues
- POL 376 Discrimination and the Law
- POL 377 Constitutional Law III
- POL 396 Policy for Urban Systems
- POL 501 Budget and Financial Management and Administration
- POL 522 Introduction to Graduate Public Administration
- POL 523 Problems in Public and Non-Profit Management
- POL 524 Non-Profit Organizations: Law, Policy, and Management
- POL 525 Comparative Public Policy and Administration
- POL 526 Administrative Law
- POL 533 Courts and Controversy
- POL 534 War Crimes Tribunals
- POL 535 Comparative Legal Systems
- POL 536 U.S. Health Care Crisis: Politics and Policies
- POL 537 The Law and Politics of Sports
- POL 541 Philosophy of Law
- POL 542 American Constitutional Development
- POL 545 Environmental Policymaking
- POL 546 Public Policy
- POL 551 Productivity in the Public and Non-Profit Sectors
- POL 554 Social Welfare Policy
- POL 555 Total Quality Public Service Management: Achieving High Performance Government
- POL 556 Political Ethics
- POL 557 Ethical Issues in Government
- POL 569 Politics, Law and Sexual Identity
- POL 599 Special Topics: Public Project Management & Procedures

Other POL 599: Special Topics courses may count as a Public Administration, Policy, and Law Course. See the Director of Undergraduate Studies for questions about POL599 courses not listed in the Bulletin.

Political Theory and Methods:

- POL 250 Scope and Methods in Political Science
- POL 305 Introduction to Political Theory
- POL 306 Positive Political Theory
- POL 307 Political Ideologies
- POL 309 American Political Thought
- POL 310 God, Science, and Politics
- POL 380 Comparative Political Analysis
- POL 510 Political Analysis
- POL 512 Advanced Political Analysis
- POL 513 Models of Politics
POL 515  Media Content Analysis
POL 541  Philosophy of Law
POL 599  Introduction to Game Theory
POL 599  Ideals and Realities

Other POL 599: Special Topics courses may count as a Political Theory and Methods class. See the Director of Undergraduate Studies for questions about POL599 courses not listed in the Bulletin.

MINOR

A minor requires 15 credits of political science, three of which must be from POL 201, 202, or 203. To qualify for the minor at least 9 credits must be earned in residence.

To count toward a minor, each course must be completed with a grade of C- or higher, with an overall GPA of 2.0 or higher. POL 213 does not count toward the minor.

DEPARTMENTAL HONORS

The Department of Political Science offers the opportunity for outstanding majors to earn the graduation designation “Departmental Honors in Political Science.” Pursuing Departmental Honors provides superior students the opportunity to intensify and deepen their knowledge of political science, to permit closer associations with professors in their areas of concentration, and to prepare them for graduate level work in political science.

To be considered for Departmental Honors a student must:

1. Have an overall GPA of 3.60.

2. Have a political science GPA of at least 3.75 at the end of the junior year. This GPA must be based on at least four 300- or 500-level political science courses in addition to the introductory courses required for the major.

3. Be admitted to POL 563: Senior Honors Thesis I and POL564: Senior Honors Thesis II and earn a grade of B or above in each. (See below for admission requirements.)

4. Complete a senior honors thesis that constitutes significant original research. Students are responsible for collecting their own data and the thesis must be analytical, not descriptive. The thesis must also be well written, clearly organized, and devoid of grammatical mistakes, misspellings, or other errors. Sources must be properly cited. Political science honors theses are generally fifty or more pages in length.

Interested students should apply to the Director of Undergraduate Studies for admission to POL 563 by April 1st of their junior year. (For students planning a December graduation, the deadline is November 1st of their junior year.) An application consists of the student’s ACE and a one-page description of the student’s research interests. This statement of interest should include an explanation of how the student’s coursework to date prepares him or her to undertake the proposed research. Students should also state which tenure-track faculty member(s) they are
most interested in working with as a thesis advisor. In most cases, the thesis advisor should be a faculty member with whom the student has already taken a class. If a student wishes to work with a faculty member he or she has not previously had as an instructor, the student should additionally submit a writing sample (preferably a social science research paper) and the name of at least one political science professor who can serve as a reference. The Director of Undergraduate Studies will then work to pair Honors candidates with appropriate faculty members in a way that both meets the students’ academic needs and equalizes the advising burden across faculty members.

5. The thesis must be approved for Departmental Honors by at least one, preferably two, tenure-line political science professors.

6. Complete all requirements for the POL major with a GPA of at least 3.75.

[Political Science Course Listing]
INTRODUCTION

Psychology is the study of how individuals think, behave, feel, and relate to others. Because of its broad and fundamental nature, coursework in psychology is useful to any student pursuing a liberal arts major. Psychology is a good field of study for individuals who are preparing for post-graduate study in psychology or related fields such as counseling, guidance, or social work. It is also an appropriate field of study for students pursuing medicine, law, or business.

Psychology courses meet the general education requirements in the Social Sciences (People and Society). Although the vast majority of Psychology Majors are enrolled in the College of Arts and Sciences, Psychology often serves as a second major for students in the School of Communication or the School of Education.

While most majors sample broadly from among the Department’s offerings, students wishing to focus on a specific sub-area may select courses to provide a strong (though unofficial) specialization. There are, for instance, clusters of courses in child development, research methodology, the brain-behavior relationship, and industrial/organizational psychology that provide a basis for such a specialized major.

For curricular advice and for course and transfer approval etc., students should consult an advisor in the Office of Undergraduate Academic Services for Psychology, Flipse 508, (305) 284-3303.

EDUCATIONAL OBJECTIVES

The Department of Psychology seeks to provide undergraduate students with exposure to and a fundamental understanding of the psychological sciences. It seeks to deliver an integrative educational experience by promoting interactions among faculty, graduate students, and undergraduate students in basic and applied psychological inquiry, advising, mentoring, and community outreach.

DEGREE PROGRAMS

The Department of Psychology offers both a Bachelor of Arts (B.A.) and a Bachelor of Science (B.S.) degree. In addition to completing the coursework for the particular degree specified by the College of Arts and Sciences, students must also meet the Departmental requirements for each degree; these are described below.

Students in the School of Communication or the School of Education wishing to double major in Psychology must fulfill at least the Departmental requirements for the Bachelor of Arts.
MAJOR

B.A. Departmental Requirements

The B.A. in Psychology entails 30 credits in Psychology, including PSY 110. Students must also successfully complete a course in research design/statistics PSY 204* (which counts toward the major and serves as a prerequisite for advanced methods courses). Also required are 9 Psychology credits at the 300 level or higher and 6 additional credits at the 400 level or higher.

Students wishing to pursue careers in business, education, law, human resources, religion, social work, or other related fields often choose the B.A. degree. When it includes research-oriented courses such as PSY 204, PSY 316, PSY 418, and research experience, the B.A. is also appropriate for students aspiring to graduate study in many areas within Psychology. B.A. Psychology majors must choose one minor from the list of minors published by the College of Arts and Sciences.

B.S. Departmental Requirements

The B.S. Psychology major entails 33 credits in Psychology, including PSY 110, PSY 204*, PSY 316, and PSY 418, plus 3 additional credits at the 300 level or higher and 6 additional credits at the 400 level or higher.

Psychology majors aspiring to graduate study in Psychology and related fields often pursue the B.S. degree, as do students planning to attend medical school. B.S. Psychology majors must elect a minor from among the following: Biochemistry, Biology, Chemistry, Computer Science, Geological Sciences, Engineering, Mathematics, Microbiology and Immunology, or Physics.

*UM alternates to PSY 204 include BIL 311; SOC 211 and 212; and MTH 224. These courses are acceptable as prerequisites for PSY 316, but do not count toward the psychology major. Thus, students opting to do these alternate courses must take another course in Psychology to total the number of credits for that major.

Grades Required to Declare and Continue

A student must have an overall and Psychology GPA of at least 2.5 to transfer from another major to Psychology, to declare Psychology as a second major, to change from Undeclared status to a Psychology major.

Students are strongly advised not to continue as Psychology majors if, after having completed 15 credits in Psychology, the Psychology GPA is less than 2.3.

Grades Required to Graduate

A grade of C- or better is required in all courses applied to the Psychology major, and the GPA in these courses must be at least 2.3.

Residency Requirement

As part of a major in Psychology, students must complete at least 15 upper division (300 level and above) Psychology credits in residence at U.M. With prior Departmental approval, 6 of these 15 may be completed through the U.M. Study Abroad Program.
Research Experience for Course Credit
No more than 6 research credits (i.e., PSY 367/8 and PSY 499) may count toward the major. PSY 498 does not count toward the major or minor. Additional research credits may count toward general electives.

Research Participation
As an introduction to behavioral science, students enrolled in PSY 110 may be required to participate as subjects in research studies being conducted by faculty and/or graduate students, or by reading and writing about selected research reports. For details, consult the course syllabus and/or contact the Department’s Undergraduate Academic Services for Psychology. Note: This requirement is not sufficient for students interested in attending graduate school in psychology. Students seeking course credit for working in the laboratory of a psychology faculty member should see an advisor and sign up for PSY 367 or PSY 368 (see above).

Course Prerequisites
Most courses beyond the 100-level require students to have taken introductory or foundation courses. Students who have not taken a prerequisite course (or who have taken it and obtained a D or F) may not enroll in the course for which it is a prerequisite. Students without prerequisites may be dropped from the class roll.

Transfer
Transfer students wanting courses taken elsewhere to count as Psychology courses at U.M. must obtain written Departmental approval during their first semester at U.M. This is a separate process from the Admissions Evaluation of Transfer Credit. No more than one course at the 100 level (i.e., without a prerequisite) will be counted toward the major; these courses may, however, count as general electives.
Regularly enrolled UM students wishing to take a Psychology course elsewhere (e.g., during the summer) must obtain prior Departmental approval if they wish it to be counted in place of a U.M. Psychology course. In some cases, transfer courses not approved as part of the major or minor may still meet other distribution or elective requirements.

Freshmen
All freshmen declared Psychology majors receive their advising as a part of a year-long advising, orientation, and mentoring program known as FACT FORUM. All freshmen declared as Psychology majors in the College of Arts and Sciences will be placed in a Freshman Experience section of FACT (Freshman Advising Contact Term). This is a one credit general elective course that is designed to integrate freshmen into the Department by familiarizing them with the guidelines, opportunities and responsibilities of a Psychology major. During the second semester, freshmen enroll in a FORUM section (Faculty Overview of Research and Undergraduate Mentoring). This one credit general elective course helps to put the curriculum in context, and stresses the importance of and opportunities for research.

MINOR
The minor in Psychology requires 15 credits in Psychology, with a grade of C- or better and a GPA of 2.0 or better for these 15 credits. No more than 3 of these credits may be in courses having no prerequisite, and no more than 3 credits may be in research courses (e.g., PSY 367). Of the 15 credits, 9 must have been completed at U.M.; with prior approval, 3 of these 9 credits may be taken through the U.M. Study Abroad Program.
DEPARTMENTAL HONORS

Any Psychology major may graduate with Departmental Honors in Psychology by attaining an overall GPA of at least 3.3 and a Psychology GPA of at least 3.5 and by completing PSY 204, PSY 316, and PSY 498/499. Thus, Departmental Honors entails both excellence in regular classes and completion of a Senior Honors Thesis.

Preparation for the Senior Honors Thesis should begin prior to the senior year and usually involves enrolling in PSY 367/8 during the sophomore or junior year. Permission to enroll in PSY 498 (Senior Thesis) is given only to students who have completed at least 18 credits in Psychology (including PSY 316) and whose overall and Psychology GPAs are at the levels required for graduation with Departmental Honors. To enroll in PSY 498, students must obtain written approval from both the faculty mentor who will supervise the thesis and the Department’s Director of Undergraduate Studies. These faculty members also assess the adequacy of the thesis upon completion. Students are expected to complete the Thesis course sequence; a grade of “IP” (i.e., incomplete in progress) is given for PSY 498 until PSY 499 is completed and approved.

Psychology Course Listing
INTRODUCTION

The University regards the academic study of religion as an integral part of liberal, humane learning and seeks to assist students in understanding the role religion plays in human existence and culture. Instruction in the Department of Religious Studies is non-sectarian and seeks an open analysis of all points of view. Courses are designed to provide a general orientation to the academic study of religion for the undergraduate student, as well as more advanced exposure for those who wish to pursue professional careers where a study of religious ideas and institutions would be helpful, such as in psychology, sociology, history, journalism, teaching, law, medicine, the fine arts, religious education, the ministry, and the rabbinate.

The Department sponsors a Religious Studies Colloquium. It has enriched the existing curriculum by bringing to the campus such outstanding scholars as Elizabeth Kuebler-Ross, Joachim Jeremias, Alvin Plantinga, Harry M. Orlinsky, Anson Rainey, Abraham J. Malherbe, Alan Segal, William May, Robert Segal, Douglas Allen, Marvin Sweeney, Martin Hengel, Martin E. Marty, and Juergen Moltmann.

EDUCATIONAL OBJECTIVES

The general educational objectives of the Department are (1) To explore texts, histories, and ways in which humans from various cultures have understood their world. Such exploration includes the beliefs, ethics, rituals, artifacts, and organizations of religions. (2) To understand the changing relationship between religion and elements of the wider culture. Such understanding includes the dynamics of politics, art, economics, literature, and society and their relationship to religions. (3) To become familiar with the theories and methods used in the study of religion.

DEGREE PROGRAMS

For students entering the University in or after Fall 2008, a major in Religious Studies leading toward the B.A. degree requires 30 credits in Religious Studies, passed with a grade of C- or higher, and a GPA in the major of 2.0. At least 15 credits must be earned in courses numbered 300 or above. Six credits must be taken in each of the three following subject areas: 1) Religious Texts; 2) Historical Traditions; 3) Contemporary Issues. A major must earn writing credit (W) in at least one course in the department and must take the majors/minors seminar, REL 499.

Transfer students who major in Religious Studies must complete at least 15 credits in departmental courses numbered 300 or above in residence at the Coral Gables Campus.

MINOR

For students entering the University in or after Fall 2008, an undergraduate minor requires 15 credits, passed with a grade of C- or higher, and a GPA in the minor of 2.0. At least six
credits must be earned in courses numbered 300 or above, and at least three credits must be taken in each of two of the three subject areas: 1) Religious Texts; 2) Historical Traditions; 3) Contemporary Issues. Religious Studies 101 is required of all minors. Religious Studies minors are encouraged to take the majors/minors seminar, REL 499, but are not so required.

Transfers who minor in Religious Studies must complete at least 6 credits in the departmental courses numbered 300 or above in residence at the Coral Gables campus.

DEPARTMENTAL HONORS

Majors, minors, and other students who meet certain academic criteria are eligible for membership in Theta Alpha Kappa, the National Honor Society for Religious Studies and Theology. Theta Alpha Kappa sponsors events that enhance the academic and social life of the department.

The Department of Religious Studies is also the home for the Society for the Study of Religions and Cultures (SSRC). This is a student group whose mission is to increase students’ knowledge and understanding of the world’s religions and the cultures in which they exist. The society’s events cover issues beyond what students learn in the classroom. Among other activities, field trips to different religious centers in the area provide first-hand experience with various religions and cultures. SSRC is open to all students.

Religious Studies Course Listing
INTRODUCTION

The Department of Sociology offers two majors—sociology and criminology. A student majoring in Sociology or Criminology may not minor in the other. Courses for both majors are designated SOC; see course list below. For information on Criminology please see the CRIMINOLOGY section of the Bulletin.

Course work in SOCIOLOGY is designed to provide scientific training for understanding the organization and fluid nature of contemporary society, patterns of social change, and the mutual influence between macro structures and processes (society and culture) on one hand, and the micro level (individuals and groups) on the other.

EDUCATIONAL OBJECTIVES

SOCIOLOGY courses have several objectives, including:

1. strong component of a liberal arts education, including skills that employers seek;
2. valuable undergraduate preparation for pursuing careers in such fields as journalism, politics, public relations, business or public administration—fields that involve investigative skills and working with diverse groups;
3. excellent grounding and training for future graduate work to become a professor or a research or applied sociologist.

DEGREE PROGRAMS

Students may earn a Bachelor of Arts degree in Sociology. The Department of Sociology also offers graduate degrees in Sociology with emphases in medical sociology, race and ethnic relations, and criminology.

MAJOR

A major in SOCIOLOGY requires: a minimum of 31 credits, including Sociology 101, 210, 211, 212, 501, and two of the following courses: SOC 301, Social Organization; SOC 302, Social Psychology: Sociological Perspective; SOC 303, Social Inequalities. All courses taken for major credit must be passed with a grade of C- or higher with an overall GPA of 2.0. Normally students cannot transfer more than 12 credits toward the major.

MINOR

A minor in SOCIOLOGY consists of 15 credits in Sociology, including SOC 101 and at least six credits in courses at the 300 level or above. All courses taken for minor credit must be passed with a grade of C- or higher with an overall GPA of 2.0.
DEPARTMENTAL HONORS

Graduation with Departmental Honors is available to eligible students who fulfill the following:

1. Students desiring Departmental Honors in Sociology or Criminology must maintain an overall GPA of 3.3 and a GPA of 3.5 in Sociology or Criminology. They must also achieve a minimum of B in all Sociology/Criminology courses. For transfer students, the Department uses the cumulative, combined GPA calculated by the Office of the Registrar.

2. A student seeking Departmental Honors is required to write an independent research paper which is submitted to the Undergraduate Committee. The nature of the independent research project is determined by the faculty member(s) with whom the student works. This project is done in SOC 498 & SOC 499 (Honors I & II). The student should have the same professor(s) for all six credits.

3. Recruitment of eligible students is by department invitation at the beginning of a student’s junior year.

Sociology Course Listing
INTRODUCTION

The University of Miami Department of Theatre Arts offers two distinct undergraduate degrees: a liberal arts program leading to a Bachelor of Arts degree in theatre and a pre-professional conservatory-based theatre training program leading to a Bachelor of Fine Arts degree in either performance, musical theatre, stage management, theatre management, or design/production.

The Department also produces a season of plays and musicals at the Jerry Herman Ring Theatre as well as workshops and student projects in the Studio Theatre.

EDUCATIONAL OBJECTIVES

The mission of the University of Miami’s Department of Theatre Arts is to equip students to work in professional theatre, film and television or to gain admission to the best professional graduate programs.

Our graduates will be capable of applying theatrical techniques without guidance and will be capable of making independent creative judgment. Our broad aim in theatre training is professional excellence combined with depth of human understanding, freedom of expression and imagination in communication for all practitioners of the art and craft of theatre.

DEGREE PROGRAMS

THE BACHELOR OF ARTS DEGREE
THE BACHELOR OF FINE ARTS DEGREE

MAJOR

THE BACHELOR OF ARTS DEGREE
All students seeking a Bachelor of Arts degree in Theatre Arts must take the following courses with a grade of C- or higher in all Theatre Arts classes and an overall GPA of 2.0 or above.

All Bachelor of Arts Candidates will take ALL FIVE of the following core courses: THA 105, 141/143, 142/144, 481, and 482.

All Bachelor of Arts candidates will then choose SEVEN elective courses from the following list: THA 140, 240, 241, 242, 243, 244, 251, 252, 253, 254, 300, 341, 342, 343, 344, 347, 348, 351, 352, 353, 364, 365, 375, 381, 382, 385, 386, 441, 442, 451, 452, 456, 459, 461, 462, 463, 464, 465, 466, 467, 468, 485, 487.
The State of Florida recognizes the Bachelor of Arts and Bachelor of Fine Arts Degrees as meeting the Theatre Arts subject area requirements for teaching at the secondary level. In addition to earning the BA or BFA degree in Theatre, students desiring to teach in the field of Theatre Arts should complete the required education credits in order to be certified by the state.

THE BACHELOR OF FINE ARTS DEGREE
In addition to the general requirements for admission to the University, the student seeking admission to the BFA program must meet the following requirements of the Department of Theatre Arts:

1. Submission of a special supplementary application to the Department of Theatre Arts. (This form is in Part II of the University application).

2. An audition or interview/portfolio review to determine acceptance into the program. These audition/reviews will be held three times on the University of Miami campus as well as in major cities throughout the United States.

3. Design/technical production, stage management and theatre management students will be accepted into these programs on a probationary basis following an interview/portfolio review. Permanent acceptance into these programs will be made at the end of the first year by a thorough examination of the student’s portfolio.

Transfer students must follow the same entering procedures as freshmen and should realize that placement into the program will be determined by the Theatre Arts faculty. Candidates cannot transfer into the design/technical production, stage management and theatre management BFA degree program beyond their sophomore year, unless approved by the head of the appropriate program. Transfer students are not allowed into the performance or musical BFA degree programs unless they are willing to begin on the freshman level in their conservatory curriculum.

The candidates for the degree of Bachelor of Fine Arts must satisfy the College of Arts and Sciences distribution requirements.

Each BFA student will be evaluated by the faculty at the end of each semester. This evaluation will determine if the student is invited to continue in the program. Additional evaluations will take place each time a student is involved in a project.

In Theatre Arts Department courses a cumulative 2.7 grade point average is required to remain in the BFA program. A Theatre Arts major must maintain a minimum grade of C- or higher in each required course outside the theatre. Failure to maintain satisfactory academic standing may result in the student being placed on academic probation by the Department.

Theatre Arts courses are progressive in nature and students must successfully complete each course in sequence. Failure to pass the requirements of any particular class in the conservatory may result in the student’s dismissal from the program.

Production activities and discipline within the Department will be governed by a student handbook, available on the Department website (www.miami.edu/tha).

Musical Theatre and Acting Majors will be admitted to the Bachelor of Fine Arts degree program only in the fall of each academic year. The following pages specify the course requirements for each area of the BFA program.
### DESIGN/TECHNICAL PRODUCTION CURRICULUM

#### FRESHMAN YEAR

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<tr>
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<tr>
<td>ENG 105 English Composition I</td>
<td>THA 142 Intro to Costume/Lighting Design (Lecture)</td>
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<tr>
<td>THA 141 Intro to Scene Design/Stage Craft (Lecture)</td>
<td>THA 144 Introduction to Theatre Crafts II (Lab)</td>
</tr>
<tr>
<td>THA 143 Introduction to Theatre Crafts I (Lab)</td>
<td>ENG 106 English Composition II</td>
</tr>
<tr>
<td>THA 105 Intro to Acting</td>
<td>Liberal Arts</td>
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<td>THA 365 Principles of Stage Management</td>
<td>Liberal Arts/Math</td>
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<tr>
<td>CIS 150 Introduction to Computer Information Systems</td>
<td>THA 364 Introduction to Producing and Managing Theatre</td>
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#### SOPHOMORE YEAR

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<tr>
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<tbody>
<tr>
<td>THA 241 Advanced Theatre Crafts</td>
<td>THA 242 Drafting for the Theatre</td>
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<tr>
<td>THA 243 Intro to Drawing for the Theatre</td>
<td>THA 386 History of Fashion</td>
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<tr>
<td>THA 381 Play Analysis I</td>
<td>THA 382 Play Analysis II</td>
</tr>
<tr>
<td>Liberal Arts/Math</td>
<td>THA 244 Advanced Drawing for the Theatre</td>
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<td>Liberal Arts</td>
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<tr>
<td>COS 211 Public Speaking</td>
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#### JUNIOR YEAR

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<thead>
<tr>
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<tr>
<td>THA 343 Costume Design</td>
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<td>THA 344 Lighting Design</td>
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<td>THA 385 History of Décor</td>
<td>THA 482 Theatre History II</td>
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<td>THA 481 Theatre History I</td>
<td>Liberal Arts</td>
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<td>Liberal Arts</td>
<td>Theatre Elective</td>
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#### SENIOR YEAR

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<tr>
<th>First Semester</th>
<th>Second Semester</th>
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<tbody>
<tr>
<td>THA 441 Design Studio I</td>
<td>THA 442 Design Studio II</td>
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<tr>
<td>THA 401 Internship</td>
<td>THA 402 Internship</td>
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<tr>
<td>THA 461 Play Direction I</td>
<td>Theatre Elective</td>
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<td>Liberal Arts</td>
<td>Theatre Elective</td>
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**Notes:**

1. THA 441 Design Studio I can be taken twice for a maximum of 6 credits.
2. THA 442 Design Studio II can be taken twice for a maximum of 6 credits.
3. Theatre Elective – must be a 200 level or above course.
4. ART 105 and ART 107 are highly recommended.
# MUSICAL THEATRE CURRICULUM

## FRESHMAN YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
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<tbody>
<tr>
<td>THA 111 Acting I-A</td>
<td>THA 112 Acting I-B</td>
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<td>THA 113 Movement I-A</td>
<td>THA 114 Movement I-B</td>
</tr>
<tr>
<td>THA 116 Dance I-A</td>
<td>THA 117 Dance I-B</td>
</tr>
<tr>
<td>THA 120 Freshman Studio I</td>
<td>THA 121 Freshman Studio II</td>
</tr>
<tr>
<td>THA 141 Intro to Scene Design/Stage Craft (Lecture) 2</td>
<td>THA 142 Intro to Costume/Lighting Design (Lecture) 2</td>
</tr>
<tr>
<td>THA 143 Introduction to Theatre Crafts I (Lab) 1</td>
<td>THA 144 Introduction to Theatre Crafts II (Lab) 1</td>
</tr>
<tr>
<td>THA 198 Voice and Speech (BFA only)</td>
<td>THA 196 Singing for the Stage</td>
</tr>
<tr>
<td>MVP 101 Intro to Voice and Singing</td>
<td>THA 198 Voice and Speech</td>
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<tr>
<td>MVP 110 Fundamentals of Music OR</td>
<td>MVP VOB Voice</td>
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<tr>
<td>MTC 111 Music Theory I</td>
<td>MVP 105 Solfege</td>
</tr>
<tr>
<td>MKP 101 Class Piano I OR</td>
<td>MKP 101 OR 102 Class Piano II OR</td>
</tr>
<tr>
<td>MKP 121 Class Piano/MTR Majors only (Level I)</td>
<td>MKP 121 OR 122 Class Piano/MTR Majors Only (Level II)</td>
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<tr>
<td>MVP 105 Solfege</td>
<td>MTC 112 Music Theory II</td>
</tr>
<tr>
<td></td>
<td>MTC 121 Music Theory Laboratory I</td>
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<td><strong>18 - 19</strong></td>
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## SOPHOMORE YEAR

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<thead>
<tr>
<th>First Semester</th>
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<tbody>
<tr>
<td>THA 211 Acting II-A</td>
<td>THA 212 Acting II-B</td>
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<td>THA 216 Dance II-A</td>
<td>THA 217 Dance II-B</td>
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<td>THA 197 Singing for the Stage II-A</td>
<td>THA 296 Singing for the Stage II-B</td>
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<td>THA 298 Voice and Speech II-A</td>
<td>THA 299 Voice and Speech II-B</td>
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<td>THA 347 Make-Up</td>
<td>MTC 221 Music Theory Laboratory III</td>
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<tr>
<td>MVP VOC Voice</td>
<td>ENG 106 English Composition II</td>
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<td>MKP 103 Class Piano II OR III OR</td>
<td>MTH 101 Algebra for College Students</td>
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<td>MKT 122 OR 123 Class Piano/MTR Majors Only (Level III)</td>
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<td>MTC 122 Music Theory Laboratory II</td>
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<td>ENG 105 English Composition I</td>
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## JUNIOR YEAR

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<td>THA 313 Movement III-A</td>
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<td>THA 297 Singing for the Stage III-B</td>
<td>THA 399 Voice and Speech III-B</td>
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<td>THA 398 Voice and Speech III-A</td>
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<td>MVP VOF Voice</td>
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<td>MVP VOE Voice</td>
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<td>MTC 221 Music Theory Laboratory III</td>
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## SENIOR YEAR

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<td>THA 432 Musical Theatre Styles II</td>
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<td>*THA 411 Acting IV-A</td>
<td>*THA 412 Acting IV-B</td>
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<td>THA 416 Auditioning-II</td>
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<td>*THA 461 Play Direction I</td>
<td>*THA 414 Movement III-B Stage Combat</td>
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<td>*THA 413 Movement III-A Stage Combat</td>
<td>THA 420 Senior Studio</td>
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<td>MVP VOG Voice</td>
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* optional but recommended
### FRESHMAN YEAR

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<td>THA 114 Movement I-B</td>
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<td>THA 117 Dance I-B</td>
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<td>THA 121 Freshman Studio II</td>
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<td>THA 141 Intro to Scene Design/Stage Craft (Lecture)</td>
<td>THA 142 Intro to Costume/Lighting Design (Lecture)</td>
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<td>ENG 105 English Composition I</td>
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### SOPHOMORE YEAR

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### JUNIOR YEAR

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<td>THA 313 Movement III-A</td>
<td>THA 314 Movement III-B</td>
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<td>THA 398 Voice and Speech III-A</td>
<td>THA 399 Voice and Speech III-B</td>
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<td>THA 481 Theatre History I</td>
<td>THA 482 Theatre History II</td>
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### SENIOR YEAR

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<tr>
<td>THA 411 Acting IV-A</td>
<td>THA 412 Acting IV-B</td>
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<tr>
<td>THA 413 Movement III-A (Stage Combat)</td>
<td>THA 414 Movement III-B (Stage Combat)</td>
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<tr>
<td>THA 415 Auditioning-I</td>
<td>THA 416 Auditioning-II</td>
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<td>THA 461 Play Direction I</td>
<td>THA 420 Senior Studio</td>
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<td>Theatre Requirement</td>
<td>Theatre Requirement or Elective</td>
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<td>16-18</td>
<td>17-18</td>
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</table>

Acting Majors must complete 4 additional Requirement Courses and 6 Elective Courses

### REQUIREMENTS

- THA or MVP 294 Singing for Actors 2
- CBR 233 Television Performance 3
- CBR 315 Acting for the Camera OR
  Another approved singing Class 3
- THA 456 Improvisational Acting 3
- THA 364 Theatre Management 3

### ELECTIVES

- THA 116 Beginning Dance and/or
  Other approved dance class 1-3*
- THA or MVP 194 or 294 Singing for Actors I 2*
- THA 195 Singing for Actors I 2
- THA 251 and/or 252 Scene Study 3*
- THA or MVP 294 Singing for Actors II-A 2
- THA or MVP 295 Singing for Actors II-B 2
- THA 352 Singing for the Musical Theatre 3*
- OR THA 431 Musical Theatre Styles I 2
- THA 432 Musical Theatre Styles II 2
- THA 455 Acting for the Camera 3
- THA 462 Directing for the Stage 3*
- THA 375 Playwriting 3*
- THA 365 Principles of Stage Management 3
- CBR 592 Special Topics in Broadcasting 3
- OR Other approved courses

* indicates recommended
# STAGE MANAGEMENT CURRICULUM

## FRESHMAN YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>THA 365 Principles of Stage Management</td>
<td>THA 105 Introduction to Acting</td>
</tr>
<tr>
<td>THA 141 Introduction to Theatre Crafts I (Lecture)</td>
<td>THA 142 Intro to Costume/Lighting Design (Lecture)</td>
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<tr>
<td>THA 143 Introduction to Theatre Crafts I (Lab)</td>
<td>THA 144 Introduction to Theatre Crafts II (Lab)</td>
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<tr>
<td>ENG 105 English Composition I</td>
<td>ENG 106 English Composition II</td>
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<tr>
<td>CIS 150 Introduction to Computer Information</td>
<td>MTC 110 Fundamentals of Music</td>
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<tr>
<td>Systems</td>
<td>Liberal Arts/Math</td>
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<td>Liberal Arts</td>
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<tr>
<td>MVP 210 Score Reading for SM Major</td>
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<td><strong>Total</strong></td>
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## SOPHOMORE YEAR

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<thead>
<tr>
<th>First Semester</th>
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<tbody>
<tr>
<td>THA 459 Stage Management Practicum</td>
<td>THA 463 Advanced Stage Management I</td>
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<tr>
<td>THA 243 Intro to Drawing for the Theatre</td>
<td>THA 242 Drafting for the Theatre</td>
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<tr>
<td>THA 364 Intro to Producing and Managing Theatres</td>
<td>THA 382 Play Analysis II</td>
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<td>THA 381 Play Analysis I</td>
<td>COS 112 Interpersonal Communication</td>
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## JUNIOR YEAR

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<tbody>
<tr>
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<td>THA 464 Advanced Stage Management II</td>
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<td>THA 241 Advanced Theatre Crafts</td>
<td>THA 462 Play Direction II</td>
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<td>THA 461 Play Direction I</td>
<td>THA 482 Theatre History II</td>
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<td>THA 481 Theatre History I</td>
<td>COS 211 Public Speaking</td>
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<td>THA 344 Lighting Design</td>
<td>THA Elective</td>
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<td>THA Elective</td>
<td>THA Management Course (THA 466 or THA 467 are recommended)</td>
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<td><strong>Total</strong></td>
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## SENIOR YEAR

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<th>Second Semester</th>
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<tbody>
<tr>
<td>THA 459 Stage Management Practicum</td>
<td>THA 420 Senior Studio</td>
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<tr>
<td>THA 561 Advanced Directing or other approved THA elective</td>
<td>THA 401 Internship</td>
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<td>THA Elective</td>
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<tr>
<td>ESS 145 Responding to Emergencies (1st Aid)</td>
<td>MGT 304 Organizational Behavior</td>
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<td><strong>Total</strong></td>
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## NOTE:

1. All Stage Management majors are required to participate in a production capacity in one show per semester for all eight semesters.

2. All Stage Management majors are required to stage manage or assistant stage manage one show in each year in their Sophomore, Junior and Senior year. This management assignment doubles as their production assignment for that particular semester.

3. THA 459 Stage Management Practicum can be repeated for a maximum of 12 credits.

4. THA Elective must be a 200 level or above course unless otherwise approved by Stage Management Faculty.
# THEATRE MANAGEMENT CURRICULUM

## FRESHMAN YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
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<tbody>
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<td>THA 142 Intro to Costume/Lighting Design (Lecture) 2</td>
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<td>THA 143 Introduction to Theatre Crafts I (Lab) 1</td>
<td>THA 144 Introduction to Theatre Crafts II (Lab) 1</td>
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<td>THA 365 Principles of Stage Management 3</td>
<td>THA 364 Introduction to Producing and Managing</td>
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<tr>
<td>ENG 105 English Composition I 3</td>
<td>Theatre 3</td>
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<tr>
<td>CAP 116 Introduction to Public Relations in Society 3</td>
<td>ENG 106 English Composition II 3</td>
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<td>CIS 150 Introduction to Computer Information Systems 3</td>
<td>THA 244 Drawing for the Theatre II 3</td>
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<td>THA 381 Play Analysis I 3</td>
<td>BSL 212 Introduction to Business Law 3</td>
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<td>ACC 211 Principles of Financial Accounting 3</td>
<td>CIS 316 Microcomputer Business Applications 3</td>
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<td>CAP 202 Graphics for Promotional Media 3</td>
<td>ECO 211 Economic Principles and Problems 3</td>
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<tr>
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<td>THA 461 Play Direction I 3</td>
<td>THA 467 Theatre Management III 3</td>
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<td>THA 465 Theatre Management I 3</td>
<td>MKT 301 Marketing Foundations 3</td>
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<td>COS 333 Business Communication 3</td>
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## SENIOR YEAR

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<td>THA 403 Internship 3</td>
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<td>THA 466 Theatre Management II 3</td>
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<td>THA 481 Theatre History I 3</td>
<td>MGT 353 The Organization and Operation of the Small Business 3</td>
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<td>MGT 302 Human Resource Management 3</td>
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## MINOR

### MINOR IN THEATRE ARTS

A minor in Theatre Arts consists of 15 credits of Theatre Arts classes with a minimum grade of C- in each course and an overall GPA of 2.0 or above.

[Theatre Arts Course Listing](#)
URBAN STUDIES

INTRODUCTION

The minor in Urban Studies provides undergraduate students with a flexible concentration in interdisciplinary studies of cities, urbanism, and urbanity. Urban Studies is a long established academic field, especially prominent in major cities in the United States. Course work combines a practical focus on Metropolitan Miami with more general attention to urban theory and globalization from a global perspective.

The minor has a liberal arts orientation: and includes perspectives from the social sciences, architecture, and history. It is a useful complement to majors such as Geography, History, Sociology, Anthropology, Literature, International Studies, Economics, Political Science, and others. The minor is also of particular interest to students in Architecture and Business. Courses in the Minor are from the College of Arts & Sciences and from the School of Architecture. Note that there are slightly different requirements for ARC students.

MINOR

Requirements:
- Students must complete 15 credits (five courses);
- In all five courses, students must achieve a minimum grade of C- with a 2.0 overall GPA;
- All minors are required to take two core courses:
  - URB 201 Metropolitan Miami, 3 cr.
  - URB 301 Cities in Time and Space, 3 cr.
- In addition, students must select three courses from the list of Optional Courses, below. All are 3-credit courses. ARC students may select no more than one ARC course while A&S students must select at least one ARC course. Note that URB 201 or URB 301 will suffice as prerequisites for any of these courses.
  - ARC 585 History of Cities
  - ARC 541 Seminar on Town Design
  - ARC 554 Architecture of South Florida
  - ARC 584 Special Topics: On-Site Survey of European Architecture and Urbanism
  - APY 420 Archaeology, Architecture, and the City
  - GEG 430 World Cities
  - GEG 522 Urbanization in the Developing World
  - SOC 304 Dynamics of Poverty in the United States
  - SOC 368 Violence in America
  - HIS 369 Introduction to Urban America
  - HIS 371 Immigration, Race, and Ethnicity in American History
  - POL 343 Government in Metropolitan Areas

Other courses may be approved upon request; please consult the program Director, Dr. Jan Nijman at Nijman@miami.edu.

Urban Studies Course Listing
INTRODUCTION

The Program in Women's and Gender Studies at the University of Miami seeks to encourage the rigorous investigation of gender as a significant issue in all areas of human experience. It reaches across disciplines to draw on a range of methods, theories, and perspectives that help us to understand how ideas and structures based on gender shape our lives. The program's core objective is to foster the examination, open discussion, and lively debate of gender issues among faculty and students from all fields of study, enriching the undergraduate curriculum and the university's academic mission through greater communication across disciplines and colleges. Its aim is to broaden, deepen, and transform the learning community at UM and beyond.

EDUCATIONAL OBJECTIVES

The undergraduate curriculum in Women's and Gender Studies explores the ways in which ideas about gender and sexuality shape social roles and identities, as well as the ways in which race, ethnicity, class, and nationhood influence the perception and experience of gender and sexuality within particular cultures. The curriculum is informed by recent scholarship that recognizes gender and sexuality as crucial components of human experience in social, cultural, economic, political, religious, and legal contexts. It includes courses that introduce students to feminist theory and scholarship, engaging ethical and political issues of equality and justice. The program encourages students to question their assumptions about the possible meanings of female and male through the comparative study of how different societies and historical periods have viewed manhood, womanhood, and relations between women and men. Courses in Women's and Gender Studies enable students to acquire critical and analytical skills that they can then apply in other aspects of their educational experience at UM and beyond the university in their careers and personal development.

MAJOR

A major in Women's and Gender Studies consists of at least 30 credits in Women's and Gender Studies courses (core, co-listed, and cross-listed) with a grade of C- or better in each course, with a cumulative GPA of at least 2.0 in WGS courses. These credits must include at least 18 at the 300 level or above. All majors must complete WGS 201: Introduction to Women's and Gender Studies, WGS 301: Feminist Inquiries, and at least two other WGS core courses.

All majors must complete WGS 501: Senior Research Project, which will take the form of an individual research project with a faculty member of the student's choice; the student is responsible for finding an appropriate faculty member who is available to supervise the project and then must seek formal approval from the program director before proceeding with the project. The student must produce a substantial written report or research paper, the format of which will vary according to the nature of the project.
**MINOR**

A minor in Women's and Gender Studies consists of at least 15 credits in Women's and Gender Studies courses (core, co-listed, and cross-listed) with a grade of C- or better in each course, with a cumulative GPA of at least 2.0 in WGS courses. These credits must include at least 9 at the 300 level or above. All minors must complete WGS 201: Introduction to Women's and Gender Studies, WGS 301: Feminist Inquiries and at least one other WGS core course.

**DEPARTMENTAL HONORS**

Women's and Gender Studies majors with a cumulative GPA of at least 3.5 in WGS courses and an overall GPA of at least 3.0 may earn departmental honors by completing WGS 505: Honors Thesis instead of the senior research project. Candidates for departmental honors are responsible for finding a faculty member who is willing to serve as thesis adviser and then must complete a thesis proposal of approximately 400 words which must be approved by the thesis adviser and then the program director. The format and length of the thesis will vary according to the nature of the project. Most students writing an honors thesis as part of their WGS major will take WGS 505 twice (for a total of 6 credits).

[Women’s and Gender Studies Course Listing]
INTRODUCTION

The School of Business Administration offers courses leading to the degrees of Bachelor of Business Administration (BBA) and Bachelor of Science in Business Administration (BSBA). Undergraduate degrees in business are administered by the Vice Dean, Undergraduate Business Programs.

MISSION

The mission of the University of Miami School of Business Administration is to provide an environment in which the creation and dissemination of business knowledge can flourish.

ACCREDITATION

The Bachelor of Science in Business Administration and the Bachelor and Master of Business Administration as well as the undergraduate and graduate Accounting programs are fully accredited by The Association to Advance Collegiate Schools of Business, International (AACSB – International).

ACADEMIC POLICIES

Student Responsibilities

- Students in the School of Business Administration are responsible for planning their own programs and for meeting degree requirements;

- It is the student’s responsibility to understand fully, and to comply with all the provisions of this Bulletin and written changes to their program of study;

- Students are provided assistance by academic advisors and faculty members;

- Requests for deviation from department, program, or school requirements are granted only by written approval from the Vice Dean or respective department chairperson;

- Students who are in violation of the provisions of this Bulletin may be withdrawn unilaterally by appropriate School officials from classes, deleted as Business students, and/or have a “STOP” placed upon their future enrollment;

- Students who are disruptive in class as determined by assigned faculty and the appropriate Vice Dean will be dropped from the class;

- Information regarding appeal procedures and special requests relative to academic matters is available in Merrick 104, School of Business Administration, Office of Undergraduate Business Programs.
Admission to The School of Business Administration

Admission to the University for undergraduate study as a freshman is sufficient to be granted admission to the School of Business Administration. However, strong quantitative skills are typically needed for success. Admitted students may select an intended major and optional minor(s). Students who do not state an intended major are listed as undeclared in business.

Transfer Student Admission

The transfer applicant must submit a satisfactory academic record in compliance with the standards of the University of Miami, Office of Admission. All previous transfer courses must be from an accredited institution. The applicant must be in good academic standing at all institutions previously attended with a minimum cumulative grade point average of 3.0. A minimum grade of "C" (2.0) must be earned in transfer courses, unless otherwise stated, in order for credit to be awarded. All grades earned in transfer courses are used to determine the overall cumulative grade point average. This includes repeated courses under a forgiveness policy at previous institutions.

All applicants to the School of Business Administration must have completed and received college credit for a calculus course and earned a grade of “B” or better. The calculus course must be evaluated by submitting the syllabus and textbook title for review to the Director of Advising, Undergraduate Business Programs in the School of Business Administration.

Any business course that is from a non-AACSB accredited institution will be accepted as electives toward the degree requirements. An applicant may appeal the decision by submitting the syllabus and textbook title to the appropriate department for review.

Transfer coursework must meet the specific curriculum requirements as determined by the Office of Undergraduate Business Programs. Note that transfer students must complete 50 percent of the total Business Foundation and Professional Business Core and 50 percent of all major and all minor courses at the University of Miami.

It is strongly recommended that transfer applicants meet the following requirements at the time of transfer application:

- One semester of microeconomics (ECO 211), which may also be fulfilled by:
  - A score of "3" on the AP Microeconomics exam;
  - A score of "5" on the IB Higher Level Economics exam;
  - A course equivalent to microeconomics as determined by the Department of Economics.

- One semester of financial accounting (ACC211), which may also be fulfilled by:
  - A course equivalent to Financial Accounting as determined by the Department of Accounting.

- One semester of statistics (MAS201), which may also be fulfilled by:
  - A score of "4" on the AP Statistics exam;
  - A course equivalent to Introduction to Business Statistics as determined by the Department of Management Science.
It is strongly recommended that transfer applicants applying with 60 semester hours or more meet the following requirements at the time of transfer application:

- Two semesters of introductory economics, Micro and Macro (ECO211 and ECO212), which may also be fulfilled by:
  - A score of "3" on the AP Micro and/or Macroeconomics exam;
  - A score of "5" on the IB Higher Level Economics exam awards credit in Microeconomics;
  - A score of "6" on the IB Higher Level Economics exam awards credit in Micro- and Macroeconomics;
  - A course equivalent to Microeconomics or Macroeconomics as determined by the Department of Economics.

- One semester of financial accounting (ACC211), which may also be fulfilled by:
  - A course equivalent to Financial Accounting as determined by the Department of Accounting.

- One semester of managerial accounting (ACC212) which may also be fulfilled by:
  - A course equivalent to Managerial Accounting as determined by the Department of Accounting.

- One semester of statistics (MAS201), which may also be fulfilled by:
  - A score of "4" on the AP Statistics exam;
  - A course equivalent to Introduction to Business Statistics as determined by the Department of Management Science;
  - A second semester of statistics (MAS202) is strongly recommended, which may be fulfilled by a course equivalent to Intermediate Business Statistics as determined by the Department of Management Science.

**Academic Progress and Probation**

- The School of Business Administration will review each student’s record at the end of each semester;

- When a student’s semester or cumulative average is less than 2.0, or progress toward degree completion is unsatisfactory, the student will be placed on academic probation or warning in accordance with the University’s or School of Business Administration’s policies and procedures;

- Full-time business students who are not completing sufficient courses to graduate after ten regular semesters of enrollment are deemed not to be making satisfactory academic progress;

- The extent to which a student’s record is below a 2.0 average determines the severity of the sanction, i.e., warning, academic probation, or dismissal;

- Students on probation are not permitted to enroll in more than 13 semester hours and may have a “STOP” placed upon their future enrollment until grades for work-in-progress are reviewed.
Academic Dismissal

- Business students may be dismissed in accordance with the University’s or School of Business Administration’s Dismissal Standards;

- Additionally, a student in the School of Business Administration whose grade point average or progress toward degree completion falls below the level of the minimum standards may be dismissed;

- Students will be precluded from continuing their studies in a major or courses if they do not have the specified grade point average or grades for the major or courses;

- A student who is precluded from continuing as an undergraduate business student because of failure to satisfactorily complete the required business foundation courses or to attain a high enough grade point average is not considered as having been academically dismissed from the University. Accordingly, such students may apply to another School or College and if accepted, continue as students at the University of Miami.

Freshman Repeat Rule (FRR)

The Freshman Repeat Rule (FRR) allows a student who receives a "D" or an "F" in a course taken at the University of Miami within the student's first thirty semester hours or first two regular semesters of college work, to repeat up to two such courses within the following two semesters. After the course has been repeated, only the second grade earned will be used in the computation of the student's cumulative grade point average. However, the initial grade remains on the record, although the initial grade does not count as credits attempted or earned at the University of Miami.

The following policy is applied specifically to business students using the University's Freshman Repeat Rule (FRR):

- The student’s academic standing is based upon the current grades being counted as credits attempted or earned;

- Students who repeat a course not under the provisions of the FRR are administered using the University General Repeat Rule;

- Students desiring to implement the policy must complete the FRR Request Form which is available in the School of Business Administration, Office of Undergraduate Business Programs;

- The summer sessions are not counted as a semester in computing the two semesters in which a student may elect to repeat a course with a “D” or “F” grade. Additionally, a student who initially enters the University in the spring semester may repeat courses with a “D” or “F” grade taken in the summer sessions following initial enrollment without having the summer sessions count as one of the first two semesters;

- For additional information about the FRR, consult an Undergraduate Business Academic Advisor.
Readmission

The requirements for readmission may be viewed at the University’s website.

The following special conditions are in effect for the School of Business Administration:

- Students requesting readmission who were previously dismissed for academic reasons or who had below a 2.0 cumulative grade point average must present adequate evidence that the conditions and/or factors that caused their prior poor academic performance have changed sufficiently and that there is a reasonable expectation of satisfactory performance if they are permitted to resume study in the School of Business Administration;

- Additionally, students with prior unsatisfactory academic records who are readmitted may have conditions placed upon their readmission;

- Students requesting readmission who have earned 30 or more credits, unless otherwise specified, must have completed a calculus course with a grade of C- or higher.

- Failure to satisfactorily accomplish the stated conditions may result in the student not being permitted to register for future semesters.

Changes to Academic Requirements

The School of Business Administration reserves the right to change academic requirements to include course offerings, grades, and grade point averages, to ensure that students are receiving the latest knowledge and are maintaining standards necessary to be professionally competitive. Changes are transmitted to students either by written or electronic notice, or by academic advisors or mentors.

Requirements for Graduation

Residency Requirements

A candidate for the BBA or BSBA degree must complete the last 45 semester hours consecutively and exclusively in degree-seeking status in residence at the School of Business Administration, University of Miami, as well as meet the graduation requirements as listed in Degree Programs. Credit by examination may not be used to meet the residency requirement. In addition, a minimum of 120 semester hours is required for graduation, not including ENG103, or MTH099. The last 56 semester hours must be taken at a four-year institution.

Age of Credits

Credits more than 12 years old are not recognized for degree purposes.
**Grade Point Average**

Students must earn a cumulative grade point average of at least 2.0 on all undergraduate courses and a grade point average of at least 2.0 on all undergraduate courses taken at the University of Miami. Some majors require a higher grade point average. It is the student’s responsibility to be familiar with the grade point requirement for their respective major.

**Percentage of Credits at UM required**

At least fifty percent of the total semester hours required in the Business Foundation, Professional Business Core, and the major and minor must be completed at the University of Miami. Considered separately, fifty percent of the semester hours required in the major only and/or minor only must be completed at the University of Miami.

**DEGREE PROGRAMS**

**BACHELOR OF BUSINESS ADMINISTRATION (BBA)**

**Areas of Study**

All BBA majors must complete areas A, B, C, D, E, F, and G as listed below. All courses except area E must be taken for graded credit.

**A. BUSINESS FOUNDATION (39 Semester Hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>ACC211*</td>
<td>Principles of Financial Accounting</td>
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<tr>
<td>ACC212</td>
<td>Managerial Accounting</td>
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<tr>
<td>BSL212</td>
<td>Introduction to Business Law</td>
</tr>
<tr>
<td>CIS150*</td>
<td>Business Analytics</td>
</tr>
<tr>
<td>ECO211*</td>
<td>Economic Principles and Problems – Microeconomics</td>
</tr>
<tr>
<td>ECO212</td>
<td>Economic Principles and Problems – Macroeconomics</td>
</tr>
<tr>
<td>ENG105*</td>
<td>English Composition I</td>
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<tr>
<td>ENG106*</td>
<td>English Composition II</td>
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<tr>
<td>MAS 110*</td>
<td>Quantitative Applications in Business (Business Calculus)</td>
</tr>
<tr>
<td>MAS201*</td>
<td>Introduction to Business Statistics</td>
</tr>
<tr>
<td>MAS202</td>
<td>Intermediate Business Statistics</td>
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<tr>
<td>MGT100*</td>
<td>F.I.R.S.T. Step</td>
</tr>
<tr>
<td>MKT201</td>
<td>Fundamentals of Marketing</td>
</tr>
</tbody>
</table>

*Classes marked with an asterisk must be completed BEFORE beginning the Professional Business Core courses.

Unless otherwise specified, MAS110 and MAS201 must be completed with a “C-” or better.

ALL Business Foundation courses must be completed before entering any business major and/or minor course work.
B. PROFESSIONAL BUSINESS CORE (21 Semester Hours)

CIS410  Information Systems and Technology
ECO302  Micro Economic Theory
FIN302  Fundamentals of Finance
MGT303  Operations Management
MGT304  Organizational Behavior
MGT401  Strategic Management (Must be taken in final semester)
CORE ELECTIVE Any course at 300 level or higher from the School of Business Administration or any course at the 300 level or higher in a modern language.

C. GENERAL EDUCATION (30 Semester Hours)

ENG230  Advanced Business Writing
Fine Art
Humanities
Literature From Department of English
Natural World (6 Semester Hours)
People and Society (6 Semester Hours)
Philosophy or Religion
General Education Elective (From outside the School of Business Administration)

D. MAJOR AND MINOR REQUIREMENTS

All students must complete the requirements for at least one major in one of the areas of specialization. Additionally, students may elect to complete a minor in an area of specialization distinctly different from their major. The minor may be in an area of specialization offered by the School of Business Administration or by another school or college of the University. The major and minor requirements are specified by each department. All specialization (major/minor) requirements must be taken for a grade and completed with a grade of “C-” or higher with an overall grade point average in all major and minor courses attempted of at least a 2.0 unless a higher grade or grade point average is prescribed for a specific major or minor.

Dual Business Majors in distinctly different areas of specialization are also possible, pending proper scheduling. The only specialized courses that can be counted toward both majors or a major and a minor are those courses specifically listed by number as required for both majors and/or minors. The courses of choice required for one major or minor may not be utilized to satisfy requirements for a second major or minor.

Business students may choose to pursue a second major (also referred to as a co-major) from the College of Arts and Sciences. No courses used to satisfy a co-major may be used to satisfy a business major or minor. Courses used to satisfy a co-major may, however, also be used to satisfy a general education requirement or the General Education Elective.

Students in other colleges and schools desiring a major in the School of Business Administration must complete all requirements for both degrees and majors.

Students are required to declare their majors and minors with the Office of Undergraduate Business Programs prior to the start of their senior year. Students are advised that it often takes more than the minimum 120 semester hours to complete a minor or second major.
### Majors and Minors for the BBA Degree

<table>
<thead>
<tr>
<th>Major Areas of Specialization</th>
<th>Responsible Department</th>
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<tbody>
<tr>
<td>Accounting (ACC)</td>
<td>ACC</td>
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<tr>
<td>Computer Information Systems (CIS)</td>
<td>CIS</td>
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<td>Economics (ECO)</td>
<td>ECO</td>
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<tr>
<td>Entrepreneurship (ENT)</td>
<td>MGT</td>
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<tr>
<td>Finance (FIN)</td>
<td>FIN</td>
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<td>Human Resource Management (HRM)</td>
<td>MGT</td>
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<tr>
<td>International Finance and Marketing (IFM)</td>
<td>FIN</td>
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<tr>
<td>Legal Studies (LST)</td>
<td>BSL</td>
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<tr>
<td>Management (MGT)</td>
<td>MGT</td>
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<tr>
<td>Marketing (MKT)</td>
<td>MKT</td>
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<tr>
<td>Real Estate (REA)</td>
<td>FIN</td>
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</tbody>
</table>

<table>
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<tr>
<th>Minor Areas of Specialization</th>
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<tr>
<td>Accounting (ACCB)</td>
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<tr>
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<td>Finance (FIN)</td>
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<tr>
<td>Health Sector Management and Policy (HSMP)</td>
<td>MGT</td>
</tr>
<tr>
<td>International Business (IBUB)</td>
<td>Undergraduate Business Programs</td>
</tr>
<tr>
<td>Management (MGTB)</td>
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<tr>
<td>Marketing (MKTB)</td>
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</tr>
</tbody>
</table>

**Minors offered by other colleges and schools**

Please see the college, school, or department section within the Bulletin.

### E. ELECTIVES (as needed to meet the minimum 120 semester hours)

All undergraduate courses offered by the University may be used as free electives with the following exceptions:

- Not more than eight semester hours in applied music including band may be used;

- Courses taken in the following subjects require approval of the Vice Dean: athletic, physical and recreational activity courses offered in Exercise and Sport Sciences, Paralegal Studies, Vocal Performance and Teaching and Learning;

- ENG103 - Basic Writing Skills and MTH099 - Intermediate Algebra are offered but do not count toward degree requirements and the grade earned in the respective course is calculated into the cumulative grade point average;

- Any science course taken as an elective and used for preparing for entrance to medical school must be taken for a grade.
F. WRITING ACROSS THE CURRICULUM
Four of five writing courses required are provided within the degree requirements by the completion of BSL212, ENG230, one literature course, and MGT401. A fifth writing course is needed to complete University writing requirements.

G. INTERNATIONAL FOCUS WITHIN THE CURRICULUM
At least one course with an international focus must be completed within the degree requirements. The acceptability of the course is determined by the academic advisor.

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION (BSBA)

Areas of Study
The BSBA degree in the School of Business Administration emphasizes quantitative foundation courses. All BSBA majors in the School of Business must complete areas A, B, C, D, E, F, and G as listed below. All courses except area E must be taken for graded credit.

A. BUSINESS FOUNDATION (44 Semester Hours)

<table>
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<tbody>
<tr>
<td>ACC211*</td>
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</tr>
<tr>
<td>MAS311*</td>
<td>Applied Probability and Statistics</td>
</tr>
<tr>
<td>MAS312</td>
<td>Statistical Methods and Quality Control</td>
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<tr>
<td>MTH111*</td>
<td>Calculus I</td>
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<tr>
<td>MTH112*</td>
<td>Calculus II</td>
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<tr>
<td>MGT100*</td>
<td>F.I.R.S.T. Step</td>
</tr>
<tr>
<td>MKT201</td>
<td>Foundations of Marketing</td>
</tr>
</tbody>
</table>

*Courses marked with an asterisk must be completed before entering the Professional Business Core courses.

All Business Foundation courses must be completed before entering business major course work

B. PROFESSIONAL BUSINESS CORE (21 Semester Hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CIS320</td>
<td>Introduction to Programming (Or any other programming course)</td>
</tr>
<tr>
<td>ECO302</td>
<td>Micro Economic Theory</td>
</tr>
<tr>
<td>ECO430</td>
<td>Applied Econometrics</td>
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<tr>
<td>FIN302</td>
<td>Fundamentals of Finance</td>
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<td>MGT303</td>
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</tbody>
</table>
C. GENERAL EDUCATION (23-24 Semester Hours)

ENG230 Advanced Business Writing
Fine Art
Humanities
Literature From Department of English
Natural World (8-9 semester hours with or without labs)
Philosophy or Religion

D. MAJOR AND MINOR REQUIREMENTS

All students must complete the requirements for at least one major in one of the areas of specialization. Additionally, students may elect to complete a minor in an area of specialization distinctly different from their major. The minor may be in an area of specialization offered by the School of Business Administration or by another school or college of the University. The major and minor requirements are specified by each department. All specialization (major/minor) requirements must be taken for a grade and completed with a grade of “C-” or higher with an overall grade point average in all major and minor courses attempted of at least a 2.0 unless a higher grade or grade point average is prescribed for a specific major or minor.

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Business students may choose to pursue a second major (also referred to as a co-major) from the College of Arts and Sciences. No courses used to satisfy a co-major may be used to satisfy a business major or minor. Courses used to satisfy a co-major may be used, however, to satisfy a general education requirement or the General Education Elective.

Students in other colleges and schools desiring a major in the School of Business Administration must complete all requirements for both degrees and majors.

Students are required to declare their majors and minors with the Office of Undergraduate Business Programs prior to the start of their senior year. Students are advised that it often takes more than the minimum 120 semester hours to complete a minor or second major.
Majors and Minors for the BSBA Degree

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<td>Management (MGTS)</td>
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<td>Management Science (MASS)</td>
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<td>Marketing (MKTS)</td>
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<td>Real Estate (REAS)</td>
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### Minor Areas of Specialization

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<tr>
<td>Entrepreneurship (ENTB)</td>
<td>MGT</td>
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<tr>
<td>Economics (ECOB)</td>
<td>ECO</td>
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<tr>
<td>Finance (FIN)</td>
<td>FIN</td>
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<tr>
<td>Health Sector Management and Policy (HSPM)</td>
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<tr>
<td>International Business (IBUB)</td>
<td>Undergraduate Business Programs</td>
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<tr>
<td>Management (MGTB)</td>
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<tr>
<td>Management Science (MAS)</td>
<td>MAS</td>
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<tr>
<td>Marketing (MKTB)</td>
<td>MKT</td>
</tr>
</tbody>
</table>

### Minors offered by other colleges and schools

Please see the college, school, or department section within the Bulletin.

### E. ELECTIVES (as needed to meet the minimum 120 semester hours)

All undergraduate courses offered by the University may be used as free electives with the following exceptions:

- Not more than eight semester hours in applied music including band can be used;

- Courses taken in the following subjects require prior approval of the Vice Dean: athletic, physical and recreational activity courses offered in Exercise and Sport Sciences, Paralegal Studies, Vocal Performance and Teaching and Learning;

- ENG103 - Basic Writing Skills and MTH099 - Intermediate Algebra are offered but do not count toward degree requirements and the grade earned in the respective course is calculated into the cumulative grade point average;

- Any science course taken as an elective and used for preparing for entrance to medical school must be taken for a grade.
F. WRITING ACROSS THE CURRICULUM

Four of five writing courses required are provided within the degree requirements by the completion of BSL212, ENG230, one literature course, and MGT401. A fifth writing course is needed to complete University writing requirements.

G. INTERNATIONAL FOCUS WITHIN THE CURRICULUM

At least one course with an international focus must be completed within the degree requirements. The acceptability of the course is determined by the academic advisor.

INTERNATIONAL BUSINESS MINOR

IBUB MINOR

The International Business minor provides business students an interdisciplinary perspective of international business to augment their studies in other areas of specialization. The International Business minor consists of 12 semester hours as follows:

Core Courses - Choose two, three, or four courses from the following:

- ACC523
- FIN330
- MGT349
- MGT459
- MKT360

Breadth Elective Courses - Choose one or two courses to equal 12 total semester hours for the IBUB minor from:

- BSL412  ECO442  POL346  POL381  POL391  POL585
- ECO351  FIN431  POL347  POL384  POL392  POL588
- ECO371  MGT359  POL348  POL385  POL544  POL591
- ECO441  MKT469  POL380  POL387  POL582  POL593

The IBUB Minor may not be taken by students with the IFM major.

Student must complete all prerequisite courses before enrolling in required IBUB courses.

MINORS FOR NON-BUSINESS MAJORS (12-15 Semester Hours for Minor)

The School of Business Administration offers students in other schools and colleges of the University minors in:

<table>
<thead>
<tr>
<th>Minor Areas of Specialization</th>
<th>Responsible Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Administration (BUA and BAD)</td>
<td>Undergraduate Business Programs</td>
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<tr>
<td>Business Law (BSL)</td>
<td>BSL</td>
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<tr>
<td>Computer Information Systems (CIS)</td>
<td>CIS</td>
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<tr>
<td>Economics (ECO)</td>
<td>ECO</td>
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<tr>
<td>Entrepreneurship (ENT)</td>
<td>MGT</td>
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<td>Finance (FIN)</td>
<td>FIN</td>
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<td>Health Sector Management and Policy (HSMP)</td>
<td>MGT</td>
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<td>Management (MGT)</td>
<td>MGT</td>
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<tr>
<td>Marketing (MKT)</td>
<td>MKT</td>
</tr>
</tbody>
</table>
The International Business minor, the Accounting minor and the Management Science minor (BSBA degree only) are offered only to majors in the School of Business Administration.

Students interested in completing a minor offered by the School of Business Administration should consult with an academic advisor in the school or college of their major to determine if a minor in business is acceptable. The student must consult with an academic advisor in the Office of Undergraduate Business Programs for assistance in planning the minor. All courses within the minor must be taken for a grade and completed with a grade of "C-" or higher and with an overall grade point average of at least 2.0 in all minor courses unless a higher grade or grade point average is prescribed by the minor department. All courses in the minor department in which the student enrolls will count toward the minor grade point average.

**The Business Administration Minor (BUA)** consists of four courses (12 semester hours).

The required courses are:
- ACC211 Principles of Financial Accounting
- MGT304 Organizational Behavior
- FIN300 Finance for Non-Business Majors
- MKT301 Marketing Foundations

**Note:** A student must have 30 earned semester hours before enrolling in ACC211. Additionally, a student must have 60 earned semester hours before enrolling in the respective FIN, MGT, or MKT courses. ACC211 should be the first course taken for the BUA minor.

For a listing of the course requirements for other minors, consult the Bulletin section for the department that offers the minor.

**HONORS**

**DEPARTMENTAL HONORS IN BUSINESS**

Graduation with Departmental Business Honors requires:

- A 3.9 g.p.a. in Business School courses at the end of the junior year
- Completion of a 3-credit research project during the entire senior year on a topic that is of interest to both the faculty member supervising the research and the student responsible for completing it. The depth of the project must be consistent with the time requirements of a 3-credit upper-level class in the supervising department.
- A 3.9 g.p.a. in all Business School courses at graduation.

Students who double major can complete their research project in either major department. Students in combined majors (ENT, IFM, REA) can complete their research project in any department within the major. Students who have a minor can complete their research project in either their major or minor departments.

The 3-credit research project class is taken for credit only and will not count towards the 120 hours required for graduation.
Students who begin a research project but do not complete it will be retroactively withdrawn from the research course. Students receive credit for the project only if the work is deemed to be of exceptional quality, consistent with the workload of a 3-credit upper-level independent study course, and worthy of a designation that is only open to the top 1% of Business School undergraduates.

Deadlines and procedures for the projects are available in the Office of Undergraduate Programs and in department offices.

**GENERAL HONORS PROGRAM, UNIVERSITY OF MIAMI**

Eligible students are invited to join the University’s General Honors Program. A total of 24 semester hours of designated honors credits is required. A 3.5 cumulative grade point average must also be maintained in all honors courses.

For details, consult an academic advisor in the Office of Undergraduate Business Programs and the University Honors Program Office.

**GENERAL BUSINESS HONORS, SCHOOL OF BUSINESS ADMINISTRATION**

Business students who are members of the General Honors Program of the University, are completing the required 24 hours for that program, and have demonstrated superior performance in the School of Business may receive academic advantages, certain privileges, and recognition by participation in and successful completion of General Business Honors.

General Business Honors requires that 15 of the 24 semester hours are business courses taken in sections designated as “Honors.”

Strategic Management, MGT401 (at the Honors section), must be one of the 5 courses.

Examples of other business courses frequently offered in honors sections are:

- BSL212 Introduction to Business Law
- ECO211 Economic Principles and Problems (microeconomics)
- ECO212 Economic Principles and Problems (macroeconomics)
- ECO302 Micro Economic Theory
- FIN302 Fundamentals of Finance
- MAS110 Quantitative Applications in Business
- MGT304 Organizational Behavior
- MKT301 Marketing Foundations

In addition, a 3.5 cumulative grade point average must be maintained in all honors business courses to receive the notation, “General Business Honors” on the diploma and transcript.

For details, consult an academic advisor in the Office of Undergraduate Business Programs and the University Honors Program Office.

**GRADUATION HONORS**

- Students who qualify based on their cumulative grade point average and class rank will graduate with *cum laude, magna cum laude* or *summa cum laude* honors.
For details consult an academic advisor in the Office of Undergraduate Business Programs and the University Honors Program Office.

BUSINESS HONORS SOCIETIES

Students may be nominated for or elected into an honors society based on specific departmental criteria. Contact the department for additional information.

Beta Gamma Sigma (Highest Honors in Business) (Undergraduate Business Programs)
Beta Alpha Psi (Department of Accounting)

OTHER HONORS

Omicron Delta Epsilon (Department of Economics)
Hyperion Council (Undergraduate Business Programs)
ACCOUNTING - Department Code: ACC

INTRODUCTION AND EDUCATIONAL OBJECTIVES

The objective of the program of studies in accounting is to prepare students to make a smooth transition from college into a successful and meaningful career in the professional practice of accounting, whether it be in public, private, or governmental accounting. Because of the professional aspects of accounting, equal emphasis is placed upon general education in the arts and humanities and the functioning of business enterprises, as well as the basic underlying concepts of accounting.

DEGREE PROGRAMS

An Accounting major can earn either a Bachelor of Business Administration (BBA) or a Bachelor of Science in Business Administration (BSBA) by meeting the appropriate School of Business Administration requirements.

MAJOR

The undergraduate curriculum consists of 24 semester hours of Accounting and three semester hours of Business Law beyond the Business Foundation and the Professional Core requirements.

The following courses are required:
ACC301    ACC402
ACC306    ACC403
ACC311    ACC404
ACC312    ACC411
BSL301

To continue as an accounting major, a student must have a cumulative grade point average of 3.0 or higher in accounting before enrolling in ACC312.

MINOR

The Department of Accounting allows business students to earn a minor in accounting. In addition to the general requirements for all business minors, business students wishing to minor in accounting must complete ACC301, ACC311 and ACC403.

FLORIDA CPA EXAM

Persons who wish to become Certified Public Accountants in Florida and most other states are required to complete at least 30 semester hours beyond the baccalaureate degree. Accordingly, many of our graduates satisfy the 30 semester hours requirement for the CPA by continuing on for a fifth year during which time they also can complete the requirements for either the Master of Professional Accounting or Master of Science in Taxation degree.
Students interested in these programs should consult with the Program Director within the Department of Accounting.

Accounting Course Listing
BUSINESS LAW - Department Code: BSL

Business Law

INTRODUCTION

The modern manager faces increasing legal implications in daily operations and in formulating business policy. Consequently, effective decision-making requires an appreciation of the social, ethical, economic, and political bases of law as it relates to business. Business law courses provide the student with fundamental insight into legal institutions, the regulatory environment, and the nature of legal discourse, as well as an array of substantive principles of law, including such areas as contracts, sales, business organizations, and domestic and international commercial relationships.

EDUCATIONAL OBJECTIVES

The primary goals of the Department of Business Law are to contribute to legal knowledge through conducting scholarly research, to disseminate it by publication in leading journals and law reviews, and to transmit that knowledge to students and the larger UM-wide, business, and professional communities.

These goals both inform and drive the Department’s educational objectives, which focus on:

- instilling in students a strong sense of the legal and ethical issues permeating business;
- aiding students’ comprehension of the legal and regulatory environment as well as the ethical considerations and substantive laws that shape business practices and policies; and
- developing students’ analytical and problem solving ability, as well as their oral and written presentation skills.

DEGREE PROGRAMS

A Legal Studies major can earn either a Bachelor of Business Administration (BBA) or a Bachelor of Science in Business Administration (BSBA) by meeting the appropriate School of Business Administration requirements.

MAJOR

A student may major in Legal Studies. This course of study facilitates the interaction between legal counsel and the business manager, preparing graduates to excel in a wide variety of business pursuits. A flexible, inherently cross-disciplinary course of study, the Legal Studies major can facilitate careers in such fields as risk management, compliance, human relations, marketing, finance and accounting, general business or non-profit management, health care, government, and small business ownership/entrepreneurship. For some, it may also provide an appropriate foundation for the professional study of law.
The following comprises the coursework for a major in Legal Studies:
BSL212  Introduction to Business Law (required)
BSL485  Managing the Legal Factor (required in the student’s final semester)
and
Twelve (12) additional semester hours taken from the departmental offerings listed below:
BSL213  Business Organizations and Personal Property
BSL301  Commercial Paper and Creditors’ Rights
BSL305  Legal and Social Aspects of Business Regulation
BSL313  Coastal Law
BSL314  Ocean Law
BSL333  Legal Aspects of Real Estate Transactions
BSL412  International Business Law
BSL424  Intellectual Property Law
BSL460  Health Care Law and Ethics

MINOR

Students in the School of Business Administration as well as students in the other schools and colleges of the University of Miami may minor in Business Law. Like the Legal Studies major, the minor is a flexible one, permitting business and non-business students alike to augment their studies with an appreciation of the role of law and ethics in global citizenship as well as in the student’s chosen corporate, creative, scientific, academic, professional, or personal endeavors.

Twelve semester hours are required for the minor, including BSL 212 and BSL 485, plus six (6) additional semester hours taken from departmental offerings, excluding BSL 575.

Business Law Course Listing
INTRODUCTION

The Department of Computer Information Systems serves the University as the focus for employing Information Technology (IT) in the efficient solution of the entire range of business problems.

The administration and management of today’s business and government organizations rely heavily upon Information Technology for the efficient achievement of their goals. Collection, storage, and retrieval of data by computers are involved in the wide range of business activities including daily operations, management decision-making, and long-range planning. As the dependence of management on Information Technology grows, so does the need for Information Technology specialists. The courses and degree programs are described below.

EDUCATIONAL OBJECTIVES

The Computer Information Systems major is designed to provide the student with the key Information Technology skills needed in today’s business environment, plus a firm grounding in the major business areas in which these skills will be applied. Graduates of the program may qualify for entry-level positions as programmers, systems analysts, consultants, user support analysts, or other Information Technology positions.

DEGREE PROGRAMS

A Computer Information Systems major can earn either a Bachelor in Business Administration (BBA) or a Bachelor of Science in Business Administration (BSBA) by meeting the appropriate School of Business Administration requirements.

MAJOR

Required Core (24 semester hours)
CIS320 Introduction to Programming
CIS324 Object-Oriented Programming in Java
CIS360 Analysis of Information Systems
CIS361 Design of Information Systems
CIS423 Database Management Systems
CIS430 Business Telecommunications
CIS465 Applied Software Project Development
CIS494 Web Application Technologies
Technical Electives (3 semester hours)
CIS390-CIS399   Topics in Computer Information Systems (with Departmental approval)
CIS490-CIS498   Topics in Computer Information Systems (with Departmental approval)
CIS499         Directed Study in Computer Information Systems (with Departmental approval)
CIS550         Computer Information Systems Internship (with Departmental approval)

Note: All major courses must be completed with a grade of “C-” or better. In addition, an overall grade point average of 2.5 or higher is required for all courses in the major.

MINOR

The minor in Computer Information Systems consists of:
CIS320   Introduction to Programming
CIS360   Analysis of Information Systems
and
Six (6) additional semester hours taken from the departmental offerings listed below:
CIS324   Object-Oriented Programming in Java
CIS361   Design of Information Systems
CIS423   Database Management Systems
CIS430   Business Telecommunications
CIS493   Fundamentals of IT Project Management
CIS494   Web Application Technologies
CIS498   Entrepreneurship: Technology and Innovation

Computer Information Systems Course Listing
ECONOMICS – Department Code: ECO

INTRODUCTION AND EDUCATIONAL OBJECTIVES

Economics uses the idea of maximizing behavior to provide a unified framework for studying human action. The economics curriculum is designed to give students an understanding of economic theory and its application to a wide range of human behavior. The program provides excellent preparation for careers in business, in government, and in international agencies. It is particularly recommended for students planning graduate study or professional training in fields such as law, business, international studies, public administration, and economics.

DEGREE PROGRAMS

An Economics major can earn either a Bachelor of Business Administration (BBA) or a Bachelor of Science in Business Administration (BSBA) by meeting the appropriate School of Business Administration requirements.

MAJOR

The major in economics consists of at least 24 semester hours, which must include:

ECO211
ECO212
ECO301
ECO302

MTH109 or MAS110 or a higher calculus course is required of all Economics majors and minors. The calculus course must be completed before enrolling in ECO302.

MINOR

Business students may minor in economics by taking nine semester hours in addition to the business core courses of ECO211, ECO212, and ECO302.

Non-business students in any school or college may minor in economics. Non-business students are required to take ECO211, ECO212, ECO302 and two additional economics courses for a total of 15 semester hours.

Note: All courses submitted for the major or minor must be completed with a grade of “C-” or higher and with an overall grade point average of “C” or higher.

Academically qualified students may elect to take courses from the Department’s curriculum for Honors credit.

Members of the Department are prepared to counsel students in the selection of courses and in other matters relating to the preparation for careers. Economics may be the major of a candidate for the Master of Arts and Doctor of Philosophy degrees. Consult the Graduate
Bulletin for the program general requirements.

Economics Course Listing
FINANCE - Department Code: FIN
Finance

INTRODUCTION
The finance major is designed to prepare students for a wide variety of careers. Because finance is focused on valuation and decision making, it is applicable to virtually every possible type of organization.

EDUCATIONAL OBJECTIVES
The finance discipline is focused on two primary issues. The first is determining value. The second is making the best decisions with respect to value. We study these issues in a variety of contexts and industries. The three primary areas of finance are financial management, investments, and financial markets and intermediaries. Financial management focuses on how an organization can accomplish its mission. For example, a corporation seeks to create and maintain wealth, and a non-profit organization seeks to improve the world in some way. All organizations want to achieve their mission to the greatest extent possible, and that requires making the best decisions with respect to value. The area of investments studies the purchase and sale of financial securities, such as stocks, bonds, options, and futures from the point of view of an investor. Financial markets are created to facilitate the trading (buying/selling) of financial securities. Financial intermediaries sell claims on themselves to investors, such as stock, life insurance, or a bank deposit. Financial intermediaries then invest the money from such sales in other assets such as loans, real estate, or other financial securities.

DEGREE PROGRAMS
A Finance major can earn either a Bachelor of Business Administration (BBA) or a Bachelor of Science in Business Administration (BSBA) by meeting the appropriate School of Business Administration requirements.

Majors
Finance
International Finance and Marketing
Real Estate

Minors
Finance

FINANCE MAJOR
Important Note: To major in finance, a student must earn a grade of “B” (grade point of 3.0) or higher in FIN302, and have a cumulative University of Miami grade point average of 2.5 or higher, after having completed FIN302.

The Finance major consists of a minimum of 18 semester hours beyond the core course, FIN302.
**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIN303</td>
<td>Intermediate Financial Management</td>
<td>FIN302</td>
</tr>
<tr>
<td>FIN320</td>
<td>Investment and Security Markets</td>
<td>FIN302</td>
</tr>
</tbody>
</table>

*and*

Twelve (12) additional semester hours taken from the departmental offerings, excluding FIN300. Six (6) of the semester hours must be taken at the 400 or 500 level.

**Note:** Students are strongly encouraged to take FIN303 and FIN320 during the same semester.

**MINOR**

A minor in Finance consists of 12 semester hours as follows:

- FIN302
- FIN303
- FIN320

*and*

One (1) additional finance course at the 300, 400, or 500 level, excluding FIN300.

All courses must be taken within the current prerequisite structure.
INTERNATIONAL FINANCE AND MARKETING
Finance - Department Code: FIN
Marketing - Department Code: MKT

INTRODUCTION

The International Finance and Marketing (IFM) major is aimed at meeting the needs of students who want to pursue a career in international business, finance, and/or marketing.

EDUCATIONAL OBJECTIVES

The IFM major is designed to prepare students for the most critical areas of decision making in international business. The objective is to provide students with a comprehensive curriculum based on a strong program of international courses, and create opportunities for access to multinational companies and the international business community.

INTERNATIONAL FINANCE AND MARKETING MAJOR

Important Note: To major in IFM, a student must earn a grade of “B” (grade point of 3.0) or higher in both FIN302 and MKT201/301 (note that a grade of “B-” does not qualify). The IFM major consists of a minimum of 21 semester hours beyond the core (FIN302 and MKT201/301). The IFM course requirements are:

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Prerequisite(s)</th>
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</thead>
<tbody>
<tr>
<td>Select either:</td>
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<tr>
<td>FIN303 Intermediate Financial Management</td>
<td>FIN302</td>
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<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>FIN320 Investment and Security Markets</td>
<td>FIN302</td>
</tr>
</tbody>
</table>

Note: In choosing to take FIN303 and/or FIN320, students are strongly advised to consider the prerequisites of 400 level courses they might want to take later.

and

FIN330 International Finance         FIN302
FIN431 International Financial Management FIN302, FIN330
MKT302 Marketing Research and Market Analysis MKT201/301, MAS202
MKT360 International Marketing        MKT201/301
MKT469 International Marketing Management MKT360

and

One (1) additional finance course at the 400 level.
All courses must be taken within the current prerequisite structure.
REAL ESTATE
FINANCE - Department Code: FIN

INTRODUCTION

The Real Estate major in the Business School is created for students who want to apply the theoretical and analytical concepts of finance to real estate lending, investment and development.

EDUCATIONAL OBJECTIVES

The importance of understanding developments in real estate and mortgage markets and the integration of real estate investments into the national and international economy have led to increased interest in this important field. The real estate major strengthens ties with important segments of the business community and builds on the University’s strategic strengths in architecture (New Urbanism) and urban planning.

REAL ESTATE MAJOR

Important Note: To major in Real Estate, a student must earn a grade of “B” (grade point of 3.0) or higher in FIN302 (note that a grade of “B-” does not qualify). Real Estate Majors should consider taking the courses necessary to meet the requirements of the Urban Studies Minor (For more information, contact the Director of the Urban Studies Program, Dr. Jan Nijman: 305-284-6692 or Nijman@miami.edu.)

The Real Estate Major consists of a minimum of 18 semester hours beyond the core (FIN302). The following courses beyond the School of Business Administration core are required:

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select either:</td>
<td></td>
</tr>
<tr>
<td>FIN 303  Intermediate Financial Management</td>
<td>FIN302</td>
</tr>
<tr>
<td>or FIN 320 Investment and Security Markets</td>
<td>FIN302</td>
</tr>
</tbody>
</table>

Note: In choosing to take FIN303 and/or FIN320, students are strongly advised to consider the prerequisites of 400 level classes they might want to take later.

Select two courses from the following:

- FIN427 Fixed Income Markets and Analysis FIN302, FIN320
- FIN444 Real Estate Investment and Appraisal FIN302, FIN303 or FIN320
- FIN445 Real Estate Finance FIN302, FIN303 or FIN320

and

- BSL333 Real Estate Law BSL212
- ARC584 Introduction to Real Estate Development and New Urbanism

and

One (1) additional Finance or Business Law course at the 300 or 400 level available to be taken within the current pre-requisite structure.
Note: Students who do not already possess a valid real estate salespersons license may want to take Finance 340 (Principles of Real Estate) as their 300- or 400-level elective course.

Note: Students who have an interest in the marketing aspect of the real estate industry should also consider taking Marketing 340 (Personal Selling) as the upper-core elective in their program.
INTRODUCTION

The Department of Management in the School of Business Administration is the largest of the eight academic departments, and is heterogeneous with respect to both research and teaching areas. Faculty are specialized in and teach courses that span a number of fields including entrepreneurship, health care management and policy, human resources, international management, leadership, operations management, organizational behavior, strategic management, supply chain management, and teams. Given both the multinational context and diversity present in 21st century organizations, coursework in the Department of Management is focused on preparing students to be productive and effective contributors to the various communities they are embedded within or impact. Management majors pursue a variety of careers after graduation including law schools, advanced graduate degrees, starting businesses, running family businesses or accepting management positions in domestic or international organizations.

EDUCATIONAL OBJECTIVES

- Development of critical thinking skills to evaluate decision choices, challenges, and issues confronting managers today;
- Improvement of interpersonal skills and learning to work effectively in teams;
- An understanding of the tools, methods, and procedures used to successfully lead people and organizations;
- Awareness of the ethical issues and responsibilities inherent in being a member of the global business community.

DEGREE PROGRAMS

Any major from the Department of Management may earn either a Bachelor of Business Administration (BBA) or a Bachelor of Science in Business Administration (BSBA) by meeting the appropriate School of Business Administration requirements.

MAJORS

Note: All major and/or minor courses in the Department of Management must be completed with a grade of “C” or higher and with an overall grade point average of 2.5 or higher.

The Department of Management offers the following three majors:
MANAGEMENT MAJOR

The MGT major will prepare students for future careers in all areas of management, including small business and corporate levels. The MGT major provides a solid preparation for students interested in pursuing other graduate degree programs, particularly in law and business.

A major in Management consists of at least 21 semester hours, but not more than 27, in departmental courses completed with a grade of "C" or higher. Any one course may not be applied toward more than one major in the Department of Management. All majors must include:
- MGT302 Human Resource Management
- MGT303 Operations Management
- MGT304 Organizational Behavior
- MGT307 Advanced Organizational Behavior [prerequisite MGT304]

Plus nine semester hours from the Department of Management (excluding MGT100 and MGT401).

ENTREPRENEURSHIP MAJOR

The ENT major is primarily designed for students who intend to start and/or manage their own business. The required curriculum is a total of 18 semester hours and includes:
- MGT353 The Organization and Operation of the Small Business (must be taken during junior year for sequencing; FIN302 must be taken prior to or concurrently with MGT353)
- MGT454 High Potential Ventures (prerequisite MGT353)
- MGT455 Entrepreneurial Consulting (prerequisites MGT353, MGT454)
- MGT Elective Choose one from MGT302, MGT307, MGT360, MGT422 (MGT304 is the prerequisite for MGT307/360/422], MGT457, MGT498, MGT598 (selected topics in entrepreneurship, as approved).
- FIN Elective Choose one from FIN303, FIN320, FIN410, or FIN425
- MKT Elective Choose one from MKT302, MKT310, MKT320, or MKT340 (recommended)

All courses must be taken within the current prerequisite structure.

HUMAN RESOURCE MANAGEMENT MAJOR

The HRM major is for students who intend to pursue a career in human resources or personnel. The total major requirement is 15 semester hours and requires:
- MGT302 Human Resource Management
  (Must be taken during junior year for sequencing)
- MGT307 Advanced Organizational Behavior (prerequisite MGT304)

and

Nine semester hours from the following courses:
- MGT308 Training and Development (prerequisite MGT302)
- MGT360 Effective Leadership (prerequisite MGT304)
- MGT428 Wage and Salary Administration (prerequisite MGT302)
- MGT480 Organizational Development and Change (prerequisites MGT302, MGT304)
- MGT422 Leading Teams (prerequisite MGT304)
- PSY332 Tests and Measurements (check prerequisites)

All courses must be taken within the current prerequisite structure.
MINORS

Minor in Management for Business Students
A minor in this area for business students (MGTB) consists of 12 semester hours in MGT courses beyond the required MGT courses for the BBA or BSBA degree.

Minor in Management for Non-Business Students
A minor in this area for non-business students (MGT) consists of 12 semester hours and must include the following courses:
- MGT302 Human Resource Management
- MGT303 Operations Management
- MGT304 Organizational Behavior
- Plus one additional 300 level or higher course from the Department of Management.

_minor in Health Sector Management and Policy
The purpose of the minor in Health Sector Management and Policy (HSMP) is to provide the student with a basic understanding of the management, economic and financial structure, as well as the legal, ethical and governmental policy of the health care industry. Appropriate candidates for this minor would include: students in any UM School or College interested in exploring the health care sector, working in the legal, management or policy making aspects of the health care sector or those wanting to have an augmentation to their pre-med, pre-law or pre-MBA, MPA or MPH studies as well as those pursuing a Ph.D. The minor in this area consists of the following four courses:

Required Courses
- MGT270 Introduction to Health Sector Administration
- ECO386 Health Economics
- BSL460 Health Care Law and Ethics
- POL536 US Health Care Crisis: Politics and Policies

Prerequisite(s)
- ECO211, ECO212, ECO302
- BSL212
- Junior Standing

Minor in Entrepreneurship for Business Students
Eligible business students must have a declared business major other than Entrepreneurship. Two specialized tracks are offered for business students who are interested in minoring in Entrepreneurship. Specifically:

High Growth/Technology Ventures
- MGT353/Entrepreneurship
- MGT454/High Potential Ventures
- FIN320/Investment and Security Markets OR FIN425/Business and Security Valuations
- MGT498/Entrepreneurship: Launching Hi-Tech Ventures OR CIS410/Information Systems and Technology (applicable only for BSBA students)

Health Care Ventures
- MGT353/Entrepreneurship
- MGT454/High Potential Ventures
- MGT270/Health Sector Administration
- BSL460/Health Care Law and Ethics
Minor in Entrepreneurship for Non-Business Students

This minor is for non-business students interested in developing business plans, or learning more about how to initiate and manage small business enterprises. Eligible UM students must be enrolled, and have a declared major outside of the School of Business Administration. An Entrepreneurship minor for non-business students consists of 6 courses, 18 credits as follows:

- ACC211/Principles of Financial Accounting
- ECO211/Economic Principles and Problems
- MKT301/Marketing Foundations
- FIN300/Finance for Non-Business Majors
- MGT251/Nature and Foundations of Entrepreneurship
- MGT353/Entrepreneurship

Management Course Listing
MANAGEMENT SCIENCE - Department Code: MAS
Management Science

INTRODUCTION
Management Science uses the ideas and methods of science, mathematics, statistics, and computing to help managers make better decisions. Management Science had its modern origins in the study of military operations during World War II; hence this field of study may also be called Operations Research. Today, Management Science/Operations Research is applied in a wide variety of areas including financial modeling, marketing research, organizational theory, transportation and logistics, health care, environmental protection, and manufacturing. Almost any decision you make can benefit from the methods of Management Science.

EDUCATIONAL OBJECTIVES
The curriculum in the Department of Management Science is designed to give students the necessary educational background and experience to allow them to work as successful Management Science analysts. In addition to the general education, business, and economics courses of the Bachelor of Science in Business Administration degree program, the major in Management Science requires a solid background in the natural sciences and mathematics. Additionally, students are required to take sequences of courses in calculus-based statistics, deterministic and stochastic modeling, and computer programming. A number of the courses in the curriculum require projects that have students evaluate a real-world system or process. As the system is studied and modeled, the students apply the methods of Management Science to find ways to improve the process. The written and oral presentation of their findings is part of the learning and evaluation process. A major or minor in Management Science is recommended to qualified students as preparation for direct entry into the field of Management Science or as preparation for future graduate studies.

DEGREE PROGRAMS
The Bachelor of Science in Business Administration (BSBA) is awarded for the major in Management Science by meeting the appropriate School of Business Administration requirements.

MAJOR
The Department of Management Science offers both a major and minor for students pursuing the Bachelor of Science in Business Administration degree. All required courses within the major or minor in Management Science must be completed with a grade of “C-” or higher. Additionally, the cumulative grade point average of the Management Science major or minor course work must be 2.5 or higher. The coursework for obtaining a major in Management Science is as follows:
Required Core (15 semester hours)
MAS441  Deterministic Models in Operations Research
MAS442  Stochastic Models in Operations Research
MAS452  Systems Analysis Methodology and Applications
MAS547  Computer Simulation Systems
CIS320  Introduction to Programming
and
One (1) of the following courses:
CIS323  Object-Oriented Programming in C++
CIS324  Object-Oriented Programming in Java
CIS360  Analysis of Information Systems
MAS548  Systems Dynamics Modeling and Analysis

MINOR
Available only for majors in the Bachelor of Science in Business Administration. The coursework required for a minor in Management Science is as follows:

MAS441  Deterministic Models in Operations Research
MAS442  Stochastic Models in Operations Research
MAS452  Systems Analysis Methodology and Applications
All courses must be taken within the current prerequisite structure.

DEPARTMENTAL HONORS
Students interested in having departmental honors entered on their diploma must meet the general requirements outlined by the School of Business Administration and must complete the departmental course requirements with a grade of “B+” or higher. Students interested in having departmental honors must also complete a three semester hour thesis/project under MAS499 Directed Study, as part of their electives. This project must be approved by the Department Chair by the end of the student’s junior year (90 semester hours) of study. Students wishing to be considered for graduation magna cum laude or summa cum laude are required to write an honors thesis. These students must confer with the department chairman to select a thesis topic at the end of their junior year (90 semester hours) of study.
INTRODUCTION

Rapidly increasing global competition, emergence of new markets, and technological advancements make today’s marketplace a highly dynamic and challenging environment for companies. Effective marketing is therefore crucial for organizations to survive and prosper in such an environment. Marketing is the process through which organizations develop and distribute products and services that satisfy the needs of customers. Customer satisfaction is critical to the profitable operations and growth of organizations and, as such, an integral component of modern-day marketing.

EDUCATIONAL OBJECTIVES

The primary goals of the Department of Marketing are: (a) to contribute to marketing knowledge through conducting scholarly research and disseminating the research findings through leading journals, (b) to excel in imparting marketing knowledge to students and honing their critical-thinking skills so as to prepare them for potentially successful careers in an increasingly competitive, dynamic, global, and service-and technology-oriented environment, and (c) to be of service to the business and professional communities at large.

The marketing curriculum offers courses and programs to undergraduate and graduate students for their professional development in domestic and world business.

A program of study in marketing offers students better understanding of and insights into:

- Marketing’s role within the organization and society;
- The various ‘markets’ for goods and services through better identification and analysis of consumer needs, wants, and interests;
- Marketing’s responsibility to society in legal, ethical, and moral matters;
- Methods, procedures and techniques used in planning and managing marketing decisions.

DEGREE PROGRAMS

A Marketing major can earn either a Bachelor of Business Administration (BBA) or a Bachelor of Science in Business Administration (BSBA) by meeting the appropriate School of Business Administration requirements.

MAJOR

The Marketing major provides students with an understanding of the basic concepts of marketing with an emphasis on emerging techniques and technologies. This major prepares students to practice marketing in a changing competitive environment. Specifically the major covers the 4 Ps of marketing (i.e., product/service, price, promotion and
place/distribution) from a managerial perspective. Additionally, the marketing major is flexible, allowing students to concentrate on specific areas of professional pursuit such as sales management, advertising, retailing, or marketing research. A program of study in marketing offers students a comprehensive understanding of such topics as:

- Marketing’s critical role within organizations;
- Identification of markets for products and services through better understanding and analysis of consumers’ wants and needs;
- The nature of global competition and identification of viable competitive strategies;
- Methods used in planning and implementing marketing strategies;
- Legal and ethical responsibilities of marketers.

**MAJOR**

The program of study for Marketing majors consists of the following:

**Important Note:** A student must earn a grade of “B” (*grade point average of 3.0*) or higher in MKT201/301 to continue the major or minor (a grade of “B-” does not qualify.) The overall grade point average in all Marketing courses taken must be 2.5 or higher. All Marketing courses in which a Marketing major enrolls will count toward the major.

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKT302</td>
<td>Marketing Research and Market Analysis</td>
<td>MKT201/301 and MAS202</td>
</tr>
<tr>
<td>MKT403</td>
<td>Marketing Management</td>
<td>MKT201/301, FIN302, MKT302</td>
</tr>
</tbody>
</table>

and

Nine (9) semester hours from any of the courses listed below:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKT310</td>
<td>Consumer Behavior &amp; Marketing Strategy</td>
<td>MKT201/301</td>
</tr>
<tr>
<td>MKT320</td>
<td>Retailing</td>
<td>MKT201/301</td>
</tr>
<tr>
<td>MKT340</td>
<td>Professional Selling</td>
<td>MKT201/301</td>
</tr>
<tr>
<td>MKT360</td>
<td>International Marketing</td>
<td>MKT201/301</td>
</tr>
<tr>
<td>MKT386</td>
<td>Advertising Management</td>
<td>MKT201/301</td>
</tr>
<tr>
<td>MKT469</td>
<td>International Marketing Management</td>
<td>MKT360, FIN302, MKT302 (May also be Co-requisite)</td>
</tr>
</tbody>
</table>

**MINOR**

A minor in Marketing for business majors consists of at least 12 semester hours of marketing courses and must include the following: MKT201/301, with a grade of “B” (*grade point average of 3.0*) or higher (a grade of “B-” does not qualify), plus any three courses from the Department of Marketing as long as the prerequisite courses are taken. The overall grade point average in all marketing courses taken must be 2.5 or higher. All marketing courses in which a Marketing minor enrolls will count toward the minor.
MINOR FOR NON-BUSINESS MAJORS

A minor in Marketing for non-business majors consists of at least 12 semester hours of marketing courses and must include the following: MKT201/301 with a grade of "B" (grade point average of 3.0) or higher, plus any three courses from the Department of Marketing as long as the prerequisite courses are taken. Students may choose from MKT310, MKT320, MKT340, MKT360 or other electives with the permission of the instructor. The overall grade point average in all marketing courses must be 2.5 or higher. All marketing courses in which a Marketing minor enrolls will count toward the minor.

Marketing Course Listing
INTRODUCTION
The School of Communication offers courses in nine Programs of Study leading to the degree Bachelor of Science in Communication. The programs are Advertising, Public Relations, Journalism, Motion Pictures, Communication Studies, Electronic Media, Media Management, Broadcast Journalism, and Visual Journalism. The degrees Master of Arts, Master of Fine Arts, and Doctor of Philosophy are available in the School; these degrees are under the supervision of the Dean of the Graduate School and the Faculty Council on Graduate Studies.

Students engage in a variety of hands-on learning experiences embracing research, production, creative problem solving and multimedia storytelling. All instruction requires the student to be familiar with computer technology and basic word and image processing software. Individual programs have specific computer, image taking and software tools and skills expectations of students. On campus television, radio, motion picture studios and multimedia labs are available for academic and extra-curricular student projects. Visual Journalism students utilize contemporary digital imaging technology. Motion picture production, digital editing, recording, and mixing facilities are available. Electronic Media and Broadcast Journalism students use TV studios and remote digital technology. New media technology is incorporated throughout the curriculum and the School houses several computer labs and digitally “smart” classrooms.

The School houses two video-conference centers with simultaneous translation capability and broadcast quality interactive capability for remote interviews and programming. The School also houses three TV studios, including a fiber-optic linked studio allowing real-time, broadcast-quality transmissions with remote sites around the world. Under Communication faculty supervision, student-produced programming is distributed through the University’s cable facility and is carried throughout Coral Gables by the local cable operator.

The University’s FM stereo radio station and student online and print newspapers and magazines offer additional opportunities for career development. The Bill Cosford Cinema, a 250-seat motion picture theatre, supports the motion picture program and offers programming for the community in connection with the Raymond J. Regis Motion Picture Archive consisting of over 2,000 original prints of classic motion pictures. The School operates several online sites that afford students outlets for multimedia and cross platform writing, research, reporting and creative work.

The School’s Knight Center for International Media supports innovative research and development dedicated to a broad spectrum of interdisciplinary communication study. The Center has produced a variety of special projects including documentary motion pictures, specialized research, and global issue-oriented faculty/student initiatives. Two endowed Knight Chairs bring additional expertise and international perspective to the School’s research and learning experience.

The School sponsors a nationally competitive intercollegiate debate team, which annually produces several members of the All American Debate team. In addition, the School supports student chapters of the American Advertising Association, the Public Relations Society of America, the Society of Professional Journalists, the National Broadcasting Society and other professional organizations.
Internships in professional settings are available to Communication students at the junior and senior levels. Professionals at daily and weekly newspapers, magazines, news bureaus, cable systems, radio and television stations, production houses, and motion picture studios cooperate in the faculty-supervised internships. Executives of city and county governments, advertising agencies, public relations counseling firms, and private business and nonprofit organizations join in providing internship opportunities.

**MISSION**

The School of Communication is dedicated to a global educational perspective and is committed to providing a socially responsible and ethically grounded learning environment guided by a diverse faculty of scholars, artists and professionals. The School is committed to quality undergraduate and graduate programs in communication that emphasize the relationship between theory and practice. We believe in freedom of expression and creativity, and encourage both collaboration and independent thinking as we prepare future scholars, professionals and leaders for a lifetime of service and learning. The objectives of the School are to develop the student’s understanding and appreciation of communication theory, art, and science; to improve the student’s awareness of the pervasive role of communication in society; and to enhance the student’s communication skills.

**ACCREDITATION**

The School’s programs in Advertising, Electronic Media, Broadcast Journalism, Media Management, Journalism, Public Relations and Visual Journalism are accredited by the Accrediting Council on Education in Journalism and Mass Communication, Stauffer-Flint Hall, 1435 Jayhawk Blvd., Lawrence, KS 66045-7575.

**ACADEMIC POLICIES**

**Admission to Major**

A student entering the School of Communication as a freshman or as a transfer will enroll in Communication pre-major status. Candidates for the Bachelor of Science in Communication who have achieved sophomore standing and have satisfactorily completed the entrance requirements of one of the Communication majors (see Program Statements) will be admitted to major status in their chosen specific program of the School.

**Internal Transfer into the School of Communication**

A student enrolled at the University of Miami in a school or college other than the School of Communication may apply for admission into the School of Communication. Applications are accepted every fall and spring semester. A minimum overall grade point average of 2.5 is necessary for consideration. Applications are available in the Admissions, Academic &
Alumni Services Office of the School of Communication and must be submitted prior to the end of classes in either the fall or spring semester. Admission decisions will be made promptly after semester grades are final. Students will be notified in writing of the School’s decision.

Transfer Students

A transfer student must complete in residence a minimum of 15 credits toward a Communication major or a minimum of 9 credits toward a Communication minor. Courses taken elsewhere in Communication or related disciplines are not automatically accepted for a major at the University of Miami. Students who have obtained the written approval of the head of a Communication major to use transfer credit to satisfy one or more requirements of that major may be required to complete additional courses in residence at the University before being admitted to that major. Students should consult a School of Communication advisor to determine whether the transfer of Communication courses will increase beyond 120 the total number of credits required for a degree. In general, transfer credit will not be accepted to satisfy requirements for any course in any major or minor at the 300-level or above. Student petitions to transfer credit from ACEJMC-accredited or other accredited programs will be considered on an individual basis.

Transfer credit may not be used to satisfy requirements for any major in Communication without the written approval of the heads of the programs concerned.

Academic Progress & Probation/Dismissal

Students must maintain a quality point average of 2.5 or higher in courses taken in residence and submitted for their School of Communication major. Following the first semester in which any student’s quality point average in the major falls below a 2.5, the School may issue a warning to that student that his or her work does not meet School expectations. Should that student’s QPA in the major be below a 2.5 in any subsequent semester, he or she may be placed on Academic Probation. The School may dismiss from the University any student who is on probation a total of two semesters (not necessarily consecutive). A student who has completed 45 University credits while enrolled in the School but who has not been admitted to one of the Communication majors may be dismissed from the School. A student who has completed 60 University credits while enrolled in the School but who has not been admitted to one of the Communication majors will be dismissed from the School. A student who has been dismissed from the School may apply for admission to one of the other schools or colleges within the University but will not later be readmitted to the School of Communication. Those who wish to appeal their probation or dismissal must do so in writing to the Dean within 30 days of the notice of probation or dismissal. See also GOOD ACADEMIC STANDING, WARNING, PROBATION, AND DISMISSAL, in this Bulletin.

Internship Credit

Some programs allow students to complete multiple internships. However, students will be permitted no more than three credits in School of Communication Internship(s) toward their 39- or 45-credit majors or toward their 120-credit University degree.
Credit Hours and Advanced Placement Credit

Credits may be earned through Advanced Placement, IB, CLEP Examinations, and Advanced Placement by Proficiency Examinations. These credits may be applied to the appropriate Required Areas of Study or as electives except: (1) where prohibited by a specific program area; or (2) if the course is remedial (e.g., ENG 103, MTH 099). To earn credit toward the 66 credits required in the liberal arts and sciences, and toward the 120 credits required for graduation, each student must pay a recording fee and have exempted course credits entered on his or her University transcript. An exemption may be granted for ENG 105 by the Department of English, but this exemption will not earn credit to be applied toward the 66 credits required in the liberal arts and sciences or toward the 120 University credits required for graduation.

Grade Point Average

A candidate for the B.S. in Communication must complete the credit hours and achieve the quality point average specified for students in the University at large as stated in the section titled ACADEMIC PROCEDURES AND INFORMATION, subject to additional requirements specified in School and Program sections of this Bulletin.

Areas of Study

In applying these requirements to his or her course of study, each student must carefully read School of Communication program and major requirements that follow. In many cases, these requirements will be more restrictive and more specific in describing how each of these Required Areas of Study is to be satisfied.

DEGREE PROGRAMS

The School of Communication offers courses in nine Programs of Study leading to the degree Bachelor of Science in Communication. The programs are Advertising, Public Relations, Journalism, Motion Pictures, Communication Studies, Electronic Media, Media Management, Broadcast Journalism, and Visual Journalism.

MINORS

The School of Communication offers minors in each of its nine Programs of Study.

CONCENTRATIONS

Each degree program offers concentrations or tracks of study in specialty areas. See the individual program sections for details on these concentrations.
REQUIREMENTS FOR GRADUATION

BACHELOR of SCIENCE DEGREE in COMMUNICATION

Required University General Education Requirements

A. AREAS OF PROFICIENCY

Proficiency requirements are intended to ensure that students either already possess, or will develop at the University, the ability to express themselves effectively, to use mathematics with facility, and to reason cogently. Superior scores on the SAT or ACT examinations may waive students from ENG 105 (requirement 1) and superior placement test scores administered by the Department of Mathematics may waive students from MTH 101 (requirement 2), but not from requirement 3.

1. English Composition 3 credits
   Students fulfill this requirement by satisfactorily completing English 105 and English 106 or its equivalent. Appropriate Advanced Placement (AP) or International Baccalaureate (IB) scores in English composition may be used to satisfy the English 105/106 requirement. An appropriate score on the SAT or ACT verbal examination may earn a student exemption from, but not credit in, ENG 105.

   Appropriate scores on other tests determined by the Department of English may earn a student exemption from, but not credit in, English 105.

   Courses satisfying the English Composition requirement may not be used to fulfill the Writing Across the Curriculum Required Area of Study.

2. Mathematics 3 credits
   Students fulfill this requirement by satisfactorily completing a course in mathematics numbered above MTH 101 (excluding MTH 107 and MTH 119), or MAS 110, or an approved course in statistics. Exemption from the mathematics requirement or placement in prerequisite courses is based on any of the following tests: AP, IB, or an examination administered by the Department of Mathematics during orientation.

3. Writing Across the Curriculum (W) 5 courses
   Courses satisfying this requirement are those designated as involving a substantial amount of writing and the preparation of papers that are corrected for diction, syntax, style, and content. Some courses satisfying this Writing Across the Curriculum requirement will simultaneously fulfill a requirement under B. Areas of Knowledge (below).

B. Areas of Knowledge

These requirements are designed to help students understand and appreciate the intellectual achievements in major areas of human inquiry and creative endeavor. In satisfying these requirements students will explore the natural world, examine human development and behavior, and appreciate creative expression in the arts, literature, and philosophy.

No more than six credit hours may be taken in any one department to satisfy the areas of knowledge requirement. Most courses above the 100-level require prerequisites.
Natural World (6 credits) Courses in the following areas: Biology; Chemistry; Ecosystems Science and Policy; Geological Sciences; Marine Science; Physics; Physical Science; and the following courses: Anthropology 203; Geography 120; Freshman Seminars in the Natural Sciences 190-199.

People and Society (6 credits) Courses in the following areas: Africana Studies; American Studies (AMS); Anthropology (except APY 203); Economics; Educational Psychology; Geography (except GEG 120); History; International Studies; Judaic Studies (JUS); Political Sciences; Psychology; Sociology; Teaching and Learning; Women and Gender Studies (WOS); and the following courses: CEM 102; COM 101; COM 110; COS 112; COS 336; COS 472; Freshman Seminars in the Social Sciences.

Arts and Humanities (12 credits) Courses in the following areas: American Studies (AMH); Architecture; Music; Art and Art History; Judaic Studies (JUH); Motion Pictures; Theatre Arts; English (200-level or above except ENG 208); Foreign Languages and Literatures (300-level or above); Philosophy; Religious Studies; and the following courses: COS 211; DAN 250; Freshman Seminars in the Arts and Humanities FFA 190-199. Students who do not have a separate foreign language requirement may use foreign language courses numbered at the 100 or 200 level to satisfy part of the arts and humanities requirement, if the language differs from the student’s native language and if, when beginning with a 101-level course, they also take the 102-level course in the same language.

Majors/Minors

Students majoring or minoring in the School of Communication must complete a School of Communication course with a grade of C or higher (a grade of C- or lower is not acceptable) before taking another course for which the first course is a prerequisite.

Major/Minor Requirements

The Major in the School of Communication 39 to 45 credits

A major in the School of Communication leading to a Bachelor of Science in Communication requires 39 or 45 credits in School of Communication courses specified in Program statements (below). Each course within the 39- or 45-credit major must be completed with a grade of C or higher (a grade of C- or lower is not acceptable). In addition, students must maintain a quality point average of 2.5 or higher in courses taken in residence and submitted for their School of Communication 39- or 45-credit majors.

Students majoring in Advertising, Public Relations, Journalism, Visual Journalism, Electronic Media, Broadcast Journalism, and Media Management will be permitted no more than 30 credits in all these areas and in Motion Pictures, whether earned at the University of Miami or elsewhere, toward their 120-credit University degrees. Courses in these areas hereafter designated Mass Communication courses in this Bulletin, do not include COM 101, COM 110 or COM 250.

Students majoring in Motion Pictures will be permitted no more than 36 credits in Mass Communication courses, whether taken at the University of Miami or elsewhere, toward their 120-credit University degrees.
Students majoring in Communication Studies will be permitted no more than 36 credits of
courses in these areas of study, whether taken at the University of Miami or elsewhere,
toward their 120-credit University degrees.

Students who exceed the 30- or 36-credit limits set forth above must complete a like
number of credits more than the 120 credits normally required for a University degree.

**The second major**  
24 to 40 credits

Each Communication student, in addition to completing requirements for a Communication
major (below), must choose a second major field in the University curriculum. To find the
requirements for such a major, consult this Bulletin and confer with the appropriate
department representative. School of Communication advisors will aid students in
identifying the appropriate representative. The candidate for a Communication degree may
choose from among any of the disciplines offering majors for which they may qualify and
complete the major’s requirements.

The choice of the second major should be made no later than the beginning of the junior
year and must be approved by the discipline concerned. Each Communication student will
be required, by the time he or she has earned 72 credits, to submit to his or her
Communication advisor a statement of courses and other requirements for the chosen
major. This statement must be signed by the second major’s program head concerned, or
by the head’s representative. Any student making unsatisfactory progress in the second
major subject may be required to change majors or to relinquish candidacy for the
Communication degree.

Unless Communication Program statements otherwise restrict, a maximum of six credits
may count toward both a second major and the Required Areas of Study in the School of
Communication (above); see Program Statements.

**Minors**

A minor is not required for a Bachelor of Science degree candidate in the School of
Communication. A student who wishes to complete a minor offered by any program in the
University, in addition to the major in Communication and second major, must consult the
School of Communication Admissions, Academic & Alumni Services Office. A student who
wishes to take a minor as well as a major in Communication must take into account the
credit limits in area courses specified above.

The School offers minors for students enrolled in the College of Arts and Sciences and for
other students who require minors in their programs.

- A student minoring in the general area of Communication must complete 15 credits
  at least six of which must be at the 300-level or above.
- Courses taken for this minor must be approved in advance through the School’s
  advising system in the office of Admissions, Academic & Alumni Services.
- Other minors are in Advertising, Public Relations, Journalism, Visual Journalism,
  Motion Pictures, Communication Studies, and Electronic Media; see Program
  statements.
- Each course submitted for a Communication minor must be completed with a grade
  of C or higher (a grade of C- or lower is not acceptable).
Upper Division Credits

In earning a Bachelor of Science in Communication, each School of Communication student must complete a minimum of 36 credits of course work at the 300-level or above. Upper division courses taken in Required Areas of Study, in the School of Communication major, in the second major, and as general electives will count toward this 36-credit minimum requirement. Upper division transfer credits also apply.

Electives

Only Free Elective courses may be taken under the University’s Credit Only option (see CREDIT ONLY OPTION, this Bulletin). Free Electives are defined as courses not taken to fulfill the requirements of the major within the School of Communication, of the second major, or of the School’s Required Areas of Study (i.e., General Distribution requirements). Free Electives are courses taken not to meet any of the above requirements or their prerequisites, but taken solely to meet the requirement of a total of 66 credits in the liberal arts and sciences or the requirement of a total of 120 credits for the degree.

General electives

Electives in the University must be completed sufficient for a minimum total of 120 credits. Electives may be chosen from any courses offered by the University except certain unapproved courses such as Dance 101, 102, 103, and activity courses offered by the School of Education. Students should consult a School of Communication advisor before selecting elective courses. General electives may be taken in any School or College outside of the School of Communication. Excess credits in Communication will increase the total amount of credits required for graduation. Because specific courses are required in some School of Communication majors, students are advised to read Program statements carefully and seek the advice of a School of Communication advisor prior to taking general University electives.

Electives in the Liberal Arts and Sciences

Students must earn a total of 66 credits in the liberal arts and sciences, including those credits earned in Required Areas of Study, in the second major, in electives in the College of Arts and Sciences, in courses in the Department of Economics, in approved courses in the School of Music and School of Education, and in COM/COS courses 110, 211, and 333. Some majors require specific courses; see Program Statements.

Schedules

Fifteen or sixteen credits constitute a normal semester schedule in the School of Communication. Students who wish to register for more than sixteen credits must obtain prior approval. Students who are on academic probation will be limited to a maximum of thirteen credits.

Double Counting

A maximum of 6 credits from the second major, or from COM 101, or COM 110, may be used to satisfy the Required Areas of Study in the School of Communication. No course may be used to satisfy the requirements of more than one major or of a major and a minor. Two Communication core courses (see Program Statements) but no other courses submitted for
a student’s Communication major may be used also to satisfy School of Communication Required Areas of Study. Unless Communication Program statements otherwise restrict: (a) a course taken to satisfy Additional Requirements of a student’s major (and which appears on the list of courses accepted in satisfaction of School Required Areas of Study) may also be used to satisfy a School Required Areas of Study requirement; and (b) a maximum of six credits may count toward both a second major and the School Required Areas of Study. The foregoing notwithstanding, any course designated as a Writing course, whether taken to fulfill a major, minor, Additional Requirements, or Required Areas of Study requirement, or as an elective, may also be applied to the Writing Across the Curriculum requirement.

**Freshman Seminars**

An approved Freshman Seminar may satisfy one of the School Required Areas of Study requirements. Consult the School of Communication Academic Services Office.

**Aerospace Studies and Military Science**

A maximum of six credits of Aerospace Studies and Military Science courses at the 300-level or above may count toward the 120-credit University degree but only as general elective credit.

**Additional program requirements**

Most programs in the School require a student, in order to obtain the School’s Bachelor of Science degree, to complete specified courses in addition to those 13 or 15 courses that comprise the majors. These courses may, in some cases, fulfill requirements in Required Areas of Study or in the second major, or may be electives in the College of Arts and Sciences or general electives in the University. In completing these additional course requirements, passing grades (D or better) are usually acceptable. If a grade of C or better is required in any additional course or courses beyond the 39- or 45-credit School of Communication major, program statements will so state. Read program statements carefully. Do not register for courses without a program advisor’s signed approval.

**HONORS**

School of Communication students may graduate with School Honors in Communication noted upon their diplomas and transcripts. Students should contact the School’s Office of Admissions, Academic & Alumni Services (2037 Wolfson Building) for details about the School of Communication Honors Program.

Students may receive recognition as graduates cum laude, magna cum laude, or summa cum laude if they meet the requirements set forth under GRADUATION HONORS in this Bulletin.
UNDERGRADUATE ACADEMIC PROGRAMS

ADVERTISING - Dept. Code: CAD
http://com.miami.edu/Advertising

INTRODUCTION

Students majoring in Advertising learn the art, craft and business of how to promote brands from an integrated marketing perspective. The program gives students a well-rounded education in advertising that emphasizes strategy building, data gathering and analysis, creative development, and media planning skills. Both a major and a minor are offered in Advertising.

The program includes both fundamental and theoretical approaches to the world of professional advertising, both domestically and internationally.

The curriculum is hands-on and students learn first-hand how to create an advertising campaign that meets their client's goals.

Qualified students may elect to participate in the internship program, which provides an opportunity to work in the professional community in the Greater Miami area or other regions. The School's Advertising program also has an active alliance with the American Advertising Federation.

EDUCATIONAL OBJECTIVES

The educational objectives of the undergraduate Advertising program require that

- Students demonstrate an understanding of the history of advertising as it relates to the emergence of mass media outlets and the importance of advertising in the marketplace.

- Students apply theoretical concepts related to advertising, mass communication, consumer behavior, psychology, sociology, marketing, and other related fields to understand how advertising works in a free-market economy.

- Students analyze primary and secondary research data to create advertising strategies for a variety of products and services.

- Students demonstrate the ability to create strategic advertisements for print, broadcast, online and other media, as well as how to integrate a campaign idea across several media categories in a culturally diverse marketplace.

- Students research, create, design, write, and present an advertising campaign of their own creation and compete for an account as they would at an advertising agency.
• Students understand how advertising works in a global economy, taking into account cultural, societal, political, and economic differences that exist across countries and cultures.

• Students demonstrate an understanding and appreciation of the core ethical principles of the advertising profession.

DEGREE PROGRAMS

The Bachelor of Science in Communication is offered in the Advertising Program.

MAJOR

A major is offered in Advertising.

Each candidate for the degree of Bachelor of Science in Communication will complete School of Communication requirements including courses in the Required Areas of Study, the student’s chosen second major, and electives sufficient for a total of 66 credits in the liberal arts and sciences.

A Bachelor of Science student in Advertising will be permitted a maximum of 30 credits in Mass Communication courses (excluding COM 101, COM 110 and COM 250) toward the 120-credit University degree.

Admission to the Advertising major

Before admission as an Advertising (CAD) major, a student must:

A) Achieve sophomore standing;

B) Complete the five Core courses listed below, in residence at the University, all with grades of C or higher (C- is not acceptable).

Students who have obtained the written approval of the director of the Advertising program to use transfer credit to satisfy one or more requirements of that major may be required to complete additional courses in residence at the University before being admitted to that major.

Upon completion of a student’s first 45 University credits while enrolled in the School of Communication, all University credits earned toward the major will be used in computing a student’s major cumulative quality point average; only those students with a cumulative average of 2.5 or higher will be admitted to a major.

A student who has completed 45 credits while enrolled in the School of Communication but who has not been admitted to one of the Communication majors may be dismissed from the School. A student who has completed 60 University credits while enrolled in the School but who has not been admitted to one of the Communication majors will be dismissed from the School. See PROBATION AND DISMISSAL.
THE ADVERTISING MAJOR

Students majoring in advertising will choose one of the following three tracks: the General Advertising Track, the Advertising Management Track, or the Advertising Creative Track.

THE GENERAL ADVERTISING TRACK

**CORE COURSES**

- COM 101 Mass Media Communication in Society
- COM 110 Communication Theory
- CAD 114 Principles of Advertising
- COM 250 Freedom of Expression and Communication Ethics

Select one of the following courses:
- CAD 231 Advertising Copywriting and Concept or
- CAD 233 Writing for Account Planning

**OTHER REQUIRED COURSES**

- CAD 201 Advertising Strategy Development
- CAD 312 Research Methods for Advertising
- CAD 388 Media Planning
- CAD 434 Advertising Campaigns

Four additional advertising electives (12 credits) must be selected. Electives outside the advertising major (but within the School of Communication) must be approved by an academic advisor.

THE ADVERTISING MANAGEMENT TRACK

**CORE COURSES**

- COM 101 Mass Media Communication in Society
- COM 110 Communication Theory
- CAD 114 Principles of Advertising
- CAD 233 Writing for Account Planning
- COM 250 Freedom of Expression and Communication Ethics

**OTHER REQUIRED COURSES**

- CAD 201 Advertising Strategy Development
- CAD 312 Research Methods for Advertising
- CAD 388 Media Planning
- CAD 434 Advertising Campaigns
- CAD 495 Advertising Management
**ELECTIVES** (Choose 3, with at least one course from each group)

**Group 1**
- CAD 380 Advertising Internship
- CAD 389 Media Buying and Advertising Sales
- CEM 403 Media Economics
- CAD 483 Integrated Marketing Communication

**Group 2**
- CAD 202 Introduction to Graphic Design
- CAD 231 Advertising Copywriting and Concept
- CAD 340 Interactive, Digital, and Social Media in Advertising
- CAD 350 International and Cross-cultural Advertising
- CAD 384 Advertising Creative Strategy and Execution
- CAD 390 Art Direction
- CAD 401 Advertising and Societies
- CAD 412 Public Opinion
- CAD 490 Special Topics in Advertising

Other elective courses within the School of Communication may be permissible, but only with the approval of the Advertising program director.

**THE ADVERTISING CREATIVE TRACK**

**CORE COURSES**

- COM 101 Mass Media Communication in Society
- COM 110 Communication Theory
- CAD 114 Principles of Advertising
- CAD 231 Advertising Copywriting and Concept
- COM 250 Freedom of Expression and Communication Ethics

**OTHER REQUIRED COURSES**

- CAD 201 Advertising Strategy Development
- CAD 202 Introduction to Graphic Design
- CAD 384 Advertising Creative Strategy and Execution
- CAD 434 Advertising Campaigns
- CAD 496 Portfolio Development

**ELECTIVES** (Choose 3, with at least one course from each group)

**Group 1**
- CVJ 221 Introduction to Photojournalism
- CEM 245 Introduction to Electronic Media Production
- CAD 390 Art Direction
- CVJ 341 Web Production
- CAD 490 Special Topics in Advertising: Creative
Group 2

CAD 312 Research Methods for Advertising
CAD 340 Interactive, Digital, and Social Media in Advertising
CAD 350 International and Cross-cultural Advertising
CAD 380 Advertising Internship
CAD 388 Media Planning
CAD 389 Media Buying and Advertising Sales
CAD 401 Advertising and Societies
CAD 412 Public Opinion and Mass Communication
CAD 483 Integrated Marketing Communication
CAD 490 Special Topics in Advertising

Other elective courses within the School of Communication may be permissible, but only with the approval of the Advertising program director.

ADDITIONAL REQUIREMENTS FOR THE ADVERTISING MAJOR: ALL TRACKS

Students must complete ECO 211 and POL 201. These may be used for the People and Society General Education Requirements.

Students must complete at least one course with an international or intercultural focus. Courses that meet this requirement include: CAD 350, CAD 401, MKT 360, CPR 582, COS 343, and COS 545. Other courses may be used to fulfill this requirement with the approval of an Advertising advisor.

Students must complete COS 211 and MKT 301, plus three additional credits at the 300-level or above in the School of Business Administration, chosen with the prior approval of an Advertising advisor.

MINOR

A Minor is offered in Advertising.
The minor in Advertising requires a grade of C or better in CAD 114, 201, 231, 312, 388, and 434.

DEPARTMENT HONORS

School of Communication students may graduate with School Honors in Communication noted upon their diplomas and transcripts. Students should contact the School’s Office of Admissions, Academic & Alumni Services (2037 Wolfson Building) for details.

Students may receive recognition as graduates cum laude, magna cum laude, or summa cum laude if they meet the requirements set forth under GRADUATION HONORS in this Bulletin.

Advertising Course Listing
ELECTRONIC MEDIA, BROADCAST JOURNALISM AND MEDIA MANAGEMENT - Dept. Code: CEM
http://com.miami.edu/ElectronicMedia

INTRODUCTION

The electronic media have a profound impact on daily life and the future of local and global communities. The School of Communication Electronic Media Program is dedicated to nurturing the aspirations of men and women who seek to dedicate their professional lives to the arts, crafts and businesses of broadcasting and allied fields.

Majors study all aspects of television, radio, cable, broadband, and web operations in preparation for careers as electronic media professionals. Three majors and one minor are offered in the Electronic Media Program. The program emphasizes hands-on learning within a multicultural, international context. Students consistently win 1st place awards in regional and national competitions.

All Electronic Media students are encouraged to become involved in UMTV (the campus cable television channel is made available to area cable subscribers, the UM campus and over the web) and the student-run radio station, WVUM-FM, serving South Florida.

The School's facilities include state-of-the-art, all-digital television and radio studios, digital post production stations and related capabilities.

EDUCATIONAL OBJECTIVES

Learning objectives for each of the three majors in the Electronic Media program should foster critical thinking skills. Our majors develop the intellectual capacity to analyze, evaluate and adapt to an ever-changing media environment.

The educational objectives of the undergraduate Electronic Media major require that students:

- Demonstrate knowledge of the workings of the electronic mass media and be able to identify and describe the impact of historical events, economic factors, technology, audience analysis research, content choices, and regulation of the electronic media industry. This knowledge should be understood within the context of a global and culturally diverse communications environment.

- Demonstrate the ability to identify and operate traditional and computer-based audio and video equipment and accompanying software. Students concentrating in electronic media production will demonstrate the ability to produce video programs meeting entry-level professional expectations.

- Demonstrate writing ability at the level required for meeting entry-level professional expectations.

- Demonstrate the development of a professional identity through the ability to articulate and practice the values, ethics, social responsibility, and expectations of
the profession. In particular, students should demonstrate an understanding of the principles and laws regarding freedom of expression within a democratic society.

- Demonstrate service to the campus and larger community through participation in the creation and delivery of content for campus and community audiences.

The educational objectives of the undergraduate Broadcast Journalism major require that students:

- Demonstrate the ability to acquire information and effectively present journalistic messages in an appropriate format using basic oral, written and visual communication skills.

- Demonstrate knowledge of the workings of the electronic mass media and be able to identify and describe the impact of historical events, economic factors, technology, audience analysis research, content choices, and regulation on the electronic media industry. This knowledge should be understood within the context of a global and culturally diverse communications environment.

- Demonstrate the development of a professional identity through the ability to articulate and practice the values, ethics, social responsibility, and expectations of the profession. In particular, students should demonstrate an understanding of the principles and laws regarding freedom of expression within a democratic society.

- Demonstrate service to the campus and larger community through participation in the creation and delivery of content for campus and community audiences.

The educational objectives of the undergraduate Media Management major require that students:

- Demonstrate knowledge of the workings of the electronic mass media and be able to identify and describe the impact of historical events, economic factors, technology, audience analysis research, content choices, and regulation of the electronic media industry. This knowledge should be understood within the context of a global and culturally diverse communications environment.

- Demonstrate writing ability at the level required for meeting entry-level professional expectations.

- Demonstrate analytical and critical skills needed to acquire, organize and synthesize information and data in a manner consistent with professional standards; the student will demonstrate the ability to define problems, evaluate decision options and select the best course of action.

- Demonstrate the development of a professional identity through the ability to articulate and practice the values, ethics, social responsibility, and expectations of the profession. In particular, students should demonstrate an understanding of the principles and laws regarding freedom of expression within a democratic society.

- Demonstrate service to the campus community through collaboration with School and campus media outlets.
DEGREE PROGRAMS

The Bachelor of Science in Communication is offered in Electronic Media, Broadcast Journalism, and Media Management.

MAJOR

Majors are offered in Electronic Media, Broadcast Journalism, and Media Management.

Each candidate for the degree of Bachelor of Science in Communication will complete School of Communication requirements including courses in the Required Areas of Study, the second major, and electives sufficient for a total of 66 credits in the liberal arts and sciences.

A Bachelor of Science student in Electronic Media, Broadcast Journalism, or Media Management will be permitted a maximum of 30 credits in Mass Communication courses (excluding COM 101, COM 110, and COM 250) toward the 120-credit University degree.

Admission to the Electronic Media, Broadcast Journalism and Media Management majors

Before admission as an Electronic Media (CEM), Broadcast Journalism (CBJ) or Media Management (CMM) major, a student must:

A) Achieve sophomore standing;

B) Complete the five Core courses listed below, in residence at the University, all with grades of C or higher (C- is not acceptable).

Students who have obtained the written approval of the Director of the Electronic Media, Broadcast Journalism, and Media Management majors to use transfer credit to satisfy one or more requirements of that major may be required to complete additional courses in residence at the University before being admitted to that major.

Upon completion of a student’s first 45 University credits while enrolled in the School of Communication, all University credits earned toward the major will be used in computing a student’s major cumulative quality point average; only those students with a cumulative average of 2.5 or higher will be admitted to a major.

A student who has completed 45 credits while enrolled in the School of Communication but who has not been admitted to one of the Communication majors may be dismissed from the School. A student who has completed 60 University credits while enrolled in the School but who has not been admitted to one of the Communication majors will be dismissed from the School. See PROBATION AND DISMISSAL.
THE ELECTRONIC MEDIA MAJOR

CORE COURSES
COM 101  Mass Media Communication in Society  
CEM 102  Introduction to Electronic Media  
COM 110  Communication Theory  
CEM 201  Writing for the Electronic Media  
COM 250  Freedom of Expression and Communication Ethics

OTHER REQUIRED COURSES
Six credits at the 200-level or above.

Twelve credits at the 300-level or above.

Six credits at the 400-level or above. Only three of the six credits may be used for Internships or Projects and Directed Research.

All courses selected for the Electronic Media major must be approved by an area faculty advisor.

ADDITIONAL REQUIREMENTS FOR THE ELECTRONIC MEDIA MAJOR

Students majoring in Electronic Media must also complete COS 211 or COS 333.

Sample Track #1: 15 Credit Core plus:
CEM 245 Introduction to Electronic Media Production  
CEM 301 Measurement and Analysis of Electronic Media Audiences  
CEM 345 Intermediate Electronic Media Production  
CEM 313 Electronic Media Sales  
CEM 314 Broadcast and Cable Programming  
CEM 445 Advanced Electronic Media Production  
CEM 408 International Electronic Media Systems  
CEM 491 Internship in Broadcasting and Allied Fields

Sample Track #2: 15 Credit Core plus:
CEM 235 Radio Production and Performance  
CEM 245 Introduction to Electronic Media Production  
CEM 302 Electronic Media Law  
CEM 345 Intermediate Electronic Media Production  
CMP 357 Editing  
CEM 445 Advanced Electronic Media Production  
CEM 491 Internship in Broadcasting and Allied Fields
THE BROADCAST JOURNALISM MAJOR

CORE COURSES
COM 101 Mass Media Communication in Society
CEM 102 Introduction to Electronic Media
COM 110 Communication Theory
CNJ 111 Introduction to News Media Writing
COM 250 Freedom of Expression and Communication Ethics

OTHER REQUIRED COURSES
CNJ 216 News Reporting and Writing
CEM 245 Introduction to Electronic Media Production
CEM 301 Measurement and Analysis of Electronic Media Audiences
CEM 302 Electronic Media Law
CEM 317 Broadcast Journalism
CEM 417 Advanced Broadcast Journalism

Six additional credits at the 300-level or above in School of Communication courses, chosen with the prior approval of a Broadcast Journalism advisor.

ADDITIONAL REQUIREMENTS FOR THE BROADCAST JOURNALISM MAJOR

Students majoring in Broadcast Journalism are required to complete the following: COS 211 or COS 333; POL 201; and six additional credits in Political Science, History, or Economics.

THE MEDIA MANAGEMENT MAJOR

CORE COURSES
COM 101 Mass Media Communication in Society
COM 110 Communication Theory
COM 250 Freedom of Expression and Communication Ethics
CEM 102 Introduction to Electronic Media

Select one of the following courses:
ENG 230 Business Writing or
CEM 201 Writing for the Electronic Media or
CPR 232 Promotional Writing

OTHER REQUIRED COURSES
CEM 314 Broadcast and Cable Programming
CEM 435 Telecommunication Systems
CEM 403 Media Economics
CEM 402 Electronic Media Management

Select one of the following courses:
CEM 302 Electronic Media Law or
CNJ 303 Mass Media Law or
CMP 509 Legal Aspects of Motion Pictures
Nine additional credits in School of Communication courses chosen with the prior approval of an area faculty advisor. At least three of the nine credits must be at the 300-level or above.

**ADDITIONAL REQUIREMENTS FOR THE MEDIA MANAGEMENT MAJOR**

Media Management students must complete ECO 211 or ECO 212. These courses may be used for the School’s People and Society requirement.

Media Management students must complete MKT 301 plus six additional credits in the School of Business Administration chosen with the prior approval of a School of Communication advisor. Three of these six credits must be at the 300-level or above. Students majoring in Media Management must also complete COS 333 or COS 418.

Students seeking a Marketing Minor from the School of Business Administration must complete MKT 301, plus three of the following: 310, 320, 340, and 360 with a cumulative quality point average of 2.5 or higher. Consult the School of Business section of this Bulletin.

Students seeking a General Business Minor from the School of Business Administration must complete MKT 301, ACC 211, FIN 300 and MGT 304 with a cumulative quality point average of 2.0 or higher. Consult the School of Business section of this Bulletin.

**MINOR**

The minor in Electronic Media requires CEM 102, 301, 302, and six additional credits, three of which must be at the 300-level or above, chosen with the prior approval of the program director.

**DEPARTMENT HONORS**

School of Communication students may graduate with School Honors in Communication noted upon their diplomas and transcripts. Students should contact the School's Office of Admissions, Academic & Alumni Services (2037 Wolfson Building) for details.

Students may receive recognition as graduates cum laude, magna cum laude, or summa cum laude if they meet the requirements set forth under GRADUATION HONORS in this Bulletin.
COMMUNICATION STUDIES - Dept. Code: COS  
http://com.miami.edu/CommunicationStudies

INTRODUCTION

The major in Communication Studies empowers students to acquire advanced skills in many areas involving human interaction, cross-cultural and international, advocacy, argumentation, relationship building, leadership, presentation (oral and written), critical thinking, research and writing. Students become familiar with the rich tradition of communication theory and research, investigate emerging knowledge about communication, and contribute to the growth of new understanding by developing and applying their research capabilities. Students also are challenged to employ their communication understanding and skills in meaningful ways through experiential learning, professional and community involvement. Communication Studies blends a broad-based theoretical understanding of communication principles with specific and concrete application for particular contexts. Students are prepared for a myriad of career options in health communication, business and the professions, politics and public advocacy, education, training and media, as well as further graduate and professional study in communication, law and other areas.

EDUCATIONAL OBJECTIVES

The educational objectives of the Communication Studies program require that:

- Students will demonstrate a comprehensive understanding of the human communication process in a diverse society and application of communication skills through examinations, written and multimedia assignments, class discussions, group problem solving, presentations, speeches, debates, and service learning activities.

- Students will demonstrate an understanding of communication contexts such as intrapersonal, interpersonal, intercultural, small group, organizational, political, and public communication.

- Students will demonstrate skill development and application of communication processes including message design, message delivery, critical thinking, creative thinking, and argumentation.

- Students will demonstrate the effects of communication and social interaction based on perceptions, construction of reality, relationship development, persuasion, and conflict resolution.

- Students will demonstrate an understanding of generating knowledge relating to the human communication process and social interaction using appropriate methods such as qualitative analysis (observations, case studies, interviews, focus groups), quantitative analysis (surveys, experimental design, content analysis) or critical approaches (rhetorical criticism, discourse analysis, textual analysis).
DEGREE PROGRAMS

The Bachelor of Science in Communication degree is offered in Communication Studies.

MAJOR

A major is offered in Communication Studies.

Each candidate for the degree of Bachelor of Science in Communication will complete School of Communication requirements including courses in the Required Areas of Study, the second major, and electives sufficient for a total of 66 credits in the liberal arts and sciences.

A Bachelor of Science student in Communication Studies will be permitted a maximum of 36 credits in Communication courses (excluding COM 101, COM 110, and COM 250) toward the 120-credit University degree.

Admission to the Communication Studies major

Before admission as a Communication Studies (COS) major, a student must:

A) Achieve sophomore standing;

B) Complete the five Core courses listed below, in residence at the University, all with grades of C or higher (C- is not acceptable).

Students who have obtained the written approval of the Director of Communication Studies to use transfer credit to satisfy one or more requirements of that major may be required to complete additional courses in residence at the University before being admitted to that major.

Upon completion of a student’s first 45 University credits while enrolled in the School of Communication, all University credits earned toward the major will be used in computing a student’s major cumulative grade point average; only those students with a cumulative average of 2.5 or higher will be admitted to a major.

A student who has completed 45 credits while enrolled in the School of Communication but who has not been admitted to one of the Communication majors may be dismissed from the School. A student who has completed 60 University credits while enrolled in the School but who has not been admitted to one of the Communication majors will be dismissed from the School. See PROBATION AND DISMISSAL.

THE COMMUNICATION STUDIES MAJOR

CORE COURSES
COM 101 Mass Media Communication in Society
COM 110 Communication Theory
COS 112 Interpersonal Communication
COM 250 Freedom of Expression and Communication Ethics
COS 210 Writing for Communication and Social Interaction
OTHER REQUIRED COURSES
Students majoring in Communication Studies must complete the following courses (15 credits):

COS 351 Qualitative Research Methods
COS 353 Quantitative Communication Research Methods and Analyses
COS 479 Capstone for Communication Studies

Select one of the following courses:
COS 343 Introduction to Intercultural Communication or
COS 445 Intercultural Communication: International Perspectives or
COS 446 Intercultural Communication: Domestic Perspectives

Select one of the following courses:
COS 405 Practicum in Communication and Social Interaction Research or
COS 498 Communication Studies Internship

All majors are required to complete six additional elective credits in Communication Studies chosen with the prior approval of a program advisor. A minimum of 15 credits at the 300-level or above is required within the 36-credit major.

MINOR
The minor in Communication Studies for students also majoring in the School of Communication requires nine additional credits in Communication Studies beyond the School’s core (COM 101, COM 110 and COM 250), at least six of which must be at the 300-level or above. The additional credits must be chosen with the prior approval of a Communication Studies area advisor.

The minor in Communication Studies for students not majoring in the School of Communication requires COM 110, plus twelve additional credits in Communication Studies, at least six of which must be at the 300-level or above. The additional credits must be chosen with the prior approval of a Communication Studies area advisor.

DEPARTMENT HONORS
School of Communication students may graduate with School Honors in Communication noted upon their diplomas and transcripts. Students should contact the School’s Office of Admissions, Academic & Alumni Services (2037 Wolfson Building) for details.

Students may receive recognition as graduates cum laude, magna cum laude, or summa cum laude if they meet the requirements set forth under GRADUATION HONORS in this Bulletin.

Communication Studies Course Listing
JOURNALISM - Dept. Code: CNJ
http://com.miami.edu/Journalism

INTRODUCTION

The program in Journalism prepares students to be writers, editors and/or designers for print media and online multimedia. The program enables students to gather information, learn how to evaluate that information and then communicate it to the interested parties.

Journalism majors learn through hands-on practice to gather information, verify facts, exercise news judgment, write against deadlines, edit, practice ethical decision-making, and adhere to press laws and regulations.

In addition to the School's core, students complete 10 journalism or related courses. The program begins with a course that surveys mass communication, including the role of print and multimedia journalism. Students mix skills and theory to explore the history of journalism, its laws and regulations.

Small laboratory classes allow students to practice writing skills in an introductory news writing course, an advanced reporting course and a senior-level course in advanced reporting. Electives include courses in newspaper, magazine and newsletter writing and graphics; still photography; newspaper or magazine editing and layout; computer-assisted reporting and the Internet; and global journalism and media. Journalism seniors participate in a news ethics and professional problems seminar to prepare them for on-the-job decision-making.

Print majors are encouraged to work for The Miami Hurricane, UM's award-winning, student-run newspaper published twice weekly in print and on the Hurricane Online site; Distraction magazine; the Ibis, UM's yearbook; and Communique, the School of Communication's newspaper.

Students choose from the plethora of newspapers, magazines, newsletters and websites published in the Greater Miami-Fort Lauderdale area for internships and part-time employment. Students have been awarded competitive internships from The Washington Post, the Los Angeles Times, Tribune Newspapers, Knight-Ridder Newspapers and the Poynter Institute, among others.

EDUCATIONAL OBJECTIVES

The educational objectives of the Journalism Program require that:

- Students can locate and gather information, using interpersonal interviewing skills, knowledge about domestic and global information sources and social and institutional information processes, sophisticated reporting techniques, computer skills, and general knowledge and common sense.

- Using knowledge from broad-based liberal arts and science courses and courses in journalism practice, history, law and ethics, students can critically analyze complex information and organize it based on sound reasoning, cultural awareness, and journalistic principles.
• Students can write, visualize and otherwise accurately communicate, with knowledge of grammar, style, and journalistic principles, complex information to diverse mass audiences.

• Students can convey information in traditional and multimedia formats in the context of a dynamic and converging news media environment.

DEGREE PROGRAMS

The Bachelor of Science in Communication degree is offered in the Journalism Program.

MAJOR

A major is offered in Journalism.

Each candidate for the degree of Bachelor of Science in Communication will complete School of Communication requirements including courses in the Required Areas of Study, the second major, and electives sufficient for a total of 66 credits in the liberal arts and sciences.

A Bachelor of Science student in Journalism will be permitted a maximum of 30 credits in Mass Communication courses (excluding COM 101, COM 110, and COM 250) toward the 120-credit University degree.

Admission to the Journalism major

Before admission as a Journalism (CNJ) major, a student must:

A) Achieve sophomore standing;

B) Complete the five Core courses listed below, in residence at the University, all with grades of C or higher (C- is not acceptable).

Students who have obtained the written approval of the Director of the Journalism major to use transfer credit to satisfy one or more requirements of that major may be required to complete additional courses in residence at the University before being admitted to that major.

Upon completion of a student’s first 45 University credits while enrolled in the School of Communication, all University credits earned toward the major will be used in computing a student’s major cumulative quality point average; only those students with a cumulative average of 2.5 or higher will be admitted to a major.

A student who has completed 45 credits while enrolled in the School of Communication but who has not been admitted to one of the Communication majors may be dismissed from the School. A student who has completed 60 University credits while enrolled in the School but who has not been admitted to one of the Communication majors will be dismissed from the School. See PROBATION AND DISMISSAL.
THE JOURNALISM MAJOR

CORE COURSES
COM 101 Mass Media Communication in Society
CNJ 111 Introduction to News Media Writing
COM 110 Communication Theory
COM 250 Freedom of Expression and Communication Ethics
CNJ 319 History of Journalism

OTHER REQUIRED COURSES
CNJ 216 News Reporting and Writing
CNJ 303 Mass Media Law
CNJ 461 Seminar in News Ethics and Problems

Students must select one of the following 15-credit tracks of specialization:

A. The NEWS Track
CVJ 221 Introduction to Photojournalism
CNJ 444 Public Affairs Reporting
CNJ 445 In-Depth Reporting in a Convergent Media Environment

Select one of the following courses:
CNJ 513 Computer-Assisted Reporting or
CNJ 515 Reporting and the Internet

Select one of the following courses:
CNJ 381 Newspaper Editing and Layout or
CNJ 442 Online Journalism

B. The MAGAZINE/FEATURES Track
CVJ 106 Multimedia Design
CVJ 221 Introduction to Photojournalism
CNJ 382 Publication Planning and Editing

Select one of the following courses:
CNJ 513 Computer-Assisted Reporting or
CNJ 515 Reporting and the Internet or
CNJ 442 Online Journalism

Select one of the following:
CNJ 544 Feature Writing or
CNJ 446 Travel Writing

C. The GLOBAL JOURNALISM Track
CNJ 510 Comparative Media Systems
CNJ 511 Global Media
CNJ 517 International Journalism

Six additional credits from the School of Communication are required at the 300-level or higher, chosen with the prior approval of a Journalism advisor. Students are encouraged to complete their second major in Latin American Studies, International Studies, or
Comparative Politics. Other disciplines that include a significant international or cross-cultural focus can be approved by a Journalism advisor.

**D. The PUBLICATION DESIGN Track**

CVJ 106 Multimedia Design  
CVJ 221 Introduction to Photojournalism  
CVJ 341 Web Design

Select one of the following courses:  
CNJ 381 Newspaper Editing and Layout or  
CNJ 382 Publication Planning and Editing

Three additional credits from the School of Communication are required at the 300-level or higher, chosen with the prior approval of a Journalism advisor.

**E. The NEWS DIGITAL Track**

CVJ 106 Multimedia Design  
CNJ 442 Online Journalism  
CNJ 515 Reporting and the Internet

Select one of the following courses:  
CEM 435 Telecommunication Systems or  
CNJ 513 Computer-Assisted Reporting

Select one of the following courses:  
CVJ 209 Audio/Visual Production or  
CVJ 221 Introduction to Photojournalism or  
CVJ 341 Web Design or  
CNJ 419 Advanced Web Production or  
CVJ 422 Programming for Interactivity

**F. The CUSTOM Track**

Fifteen additional credits from the School of Communication are required, nine of them at the 300-level or higher, chosen with the prior approval of a Journalism advisor.

**ADDITIONAL REQUIREMENTS FOR THE JOURNALISM MAJOR**

Students majoring in Journalism will be required to complete the following six credits that will be in addition to the credits required by the School in People and Society:  
Three credits in History  
Three credits in Political Science  
Journalism students must complete COS 211 as a general University elective.
MINOR

The minor in Journalism requires:
COM 101
CNJ 111
CNJ 216
CNJ 303
CNJ 381 or CNJ 382

One of the following courses is also recommended: CVJ106, CNJ 319, CNJ 442, CNJ 444, CNJ 461 or CNJ 544.

DEPARTMENT HONORS

School of Communication students may graduate with School Honors in Communication noted upon their diplomas and transcripts. Students should contact the School’s Office of Admissions, Academic & Alumni Services (2037 Wolfson Building) for details.

Students may receive recognition as graduates cum laude, magna cum laude, or summa cum laude if they meet the requirements set forth under GRADUATION HONORS in this Bulletin.

Journalism Course Listing
MOTION PICTURES - Dept. Code: CMP
http://com.miami.edu/MotionPictures

INTRODUCTION

The Motion Pictures program offers a complete curricular experience for its majors, including writing, production, the business of film and film studies. Students graduating from the program have not only studied motion picture theory, but have also had the opportunity to learn how to script a film or television program, produce that program (lighting, sound, set design, photography and editing) and how to promote and market a film or television production. A major is offered in Motion Pictures. Minors are offered in Motion Pictures and Motion Pictures Film Studies.

Motion Pictures majors may elect to specialize in one of four areas: production, screenwriting, business, or film studies. Production and screenwriting specialties allow students to concentrate in narrative film, documentary, animation, or experimental filmmaking. Most production courses utilize a 16mm motion picture or digital format. The film studies concentration examines the history, theory and criticism of film, while the business specialization concentrates on producing, financing, distribution, and related aspects of the industry.

Special facilities in the Motion Pictures program include the Bill Cosford Cinema, a site for the exhibition of first-run and alternative films, AVID and FinalCut Pro non-linear editing suites, and digital audio post-production and mixing facilities. The Canes Film Festival showcasing UM undergraduate and graduate films is held every year on campus with a showcase screening in Los Angeles.

The School also possesses one of the nation's largest privately held collections of 35mm and 70mm films dating from the beginning of motion pictures to the present.

Special programs include the summer Film Program in Prague, Czech Republic, the summer Film Program in England and Ireland, and an annual trip to Los Angeles which offers an opportunity to interact with leading film and television professionals.

EDUCATIONAL OBJECTIVES

The educational objectives of the Motion Pictures program require that:

• Students will demonstrate an understanding of and proficiency with the basic motion picture and digital visual storytelling collaborative creative process.

• Students will demonstrate fundamental competency with 16mm and digital production. Learning also the theoretical and historical underpinnings of production, students will be encouraged to apply these skills in narrative, documentary, and animation moving image forms.

• Students will demonstrate understanding and proficiency with the basics of story and writing for the screen. Through a progression of classes, student work will evolve from exercises in story development to screenplay formatting and feature-length screenplay writing. Students will be expected to demonstrate an understanding of
dramatic structures, narrative points of view, and their application to screenplay forms.

- Students will become familiar with major individual works, genres, national cinemas and movements and their significance within the history and theory of the moving image. Students will become conversant with major film theories and concepts in terms of both social and cultural contexts. Students will be expected to demonstrate the ability to articulate their thoughts and opinions regarding motion pictures within a diverse and multicultural critical and historical context.

DEGREE PROGRAMS

The Bachelor of Science in Communication is offered in the Motion Pictures Program.

MAJOR

A major is offered in Motion Pictures.

Each candidate for the degree of Bachelor of Science in Communication will complete School of Communication requirements including courses in the Required Areas of Study, the second major, and electives sufficient for a total of 66 credits in the liberal arts and sciences.

A Bachelor of Science student in Motion Pictures will be permitted a maximum of 36 credits in Mass Communication courses (excluding COM 101, COM 110, and COM 250) toward the 120-credit University degree.

Admission to the Motion Picture major

Before admission as a Motion Pictures (CMP) major, a student must:

A) Achieve sophomore standing;

B) Complete the five Core courses listed below, in residence at the University, all with grades of C or higher (C- is not acceptable).

Students who have obtained the written approval of the Director of the Motion Pictures major to use transfer credit to satisfy one or more requirements of that major may be required to complete additional courses in residence at the University before being admitted to that major.

Upon completion of a student’s first 45 University credits while enrolled in the School of Communication, all University credits earned toward the major will be used in computing a student’s major cumulative quality point average; only those students with a cumulative average of 2.5 or higher will be admitted to a major.

A student who has completed 45 credits while enrolled in the School of Communication but who has not been admitted to one of the Communication majors may be dismissed from the School. A student who has completed 60 University credits while enrolled in the School but
who has not been admitted to one of the Communication majors will be dismissed from the School. See PROBATION AND DISMISSAL.

THE MOTION PICTURES MAJOR

CORE COURSES
COM 101 Mass Media Communication in Society
CMP 103 Survey of Motion Pictures
COM 110 Communication Theory
CMP 126 Introduction to Scriptwriting
COM 250 Freedom of Expression and Communication Ethics

OTHER REQUIRED COURSES
CMP 204 History of Motion Pictures (1895-1940)
CMP 205 History of Motion Pictures (1941-Present)
CMP 222 Motion Picture Techniques
CMP 306 What is Cinema?

Select one of the following courses:
CMP 403 Film Directors or
CMP 406 American Movie Genres or
CMP 407 Film, Society, and Culture or
CMP 408 Women, Media and Popular Culture or
CMP 429 Nonfiction Film

Select one of the following courses:
CMP 455 Producing the Motion Picture or
CMP 509 Legal Aspects of Motion Pictures or
CMP 552 Motion Picture Marketing and Distribution

Twelve additional credits in Motion Pictures chosen with the prior approval of a Motion Pictures advisor. A minimum of 18 credits at the 300-level or above is required within the 45-credit major.

Participation in CMP 352 requires a cumulative quality point average of 3.0 or higher in CMP 103, 126, 204 or 205, and 222.

MINOR

The minor in Motion Pictures requires CMP 103, 204 or 205, 222, 306, and one of the following: 403, 406 or 407.

The minor in Motion Pictures Film Studies requires CMP 204, 205, 306, and two of the following: 403, 406, 407 or 429.
DEPARTMENT HONORS

School of Communication students may graduate with School Honors in Communication noted upon their diplomas and transcripts. Students should contact the School's Office of Admissions, Academic & Alumni Services (2037 Wolfson Building) for details.

Students may receive recognition as graduates cum laude, magna cum laude, or summa cum laude if they meet the requirements set forth under GRADUATION HONORS in this Bulletin.

Motion Pictures Course Listing
PUBLIC RELATIONS - Dept. Code: CPR
http://com.miami.edu/PublicRelations

INTRODUCTION

Students majoring in Public Relations learn how to promote a client’s business, image, or product in the international marketplace. Public relations focuses on managing a client’s (individual, product, business, governmental agency) key messages often through the free placement of messages in the media through media releases, editorial content, and promotion. Focus is on the strategic management and evaluation of key messaging systems in traditional and non-traditional media milieus. Both a major and a minor are offered in Public Relations.

Classroom requirements reflect the importance of research, computers, and the relationship of all media (electronic, print, and related technology) to public relations in both the public and private sectors.

Students create and execute PR campaigns in a senior-level campaigns class. Demand for PR interns is high, and the internship and practicum programs for up to four semesters provide students ample opportunity to work within a professional environment after being admitted to the major.

EDUCATIONAL OBJECTIVES

The educational objectives of the program in Public Relations require that:

• Students demonstrate they understand and can apply the principles and laws of freedom of speech and press, and understand how public relations research, theory, and tactics are used in organizations, roles and situations.

• Students produce effective, audience-sensitive communications in forms appropriate for intended audiences that demonstrate an understanding of the diversity of groups in a global society for public relations purposes.

• Students demonstrate an ability to think critically, creatively, and independently and express that through appropriately written and spoken communications that are grammatically and stylistically correct for the medium in which they are to be communicated.

• Students create, design, present and evaluate strategically planned campaigns that meet public relations objectives that demonstrate an understanding of the ethical principles of truth, accuracy, fairness and diversity.

• Students gain a broad understanding of public relations practices through an understanding of the history and role of professionals and institutions in shaping communications.

• Students demonstrate an ability to apply tools and technologies appropriate for the communications professions in which they work.
DEGREE PROGRAMS

The Bachelor of Science in Communication degree is offered in the Public Relations Program.

MAJOR

A major is offered in Public Relations.

Each candidate for the degree of Bachelor of Science in Communication will complete School of Communication requirements including courses in the Required Areas of Study, the second major, and electives sufficient for a total of 66 credits in the liberal arts and sciences.

A Bachelor of Science student in Public Relations will be permitted a maximum of 30 credits in Mass Communication courses (excluding COM 101, COM 110 and COM 250) toward the 120-credit University degree.

Admission to the Public Relations major

Before admission as a Public Relations (CPR) a student must:

A) Achieve sophomore standing;

B) Complete the five Core courses listed below, in residence at the University, all with grades of C or higher (C- is not acceptable)

Students who have obtained the written approval of the Director of the Public Relations major to use transfer credit to satisfy one or more requirements of that major may be required to complete additional courses in residence at the University before being admitted to that major.

Upon completion of a student’s first 45 University credits while enrolled in the School of Communication, all University credits earned toward the major will be used in computing a student’s major cumulative quality point average; only those students with a cumulative average of 2.5 or higher will be admitted to a major.

A student who has completed 45 credits while enrolled in the School of Communication but who has not been admitted to one of the Communication majors may be dismissed from the School. A student who has completed 60 University credits while enrolled in the School but who has not been admitted to one of the Communication majors will be dismissed from the School. See PROBATION AND DISMISSAL.

THE PUBLIC RELATIONS MAJOR

CORE COURSES
COM 101 Mass Media Communication in Society
COM 110 Communication Theory
CPR 116 Introduction to Public Relations in Society
CPR 232 Promotional Writing
COM 250 Freedom of Expression and Communication Ethics
OTHER REQUIRED COURSES
CPR 311 Research Methods for Public Relations
CPR 346 Advanced Public Relations Writing and Design
CPR 436 Public Relations Campaigns

Five additional courses (15 credits) in a concentration at the 300-level or higher (12 credits if a 200-level School of Communication graphics design course is taken as prerequisite to CPR 346) must be selected, with the prior approval of a Public Relations advisor, from School courses leading to professional orientation and practice. Examples of such concentrations might be International Public Relations, Health Public Relations, Sports Promotion, Interactive Media, Corporate Communication, Public Affairs, or Travel and Tourism.

Students may not use courses required to fulfill the requirements for the public relations major outside of the major, a second major or any minor as elective credits towards the public relations 30-credit major requirement.

ADDITIONAL REQUIREMENTS FOR THE PUBLIC RELATIONS COMMUNICATION MAJOR

For the School’s People and Society requirement, students must complete ECO 211 and POL 201.

For the School’s Arts and Humanities requirement, students must complete COS 211 and are strongly encouraged to complete ART 109 [see DOUBLE COUNTING], and six additional credits in Arts and Humanities; students wishing to participate in Study Abroad should consider a two-course basic language sequence to complete the requirement.

Students must complete MKT 301 plus three additional 300-level or above credits in the School of Business Administration chosen with the prior approval of their Public Relations advisor. Public Relations majors are strongly encouraged to complete either the Marketing (MKT 301, 310, 340 and 360) or General Business (ACC 211, FIN 300, MGT 304, MKT 301) minor with a cumulative grade point average of 2.50 or higher in Marketing and 2.0 or higher in General Business.

These courses may not count as public relations major electives if the Marketing or General Business minor is declared (MKT 301 and the three additional 300-level or above credits will not count as public relations major elective credits).

MINOR

The minor in Public Relations requires passing CPR 116, 232, 311, 346, and 436 with grades of C or higher with a cumulative grade point average of at least 2.50. Minors may participate in the program’s internship program after completing CPR 116, 232 and 311 with a cumulative grade point average of 2.75 or higher by enrolling in CPR 380 with program director approval.
DEPARTMENT HONORS

School of Communication students may graduate with School Honors in Communication noted upon their diplomas and transcripts. Students should contact the School’s Office of Admissions, Academic & Alumni Services (2037 Wolfson Building) for details.

Students may receive recognition as graduates cum laude, magna cum laude, or summa cum laude if they meet the requirements set forth under GRADUATION HONORS in this Bulletin.

Public Relations Course Listing
VISUAL JOURNALISM - Dept. Code: CVJ
http://com.miami.edu/VisualJournalism

INTRODUCTION

The Visual Journalism program emphasizes visual storytelling that includes meaningful content within the global community. It teaches technical literacy in traditional and cutting-edge technologies. Each course builds upon an understanding of the visual storytelling process, and each course stresses the theoretical underpinnings and ethical foundations of the journalistic tradition.

Our internationally recognized faculty is a blend of award-winning professionals and distinguished researchers and includes two Knight Chairs specializing in Visual Journalism and Cross-Cultural Journalism. Alumni of the program include award-winning journalists working with major news organizations.

EDUCATIONAL OBJECTIVES

The educational objectives of the Visual Journalism Program require that students:

• Demonstrate knowledge of the workings of the diverse global communication marketplace and be able to identify the impact of historical, technological, ethical and sociological influences in the communication evolution.

• Demonstrate the ability to gather and chronicle community-based information using research, interpersonal interviewing skills and media technology tools.

• Demonstrate the development of a professional identity through the ability to articulate and practice the values, ethics, social responsibility and expectations of the profession.

• Demonstrate the ability to critically analyze one’s own creative work as well as the work of fellow students and professionals in terms of content and aesthetics.

• Demonstrate service to the campus and community at large through participation in the creation and delivery of content for the campus and community audiences.

• Demonstrate technical proficiency in visual storytelling using both traditional and cutting-edge technology.

DEGREE PROGRAMS

The Bachelor of Science in Communication is offered in the Visual Journalism Program.
MAJOR

A Major is offered in Visual Journalism.

Each candidate for the degree of Bachelor of Science in Communication will complete School of Communication requirements including courses in the Required Areas of Study, the second major, and electives sufficient for a total of 66 credits in the liberal arts and sciences.

A Bachelor of Science student in Visual Journalism will be permitted a maximum of 30 credits in Mass Communication courses (excluding COM 101, COM 110, and COM 250) toward the 120-credit University degree.

Visual Journalism majors who select ART as their second major may choose any ART area of specialization except Photography.

Admission to the Visual Journalism major

Before admission as a Visual Journalism (CVJ) major, a student must:

A) Achieve sophomore standing;

B) Complete the five Core courses listed below, in residence at the University, all with grades of C or higher (C- is not acceptable).

Students who have obtained the written approval of the Director of the Visual Journalism major to use transfer credit to satisfy one or more requirements of that major may be required to complete additional courses in residence at the University before being admitted to that major.

Upon completion of a student's first 45 University credits while enrolled in the School of Communication, all University credits earned toward the major will be used in computing a student's major cumulative quality point average; only those students with a cumulative average of 2.5 or higher will be admitted to a major.

A student who has completed 45 credits while enrolled in the School of Communication but who has not been admitted to one of the Communication majors may be dismissed from the School. A student who has completed 60 University credits while enrolled in the School but who has not been admitted to one of the Communication majors will be dismissed from the School. See PROBATION AND DISMISSAL.

THE VISUAL JOURNALISM MAJOR

Core Courses
COM 101  Mass Media Communication and Society
COM 110  Communication Theory
COM 250  Freedom of Expression and Communication Ethics
CVJ 106  Multimedia Design
CVJ 221  Introduction to Photojournalism
**Other Required Courses**

CVJ 209  Audio Visual Production  
CVJ 341  Web Design  

Select one of the following courses:  
CNJ 111  Introduction to News Media Writing  
CMP 126  Introduction to Scriptwriting  
CEM 201  Writing for the Electronic Media  

**Multimedia Programming Track**  
CVJ 309  Database Journalism  
CVJ 422  Programming for Interactivity  
CNJ 595  Advanced Programming  
SOC elective  

Select one of the following courses:  
CVJ 519  Interactive Storytelling  
CNJ 599  Adv. Projects (Team Multimedia Project)  

**News Design Track**  
CVJ 331  Infographics  
CNJ 595  Special Topics: 3D Infographics  
CVJ 409  Advanced Feature Design  
SOC elective  

Select one of the following courses:  
CVJ 519  Interactive Storytelling (Capstone)  
CNJ 599  Adv. Projects (Team Multimedia Project - Capstone)  

**Photojournalism Track**  
CVJ 361  Advanced Photojournalism  
CVJ 435  Video Journalism  
CNJ 595  Special Topics: Photographic Storytelling  
SOC elective  

Select one of the following courses:  
CVJ 519  Interactive Storytelling (Capstone)  
CNJ 599  Adv. Projects (Team Multimedia Project - Capstone)  

**MINOR**  

**VISUAL JOURNALISM MINOR:** CVJ 106, 209, 221, 341, and one 300-level or higher from one of the three tracks of specialization in Visual Journalism.

[Visual Journalism Course Listing]
DIVISION OF CONTINUING AND INTERNATIONAL EDUCATION (DCIE)
www.educationmiami.com

The mission of the DCIE is to provide educational programs to meet the needs of non-traditional students, including adults, pre-college students, part-time students and international students.

Our primary goal is to promote the academic excellence of the University of Miami and the expertise of the faculty through outreach programs. By developing, marketing, and administering short courses, seminars, workshops, lectures, and special events, Continuing and International Education is able to provide access to the public at large as well as to degree seeking students. In addition, Continuing and International Education coordinates weekend credit courses, administers the Summer Session and Intersession, and provides counseling and advising services for returning adult students. Continuing and International Education is an agent for University outreach in the community and serves the corporate world with professional continuing education and workforce training.

The Division has three centers: Allen Hall, on the Coral Gables Campus is the administrative headquarters for the DCIE and the location for the Intensive Language Institute, programs for adults returning to school and preparing for career advancement and youth programs. The University’s downtown center, together with the City of Miami’s 5,000-seat auditorium and exhibition hall, and the Hyatt Regency Hotel, comprise the University of Miami/James L. Knight International Center. The Koubek Center, located in Little Havana between Coral Gables and downtown Miami, has served the local community since 1960, offering courses and certificates taught in Spanish. The Division also has a site at IMG Academies in Bradenton, Florida providing educational opportunities for the Bradenton/Sarasota/Tampa area and for young athletes training at the IMG facility and their families.

BACHELOR OF GENERAL STUDIES DEGREE PROGRAM

INTRODUCTION

Under the leadership of Collegiate Studies, the DCIE offers the Bachelor of General Studies (BGS) degree program, which provides a solid and rigorous, interdisciplinary academic experience for adult, part-time students. It is designed specifically for adults who have previously attended college but have not yet completed their undergraduate degrees, as well as for those who have never had the opportunity to pursue post-secondary studies. You are eligible for admission if you graduated from high school at least four years ago, have not attended the University of Miami during the past calendar year, have a minimum of 2.2 grade-point average on previous college work, and are a U.S. citizen or permanent resident.

The BGS curriculum allows an individual the flexibility to design an area of concentration to enhance professional or personal goals. The core of the BGS is its interdisciplinary colloquia. Designed to strengthen critical thinking and writing skills of the students, each course is taught by exceptional University of Miami faculty who are committed to the adult student.

Advisors offer personalized attention in career exploration and academic advising and discuss educational alternatives with potential students. Every effort is made to ensure that
the process - from admission to registration - is efficient and convenient. Students may attend day, evening, or weekend classes to complete their educational goals.

To underscore its commitment to the adults in our community, the University offers a special tuition to students in the Bachelor of General Studies program which enables the adult, part-time student to pursue this degree at an affordable tuition rate.

The admission process takes into consideration that one’s grade-point average, while significant, is only one factor in determining an applicant’s qualification for acceptance. Therefore, an admissions interview with an advisor from the DCIE will be scheduled to supplement the information you provide on the BGS application form, which may be obtained by calling Collegiate Studies at (305) 284-2727 or at www.miami.edu/bgsdegree.

REQUIREMENTS FOR GRADUATION

I. Candidates for the Bachelor of General Studies (BGS) degree must complete the required credit hours and achieve the quality point average specified for students in the University at large as stated in the section Academic Regulations and Procedures. Exempted is interpreted to refer exclusively to those exemptions provided under the following headings:
   A. Advanced Standing and Placement (Credit Granted);
   B. Credit by Examination;
   C. Advanced Placement (by proficiency examination);

II. Except where a required course is one designated to correct a deficiency in his/her college preparation, the student may apply the credit hours of any required course from which he is exempted toward the hours for that subject as a general requirement for graduation, toward the 120 credits required for graduation. (See Departmental Proficiency Examinations.) An exemption may be granted for English 105, but these credits may not be applied towards the 120 required for graduation.

III. Credit Only
Only free electives may be taken under this option. Courses which satisfy the major, the distributions of the School, the General Education Requirements of the University or any course for which a C or better is required may not be taken for credit only.

IV. Required Areas of Study
A. English Composition 3-6 credits
Students must take English 105 and 106 (or their equivalent) during the first year of enrollment in the School.

Foreign Languages 3-9 credits
Students must earn at least 3 credits of foreign language at the 200 course level or higher.

B. People and Society (History/Social Sciences) 15 credits
BGS degree candidates must earn 6 credits in a single two-semester History survey sequence. In addition, BGS degree candidates must earn 9 credits in courses taught by at least two of the following disciplines: African American Studies, American Studies in Social Science, Anthropology, Communication, Economics, Education and Psychological Studies, Geography, Judaic Studies, Political Science, Psychology and Sociology.
C. Arts and Humanities 21 credits
Credits must be earned in each of the following disciplines: Art History, Literature, Philosophy, and Religious Studies.

In addition, BGS degree candidates must earn 9 credits in any of the following disciplines: American Studies in Humanities, Art, Art History, Communications (Motion Pictures), Dance, Theatre Arts, Musicology, English, Italian, German, Portuguese, Spanish or French Literature, Philosophy, Religion or Women’s Studies in Humanities.

D. Mathematics/Computer Information Systems 9 credits
Math 101 or an acceptable score on the math placement test is required.
In addition, students must take either Math 103 (finite mathematics) or a math course approved by the advisor. Finally, a 3-credit course in computer information systems is also mandatory.

E. Natural World (Natural Sciences) 6 credits
BGS degree candidates may fulfill the Natural Sciences requirement by taking 6 credits in one or more of the following disciplines: Biology, Chemistry, Geological Sciences, Environmental Science, Marine Sciences, Physics and Physical Sciences.

V. Area of Concentration 30 Credits
Every candidate for a degree must select an area of concentration. The candidate designs an area of concentration that meets his/her professional and personal goals. The course of study is reviewed and approved by the Dean and/or Director of the program.

VI. COLLOQUIA 15 Credits
BGS Colloquia are seminar courses, of particular interest to adult students, especially designed to foster critical thinking and taught by faculty from all departments. Candidates for the BGS degree select 5 colloquia to meet requirements for graduation (ENG 333 IS A REQUIRED COLLOQUIUM)

VII. Electives 15 credits
Students choose elective courses in consultation with their advisor to meet the 120-credit graduation requirement.

CREDIT CERTIFICATE PROGRAMS

Not everyone needs or wants a complete degree program. Recognizing this, the DCIE - in cooperation with several other colleges and schools of the University - offers special Credit Certificate Programs.

Focusing on a single subject, these certificate programs allow students to concentrate on courses that offer the specific knowledge and skills needed for career advancement. All courses are taught by University of Miami faculty at the undergraduate level and are taken for academic credit.

Each certificate program varies in the number of required credits. While required courses are noted, students may work with an advisor in developing an individually-designed program.
Credit certificate programs are currently available in the following subject areas:

**Certificate in Accounting**
The Undergraduate Certificate in Accounting is awarded by the Division of Continuing and International Education and the Department of Accounting. It is designed for those who hold at least an undergraduate degree (preferably in business) from an accredited college or university, and whose present interest or occupation is accounting. The program requires students to take the same 24 semester hours of accounting courses required for the undergraduate major in Accounting. To sit for the Certified Public Accountant (CPA) examination in Florida, students must have completed 120 semester hours, including 24 semester hours of accounting (above the elementary level) and 24 semester hours of business courses, including a minimum of six hours of business law. There are additional educational requirements to become licensed as a Certified Public Accountant in Florida. Students may wish to consider either the Graduate Certificate in Accounting or the Graduate Certificate in Taxation (offered by the School of Business) to meet those additional education requirements.

**Certificate in Art History**
Awarded by the DCIE and the Department of Art and Art History, this certificate program is designed to offer an appreciation of the visual arts for those who may not have the time or the desire to pursue a full degree, and to provide special knowledge in the field of Art History for persons in complementary professions such as journalists, decorators, business managers, or studio art teachers who may occasionally teach humanities courses. The program also serves to enhance the cultural background of those who have already acquired a degree in another subject and to introduce Art History to those who may be considering a career in this field. A Certificate will be granted upon completion of 18 credit hours in Art History, beyond the survey level.

**Certificate in Computer Information Systems**
The Certificate in Computer Information Systems program is designed to provide a broad background in business computer information systems and to develop the technical skills one needs to stay competitive in this challenging field. The program will be of particular benefit to programmers and to management information systems analysts. The certificate is awarded by the DCIE and the Department of Computer Information Systems upon the successful completion of 18 credits.

**Certificate in General Business**
Awarded by the DCIE and the Department of Management, this certificate provides a broad understanding of the business world. A total of 21 credit hours is required to earn the certificate, including Principles of Accounting (ACC 211) and courses from at least three of the following general business areas: accounting, business management, finance, marketing, business law, economics, or management science. The admission process requires students to submit a copy of college transcript showing 60 credits completed and/or required prerequisites.

**Certificate in Human Resources**
Created for professionals currently in personnel or human resources management or those who wish to move into such positions in the future, the Certificate in Human Resources is awarded by the DCIE and the Department of Management after the successful completion of 21 academic credits. The admission process requires students to submit a copy of college transcript showing 60 credits completed and/or required prerequisites.
Certificate in International Business
The Certificate Program in International Business is designed to educate the student in the major components (law, accounting, tax, and marketing) of international business transactions. The program encompasses the legal and tax framework upon which international business is conducted, explores the uniqueness of international marketing, and investigates the international dimensions of business. The certificate program is designed for people in both small and large businesses, with interests ranging from export/import management to executive decision-making in multinational companies. This certificate requires a minimum of 18 academic credits. The admission process requires students to submit a copy of college transcript showing 60 credits completed and/or required prerequisites.

For more information, contact: Collegiate Studies, DCIE, University of Miami, P. O. Box 248005, Coral Gables, FL 33124-1610, (305) 284-2727.

OFFICE OF PROFESSIONAL ADVANCEMENT

Dedicated to providing the highest quality, competency-based, continuing professional education, the Office of Professional Advancement offers seminars, courses and certificate programs to meet the training and professional development needs of both corporations and individuals.

For more information, specific curriculum descriptions and a listing of current seminars, courses and workshops, contact the Office of Professional Advancement, DCIE, University of Miami, 111 Allen Hall, Coral Gables, Florida 33124-1610, (305) 284-5800 or email opa@miami.edu. Additional information on the web at: www.educationmiami.com/opa.

Personal Financial Planning Certificate Program

Designed for students preparing for professional examinations and professional practice in personal financial planning. Topics addressed are Investment Planning, Retirement Planning, Income and Estate Tax Planning, Insurance Planning, as well as how to develop a comprehensive financial plan. The University of Miami's comprehensive Personal Financial Planning certificate program will prepare you to pass the rigorous CFP® exam. This program is endorsed by the Certified Financial Planner Board.

Human Resources Management Certificate Program

This certificate provides the latest in proven techniques and strategies to effectively manage organizational challenges. This program covers the following topics: Legal and Regulatory Issues; Employment, Planning, and Placement; Current Trends in Employee Benefits; Developing and Administering Compensation Programs; Training and Development and Employee and Labor Relations. The HR Program is recognized by the Greater Miami Society for Human Resource Management, this program delivers a comprehensive curriculum ideally suited for all human resource professionals, especially small business owners.

Paralegal Studies Certificate program

The UM Paralegal Studies program is an intense four-month course of study which certifies the successful student as a qualified professional ready to start an exciting new career as a paralegal. Classes are taught by prominent local attorneys, Judges and Magistrates. The
Paralegal Program classes are offered on the weekends, weekdays or weekday evenings at various locations- Downtown, Broward, and Coral Gables. This program is also available online in both English and Spanish.

Coaching Certificate Training Program

This Coach Certificate Training Program is designed to support you in becoming a professional coach or in using coaching skills to enhance your leadership, management, and/or communication skills. This program has been written by master coaches and aligns with the International Coach Federation (ICF) Core Coaching Competencies. The University of Miami has designed a thorough, basic program that will allow you to make a powerful leap into using coaching skills and becoming a professional coach. This program is structured in 10 six hour modules with total classroom time of 60 hours.

Transportation Management Certificate Program

The Transportation Management Certificate Program will accelerate your career with the needed management skills in both public and private transportation and transit industries. Topics addressed are Transportation Development; Leadership Theories and Skill Enhancement; Financial, Service Quality, Maintenance and Operations Management; Risk Management, Safety and Security; Human Resource Management and Development; Managing the Policy Environment; and Marketing and Customer Service.

Computer Training Programs

Computer skills are essential to get a job or even to lead a productive life in the twenty-first century. The ability to use a computer is the new literacy. We offer a wide selection of classes that cater to different skill-levels and interests including our own UM certifications. Whether you are a beginner with no previous knowledge of computers, someone who wants to enhance their efficiency in the workplace, or an IT professional seeking a specific industry certification, we can offer the computer training that you need. Courses are offered on evenings and weekends.

Courses and Programs
For more detailed course descriptions, current schedule, and prices please visit our website at http://www.educationmiami.com/computer.

Office Productivity

Classes for Beginners
A great place to start! Our UM Computer Foundation course will help you develop a solid understanding of how computers work and teach you essential Internet skills. After you have mastered the fundamentals, you will be ready to explore Microsoft Windows and Word and develop the habits and learn the computer conventions which are used in all applications. This 6 hour course is designed for students with little or no computer experience. 6 hours

University of Miami Office Professional
The UM Office Professional is a certification course created by the University of Miami to establish a nationally recognized standard of business computer skills. The UM Office Professional is an intensive, hands-on computer training course which teaches, tests and
certifies all the core skills for Microsoft Windows, Word, Excel, Access, PowerPoint and Outlook.

This 40-hour course is designed for people who have some basic computer experience and want to become proficient in all the popular Microsoft office applications. The UM Office Professional certificate will demonstrate to potential employers that you are proficient in all the core computer skills required in the modern work-place. This is an invaluable tool for the job seeker to establish their computer credentials. It is also invaluable for the employer seeking qualified and productive staff. A more detailed description can be found at www.miami.edu/umop. 40 hours (5 weeks)

Students can choose individual 8-hour section or the complete 40 hour computer training program.

UMWM (UM Web Master):
Master the fundamental skills of planning, designing, building, launching, and maintaining a website. This course is great for small businesses interested in creating a professional website. 40 hours (5 weeks)

IT Professional Certifications

We offer training towards Microsoft certification.

CompTIA (Computer Technology Industry Association) provides testing that is vendor-neutral and sets the technology standards and guidelines for testing the competency of IT professionals.

Microsoft Certified Systems Engineer (MCSE):
An MCSE designs, installs, configures, and implements new network systems. Appropriate for aspiring Systems Engineers, Technical Support Engineers, Systems Analysts, Network Analysts, and Technical Consultants. 232 hours (7 months)

Microsoft Certified Professional Developer (MCPD) for Microsoft .NET:
This certification is aimed at professionals who design and develop business solutions with Microsoft .NET development tools, technologies, and platforms. MCPDs can develop desktop applications as well as multi-user, web-based, XML, n-tier, and transaction-based applications. 272 hours (9 months)

For more information about computer training:
Contact Us:
111 Allen Hall, 5050 Brunson Drive, Coral Gables, FL 33124 -1610
Phone: (305) 284-5800 Fax: (305) 284-6279
www.educationmiami.com/opa
ADULT STUDENT ACCESS PROGRAM (A.S.A.P.)

Students may take up to 30 credits in an undergraduate, non-degree seeking category, which may be applied to a degree program, after all application and degree-seeking requirements are met. In order to be enrolled in this category, students submit a one-page application and no other documents or transcripts; academic achievement is evaluated after 12 credits are attempted. A 2.5 G.P.A. is required to continue in the program beyond 12 attempted credits. The application for enrollment may be found on the Web at www.miami.edu/asap.

Students may take up to 6 credits, lifetime maximum, in a graduate, non-degree seeking category which may be applied to certain degree programs, after all application and degree seeking requirements are met. Not all graduate departments participate in this program. In order to enroll in this category, students submit a one-page application and no other documents or transcripts, after securing the written permission of the participating graduate department. The application for enrollment may be found on the Web at www.miami.edu/asap.

For more information, contact: The Adult Student Access Program, DCIE, University of Miami, P.O. Box 248005, Coral Gables, FL 33124-1610, (305) 284-6600.

CERTIFICATE PROGRAMS TAUGHT IN SPANISH AT THE KOUBEK CENTER

The Koubek Center offers Certificate Programs (in Spanish) in Business Management, International Commerce, Marketing, Accounting, Digital Journalism, TV Journalism, Public Speaking and Animation for Radio and TV, Journalism Online, and Clinical Hypnosis. Certificates in Business Fundamentals, International Trade and Healthcare Management are offered in English. Additional non-credit courses are offered in a variety of areas, such as Interior Decoration, Graphic Design, Event Planning and Cybernetics.

For more information, contact the Koubek Center at (305) 284-6001 or visit our web page, www.educationmiami.com/koubek.
INTRODUCTION

The School of Education offers undergraduate majors in Human and Social Development (Track I: Individual and Relational Development or Track II: Community and Program Development), Athletic Training, Exercise Physiology, Sport Administration, Elementary Education with ESOL endorsement (grades K-6), Secondary English with ESOL endorsement, and Secondary Chemistry, Biology, Mathematics and Social Science (grades 6-12).

The degrees of Master of Science in Education, Specialist in Education, and Doctor of Philosophy are available in various departments within the School. These programs are under the supervision of the Dean of the Graduate School and the School of Education Associate Dean for Graduate Studies.

VISION/MISSION

Our vision is to be a center of excellence in the study, promotion and integration of educational, psychological, and physical well-being in multicultural communities.

Our mission is to produce knowledge and prepare the next generation of leaders, researchers, and agents of change and well-being in education and the community.

ACCREDITATION

The Counseling Psychology Program offered by the Department of Educational and Psychological Studies is accredited by the American Psychological Association.

Exercise and Sport Sciences offers the Athletic Training Program that is accredited by the Commission on Accreditation of Athletic Training Education (CAATE); the Sport Administration Program is approved by the North American Society of Sport Management.

Teacher Education Programs offered by the School of Education are approved by the Florida Department of Education. In conjunction with the Phillip and Patricia Frost School of Music, the School of Education offers Teacher Education Programs in Music Education at the undergraduate and graduate levels.
DEGREE PROGRAMS - UNDERGRADUATE

DEPT. of EDUCATIONAL AND PSYCHOLOGICAL STUDIES - Dept. Code: EPS

MAJOR

The major in Human and Social Development (HSD) focuses on the promotion of healthy development and well-being. It prepares students to work with people in multiple contexts and settings:

- health and human services
- schools, universities, and community programs
- government and non-government agencies
- grass-roots movements

By exploring the scholarly and practical interconnections among individual, interpersonal, social, and community approaches to change, students learn to identify barriers to well-being and to implement effective change-oriented strategies and policies. HSD coursework emphasizes theory, research, and skills. It culminates in a practicum in a setting related to students’ area of interest and prepares them for both graduate studies and careers.

Students choose between two areas of concentration (tracks).

Track I: Individual and Relational Development (Track Code: HSDI)

This track emphasizes individual, relational, and family well-being. Focusing on context and diversity in mental health and on strength-based, preventive, and empowering approaches, courses cover counseling theories and techniques, interviewing skills, and the basics of human service work. Students are well-prepared for graduate study in the helping professions and careers in health and human services.

Track II: Community and Program Development (Track Code: HSDC)

This track promotes healthy individual and community development by emphasizing how social, institutional, and community dynamics affect personal well-being. Stressing the role of non-government agencies in fostering well-being for people with diverse backgrounds, HSDC prepares students to diagnose institutional and community challenges and offer strategies for positive change. Courses include community-focused planning, needs assessment, and change strategies and non-profit program development, implementation, and evaluation. Students are well-prepared for graduate study in community psychology and public policy and careers in community organizations.

HSD students must declare an approved second major or a minor in the School of Education (Elementary Education, Exercise Physiology or Sport Administration) or through any other school or college.
The following Education courses are required for the Human and Social Development major:

### HSD Track I: Individual and Relational Development (HSDI)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS 201</td>
<td>Psychosocial Change and Well-Being</td>
</tr>
<tr>
<td>EPS 270</td>
<td>Lifespan Human Development</td>
</tr>
<tr>
<td>EPS 291</td>
<td>Community and Character Development</td>
</tr>
<tr>
<td>EPS 311</td>
<td>Group Processes and Development</td>
</tr>
<tr>
<td>EPS 321</td>
<td>Understanding Human Service Organizations</td>
</tr>
<tr>
<td>EPS 351</td>
<td>Introduction to Statistics and Research Design</td>
</tr>
<tr>
<td>EPS 361</td>
<td>Community Psychology and Development</td>
</tr>
<tr>
<td>EPS 420</td>
<td>Introduction to Counseling and Therapy</td>
</tr>
<tr>
<td>EPS 460</td>
<td>Foundations of Human Service Work</td>
</tr>
<tr>
<td>EPS 470</td>
<td>Basic Skills in Counseling and Interviewing</td>
</tr>
<tr>
<td>Track Elective</td>
<td></td>
</tr>
<tr>
<td>EPS 471</td>
<td>Practicum in Human and Social Development</td>
</tr>
<tr>
<td>EPS 481</td>
<td>Practicum Seminar</td>
</tr>
</tbody>
</table>

### HSD Track II: Community and Program Development (HSDC)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS 201</td>
<td>Psychosocial Change and Well-Being</td>
</tr>
<tr>
<td>EPS 270</td>
<td>Lifespan Human Development</td>
</tr>
<tr>
<td>EPS 291</td>
<td>Community and Character Development</td>
</tr>
<tr>
<td>EPS 311</td>
<td>Group Processes and Development</td>
</tr>
<tr>
<td>EPS 321</td>
<td>Understanding Human Service Organizations</td>
</tr>
<tr>
<td>EPS 351</td>
<td>Introduction to Statistics and Research Design</td>
</tr>
<tr>
<td>EPS 361</td>
<td>Community Psychology and Development</td>
</tr>
<tr>
<td>EPS 422</td>
<td>Human Service Program Administration</td>
</tr>
<tr>
<td>EPS 452</td>
<td>Applied Research and Program Evaluation</td>
</tr>
<tr>
<td>EPS 462</td>
<td>Community Consultation and Leadership</td>
</tr>
<tr>
<td>Track Elective</td>
<td></td>
</tr>
<tr>
<td>EPS 471</td>
<td>Practicum in Human and Social Development</td>
</tr>
<tr>
<td>EPS 481</td>
<td>Practicum Seminar</td>
</tr>
</tbody>
</table>

Electives are available to bring total to 120 credits.

**MINOR IN HUMAN AND SOCIAL DEVELOPMENT – Code for Minor: HSDM**

- The requirements of the minor are 15 credits with a grade of C or better.
- Nine of these 15 credits must have been completed at UM; with prior approval, 3 of these 9 may be taken through the UM Study Abroad Program.
- EPS 201—Psychosocial Change and Well Being is required
• Two courses must be upper division courses (at or above the 300 level)
• The undergraduate coursework in Human and Social Development is open to all qualified University of Miami students.
• Determination for using these courses as a minor, as a specialization, and/or as electives in any program, is made by the individual student’s degree granting college or school.

REQUIREMENTS FOR GRADUATION

BACHELOR OF SCIENCE IN EDUCATION

I. Candidates for B.S.Ed. in the School of Education must complete the credit hours of work and achieve the quality point average specified for students in the University at large as stated in the section ACADEMIC REGULATIONS AND PROCEDURES, subject to regulations concerning the major specified in departmental and program sections of this Bulletin. Exempted is interpreted to refer exclusively to those exemptions provided under the following headings:

A. Advanced Standing and Placement (Credit Granted);
B. Credit by Examination;
C. Advanced Placement (by proficiency examination);
D. Statement of Foreign Language Requirements;

II. Except where a required course is one designated to correct a deficiency in his/her college preparation, the student may apply the credit hours of any required course from which he is exempted toward the hours specified for that subject as a general requirement for graduation and, upon payment of a recording fee, toward the 120 credits required for graduation. (See Departmental Proficiency Examinations.) An exemption may be granted for English 105, but these credits may not be applied toward the 120 credits required for graduation.

III. Credit Only
Only free electives may be taken under this option. Courses which satisfy the major, minor, the distributions of the School, the General Education Requirements of the University or any course for which a C or better is required may not be taken for credit only.

IV. Transferred credit may not count toward the completion of a major without the written approval of the Associate Dean of the School of Education.

V. Required Areas of Study

A. English Composition.
   Students must take English 105 and 106 (or their equivalent) during the first year of enrollment in the School. Admission to English 105 requires a placement score acceptable to the Department of English. Students whose placement scores are deemed unacceptably low will be required to take ENG 103 before taking ENG 105 and 106. Students whose placement scores are high may be exempt from ENG 105 but not from ENG 106 or its equivalent.

B. Mathematics
   B.S.Ed. degree candidates in the Department of Educational and Psychological Studies are required to take EPS 351 – Introduction to Statistics and Research Design. This course fulfills a Math requirement for the HSD major. Prior to taking EPS
351, students must complete MTH 101 or be exempt from MTH 101 based on any of the following tests: AP, IB, or an examination administered by the Department of Mathematics.

C. Foreign Languages (not applicable)

Areas of Knowledge

D. People and Society
B.S.Ed. Degree candidates must earn 6 credits in the social sciences.

E. Arts and Humanities
B.S.Ed. degree candidates must earn 12 credits in the areas of 1) Fine Arts; 2) Literature, Philosophy, and/or Religion. A minimum of 3 credits must be earned in the Fine Arts and a minimum of 3 credits in the Humanities. COS 211: Public Speaking is recommended for HSD majors.

F. Natural World
B.S.Ed. degree candidates may fulfill the Natural Sciences requirement by taking 6 credits in the following disciplines: Biology, Chemistry, Exercise Physiology, Geological Sciences, Marine Sciences, Physics, and Physical Sciences.

Note: No more than six credit hours may be taken in any one department to satisfy the areas of knowledge requirement.

VI. Writing
Every student must complete five writing-oriented (W) courses beyond ENG 105 and 106. Students must take one approved writing course section per academic year for a minimum of five writing intensive course sections, or their equivalents. A student is required to write at least 4000 words in each W course. Writing assignments will be assessed for both content and style. A W course listed in section VII (Required Areas of Study) may be used to satisfy both the writing and Required Areas of Study criteria. Foreign language courses that meet the criteria above may be used to satisfy the writing requirement. Transfer students must satisfy at least 3 courses of the writing requirement at the University of Miami.

VII. Major in Human and Social Development

- Every candidate for the B.S.Ed. degree in the Department of Educational and Psychological Studies must choose a major in Human and Social Development.
- Students choose between two areas of concentration: Track I – Individual and Relational Development (HSDI) or Track II – Community and Program Development (HSDC). To find the requirements for the major, consult this Bulletin under the discipline concerned, and confer with the designated departmental representative.
- HSD majors must maintain a minimum overall grade point average of 2.0 with a grade of C or better in all courses in the major.
- HSD students must declare an approved second major or a minor in the School of Education (Elementary Education, Exercise Physiology and Sport Administration) or through any other UM school or college.
VIII Electives

Electives may be chosen from any courses offered by the University. The student should consult an advisor before selecting elective courses. At least six credits must be at the 300 level or above.

For further information, address all inquiries to: Associate Dean; School of Education; P. O. Box 248065; University of Miami; Coral Gables, Florida 33124; Telephone: (305) 284-3415.

See the Department of Educational and Psychological Studies for list of courses:

Educational and Psychological Studies Course Listing
MAJORS

Bachelor of Science in Education, Athletic Training

The Athletic Training program at the University of Miami is an undergraduate education program that has been accredited by CAATE. The program is designed to provide a structured classroom and clinical experience to prepare students to become eligible to sit for the Board of Certification exam; Didactic courses are sequenced to maximize student learning. Please see the Athletic Training website or the Athletic Training Guidelines Manual for the course sequence form and other important information regarding the requirements for completion of the Athletic Training major.

Courses for the Athletic Training major:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESS140</td>
<td>Introduction to Athletic Training</td>
</tr>
<tr>
<td>ESS141</td>
<td>Introduction to Athletic Training Lab</td>
</tr>
<tr>
<td>ESS145</td>
<td>Responding to Emergencies</td>
</tr>
<tr>
<td>ESS202</td>
<td>Applied Nutrition for Health &amp; Performance</td>
</tr>
<tr>
<td>ESS210</td>
<td>Foundations to Athletic Training</td>
</tr>
<tr>
<td>ESS212</td>
<td>Elements of Sports Psychology</td>
</tr>
<tr>
<td>ESS230</td>
<td>Medical Terminology and Documentation</td>
</tr>
<tr>
<td>ESS232</td>
<td>Basic Human Physiology</td>
</tr>
<tr>
<td>ESS235</td>
<td>Personal and Community Health</td>
</tr>
<tr>
<td>ESS245</td>
<td>Kinesiology</td>
</tr>
<tr>
<td>ESS246</td>
<td>Gross Anatomy</td>
</tr>
<tr>
<td>ESS250</td>
<td>Orthopedic Assessment: Lower Extremity</td>
</tr>
<tr>
<td>ESS251</td>
<td>Orthopedic Assessment: Lower Extremity Lab</td>
</tr>
<tr>
<td>ESS260</td>
<td>Orthopedic Assessment: Upper Extremity</td>
</tr>
<tr>
<td>ESS261</td>
<td>Orthopedic Assessment: Upper Extremity Lab</td>
</tr>
<tr>
<td>ESS264</td>
<td>General Medical Conditions Evaluation</td>
</tr>
<tr>
<td>ESS321</td>
<td>Introduction to Systemic Exercise Physiology</td>
</tr>
<tr>
<td>ESS365</td>
<td>Principles of Exercise Prescription</td>
</tr>
<tr>
<td>ESS443</td>
<td>Athletic Training Lab I, Clinical</td>
</tr>
<tr>
<td>ESS444</td>
<td>Athletic Training Lab II, Clinical</td>
</tr>
<tr>
<td>ESS455</td>
<td>Athletic Training Lab III, Clinical</td>
</tr>
<tr>
<td>ESS456</td>
<td>Athletic Training Lab IV, Clinical</td>
</tr>
<tr>
<td>ESS461</td>
<td>Therapeutic Modalities</td>
</tr>
<tr>
<td>ESS462</td>
<td>Therapeutic Modalities Laboratory</td>
</tr>
<tr>
<td>ESS463</td>
<td>Therapeutic Rehabilitation</td>
</tr>
<tr>
<td>ESS464</td>
<td>Therapeutic Rehabilitation Laboratory</td>
</tr>
<tr>
<td>ESS465</td>
<td>Pharmacology</td>
</tr>
<tr>
<td>ESS470</td>
<td>Administrative Aspects of Athletic Training</td>
</tr>
</tbody>
</table>
Bachelor of Science in Education, Exercise Physiology

- The Undergraduate program at the University of Miami is designed for students to acquire a sound knowledge base in the sciences followed by the application of that knowledge base to human movement, exercise and sports performance. Clinical laboratory experiences supplement applied scientific theory in a rigorous academic setting.
- Students may pursue a pre-med track concurrent with the Exercise Physiology major and should inform their advisor if selecting this track.

Courses for Exercise Physiology major:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESS155</td>
<td>Biological and Health Related Bases of Exercise</td>
</tr>
<tr>
<td>ESS184</td>
<td>Athletic and Sports Injuries</td>
</tr>
<tr>
<td>ESS202</td>
<td>Applied Nutrition for Health and Performance (science majors only)</td>
</tr>
<tr>
<td>ESS212</td>
<td>Elements of Sports Psychology</td>
</tr>
<tr>
<td>ESS221</td>
<td>Introduction to Exercise: Bioenergetics and Skeletal Muscle Physiology</td>
</tr>
<tr>
<td>ESS222</td>
<td>Exercise Physiology Laboratory: Neuromuscular</td>
</tr>
<tr>
<td>ESS232</td>
<td>Basic Human Physiology</td>
</tr>
<tr>
<td>ESS245</td>
<td>Kinesiology</td>
</tr>
<tr>
<td>ESS246</td>
<td>Gross Anatomy</td>
</tr>
<tr>
<td>ESS321</td>
<td>Introduction to Systemic Exercise Physiology</td>
</tr>
<tr>
<td>ESS322</td>
<td>Exercise Physiology Laboratory: Cardiorespiratory</td>
</tr>
<tr>
<td>ESS365</td>
<td>Principles of Exercise Prescription</td>
</tr>
<tr>
<td>ESS366</td>
<td>Exercise Prescription Lab</td>
</tr>
<tr>
<td>ESS421</td>
<td>Systemic Exercise Physiology</td>
</tr>
<tr>
<td>ESS457</td>
<td>Clinical Internship in ESS</td>
</tr>
<tr>
<td>ESS466</td>
<td>Principles of Exercise Prescription: Neuromuscular</td>
</tr>
<tr>
<td>ESS477</td>
<td>Advanced Nutrition for Sports and Fitness</td>
</tr>
</tbody>
</table>

Writing Credit Courses – Exercise Physiology

Courses will be available for writing credit for Exercise Physiology pending individual request by students provided the following stipulations are met:

1. Permission of instructor
2. The course is under the direction of a full-time faculty member in Exercise Physiology
3. The student completes a writing credit agreement form and submits this form to the instructor within the first three weeks of a semester
4. The student completes assigned writing credit work by the end of the semester.
5. Assignments completed for writing credit are in addition to work normally required in the course
6. Students may be required to submit written work to the University of Miami Writing Center for review
University of Miami Honors Program – Exercise Physiology

The courses below will be available for honors credit for Exercise Physiology students provided the following stipulations are met:

1. The course is under the direction of a full-time faculty member in Exercise Physiology
2. The student completes an honors project permission form and submits this form to the instructor within the first three weeks of the semester.
3. The student completes assigned writing credit work by the end of the semester.
4. Assignments completed for honors credit are in addition to the University of Miami Writing Center for review.

The University of Miami currently has a 5-year program for undergraduate Exercise Physiology majors who want to obtain a Master’s Degree in Exercise Physiology. This can be done by taking one additional year of graduate courses. These students must take two graduate courses in Exercise Physiology in their senior undergraduate year in order to get an M.S.Ed. degree in Exercise Physiology in one extra year. Please check our website www.education.miami.edu for additional information on the “5-year program”. To be eligible you must apply for entrance into the 5-year program no later than the Fall of your junior year.

Bachelor of Science in Education, Sport Administration

- The Sport Administration major at the University of Miami is an undergraduate education program designed to prepare students for careers in the sport industry. The program is committed to the professional development of students so that competencies and skills relevant to the Sport Industry can be acquired over time. Specific competencies in organization, ethics, marketing, leadership and legal issues are emphasized.
- Field experience and internships are an essential component of the major. The ESS department is actively engaged in placing students in visible sports settings and appropriate sport environments so that students acquire relevant competencies and gain pragmatic hands-on experiences that are necessary for success in today’s sport industry.
- The Sport Administration major is a 39-credit major leading to a Bachelor of Science in Education.
- A Business Administration minor is suggested to complement the Sport Administration major and provide a well-rounded comprehensive background to the Sport Administration field.
Courses for the Sport Administration major:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESS201</td>
<td>Introduction to Sport Administration</td>
</tr>
<tr>
<td>ESS206</td>
<td>Sport Facilities and Event Management</td>
</tr>
<tr>
<td>ESS212</td>
<td>Elements of Sports Psychology</td>
</tr>
<tr>
<td>ESS302</td>
<td>Sport Marketing</td>
</tr>
<tr>
<td>ESS306</td>
<td>Essential Leadership in Sports and the Professions</td>
</tr>
<tr>
<td>ESS308</td>
<td>Ethical Decision Making in Sport and the Professions</td>
</tr>
<tr>
<td>ESS401</td>
<td>Legal Aspects of Sport</td>
</tr>
<tr>
<td>ESS403</td>
<td>Sport Information Management</td>
</tr>
<tr>
<td>ESS405</td>
<td>Finance and Budget in Sport Administration</td>
</tr>
<tr>
<td>ESS410</td>
<td>Problems and Issues in Sport Administration</td>
</tr>
<tr>
<td>ESS497</td>
<td>Internship in Sport Administration (9 Credit Hours)</td>
</tr>
<tr>
<td>ESS498</td>
<td>Seminar in Sport Administration</td>
</tr>
</tbody>
</table>

Business Administration Minor (optional)

ACC211  Principles of Financial Accounting
FIN300  Finance for Non-Business Majors
MGT304  Organizational Behavior
MKT301  Marketing Foundations

MINORS

A minor in any of the five areas below consists of 15 credits:

A minor in **Exercise Physiology** consists of ESS 155, ESS 202, ESS 212, ESS 221 and ESS 365.

A minor in **Sports Medicine** consists of ESS 184, ESS 202, ESS 212, ESS 245 and ESS 321.

A minor in **Sport Administration** consists of ESS 201, plus four (4) courses taken from the following: ESS 204, ESS 206, ESS 212, ESS 302, ESS 306, ESS 308, ESS 401, ESS 403, ESS 405 or ESS 490.

A minor in **Leadership** consists of ESS 306, ESS 308, EPS 311 plus six (6) restricted credits taken from the following: MGT 304, MGT 307, MGT 360, MGT 422, PHI 330, and PSY 215.

- A grade of C- or better is required for each course applied toward the minor; the overall quality point average for the minor must be 2.0 or above.
- The undergraduate coursework in Exercise Physiology, Sports Medicine, Sport Administration, and Leadership are open to all qualified University of Miami students.
- Determination for using these courses as a minor, as a specialization, and/or as electives in any program, is made by the individual student’s degree granting college or school.
REQUIREMENTS FOR GRADUATION

BACHELOR OF SCIENCE IN EDUCATION

I. Candidates for B.S.Ed. in the School of Education must complete the credit hours of work and achieve the quality point average specified for students in the University at large as stated in the section ACADEMIC REGULATIONS AND PROCEDURES, subject to regulations concerning the major specified in departmental and program sections of this Bulletin. Exempted is interpreted to refer exclusively to those exemptions provided under the following headings:

   A. Advanced Standing and Placement (Credit Granted);
   B. Credit by Examination;
   C. Advanced Placement (by proficiency examination);
   D. Statement of Foreign Language Requirements;

II. Except where a required course is one designated to correct a deficiency in his/her college preparation, the student may apply the credit hours of any required course from which he is exempted toward the hours specified for that subject as a general requirement for graduation and, upon payment of a recording fee, toward the 120 credits required for graduation. (See Departmental Proficiency Examinations.) An exemption may be granted for English 105, but these credits may not be applied toward the 120 credits required for graduation.

III. Credit Only
Only free electives may be taken under this option. Courses which satisfy the major, minor, the distributions of the School, the General Education Requirements of the University or any course for which a C or better is required may not be taken for credit only.

IV. Transferred credit may not count toward the completion of a major without the written approval of the Associate Dean of the School of Education.

V. Required Areas of Study.

A. English Composition.
Students must take English 105 and 106 (or their equivalent) during the first year of enrollment in the School. Admission to English 105 requires a placement score acceptable to the Department of English. Students whose placement scores are deemed unacceptably low will be required to take the non-credit course, ENG 103, before taking ENG 105 and 106. Students whose placement scores are high may be exempt from ENG 105 but not from ENG 106 or its equivalent.

B. Mathematics
B.S.Ed. degree candidates must complete MTH 103 or higher. Students who do not place directly into MTH 103 must enroll in either MTH 099 or MTH 101 based on results of placement tests.

C. Foreign Languages (applicable to Sport Administration majors only)
Students must earn at least 3 credits of a foreign language at the 200 course level or higher. Special 200-level courses are required of native speakers who choose to fulfill the language requirement.
Areas of Knowledge

D. People and Society
B.S.Ed. degree candidates must earn 9 credits in the History/Social Sciences. Three of these credits must be earned in ESS 212 Elements of Sport Psychology.

E. Arts and Humanities
B.S.Ed. degree candidates must earn 12 credits, which must be earned in the areas of 1) Fine Arts; 2) Humanities with a minimum of 3 credits in each area. The literature requirement may not be fulfilled by a course that has been used to fulfill the foreign language requirement. All Humanities credits must be earned in courses from among the following:
   1. Fine Arts: *Note: COS 211 Public Speaking is required of all Sport Administration majors.
   2. Literature
   3. Philosophy/Religion

F. Natural World
B.S.Ed. degree candidates may fulfill the Natural Sciences requirement by taking 6-12 credits (credits required depends on the program in which the student is enrolled) in the following disciplines: Biology, Chemistry, Geological Sciences, Marine Sciences, Physics, Physical Sciences, and designated ESS classes.

Note: No more than six credit hours may be taken in any one department to satisfy the areas of knowledge requirement.

VI. Writing
Every student must complete five writing-oriented (W) courses beyond ENG 105 and 106. Students must take one approved writing course section per academic year for a minimum of five writing intensive course sections, or their equivalents. A student is required to write at least 4000 words in each W course. Writing assignments will be assessed for both content and style. A W course listed in section V (Required Areas of Study) may be used to satisfy both the writing and Required Areas of Study criteria. Foreign language courses that meet the criteria above may be used to satisfy the writing requirement. Transfer students must satisfy at least 3 courses of the writing requirement at the University of Miami.

VII. Majors
Every candidate for the B.S.Ed. degree must choose a major in Athletic Training, Sport Administration or Exercise Physiology. To find the requirements for the major, consult this Bulletin under the discipline concerned, and confer with the designated departmental representative. Candidates with a major in Sport Administration have the option of selecting a second major in the School of Communications.

The choice of majors should be made no later than the beginning of the junior year and must be approved by the major department. Any student making unsatisfactory progress in a major may be required to change his/her major or to relinquish candidacy for the degree.

VIII. Minors
B.S.Ed. candidates in Sport Administration and Exercise Physiology are required to declare a minor. Sport Administration students require department approval before declaring a minor. Exercise Physiology students may choose not to declare a minor if they’re following the pre-med track, pre-physical therapy, pre-physician’s assistant or pre-chiropractic track.

IX. Electives
Electives may be chosen from any courses offered by the University. The student should consult an advisor before selecting elective courses. At least six credits must be at the 300 level or above.

For Graduate Coursework, Graduate Degree Programs Offered by The School of Education, see the Bulletin of the Graduate School.

For further information, address all inquiries to: Dean; School of Education; P. O. Box 248065; University of Miami; Coral Gables, Florida 33124; Telephone: (305) 284-3711

Exercise and Sport Sciences Course Listing
DEPT. of TEACHING AND LEARNING - Dept. Code: TAL

The Department of Teaching and Learning offers a Bachelor of Science in Education Degree in Elementary Education (grades K-6) with ESOL (English to Speakers of Other Languages) endorsement.

In conjunction with the College of Arts and Sciences, the Department also offers majors in Secondary Education in English with ESOL endorsement, in Chemistry, in Biology, in Mathematics, and in Social Science (grades 6-12). Students in Secondary Education programs are required to fulfill the general education requirements for the College of Arts and Sciences.

The Department offers three minors: (1) a traditional 15 credit minor, (2) an 18 credit minor that fulfills the State of Florida "Professional Training Option" for teaching in secondary-school English, secondary school mathematics, secondary-school science, secondary-school social studies, or in other areas of certification, and (3) a minor in Jewish Education.

MAJORS

Elementary Education with ESOL Endorsement

The Department of Teaching and Learning offers a major in Elementary Education that leads to certification in Elementary Education (grades K-6) with ESOL endorsement. The requirements for Elementary Education are a major in Elementary Education and a second major in the School of Education (Human and Social Development, Sport Administration, Exercise Physiology) or through any other approved major in another UM school or college. The following Education courses are required for the Elementary Education major:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>TAL 101</td>
<td>Social and Technological Foundations of Education</td>
</tr>
<tr>
<td>TAL 103</td>
<td>Psychological Foundations of Education</td>
</tr>
<tr>
<td>TAL 305</td>
<td>Classroom and Behavior Management</td>
</tr>
<tr>
<td>TAL 308</td>
<td>Language Development for Linguistically and Culturally Diverse Children</td>
</tr>
<tr>
<td>TAL 320</td>
<td>Introduction to Literacy Assessment and Instruction in the Elementary School</td>
</tr>
<tr>
<td>TAL 321</td>
<td>Language Arts in the Elementary School</td>
</tr>
<tr>
<td>TAL 422</td>
<td>Mathematics Instruction in the Elementary School</td>
</tr>
<tr>
<td>TAL 423</td>
<td>Science and Social Studies Instruction in the Elementary School</td>
</tr>
<tr>
<td>TAL 324/524</td>
<td>Education and the Fine Arts</td>
</tr>
<tr>
<td>TAL 425</td>
<td>Inclusive Classrooms in the Elementary School</td>
</tr>
<tr>
<td>TAL 426</td>
<td>Practicum in Reading</td>
</tr>
<tr>
<td>TAL 428</td>
<td>ESOL Curriculum, Methods, &amp; Assessment</td>
</tr>
<tr>
<td>TAL 470</td>
<td>Associate Teaching in the Elementary School (Semester-Long)</td>
</tr>
<tr>
<td>TAL 480</td>
<td>Seminar on Teaching</td>
</tr>
</tbody>
</table>

Please note: Students may not register for any classes above TAL 321 without admission to Candidacy.
Secondary Education

The Department of Teaching and Learning offers a major in Secondary education (grades 6-12). Certification is offered in the general areas of: English; Mathematics; Sciences (Biology, Chemistry); Social Science (Economics, Geography, History, International Studies, or Political Science). Each student should complete a major from the appropriate department in the College of Arts and Sciences and a second major in the Department of Teaching and Learning.

The requirements for a major leading to secondary certification include

(a) a major in the appropriate field of Arts and Sciences (Biology, Chemistry, Economics, English, Geography, International Studies, History, Math or Political Science only) and
(b) the following education courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAL 101</td>
<td>Social and Technological Foundations of Education</td>
</tr>
<tr>
<td>TAL 103</td>
<td>Psychological Foundations of Education</td>
</tr>
<tr>
<td>TAL 204</td>
<td>Building Positive Relationships in Diverse Inclusive Secondary Schools</td>
</tr>
<tr>
<td>TAL 304</td>
<td>Content Area Reading and Learning Strategies</td>
</tr>
<tr>
<td>TAL 506</td>
<td>Issues and Strategies for ESOL</td>
</tr>
<tr>
<td>TAL 540</td>
<td>Instruction and Assessment in the Secondary School</td>
</tr>
<tr>
<td>TAL 572</td>
<td>Associate Teaching in the Secondary School</td>
</tr>
<tr>
<td>TAL 580</td>
<td>Seminar on Teaching</td>
</tr>
<tr>
<td></td>
<td>One course selected from the following list as appropriate for the subject area</td>
</tr>
<tr>
<td>TAL 541</td>
<td>Instruction in Secondary English</td>
</tr>
<tr>
<td>TAL 542</td>
<td>Instruction in Secondary Mathematics</td>
</tr>
<tr>
<td>TAL 543</td>
<td>Instruction in Secondary Science</td>
</tr>
<tr>
<td>TAL 544</td>
<td>Instruction in Secondary Social Studies</td>
</tr>
<tr>
<td>English majors take TAL 428 in addition to TAL 506</td>
<td></td>
</tr>
<tr>
<td>TAL 428</td>
<td>ESOL Curriculum Methods and Assessment</td>
</tr>
</tbody>
</table>

Please note: Students may not register for classes above TAL 304 without admission to Candidacy.

MINORS

Traditional Education Minor

The requirements for a minor in education consists of 15 credits passed with a C or higher, with an overall GPA of 2.0 in courses selected from the list of acceptable TAL departmental courses. A minimum of six (6) credits must be numbered 300 or higher. This minor does not lead to teaching credentials.
Professional Training Option Certificate

The Professional Training Option (PTO) is a Florida Department of Education approved pathway for non-education majors to complete the Professional Education component, one of the requirements to become a certified teacher in the State of Florida. The PTO minor consists of 18 credits. Upon completion of the program courses, participants will receive a Certificate of Completion. UM transcripts will indicate that the student has completed a Florida State approved PTO program. Program completers will be eligible to apply for a Temporary Teaching Certificate in the State of Florida.

The required courses for the PTO minor are:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAL 101</td>
<td>Social and Technological Foundations of Education</td>
</tr>
<tr>
<td>TAL 103</td>
<td>Psychological Foundations of Education</td>
</tr>
<tr>
<td>TAL 204</td>
<td>Building Positive Relationships in Diverse Inclusive Secondary Schools</td>
</tr>
<tr>
<td>TAL 304</td>
<td>Content Area Reading and Learning Strategies</td>
</tr>
<tr>
<td>TAL 540</td>
<td>Instruction and Assessment in the Secondary School</td>
</tr>
</tbody>
</table>

One course selected from the following list as appropriate for the subject area

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAL 506</td>
<td>Issues and Strategies for ESOL</td>
</tr>
<tr>
<td>TAL 524</td>
<td>Education and the Arts</td>
</tr>
<tr>
<td>TAL 541</td>
<td>Instruction in Secondary English</td>
</tr>
<tr>
<td>TAL 542</td>
<td>Instruction in Secondary Mathematics</td>
</tr>
<tr>
<td>TAL 543</td>
<td>Instruction in Secondary Science</td>
</tr>
<tr>
<td>TAL 544</td>
<td>Instruction in Secondary Social Studies</td>
</tr>
</tbody>
</table>

The Minor in Jewish Education

The Minor in Jewish Education (EDJM) consists of 19 credits, twelve (12) of which are taken through the Department of Teaching and Learning and seven (7) through Judaic Studies including a one (1) credit colloquium course to explore how the history, structure, and values of Judaism can be related to educational thought and practice. The requirements for the Minor in Jewish Education can be fulfilled in the following ways:

12 Credits in the Department of Teaching and Learning

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAL 103</td>
<td>Psychological Foundations of Education (3 credits)</td>
</tr>
</tbody>
</table>

One of the following 3 credit courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAL 101</td>
<td>Social and Technological Foundations of Education</td>
</tr>
<tr>
<td>TAL 360</td>
<td>Education and American Culture</td>
</tr>
<tr>
<td>TAL 390</td>
<td>Politics of Education</td>
</tr>
</tbody>
</table>

ELEMENTARY EDUCATION TRACK

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAL 305</td>
<td>Classroom and Behavior Management</td>
</tr>
</tbody>
</table>
One of the following 3-credit courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAL 203</td>
<td>Children’s Literature</td>
</tr>
<tr>
<td>TAL 308</td>
<td>Language Development for Linguistically and Culturally Diverse Children</td>
</tr>
<tr>
<td>TAL 321</td>
<td>Language Arts in the Elementary School</td>
</tr>
<tr>
<td>TAL 324</td>
<td>Education and the Arts</td>
</tr>
<tr>
<td>TAL 422</td>
<td>Mathematics Instruction in the Elementary School</td>
</tr>
<tr>
<td>TAL 423</td>
<td>Science and Social Studies Instruction in the Elementary School</td>
</tr>
</tbody>
</table>

SECONDARY EDUCATION TRACK

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAL 540</td>
<td>Instruction and Assessment in the Secondary School (3 credits)</td>
</tr>
</tbody>
</table>

One of the following 3 credit courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAL 304</td>
<td>Content Area Reading and Learning Strategies</td>
</tr>
<tr>
<td>TAL 324</td>
<td>Education and the Arts</td>
</tr>
<tr>
<td>TAL 506</td>
<td>Issues and Strategies for ESOL</td>
</tr>
<tr>
<td>TAL 541</td>
<td>Instruction in Secondary English</td>
</tr>
<tr>
<td>TAL 542</td>
<td>Instruction in Secondary Mathematics</td>
</tr>
<tr>
<td>TAL 543</td>
<td>Instruction in Secondary Science</td>
</tr>
<tr>
<td>TAL 544</td>
<td>Instruction in Secondary Social Studies</td>
</tr>
</tbody>
</table>

7 credits in Judaic Studies

An integrative, interdisciplinary seminar to explore how the history, structure, and values of Judaism can be related to educational thought and practice.

Option I: Any two of the following UM-based 3-credit courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUS 231</td>
<td>Jewish Civilization: Society, Culture and Religion</td>
</tr>
<tr>
<td>ENG 205</td>
<td>Jewish Literature</td>
</tr>
<tr>
<td>GEG 300</td>
<td>Jewish Geography</td>
</tr>
</tbody>
</table>

Option II: UGALILEE: University of Miami Spring Semester in the Galilee

Any 6 of the 15 credits of UGALILEE course work can be used to fulfill the remaining Judaic Studies requirements of this minor. The balance of the credits for the UGALILEE Semester program can be used to fulfill other course requirements subject to approval by UM advisors in your major program of study or in lieu of Gen Ed. Requirements as approved.

PROFESSIONAL DEVELOPMENT SCHOOLS

Bel-Aire Elementary, Kensington Park Elementary, Henry S. West Laboratory Elementary, and Miami Palmetto Senior High School are operated by Miami-Dade County Public Schools. These schools provide the most up-to-date teaching environments, both in terms of design and curriculum, work in partnership with the University of Miami. Students are welcomed at these facilities for field experiences, and both students and faculty have the opportunity to
contribute to the high quality functioning of these professional development schools.

TEACHER EDUCATION PROGRAMS

Teacher Education Programs/majors that lead to a professional certification and applicable endorsements are approved by the Florida Department of Education (FLDOE). Please be advised that the State may implement new requirements for certification. These requirements will be mandatory with or without notice in this bulletin. The student is responsible for securing the application for certification and submitting the necessary documents and fees to the Florida Department of Education to obtain certification and endorsement. The DOE Certification Ombudsman in the School of Education is available to assist with certification and re-certification matters.

ACADEMIC POLICIES

ADMISSION

SELECTION FOR THE TEACHING PROFESSION

The faculty of the School of Education conceives its ultimate obligation to be to the children, adolescents, and adults who will be taught by teachers who have completed teacher preparation programs at the University. The quality of students admitted into the teacher education curriculum is as important as the skills, content, and concepts to be learned.

Most courses in the teacher education program require school site-based field experiences, culminating in a full-time 15-week internship. School districts require a criminal background check for field placement students and interns. Fingerprinting and FBI background check procedures are at the applicant's expense. Students with felony arrests may wish to consider these requirements carefully and, if necessary, seek advice from an advisor in the School of Education before applying to programs in the School of Education. Students without a valid social security number will not be eligible for placement in the school district. The Director of Clinical Supervision and Internship Placement will assist students through these requirements.

All students who wish to be considered for admission and/or retention in curricula leading to Florida Teacher Certification will be formally screened at certain points in their program of study with respect to the following criteria:

1. Admission to Teacher Candidacy (see requirements below).
2. Acceptable grade point averages (C or better for courses in the major).
3. Acceptable evaluations by University of Miami faculty.
4. Evaluations by clinical faculty at various field experience sites.
5. Satisfactory progress toward the completion of the Florida Educators Accomplished Practices requirement.

Students who receive a grade below C in their Associate Teaching semester will not be recommended for teacher certification.

Note: The Associate Dean of the School of Education must approve Appeals to the above policies.
REQUIREMENTS FOR ADMISSION TO TEACHER CANDIDACY


2. Completion of 40 semester hours. In addition, transfer students must have a minimum of 9 semester hours of acceptable credit earned at the University of Miami.

3. A 2.5 GPA in education core courses. No education classes lower than C.

4. A 2.5 GPA in the content area teaching major (for secondary education majors).

5. Completion of the Course Advisement Plan (CAP).

6. Satisfactory progress towards the completion of the Florida Educators Accomplished Practices requirement.

7. Above average ratings on field experience evaluations.

8. Further enrollment in teacher education course work offered by the School of Education is contingent upon the student meeting requirements 1-7 above.

9. All students must successfully complete M-DCPS fingerprinting process. Forms are available in the Office of Undergraduate Academic Services.

NOTE: Appeals to the policies stated 1-6 above must be directed to the Associate Dean of the School of Education.

REQUIREMENTS FOR ADMISSION TO ASSOCIATE TEACHING

Students submit a formal application to the Office of Undergraduate Academic Services for admission to Associate Teaching. Application materials are available and are to be completed by students no later than the week of September 25th for Spring Semester Associate Teaching and by the week of February 27th for Fall Semester Associate Teaching.

The following requirements must be met:
1. Admission to a Teacher Education Program (Teacher Candidacy).

2. Completion of application for admission to Associate Teaching, which includes the submission of designated folders to the Office of Undergraduate Academic Services.

3. Approval of the Associate Dean for Undergraduate Studies, the TAL Department Chair, and the Director of Teacher Education Programs.

4. Recommendations from two members of the faculty familiar with the student’s academic proficiency. One of these must be from a faculty member in the School of Education.

5. Earned a minimum of 90 credit hours.

6. All secondary majors must have completed approximately two-thirds of the courses in the teaching major and received departmental approval. Elementary majors must have completed TAL 308, 320, 321, 422, 423, 425, 426, 428, and received departmental approval.
7. Earned a minimum of 2.5 grade point average in core courses offered by the School of Education.

8. A grade of C or better is required of each course applied to the major.

9. Earned a minimum of a 2.5 grade point average overall.

10. Successfully completed pre-internship field experiences.

11. Demonstrate satisfactory progress towards the completion of the Florida Educators Accomplished Practices requirement.

12. Passed the Florida General Knowledge Test.

13. Taken the Professional Education Test and the Subject Area Exam.

NOTE: A MAXIMUM OF 12 CREDITS MAY BE TAKEN DURING THE ASSOCIATE TEACHING SEMESTER. No outside job may be held or additional classes taken during the Associate Teaching semester.

NOTE: the Associate Dean of the School of Education must approve Appeals to the above policies.

**REQUIREMENTS FOR GRADUATION**

**BACHELOR OF SCIENCE IN EDUCATION**

I. Candidates for B.S.Ed. in the School of Education must complete the credit hours of work and achieve the quality point average specified for students in the University at large as stated in the section ACADEMIC REGULATIONS AND PROCEDURES, subject to regulations concerning the major specified in departmental and program sections of this Bulletin. Exempted is interpreted to refer exclusively to those exemptions provided under the following headings:

   A. Advanced Standing and Placement (Credit Granted);
   B. Credit by Examination;
   C. Advanced Placement (by proficiency examination);
   D. Statement of Foreign Language Requirements;

II. Students must pass the Professional Education, General Knowledge and Subject Area tests of the Florida Teacher Certification Examination (FTCE).

III. Students must complete the Florida Educator Accomplished Practices and the P-12 Student Impact requirements.

IV. Except where a required course is one designated to correct a deficiency in his/her college preparation, the student may apply the credit hours of any required course from which he is exempted toward the hours specified for that subject as a general requirement for graduation and, upon payment of a recording fee, toward the 120 credits required for graduation. (See Departmental Proficiency Examinations.) An exemption may be granted for English 105, but these credits may not be applied toward the 120 credits required for graduation.
V. Credit Only

Only free electives may be taken under this option. Courses which satisfy the major, minor, the distributions of the School, the General Education Requirements of the University or any course for which a C or better is required may not be taken for credit only.

VI. Transferred credit may not count toward the completion of a major without the written approval of the Associate Dean of the School of Education.

VII. Required Areas of Study

A. English Composition.

Students must take English 105 and 106 (or their equivalent) during the first year of enrollment in the School. Admission to English 105 requires a placement score acceptable to the Department of English. Students whose placement scores are deemed unacceptably low will be required to take the non-credit course, ENG 103, before taking ENG 105 and 106. Students whose placement scores are high may be exempt from ENG 105 but not from ENG 106 or its equivalent.

B. Mathematics

B.S.Ed. degree candidates must complete MTH 103 or higher. Students who do not place directly into MTH 103 must enroll in either MTH 099 or MTH 101 based on results of placement tests.

C. Foreign Languages (not applicable)

Areas of Knowledge

D. People and Society

B.S.Ed. Degree candidates must earn 6 credits (credits required depends on the program in which the student is enrolled) in the History/Social Sciences.

E. Arts and Humanities

B.S.Ed. degree candidates must earn 12 credits must be earned in the areas of 1) Fine Arts; 2) Literature; and 3) Philosophy/Religion. At least 3 credits must be earned in the Arts and 3 credits in the Humanities. The literature requirement may not be fulfilled by a course that has been used to fulfill the foreign language requirement. All Humanities/Literature credits must be earned in courses from among the following:

1. Fine Arts: *Note: COS 211 Public Speaking is required of all Teaching and Learning and Sport Administration majors.
2. Literature
3. Philosophy/Religion

F. Natural World

B.S.Ed. degree candidates may fulfill the Natural Sciences requirement by taking 6 credits (credits required depends on the program the student is enrolled) in the following disciplines: Biology, Chemistry, Geological Sciences, Marine Sciences, Physics, and Physical Sciences.

Note: No more than six credit hours may be taken in any one department to satisfy the areas of knowledge requirement.
VIII. Writing
Every student must complete five writing-oriented (W) courses beyond ENG 105 and 106. Students must take one approved writing course section per academic year for a minimum of five writing intensive course sections, or their equivalents. A student is required to write at least 4000 words in each W course. Writing assignments will be assessed for both content and style. A W course listed in section V (Required Areas of Study) may be used to satisfy both the writing and Required Areas of Study criteria. Foreign language courses that meet the criteria above may be used to satisfy the writing requirement. Transfer students must satisfy at least 3 courses of the writing requirement at the University of Miami.

IX. Majors
Every candidate for the B.S.Ed. degree must choose a major in Elementary Education/ESOL endorsement, Secondary Education (English with ESOL endorsement, Chemistry, Biology, Mathematics, Geography, History, International Studies, Political Science or Economics) Athletic Training, Sport Administration or Exercise Physiology. To find the requirements for the major, consult this Bulletin under the discipline concerned, and confer with the designated departmental representative. Candidates with a major in the Department of Teaching and Learning are required to select an approved second major in the College of Arts and Sciences.

The choice of majors should be made no later than the beginning of the junior year and must be approved by the major department. Any student making unsatisfactory progress in a major may be required to change his/her major or to relinquish candidacy for the degree.

X. Minors
Every candidate for an 18-credit minor that fulfills the State of Florida’s Professional Training Option (PTO) must select, at the point of application to candidacy, a minor area of study: Secondary English, Secondary Mathematics, Secondary Science, or Secondary Social Studies or other areas of recognized certification.

XI. Electives
Electives may be chosen from any courses offered by the University. The student should consult an advisor before selecting elective courses. At least six credits must be at the 300 level or above.

Note: Common prerequisites and total length for state-approved teacher education programs are subject to revision based on legislative and State of Florida Department of Education rule changes.

For Graduate Coursework and Graduate Degree Programs Offered by The School of Education, see the Bulletin of the Graduate School.

For further information, address all inquiries to: Dean; School of Education; P. O. Box 248065; University of Miami; Coral Gables, Florida 33124; Telephone: (305) 284-3711

TEACHER EDUCATION PROGRAM

One of the roles of the School of Education is to serve as the professional school to conduct and coordinate programs for the preparation of teachers and other educational personnel at the University of Miami. Membership is held in the American Association of Colleges for Teacher Education, the National Association of State Directors of Teacher Education & Certification and in the Florida Association of Colleges for Teacher Educators. Teacher Education Programs (TEP) are accredited by the Florida Department of Education for the
preparation of elementary teachers, secondary teachers, music teachers and other school service personnel.

**LICENSURE/CERTIFICATION INFORMATION**

Only students who have completed all requirements for any State approved degree or certificate program will have their transcripts stamped as meeting State approved requirements for certification as well as appropriate endorsements. Students must meet requirements of the School of Education as well as the college or school issuing the second major.

Transcript stamp is contingent upon the student taking at least half of the coursework in teacher education at the University of Miami, including the Associate Teaching component. At least half of the coursework in the students teaching content area(s) must be taken at the University of Miami in the School of Education, School of Music, or other UM schools or colleges as determined by the program in which the student is enrolled.

For Graduate Degree Programs offered by the School of Education, see the Bulletin of the Graduate School.

For further information, address all inquiries to: Dean; School of Education; P.O. Box 248065; University of Miami; Coral Gables, Florida 33124; Telephone: (305) 284-3711

*Teaching and Learning Course Listing*
MISSION

The College of Engineering is committed to the constant pursuit of excellence in Engineering Education, Research, and Service to meet society’s changing needs and aspirations.

The objective of the College of Engineering is to serve society by offering high quality educational programs in the professional areas that it covers, and by performing research and community service, with high professional standards. The College is dedicated to educating engineers to deal with the major issues of society over the next generation - enhancing competitiveness, advancing health care, coming into harmony with the environment, utilizing technology for humankind's benefit, and supporting a sophisticated infrastructure. The goal of the faculty is to prepare students to be employed effectively in manufacturing, consulting, construction, information technology, service industries, and those related to medical care, in roles involving planning, design and implementation at all levels of decision making. Students are broadly prepared in technical, leadership, and management skills. Student development accrues both inside and outside the classroom, with input from faculty, employers, alumni, and other students. They are made acutely aware of environmental and international perspectives. Professional competence in the traditional sense is complemented by a broad capability to function in society. The College places great emphasis on providing students with a learning experience which will enable them to develop productive careers while creating engineering solutions to problems of our society. Learning is centered around real life experiences, which involve an understanding of science, mathematics, social values, and aesthetics, to produce economical solutions to physical problems which society encounters. Protection and enhancement of the environment is stressed at all levels, and emphasis is placed on the creative application of knowledge which will improve the quality of life.

DEPARTMENT AND PROGRAMS

The College of Engineering has five departments - Biomedical Engineering, Civil, Architectural, and Environmental Engineering, Electrical and Computer Engineering, Industrial Engineering, and Mechanical and Aerospace Engineering - offering curricula leading to Bachelor of Science degrees in the following fields: Aerospace Engineering, Architectural Engineering; Biomedical Engineering; Civil Engineering; Computer Engineering; Electrical Engineering; Engineering Science; Environmental Engineering; Industrial Engineering; Information Technology and Software Engineering; and Mechanical Engineering.

Interdisciplinary areas of study, areas of specialization within departments, and study in two entirely different areas are available through options, concentrations and dual degree programs.
ACCREDITATION

The programs in Architectural Engineering, Biomedical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Environmental Engineering, Industrial Engineering, and Mechanical Engineering are accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET).

The College offers graduate programs leading to degrees both in the traditional and interdisciplinary areas of study. Programs leading to the M.S. degree may include specialization in the following areas of study: Architectural Engineering, Biomedical Engineering, Civil Engineering, Electrical and Computer Engineering, Engineering Management, Environmental Engineering, Industrial Engineering, Mechanical Engineering, Medical Informatics, Structural Engineering, Transportation Engineering, and Thermal and Fluid Sciences. A joint M.S.I.E./M.B.A. program and a M.S. program in Management of Technology are offered in conjunction with the School of Business Administration, a M.S. in Environmental Health and Safety in conjunction with the School of Medicine and a M.S. in Occupational Health and Safety in conjunction with the School of Medicine.

Combined BS/MS Program

The College offers a five-year Bachelor of Science and Master of Science BS/MS degree program in Architectural Engineering, Biomedical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Environmental Engineering, Industrial Engineering, Information Technology and Software Engineering, and Mechanical Engineering. This program is specifically designed for those students who want to pursue their graduate study as they are completing their undergraduate study. The special conditions and processes for the five-year BS/MS Program are as follows:

Requirements:

You must be an undergraduate student in the College of Engineering (CoE). You must have a cumulative GPA of at least 3.0 at the time of application. Students should discuss the program and possibility of entering with an academic advisor. Completed applications are due prior to the beginning of the final exams in your junior year.

Application Process:

Get the application form (It is different for US students and International students) from the CoE Office of Research and Graduate Studies, fill it out and then return it to the same office. The application fee is waived for currently enrolled students in the CoE.

Take the GRE Examination before the end of your senior year and attain a combined score of more than 1000 on the Verbal and Quantitative portions.

Financial Implications:

Many financial aid programs, including those offered by the University and the federal and state governments are restricted to coursework required to complete an undergraduate degree. For further information contact the CoE office of Research and Graduate Studies.
Once admitted into BS-MS program:

In your senior year when you have a fulltime undergraduate status, you may take a maximum of twelve (12) graduate credits (a maximum of six (6) credits per semester). In order to register for these classes, you must complete and submit the special “SENIOR GRADUATE STATUS REQUEST FORM” for students in this program.

During your last one or two semesters, when you are taking graduate course work only, register as a graduate student.

A student wishing to withdraw from the BS/MS Program without the MS degree must complete all the requirements for the BS degree.

To qualify for the MS degree, the student must meet all the pertinent Graduate School requirements, including an acceptable score on the GRE (Graduate Record Examination) and a minimum of 3.0 GPA in the credits applied toward the MS degree.

The student is awarded both the BS and MS degrees at the end of the fifth year when all degree requirements are satisfied.

The Doctor of Philosophy Degree is currently offered in the area of Biomedical Engineering, Civil Engineering, Electrical and Computer Engineering, Ergonomics, Industrial Engineering, and Mechanical Engineering. The Ph.D. programs in Interdepartmental Graduate Studies permit, with approval of the Graduate Council, highly qualified students to pursue a privileged individualized program which cuts across disciplinary lines.

The Bulletin of the Graduate School presents more detailed information on these graduate programs.

The College is primarily housed in the J. Neville McArthur Building. Completed in 1959 and renovated in 1984, this attractive building is the gift of the late J. Neville McArthur, who was a member of the Board of Trustees and a prominent citizen and dairyman. The Engineering Annex is also a gift of the McArthur family. Students in the College of Engineering come from all parts of the United States and from many nations throughout the world, comprising one of the most diverse and cosmopolitan engineering student bodies in the country.

ENGINEERING LABORATORIES
The College of Engineering maintains a variety of well-equipped laboratories adequate for undergraduate instruction and providing for graduate and sponsored research.

COMPUTER LABORATORIES
Clarke Computational Laboratory
Computer Graphics Laboratory
Computer-Aided Design Laboratories

BIOMEDICAL ENGINEERING LABORATORIES
Biomaterials/Circulatory Assist Device Laboratory
Biomechanics Laboratory
Biomedical Instrumentation Laboratory
Dauer Hemodynamics Laboratory
Rehabilitative Engineering Laboratory
Neurosensory Laboratory
Biomedical Optics Laboratory
Tissue Biomechanics Laboratory
Tissue Engineering Laboratory

CIVIL, ARCHITECTURAL AND ENVIRONMENTAL ENGINEERING LABORATORIES
Geotechnical Engineering Laboratory
Structural Laboratories
Environmental Engineering Laboratory
Architectural Engineering Laboratory
Computer-Aided Engineering Applications Laboratory

ELECTRICAL AND COMPUTER ENGINEERING LABORATORIES
Electronics Laboratory
Wireless Communications Laboratory
Digital Signal Processing Laboratory
Electrical Machinery Laboratory
Digital Design Laboratory
Microprocessor Laboratory
Electro-Optics and Micro-Devices Laboratory
Distributed Decision Environments Laboratory
Underwater Imaging Laboratory
Networks Laboratory
Embedded Systems Laboratory
Computer Vision and Image Processing Laboratory
Information Technology Laboratory
Multimedia Laboratory
Digital Audio and Speech Processing Laboratory
Optics and Fiber Communications Laboratory
ECE Computer Laboratory

INDUSTRIAL ENGINEERING LABORATORIES
Computer Integrated Manufacturing Laboratory
Industrial Hygiene Laboratory
Biomechanics and Gait Laboratory
Human Factors and Aging Research Laboratory
Productivity Research Laboratory
Work Design Laboratory
Work Physiology Laboratory
Systems and Operations Research Laboratory
Industrial Ventilation Laboratory
Robotics Laboratory

MECHANICAL AND AEROSPACE ENGINEERING LABORATORIES
Aerospace Materials Simulation Laboratory
Controls Laboratory
Design and Manufacturing Laboratory
Fluid Mechanics Laboratory
Heat Transfer Laboratory
Integrated Nano-Bio-Systems Laboratory
Internal Combustion Laboratory
Materials Laboratory
Materials Modeling Laboratory
Measurements Laboratory
Stress Analysis Laboratory
ACADEMIC POLICIES

ADMISSION

Admission to the College of Engineering is covered under the section on Admission to the University in the General Information section of this Bulletin. Algebra, trigonometry, analytic geometry, chemistry, computer literacy, and physics are high school subjects that are appropriate for students planning on entering the College.

The academic work of each transfer student will be evaluated on an individual basis, and the student will be enrolled in the College at an appropriate level.

REQUIREMENTS FOR GRADUATION

The College believes that emphasis should be placed on the student’s ultimate level of attainment in selected subject areas. For those students whose preparation is advanced beyond that of the average secondary school graduate, the University provides proficiency examinations and schedules the students for more advanced work. Graduation for these students may be accelerated. For those students whose secondary school preparation has not provided an adequate background, the University offers preparatory courses. Graduation for these students may be delayed accordingly.

The student’s program of study is selected jointly with an advisor, with special attention to the individual students needs. Flexibility is ordinarily possible within the framework of sound education in the essential fundamentals and within the development of depth in selected fields of design and analysis. An examination of a typical curriculum given under the various department sections of this Bulletin shows that there is a strong common core of studies. Therefore, students uncertain of their ultimate field of specialization retain a high degree of mobility to enable them to transfer from one curriculum to another.

Each student must demonstrate upon admission an adequate preparation in the necessary skills of reading, writing, and mathematics. Placement test scores will indicate which, if any, supplementary courses must be taken the first semester. Although these courses are recorded for University credit, the student must take the full curriculum, as listed, in addition to these courses. Students not prepared in these areas are advised to make every effort to correct deficiencies before the first semester.

Completion of any of the prescribed curricula, except Engineering Science, with an overall grade point average of at least 2.0 (C) in all course work, to include all accepted work from other institution(s), is the basic requirement for graduation in the College. An average of C also must be attained in all work attempted at the University of Miami and the professional studies. The Engineering Science curriculum, because of its special purpose, has a higher requirement, i.e., a grade point average of 3.0 (B).

The requirements for graduation as specified by each Department and Program reflect the general education requirements of the University of Miami and the requirements of the appropriate accrediting agencies. The curricula contain required courses and elective courses. No course required for graduation may be taken under the credit-no credit (Credit-Only) option.

Students are expected to make satisfactory progress toward graduation by meeting the
criteria established above. Whenever a student fails to demonstrate positive academic progress, he/she may be placed on academic probation or dismissed by the College of Engineering Scholastic Standards and Advising (SSA) Committee.

General Educational Requirements

People and Society and Humanities and Arts electives may be taken from a wide variety of courses. A minimum of 18 credits of people and society/humanities and arts electives is required for graduation, with a distribution of a minimum of 6 credits each in the areas of Humanities and Arts and People and Society; the other 6 credits may be taken in either Humanities and Arts or People and Society.

The College of Engineering faculty requires that the courses selected must provide both breadth and depth and not be limited to a selection of unrelated introductory courses. Courses that instill cultural values are acceptable, while written exercises and personal craft are not. Foreign language courses in a student’s native language(s) or that spoken at home are not acceptable. To provide depth, the College of Engineering Faculty requires at least two courses be at the advanced level. An advanced level course is defined as a course with at least one prerequisite or a course at the 300 or 400 levels.

To satisfy the University of Miami general education requirements on writing intensive courses, at least six credits of the People and Society/Humanities and Arts electives must be in writing sections (W) (note: all English and literature courses are considered writing courses). The remainder of the required writing is satisfied by writing within the engineering design and laboratory courses.

COLLEGE OF ENGINEERING – HUMANITIES AND ARTS - PEOPLE AND SOCIETY ELECTIVES

Select six courses with at least two courses in HUMANITIES AND ARTS and two in PEOPLE AND SOCIETY.

Two of these six courses must be taken in sections designated as Writing sections (W).

Also at least two of these six courses must be at the advanced level. An advanced level course is defined as a course with at least one prerequisite or a course at the 300 or 400 levels.

People and Society

Courses in the following areas may be used to fulfill this requirement: Africana Studies; American Studies (AMS); Anthropology (except APY 203); Economics; Educational Psychology; Geography and Regional Studies (except GEG 120); International Studies; Judaic Studies; History; Political Sciences; Psychology (except PSY 204); Sociology; Teaching and Learning; Women’s and Gender Studies (WGS), and the following courses: BME 320; CBR 102; COM 101; COM 110; COS 112; COS 118; COS 336; COS 472; FSS 190-199.

Humanities and Arts excluding Talent and Performance Courses

Courses in the following areas may be used to fulfill this requirement: Architecture (Note: A special form must be completed prior to registration in the course ARC 323); Musicology; Art History; English (200-level or above): Modern Languages and Literature (300-level or
above): Philosophy (except PHI 210 and PHI 510); Religious Studies; and the following courses: CMP 103, CMP 204, CMP 205, COS 211; DAN 250; FFA, FLT, FPR 190-199.

The following are examples of excluded Talent and Performance Courses:
1. All studio courses: ARTXXX
2. All theater courses: THAXXX
3. All Dance courses other than DAN250: DANXXX
4. All Performance courses: MIPXXX
5. All Keyboard and Vocal courses: MKPXXX and MVPXXX
6. All Music Education courses: MEDXXX
7. All Music Business and Entertainment courses: MMIXXX
8. All Music Theory & Composition courses: MTCXXX
9. All Music and Jazz Instrumental courses: MSJXXX

The student’s official records are maintained by the Office of Enrollment Services. It is the student’s obligation to take the initiative to assure that all requirements are being met in conformity with his/her own graduation plans.

DEGREE PROGRAMS

DUAL MAJORS
Dual majors are offered for engineering students with strong interest in related fields of study such as Physics or Mathematics. In order to obtain a dual major in one of these areas, the student will have to obtain, in parallel, a degree in one of the engineering programs, plus additional course work approved by the dual majors department. Further information on this dual major program may be obtained from the Deans Office of the College.

MINORS

Minors are offered by the College of Engineering. The departments of Civil, Architectural, and Environmental Engineering, Electrical and Computer Engineering, Industrial Engineering, and Mechanical Engineering offer minors with various areas of specialization. Details of each area of concentration and its requirements may be found under each departmental listing.

Engineering students can earn a minor offered by any other College/School within the University of Miami, including the College of Engineering. In cases where the major degree requirements satisfy some of the requirements for the minor, at least six credits beyond the major degree requirements must be taken in the minor subject area to earn a minor. Minors in Engineering require a minimum GPA of 2.0 in the courses required for the minor.

HONORS

Students who show both promise and superior performance may receive academic advantages, certain privileges, and recognition through admission to the Honors Program of the University. Please refer to the HONORS PROGRAMS section, which appears elsewhere in this Bulletin, for information on these programs.
FOOTE FELLOWS IN CoE
The Foote Fellows Program was established in honor of former President Edward T. Foote, II. The Foote Fellows Program is intended for students who enter the University with advanced knowledge in several disciplines, who demonstrate intellectual rigor and who are highly motivated thinkers and researchers. In the College of Engineering this program offers such students the opportunity to explore their academic interests without the strictures of the People and Society and Humanities and Arts distribution requirements unless it is part of their engineering program as well as a broader choice of technical electives in their engineering program.

DEPARTMENTAL HONORS PROGRAM
A student in the College of Engineering may graduate with Departmental Honors noted upon his/her diploma and transcript upon fulfillment of the following requirements:

A. Completion of at least 18 credits of course work in honors courses and/or in courses at the 500 level, including 6 credits in independent study, senior thesis, or designated advanced or special honors courses specified by the department, with grades of at least B in these 6 credits.

B. Attainment of at least a 3.4 overall grade point average. Transfer students must also attain at least a 3.4 grade point average in all work taken at the University of Miami.

C. Attainment of at least a 3.5 average in the departmental major courses.

D. A written request from the student to the departmental faculty during his/her semester of expected graduation stating the desire to graduate with Departmental Honors, and specifying those courses taken in compliance with section (A) above.

CERTIFICATE PROGRAMS IN ENGINEERING
In cooperation with the University’s School of Continuing Studies, the College of Engineering offers practicing engineers advanced or specialized training without having to meet the stringent entrance requirements of the Graduate School. Persons holding Bachelors degrees, registered as Professional Engineers, or possessing equivalent qualifications can be granted Certificates of Proficiency by the University after completing fifteen semester-hours of course work in a specified field of engineering. Study programs are arranged on an individual basis by each student and his/her advisor. Detailed information on Certificate Programs can be requested from the Office of the Dean of Engineering.

THE INTERNSHIP COOPERATIVE PROGRAM
The Cooperative Program takes its name from the close cooperation that exists between the College and participating employers. This arrangement attempts to insure that each student’s academic and work experience will integrate and contribute significantly to his/her overall growth and professional development. Interviews and screening by both the employer and Cooperative Program personnel attempt to match the needs of the employer carefully with the interests and capability of the student.

ADVANTAGES TO THE STUDENT:
1. Offers on-the-job experience to supplement the academic degree program.

2. Offers potential long term career employment with the Cooperative Program employer.

3. The experience obtained makes the student, upon graduation, potentially much more valuable to any future employer. Upon completion of an appropriate amount and level of
experience, graduation in the Cooperative Program may be recognized by a special seal on the student’s diploma.

4. Helps the student to verify whether or not his/her career or specialty choice is correct.

5. Tends to increase motivation and to make academic studies more meaningful.

6. Earnings from Cooperative Program employment can cover a significant portion of the student’s college expenses.

7. Certain work experience may shorten the experience requirements, after graduation, for eligibility for professional registration.

8. Helps to develop the students understanding of human relations and the lifelong need of learning to balance appropriately the demands on ones time of multiple duties such as studying, employment, daily necessities, family obligations, etc.

ADVANTAGES TO THE EMPLOYER:
1. Offers an opportunity to recruit and screen potential employees in the fields of engineering.

2. The Cooperative Program maintains an up-to-date roster of available undergraduate and graduate students, many with previous experience. This roster offers employers means of obtaining employees to meet fluctuating work loads, on relatively short notice.

3. Students in the Cooperative Program can provide good company public relations with their classmates.

4. Participation in a Cooperative Program serves the profession by providing opportunities for many capable and well deserving young persons to attend a University, who otherwise might lack the financial ability or motivation to attend.

TYPES OF COOPERATIVE PROGRAM ARRANGEMENTS

CONTINUOUS WORK-STUDY
An arrangement involving a combination of part-time employment (15 or more hours per week) and a credit hour academic load which is appropriately reduced from the normal full-time load to balance the employment duties. Full-time employment may be undertaken during the summer period. Two students may be used during the year to share the hours of a full-time position (20 hours each student). In some instances, an individual student will hold a full-time position and carry a light academic load in evening and/or early morning classes.

ALTERNATING WORK-STUDY
An arrangement involving two students alternating full-time employment and full-time study. Students alternate positions of work and study at the end of each semester (including the summer), and thereby provide the equivalent employee time of a full-time position year-round.

STUDENT ELIGIBILITY FOR THE PROGRAM
University of Miami students enrolled in the College of Engineering are eligible to enter the Cooperative Program. Initial entry into the Program is limited to superior students. Normally, work assignments are not given until the equivalent of one or two semesters of
full-time academic work is completed. Currently, most students in the Program are under continuous work-study arrangements.

**STUDY ABROAD PROGRAMS**
The College of Engineering encourages its students to take advantage of one of the University of Miami’s numerous study abroad options in Latin America, Europe, Asia, Australia and the Middle East. Of particular interest to Engineering students are the following: internships (unpaid and paid) in Spain, England, France, Argentina, Colombia, Chile, and Australia in which professional work experience is carried out abroad; course work at Engineering schools abroad for a semester or an academic year; summer programs in intensive Language instruction, Humanities and Social Sciences abroad. The cost of attending these programs is equivalent to University of Miami tuition and fees. Almost all University of Miami financial aid is granted. With prior approval and detailed curriculum advice, courses taken abroad will apply towards graduation.

**THE MANAGEMENT OF TECHNOLOGY SUPPLEMENTAL PROGRAM**
The objective of this program is to educate engineers in how to exploit their technological knowledge. This is a vital, but often neglected, link in achieving competitiveness in the global marketplace. The basic premise motivating this approach is the recognition that in today’s world, technology is the backbone of the business enterprise system and that wealth can only be created through production of goods and services. This program will educate engineers in a multitude of subjects bridging the gap between product technology, production technology and the marketplace, which is the ultimate customer of engineering contributions.

The program consists of four courses:
1. Quality in Design of Products and Production Systems
2. Entrepreneurship for Engineers
3. Production Systems Design

A project is required at the end of the program, but is threaded throughout the program starting with the first course. Upon completion of the program, the student will receive a special certificate of completion. This program is available to all qualified students in all departments of the College of Engineering.

**Admission to the Program**
Admission to this supplemental program will be by application submitted by the candidate or by nomination by an advisor or department chair. All applications will be reviewed by a standing committee. Students must meet the prerequisite of each course before enrolling in it.

**Requirements for the Certificate**
The program is an add-on to existing curriculum. Students must complete all courses designated in order to qualify for the certificate. A notation will be made on the student’s transcript recognizing their completion of the special program. No designation will be made on the diploma.

**Course Sequence**
Courses are recommended to be taken in the sequence indicated above.
Team Work
Students will be encouraged to work on projects in teams. Multidisciplinary teams will also be encouraged.
BIOMEDICAL ENGINEERING - Dept. Code: BME
http://www.miami.edu/bme

INTRODUCTION

Biomedical engineering is a field where engineering principles and techniques are applied to the life sciences and medicine. It covers a wide spectrum of activities from the development of artificial organs and limbs, tissue engineering, implantable medical devices, biomedical instrumentation, computing in medical research and diagnosis, signal and image processing, clinical engineering, rehabilitation engineering, to cardiovascular, neurological, respiratory and flow studies. The diagnostic and therapeutic tools available to the physician entering the twenty-first century represent complex and intricate applications of engineering.

Although Biomedical Engineering has been a graduate program at the University of Miami for more than thirty years, the Bachelor of Science in Biomedical Engineering has been awarded since 1993. This program was designed to offer the interested student an opportunity to integrate knowledge in engineering and in the life sciences over a four year period while also developing a set of practical skills.

Opportunities for quality education extend beyond the classroom. The small-class environment and the open-door policy of the faculty foster information exchange. The Biomedical Engineering Society sponsors speakers presenting aspects of the biomedical industry and entrepreneurship-an excellent opportunity to learn about employment.

Graduates of the biomedical engineering undergraduate program may seek employment in industry or continue their studies either in graduate school or in a professional school in medicine and other health-related disciplines (such as dentistry, optometry), law or business. The biomedical engineering undergraduate program is accredited by the Accreditation Board of Engineering and Technology.

The Department of Biomedical Engineering also offers graduate courses leading to the Master of Science and Doctor of Philosophy degrees.

Qualified students may apply for the combined BS/MS program. Details are provided following the curricula for the BS degrees.

The College offers a dual major in Biomedical Engineering. In order to obtain the dual major in Biomedical Engineering, the student will have to obtain, in parallel, a major in one of the fundamental engineering programs, plus 24 credit-hours of course work, including 18 credits of required course work and 6 credits of elective course work from the lists given below. Of this total of 24 credits, at least 12 have to be at the level of 400 and above.

The Biomedical Engineering courses are open to students with background in mathematics, physics and chemistry upon approval of their respective department.
The required courses for the dual major are:

- BME 335. Biomaterials I   3 credits
- BME 375. Biomechanics I   3 credits
- BME 440. Biomedical Measurements 4 credits
- BME 480. Biomedical Instrumentation 3 credits
- BME 501. Unified Medical Sciences 3 credits
- BME 502. Unified Medical Sciences II 3 credits

The electives are to be chosen from the BME course list.

**Mission Statement**

The mission of the biomedical engineering program is to prepare students to become knowledgeable and skilled engineers with an understanding of the ethical and other professional aspects of biomedical engineering. Design skills and an ability to work both independently and as part of a team are emphasized.

**Program Description**

The Biomedical Engineering program at the University of Miami has three major goals achieved via the implementation of three parallel concentrations. Each one provides a broad foundation in the basic sciences and in engineering while offering special courses to allow the students to focus on specific career related subjects. The three concentrations are Electrical (E), Mechanical (M), and Preclinical (P). The goals are: 1. Prepare the students in all three concentrations for graduate or professional studies in relation to engineering. 2. Enable the students in the Preclinical concentration to satisfy the requirements for medical schools while thoroughly exposing them to the major areas in BME. 3. Prepare the students for immediate employment as engineers in the biomedical devices and diagnostics industry as contributors to the economy. In striving to achieve these goals, the objective of the faculty is to provide all graduates with the mathematical, investigational, and design tools required to formulate problems accurately, generate alternative solutions, evaluate those alternatives, and present the best solutions to research, development and economic problems. Superior students are prepared for graduate studies or medical school. The teaching laboratories meet current program needs and are constantly being improved. Equipment and experiments are geared to provide instruction in the areas of biomechanics, tissue mechanics, instrumentation, biomedical optics and other areas. The curriculum includes required courses in mathematics and in the physical and life sciences that ensure a firm scientific background, while advanced departmental courses provide for specialization. Required courses in the humanities and social sciences give students the social, ethical and ecological awareness needed in their profession. The courses are designed with the prerequisite structure in mind so that students have to draw from previously acquired knowledge to complete the upper level course requirements successfully.

The engineering design experience is interwoven in the curriculum throughout the students four years of study. In their junior and senior years, the students enroll in 26 mandatory BME credits (Biomaterials, Biomechanics, Biomedical Measurements, Mathematical Analysis in BME, Foundations of Medical Imaging, Biomedical Transport Phenomena, Biomedical Signal Processing and Biomedical Instrumentation). During the senior year each student is involved in a major design experience through a year-long Senior Design Project. It is a capstone project where the students pool all their knowledge and previous design experience into one major project integrating the various components of the curriculum.
Students prepare written and oral presentations. They also select two or three technical electives to pursue their individual professional interests.

Technical Entrepreneurship is an alternative to the Senior Design Project. In this two-semester sequence the students form entrepreneurial teams of 4 to 6 members to design and develop new products. They also work on the business aspects of the project. This program was established with a grant from the National Collegiate Innovators and Inventors Alliance (NCIIA) in 1999 and it is currently supported by additional grants from NCIIA. Voluntary participation in ongoing research and development projects within the department's laboratories, or on technical problems within the medical research laboratories, or at industrial firms are strongly encouraged. Communication is emphasized through requirements for oral presentation and written technical reports in many of the BME courses, in the Senior Design Project, in the Technical Entrepreneurship sequence and in the special laboratory experience. These activities provide the graduates with valuable practical experience and communications skills while studying Biomedical Engineering at the University of Miami.

DEPARTMENTAL HONORS

Upon request departmental honor is noted in a student’s diploma and transcript upon fulfillment of the requirements specified in the College Bulletin.

EDUCATIONAL OBJECTIVES

The educational objectives of the biomedical engineering program at the University of Miami are to graduate engineers who:

1. have a sound background in the fundamentals of engineering, physical and life sciences, and are prepared to practice biomedical engineering in the areas of bioelectrical and biomechanical engineering.
2. have mastered the skills and knowledge expected by the biomedical industry.
3. are prepared to enter graduate and professional degree programs, as well as other careers.

DEGREE PROGRAMS

The department offers one degree program with three concentrations: the Premed graduates are prepared for studies in medicine or related fields. The Electrical and Mechanical Concentrations graduates must be prepared to carry out engineering tasks in industry or in graduate work in their specific area of concentration.

A tabular listing of the course requirements for the degree Bachelor of Science in Biomedical Engineering is shown below for each of three concentrations:
## BACHELOR OF SCIENCE IN BIOMEDICAL ENGINEERING
### Electrical Concentration (135 credits)

### FRESHMAN YEAR

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Fall</td>
<td>ENG 105 English Composition I</td>
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<tr>
<td></td>
<td>MTH 110 Analytic Geometry and Calculus I</td>
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<td></td>
<td>BME 111 Introduction to Engineering I</td>
<td>3</td>
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<tr>
<td></td>
<td>PHY 205 University Physics I</td>
<td>3</td>
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<tr>
<td></td>
<td>People and Society Elective*</td>
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<tr>
<td>Spring</td>
<td>ENG 107 Writing about Science</td>
<td>3</td>
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<tr>
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<td>MTH 112 Calculus II</td>
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<td></td>
<td>BME 112 Introduction to Engineering II</td>
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<tr>
<td></td>
<td>PHY 206 University Physics II</td>
<td>3</td>
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<tr>
<td></td>
<td>PHY 208 University Physics II Lab</td>
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<tr>
<td></td>
<td>CHM 111 Principles of Chemistry I</td>
<td>3</td>
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<tr>
<td></td>
<td>CHM 113 Chemistry Laboratory I</td>
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### SOPHOMORE YEAR

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<tr>
<td>Fall</td>
<td>MTH 311 Ordinary Differential Equations</td>
<td>3</td>
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<tr>
<td></td>
<td>CHM 112 Principles of Chemistry II</td>
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<tr>
<td></td>
<td>CHM 114 Chemistry Laboratory II</td>
<td>1</td>
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<tr>
<td></td>
<td>BIL 150 General Biology</td>
<td>4</td>
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<tr>
<td></td>
<td>BIL 151 General Biology Laboratory</td>
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<tr>
<td></td>
<td>PHY 207 University Physics III</td>
<td>3</td>
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<tr>
<td></td>
<td>EEN 201 Electrical Circuit Theory</td>
<td>3</td>
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<tr>
<td>Spring</td>
<td>PHY 209 University Physics III Lab</td>
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<tr>
<td></td>
<td>CAE 210 Mechanics of Solids I</td>
<td>3</td>
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<tr>
<td></td>
<td>EEN 118 Introduction to Programming</td>
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<td>EEN 265 Medical Systems Physiology</td>
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<td>CHM 111 Principles of Chemistry I</td>
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<td></td>
<td>Humanities and Arts Elective*</td>
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### JUNIOR YEAR

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<th>Semester</th>
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<tr>
<td>Fall</td>
<td>BME 375 Biomechanics I</td>
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<td>EEN 304 Logic Design</td>
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<td>BME 310 Mathematical Analysis in Biomedical</td>
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<td></td>
<td>Engineering</td>
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<tr>
<td></td>
<td>BME 311 Matlab for Biomedical Engineers</td>
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<td></td>
<td>EEN 305 Electronics I</td>
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<td></td>
<td>People and Society Elective*</td>
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<tr>
<td>Spring</td>
<td>EEN 307 Linear Circuits &amp; Signals</td>
<td>3</td>
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<tr>
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<td>EEN 315 Digital Design Laboratory</td>
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<td></td>
<td>EEN 335 Biomaterials</td>
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<td></td>
<td>BME 330 Foundations of Medical Imaging</td>
<td>3</td>
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<td>EEN 440 Biomedical Measurements</td>
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<tr>
<td></td>
<td>Humanities and Arts Elective*</td>
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### SENIOR YEAR

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<tbody>
<tr>
<td>Fall</td>
<td>IEN 311 Applied Probability &amp; Statistics</td>
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<tr>
<td></td>
<td>BME 480 Biomedical Instrumentation</td>
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<td></td>
<td>BME 570 Introduction to Biosignal Processing</td>
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<tr>
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<td>BME 401 Senior Project I</td>
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<td>BME 507 LabView Applications for Biomedical</td>
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<td>Technical Elective**</td>
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<tr>
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<td>PS/HA Elective*</td>
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<tr>
<td>Spring</td>
<td>BME 540 Computer Based medical Instrumentation</td>
<td>3</td>
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<tr>
<td></td>
<td>BME 541 Medical Electronics Systems Laboratory</td>
<td>2</td>
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<tr>
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<td>BME 560 Biomedical Transport Phenomena</td>
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* To be selected from lists of approved People and Society (PS)/Humanities and Arts (HA) electives found in this Bulletin in the College of Engineering section.

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# Bachelor of Science in Biomedical Engineering
## Mechanical Concentration (135 credits)

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### BACHELOR OF SCIENCE IN BIOMEDICAL ENGINEERING
Premed Concentration (135 credits)

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BACHELOR OF SCIENCE IN BIOMEDICAL ENGINEERING (Any of the three Concentrations) AND MASTER OF SCIENCE IN BIOMEDICAL ENGINEERING

- Juniors from any of the three BME Concentrations who have maintained at least a 3.0 CGPA are invited to apply for admission to the combined BS-MS in Biomedical Engineering program.
- Those who are accepted into this accelerated program, must maintain at least a 3.0 CGPA and a minimum of a 3.0 GPA for the final 30 credits to meet the requirements of the Graduate School.
- The participants are excused from BME 401/402 Senior Design I and II, but are required to complete BME 605/606 Master Design Project I and II.
- If a student needs to withdraw from the BS/MS BME program then all the requirements for the specific BS BME Concentration must be completed for graduation with the BS BME degree.
- The curriculum is altered only for the fourth year by the elimination of 1 credit for BME 401 during the first semester and 2 credits for BME 402 during the second semester.
- A 3 credit Technical Elective is added for the second semester.
- The 6 credits of Technical electives earned during the second term of the fourth year are counted toward the required 30 credits for the MS degree.
- The curriculum for the fifth year is shown below.

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* Technical Electives are chosen from the BME course offerings (500 level and above) with the approval of the advisor.

Biomedical Engineering Course Listing
CIVIL, ARCHITECTURAL, AND ENVIRONMENTAL ENGINEERING
Dept. Code: CAE
Civil, Architectural and Environmental Engineering

MISSION STATEMENT

The mission of the Department of Civil, Architectural, and Environmental Engineering is to:

- Provide high-quality undergraduate and graduate education in civil, architectural, and environmental engineering that will prepare graduates for professional careers and a lifetime of learning
- Conduct high-quality research that will advance the body of knowledge and improve the quality of human life
- Serve the engineering profession and society through active involvement in professional organizations and contribution of professional expertise

The department offers three undergraduate degrees: Bachelor of Science in Civil Engineering, Bachelor of Science in Architectural Engineering and Bachelor of Science in Environmental Engineering.

CIVIL ENGINEERING
Civil engineers are leaders in the planning, design, construction, and operation of systems that are essential to modern life. These systems include: buildings, highways, airports, pipelines, bridges, dams, irrigation systems, drainage systems, water-supply and distribution systems, and wastewater collection and treatment works. Civil engineers are employed by government agencies, public utility companies, private consulting firms, construction companies, architectural firms, and universities.

ARCHITECTURAL ENGINEERING
Architectural engineers are leaders in the planning, design, construction, and operation of engineered systems for commercial, industrial, and institutional buildings and other facilities. These engineered systems include electrical, communications and control, lighting, heating, ventilating, air conditioning, fire protection, plumbing, acoustic, and structural components. Architectural engineers are employed by consulting firms, construction companies, architectural firms, government agencies, and universities.

ENVIRONMENTAL ENGINEERING
Environmental engineers are leaders in the application of engineering principles to improve and maintain the environment for the protection of human health, for the protection of nature’s beneficial ecosystems, and for environment-related enhancement of the quality of human life. Environmental engineers are employed by government agencies, consulting firms, and universities.

EDUCATIONAL OBJECTIVES

The objectives of the Civil Engineering Program are to have graduates who within the first several years following graduation are either
1. Working as a professional in an area closely related to civil engineering or
2. Pursuing a graduate or professional degree.

The objectives of the Architectural Engineering Program are to have graduates who within the first several years following graduation are either

1. Working as a professional in an area closely related to architectural engineering or
2. Pursuing a graduate or professional degree.

The objectives of the Environmental Engineering Program are to have graduates who within the first several years following graduation are either

1. Working as a professional in an area closely related to the water environment or
2. Pursuing a graduate or professional degree.

**DEGREE PROGRAMS**

**Civil Engineering Curriculum**

The Civil Engineering curriculum provides an integrated educational experience in mathematics, basic sciences, humanities, social sciences, engineering sciences, and civil engineering design. The first two years of the Civil Engineering curriculum provide a strong foundation in mathematics, basic sciences, and engineering sciences. During the next two years of the four-year program, the Civil Engineering curriculum integrates engineering sciences with design applications in the areas of structural, environmental, geotechnical, and water resources engineering. The curriculum culminates with a major senior-level design project that includes design applications from the major specialty areas of civil engineering.

Graduate study is offered leading to the degrees Master of Science and Doctor of Philosophy in Civil Engineering. For detailed information on graduate studies, see the Graduate Studies Bulletin.

A tabular listing of the course requirements for the degree of Bachelor of Science in Civil Engineering is shown below:
### CIVIL ENGINEERING

#### FRESHMAN YEAR

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</table>

*To be selected from lists of approved People and Society (PS)/Humanities and Arts (HA), Technical, Design, and Basic Science electives.

### Architectural Engineering Curriculum

The Architectural Engineering curriculum provides an integrated educational experience in mathematics, basic sciences, humanities, social sciences, engineering sciences, and architectural engineering design. The Architectural Engineering program integrates design applications across the curriculum, beginning with building construction and architectural design in the sophomore year, and continuing with structural, building mechanical and electrical systems design, and construction management in the junior and senior years. The curriculum culminates with a major comprehensive design experience that includes applications from the major specialty areas of architectural engineering.

Graduate study is offered leading to the degree of Master of Science in Architectural Engineering. For detailed information on graduate studies, see the Graduate Studies Bulletin.

A tabular listing of the course requirements for the degree of Bachelor of Science in Architectural Engineering is shown below:
### FRESHMAN YEAR

**Fall Semester**
- CAE 111 Introduction to Engineering I: 3 credits
- PHY 205 University Physics I: 3 credits
- MTH 110 Analytic Geometry and Calculus I: 5 credits
- ENG 105 English Composition I: 3 credits

**Spring Semester**
- CAE 112 Introduction to Engineering II: 2 credits
- PHY 206 University Physics II: 3 credits
- MTH 112 Calculus II: 4 credits
- ENG 107 Writing about Science: 3 credits

### SOPHOMORE YEAR

**Fall Semester**
- CAE 201 Computer-Aided Drafting and Design: 2 credits
- CAE 210 Mechanics of Solids I: 3 credits
- ARC 261 Building Construction: 3 credits
- ARC 294 Introd. to the Devl. of Architecture: 3 credits
- PHY 207 University Physics III: 3 credits
- PHY 209 University Physics III Lab: 1 credit
- MTH 211 Calculus III: 3 credits

**Spring Semester**
- CAE 211 Mechanics of Solids II: 3 credits
- EEN 205 Principles of Electrical Engineering I: 3 credits
- ARC 292 Introduction to Architecture Design I: 3 credits
- CHM 151 Chemistry for Engineers I: 3 credits
- CHM 153 Chemistry Laboratory for Engineers: 1 credit
- People and Society Elective*: 3 credits

### JUNIOR YEAR

**Fall Semester**
- CAE 310 Structural Analysis: 3 credits
- CAE 330 Fluid Mechanics: 3 credits
- MAE 303 Thermodynamics I: 3 credits
- IEN 311 Applied Probability and Statistics: 3 credits
- ARC 293 Introduction to Architecture Design II: 3 credits
- Tech. Elective*: 3 credits

**Spring Semester**
- CAE 321 Design of Steel Structures: 3 credits
- CAE 370 Geotechnical Engineering I: 3 credits
- CAE 371 Geotechnical Laboratory: 1 credit
- CAE 481 Mech. Systems for Buildings: 3 credits
- MTH 311 Ordinary Differential Equations: 3 credits

### SENIOR YEAR

**Fall Semester**
- CAE 320 Design of Concrete Structures: 3 credits
- CAE 403 Senior Design Project: 3 credits
- CAE 480 Building Environmental Systems: 3 credits
- ARC 476 19th and 20th Century Architecture: 3 credits
- CAE 470 Foundation Eng. and Earth Retaining Sys.: 3 credits

**Spring Semester**
- CAE 402 Professional Engineering Practice: 3 credits
- CAE 460 Construction Management: 3 credits
- Arch. Eng. Technical Elective*: 3 credits
- Arch. Eng. Design Elective*: 3 credits
- Advanced PS/HA Elective*: 3 credits

* To be selected from lists of approved People and Society (PS)/Humanities and Arts (HA), Technical and Design electives.

### Environmental Engineering Curriculum

The Environmental Engineering curriculum provides an integrated educational experience in mathematics, basic sciences, humanities, social sciences, engineering sciences, and environmental engineering design. The first two years of the Environmental Engineering curriculum provide a strong foundation in mathematics, basic sciences, and engineering sciences. The next two years of the four-year program, integrate engineering sciences with design applications in the areas of Air pollution control engineering, Water and wastewater engineering and Solid and hazardous wastes engineering.

Design courses emphasize an integrated approach that considers all environmental media in the prevention and control of environmental problems. The curriculum culminates with a major senior-level design project that includes design applications from the major specialty areas of environmental engineering.

A tabular listing of the course requirements for the degree of Bachelor of Science in Environmental Engineering is shown below:
## ENVIRONMENTAL ENGINEERING

### FRESHMAN YEAR

<table>
<thead>
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<th>Spring Semester</th>
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<tr>
<td>CAE 111 Introduction Engineering I</td>
<td>CAE 112 Introduction to Engineering II</td>
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<td>PHY 205 University Physics I</td>
<td>PHY 206 University Physics II</td>
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<td>MTH 110 Analytic Geometry and Calculus I</td>
<td>PHY 208 University Physics II Lab</td>
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<td>ENG 105 English Composition I</td>
<td>MTH 112 Calculus II</td>
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<td>ENG 107 Writing About Science</td>
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### SOPHOMORE YEAR

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<tbody>
<tr>
<td>CAE 201 Computer-Aided Drafting and Design</td>
<td>CAE 211/212 Mechs. of Solids &amp; Structural Lab.</td>
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<tr>
<td>CAE 210 Mechanics of Solids I</td>
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<td>PHY 207 University Physics III</td>
<td>ECS 111 Intro to Earth Ecosystems</td>
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<tr>
<td>MTH 211 Calculus III</td>
<td>CAE 340 Introduction to Environmental Engineering</td>
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<td>CHM 111 Principles of Chemistry I</td>
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<td>CHM 112 Principles of Chemistry II</td>
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### JUNIOR YEAR

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<td>CAE 330 Fluid Mechanics</td>
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<td>CAE 345 Water and Wastewater Analysis</td>
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<tr>
<td>MAE 303 Thermodynamics I</td>
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<td>IEN 311 Applied Probability and Statistics</td>
<td>Env. Eng. course*</td>
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<td>Biological Science Elective*</td>
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### SENIOR YEAR

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<th>Spring Semester</th>
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<td>CAE 402 Professional Engineering Practice</td>
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<tr>
<td>CAE 430 Water-Resources Engineering</td>
<td>Env. Eng. course*</td>
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<tr>
<td>Env. Eng. course*</td>
<td>Env. Eng. course*</td>
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</table>

* To be selected from lists of approved People and Society (PS)/Humanities and Arts (HA), Environmental Engineering, Biological, Earth Science, and Technical electives.

### DUAL-DEGREE PROGRAMS

Dual degree programs leading Bachelor of Science degrees in both Civil Engineering and Architectural Engineering, and both Civil Engineering and Environmental Engineering are offered by the department. These dual-degree programs are very popular, highly recommended and, if planned in advance, take only one more semester than degree programs in Civil Engineering, Architectural Engineering, or Environmental Engineering alone. Curricula for the dual degree programs are available in the Department office.

A dual degree program is also available leading to a degree in Bachelor of Science in Environmental Engineering and a Bachelor of Science from the College of Arts and Sciences with a major in Ecosystem Science and Policy (ECS). The ECS major is offered through the Center for Ecosystem Science and Policy (CESP). The goal of the ECS program is to educate the next generation of environmental scientists, policy makers, managers, and planners with grounding in the fundamentals of the natural sciences, social science, and public policy. This preparation will give students both the theoretical background and technical skills to
pursue an environmental career, including teaching and research as well as for careers in government and private industries concerned with the environment. The course requirements for the dual degree program are as follows:

**Bachelor of Science in Environmental Engineering/**
**Bachelor of Science with a major in Ecosystem Science and Policy**

<table>
<thead>
<tr>
<th>FRESHMAN YEAR</th>
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<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
<td><strong>Spring Semester</strong></td>
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<tr>
<td>CAE 111 Introduction to Engineering I</td>
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<td>CAE 112 Introduction to Engineering II</td>
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<td>ECS 111 Introduction to Earth Ecosystem</td>
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<td>ECS 112 Prob. In Ecosys. Sci. and Policy</td>
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<td>ENG 105 Environmental Composition I</td>
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<td>Eng 107 Writing About Science</td>
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<tr>
<td>MTH 110 Analytic Geometry and Calculus I</td>
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<td>PHY 205 University Physics I</td>
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<td><strong>Total</strong></td>
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<td>PHY 208 University Physics II Lab</td>
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</table>

**SOPHOMORE YEAR**

| **Fall Semester**                  | **Spring Semester** |
| CAE 201 Computer Aided Drafting & Des | 2          | BIL 160 Evol. & Biodiversity | 4          |
| CAE 210 Mechanics of Solids I       | 3          | BIL 161 Evol. & Biodiversity Lab | 1          |
| CAE 340 Introduction to Env. Engineering | 3          | CHM 114 Principles of Chem. II Lab | 1          |
| ECS 201 Seminar Env. Issues I       | 1          | MTH 211 Calculus III | 3          |
| CHM 111 Principles of Chemistry I   | 3          | PHY 207 University Physics III | 3          |
| CHM 113 Chemistry Laboratory        | 1          | PHY 209 University Physics III Laboratory | 1          |
| GSC 110 Earth System                | 3          | GSC Earth Science Lab | 2          |
| **Total**                           | 18          | **Total** | 16          |

**JUNIOR YEAR**

| **Fall Semester**                  | **Spring Semester** |
| CAE 330 Fluid Mechanics            | 3          | CAE 440 Design of Water Quality Control | 3          |
| CAE 345 Environmental Lab           | 3          | Environmental Systems | 4          |
| ECS 301 Env. Decision Making and Statistics | 3          | ECS 302 Env. Decision Making, Human Persp. | 3          |
| IEN 311 Applied Probability and Statistics | 3          | BIL 235 Ecology | 3          |
| MAE 303 Thermodynamics              | 3          | EEN 205 Principles of Electrical Engineering I | 3          |
| MCY 131 Understanding Music I       | 3          | MTH 311 Ord. Diff. Equations | 3          |
| **Total**                           | 18          | ENV. Eng. Course** | 3          |

**SENIOR YEAR**

| **Fall Semester**                  | **Spring Semester** |
| CAE 403 Senior Design Project      | 3          | CAE 402 Professional Engineering Practice | 3          |
| CAE 430 Water Resources Eng.       | 3          | ENV. Eng. Course** | 3          |
| ENV. Eng. Course**                 | 3          | ENV. Eng. Course** | 3          |
| ENV. Eng. Course**                 | 3          | ECS 403 Inter. Disciplinary Approaches to Complex | 3          |
| POL 211 Intro. To Amer. Nat. Govt.  | 3          | Human and Env. Prob. | 3          |
| People/Soc. Elective (300 level or higher) | 3          | Advanced Hum. Elec. | 3          |
| **Total**                           | 18          | POL 212 Intro. To World Politics | 3          |

**Additional classes required to satisfy General Education Requirement for the Bachelor of Science Degree ( may be taken in the summer sessions)**

| Foreign Language elective *         | 3          | Foreign Language elective * | 3          |
| Humanities elective *               | 3          | People/Society elective * | 3          |
| Foreign Language elective (200 level) | 3          | Literature elective | 3          |

* Classes with satisfactory AP scores may be used to satisfy these requirements
** To be selected from the list of approved Environmental Engineering courses.

Total 159 credits

A six year dual degree program leading to a Bachelor of Science in Architectural Engineering and a Master of Science in Architecture is also available. The program is open to exceptional students who are admitted to the graduate program at the end of their junior year. Upon completion of this program, graduates are eligible for professional registration as both an
engineer and an architect. The course requirements for the BSAE/MArch program are as follows:

**B.S.A.E/M.Arch. Dual Degree Program**

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<th>Year</th>
<th>Course</th>
<th>Credits</th>
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<tr>
<td>1</td>
<td>CAE 111 Introduction to Engineering I</td>
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<td>ARC 121 Architecture &amp; Culture</td>
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<td>ENG 105 English Composition I</td>
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<td>PHY 206 University Physics II</td>
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<td>ENG 107 Writing About Science</td>
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<td>CAE 320 Design of Concrete Structures</td>
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<td>ARC 567 History of Architecture I (ARC 294)</td>
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<td>CAE 380 Electrical and Illumination Sys. For Bldgs.</td>
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The department also offers 5 year programs leading to the B.S. and the M.S. degrees. These programs are open to exceptional students who are admitted to the graduate program at the end of their junior year. Students applying for this program must have a minimum grade point average of 3.0, and score more than 1000 on the Graduate Record Examination. The course requirements for the five-year BS/MS programs are as follows:
# Bachelor of Science in Civil Engineering and Master of Science in Civil Engineering

## Freshman Year

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## Sophomore Year

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## Junior Year

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## Senior Year

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## Fifth Year

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* To be selected from lists of approved People and Society (PS)/Humanities and Arts (HA), Technical, Design, and Basic Science electives.
# Bachelor of Science in Architectural Engineering and Master of Science in Architectural Engineering

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<td>CAE 201 Computer-Aided Drafting and Design</td>
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* To be selected from lists of approved People and Society (PS)/Humanities and Arts (HA), Technical and Design electives.
BACHELOR OF SCIENCE IN ENVIRONMENTAL ENGINEERING AND
MASTER OF SCIENCE IN CIVIL ENGINEERING

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MINOR IN CIVIL, ARCHITECTURAL OR ENVIRONMENTAL ENGINEERING
(for students in the College of Arts and Sciences and the School of Architecture)

A Minor in Civil, Architectural, or Environmental Engineering requires 15 credits passed with a grade of C or higher. Students are required to satisfy the prerequisites for all courses, and are required to complete the core course, CAE 210, plus an additional 12 or 13 credits within an area of specialization. The additional credits required for minors in civil, architectural, and environmental engineering are as follows:

**Minor in Civil Engineering**

*GEOTECHNICAL TRACK*
CAE 211 (CAE 212 optional), CAE 330, CAE 370/371, CAE 470.

*STRUCTURAL TRACK*
CAE 211 (CAE 212 optional), CAE 310, and any two of: CAE 320, CAE 321, and CAE 421

**Minor in Architectural Engineering**

*STRUCTURAL TRACK*
CAE 211 (CAE 212 optional), CAE 310, CAE 320, and CAE 321

*MECHANICAL/ELECTRICAL Systems TRACK*
CAE 330, CAE 380, CAE 480, and CAE 481

**Minor in Environmental Engineering**

CAE 330, CAE 340, CAE 430, and CAE 440

[Civil, Architectural & Environmental Engineering Course Listing](#)
MISSION STATEMENT

The mission of the Department of Electrical and Computer Engineering is to achieve and maintain, through a continuous improvement process, excellence in undergraduate and graduate education, research, and service to the community and the nation. We endeavor to accomplish this by providing high-quality education and research programs which will impart the requisite knowledge and skills to our students enabling them to assume leadership roles in contributing to the advancement of the underlying electrical and computer engineering technologies which sustain the current world economy, to promote a strong commitment to life-long learning, to prepare them for a variety of alternative career paths and to participate as responsible citizens in a rapidly changing and shrinking global community.

INTRODUCTION

Electrical and Computer Engineering are complementary disciplines that are at the forefront of the continuing development and evolution of our modern technological society. Electrical and computer engineers have initiated and contributed to the development of such important and diverse areas as integrated electronics and photonics, telecommunication systems and computer networks, computer hardware and software, image processing and computer vision, automation and robotics, electrical power generating and transmission systems, as well as participated in the development of significant applications to biotechnology. These technologies have significantly transformed how our evolving society will live, learn, work, communicate and do business in the 21st century and are critical to the development of a sustainable world economy. It is an exciting and challenging discipline offering a variety of rewarding career paths. The Department of Electrical and Computer Engineering offers a number of innovative academic and research programs to help prepare students to achieve a variety of career goals.

The Department offers three undergraduate degree programs:

1. Bachelor of Science in Electrical Engineering degree program (B.S.E.E.)
2. Bachelor of Science in Computer Engineering degree program (B.S.Cp.E.)
3. Bachelor of Science in Information Technology and Software Engineering degree program (B.S.I.S.E.)

The Electrical Engineering and the Computer Engineering degree programs are accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET).

In addition, the Department offers graduate courses leading to the Degree of Master of Science in Electrical and Computer Engineering (M.S.E.C.E.), and the Doctor of Philosophy degree (Ph.D.). For further information see the Bulletin of the Graduate School.
BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING (B.S.E.E.)

The Electrical Engineering degree program has three options:

1- Electrical Engineering Option;
2- Audio Engineering Option;
3- Wireless Communication Option.

All of these three options require specialized courses as well as the 49 Engineering Credit Hours required in the accredited Electrical Engineering degree program.

**Electrical Engineering** is concerned with the design, analysis and implementation of a variety of systems, components and devices, primarily of an electrical or electronic nature, which form the cornerstone of our complex and technologically oriented society. This ranges from small-scale integrated electronics and photonics systems and devices, the technological drivers of the information technology revolution, to large-scale electrical power systems and power generators, which supply the nation’s energy needs and form the basis for sustained economic growth. Electrical engineering is a rapidly changing discipline. To adequately train students to meet the challenges of the future and to assume leadership roles in the practice of electrical engineering, the department has in place a modern curriculum that reflects best practices in the industries we serve and is constantly updated to incorporate new technological, scientific and economic developments. The curriculum in the first two years provides a thorough background and in-depth preparation in the physical and mathematical sciences as well as fundamental knowledge and exposure to basic engineering principles and computer programming techniques. Students then concentrate on electrical engineering courses in their junior and senior years. Because of the overwhelming computer-oriented nature of modern electrical and electronic systems, students in electrical engineering are also expected to take courses in computer hardware and software and to incorporate this knowledge into a variety of design experiences offered.

**Audio Engineering** was developed with support from the School of Music in response to the need for industry professionals with the theoretical knowledge and the analytical, technical and design skills, which can only be acquired in a formal engineering degree. The Audio Engineering option combines traditional electrical engineering studies with audio studies in areas such as acoustics, digital audio, transducers, signal processing, post production, and recording. Our Audio Engineering graduates are highly sought by industry and have been pursuing successful careers in music/entertainment and the telecommunications industries, in the analog and digital electronics industry, and in the hearing aid/medical instrumentation industry, or have chosen to pursue graduate degrees. Students enrolled in Audio Engineering have access to a variety of well-equipped laboratories, At the College of Engineering the students are expected to be involved in laboratories of electronics, computing, digital design, signal processing, and audio and speech processing. At the School of Music students have access to the Gusman Concert Hall, which houses a professional recording studio with automated console and multi-track recording. There, students can record live concerts ranging from small jazz groups to a symphony orchestra. In addition, Audio Engineering students use the Weeks Center for Recording and Performance, which also features a fully professional recording studio, analog and digital signal processing equipment and audio test equipment.

**Wireless Communication** was recently added to meet the growing need in wireless communications and networking. The option provides a solid background in the areas of conventional communications, modern computer networks and protocols, wireless network design and management, wireless networks, wireless web protocols, internet programming,
databases, distributed transaction processing, and security. The Wireless Communication option is concerned with the design and implementation of projects related to wireless systems. The graduates of this option will not only have theoretical and practical foundations, but will also be aware of the recent developments in all emerging fields and standardization efforts in wireless systems. Considering that there currently is and expected to remain an acute shortage of manpower in the high tech areas, we expect our graduates to have no problem in positioning themselves favorably in the job market.

EDUCATIONAL OBJECTIVES

The educational objectives of the Electrical Engineering Degree Program are to produce graduates who have the:

1. knowledge of mathematics, physics and the engineering sciences as well as the skill needed to plan, design, and develop successful solutions to electrical engineering problems.
2. broad educational background, professional and ethical context, and communication and team skills expected from a successful and responsible practicing electrical engineer.
3. background, preparation and experience necessary to be successful in graduate and professional degree programs, and a variety of alternative career paths.
4. foundations for independent learning and commitment to life-long education to continually improve, refine, and broaden their skills and competencies in the face of evolving technological developments and global needs.

This degree program endeavors to achieve its objectives by imparting to its students the fundamental principles underlying modern electrical engineering, along with the necessary skills and experiences to apply standard practices, methodologies and available tools for solving electrical engineering problems. The major areas of Electrical Engineering include electronics, analog and digital circuits, microprocessors, communications and control systems. The design sequence is spread throughout the educational experience curricula, culminating in the two-semester senior design project. Graduates are expected to keep pace with this rapidly evolving discipline. To this end, the faculty stresses the importance of continued education and life-long professional development by trying to instill in their students a sense of excitement for the prospects of this evolving technology, tempered by a strong sense of responsibility and concern for its potential impacts on society.
## Requirements of the Electrical Engineering Degree Program (B.S.E.E)

**Course** | **Credits** | **Electrical Option** | **Audio Option** | **Wireless Option**
--- | --- | --- | --- | ---
EEN 111 Intro. To Engineering I | 3 | ✓ | ✓ | ✓
EEN 112 Intro. To Engineering II | 2 | ✓ | ✓ | ✓
EEN 118 Intro. To Programming | 3 | ✓ | ✓ | ✓
EEN 201 Electric Circuits I | 3 | ✓ | ✓ | ✓
EEN 204 Electric Circuits Lab | 1 | ✓ | ✓ | ✓
EEN 218 Inter. Comp. Programming | 3 | ✓ | ✓ | ✓
EEN 304 Logic Design | 3 | ✓ | ✓ | ✓
EEN 305 Electronics I | 3 | ✓ | ✓ | ✓
EEN 306 Electronics II | 3 | ✓ | ✓ | ✓
EEN 307 Electric Circuits II | 3 | ✓ | ✓ | ✓
EEN 311 Electronics Lab | 1 | ✓ | ✓ | ✓
EEN 312 Microprocessor | 4 | ✓ | ✓ | ✓
EEN 315 Digital Design Lab | 1 | ✓ | ✓ | ✓
EEN 316 Structured Digital Design | 1 | ✓ | ✓ | ✓
EEN 336 Signals & Systems | 3 | ✓ | ✓ | ✓
EEN 404 Communication Systems | 3 | ✓ | ✓ | ✓
EEN 415 Senior Design I | 1 | ✓ | ✓ | ✓
EEN 416 Senior Design II | 2 | ✓ | ✓ | ✓
EEN 435 Communication Electronics | 3 | ✓ | ✓ | ✓
EEN 436 Intro. to DSP | 3 | ✓ | ✓ | ✓

**Total Common Engineering Credits** | **49** | **49** | **49** | **49**

**Additional Engineering and Technical Elective**
(Courses/# of Credits)

- EEN 301-3
- EEN 308-3
- EEN 402-3
- EEN 405-3
- Tech Elect - 3
- EEN Elect - 6
- EEN 437-1
- EEN 502-3
- EEN 540-3
- Tech Elec-2/3
- EEN 301-3
- EEN 368-3
- EEN 437-1
- EEN 534-3
- EEN 539-3
- EEN 562-3
- EEN 563-1
- EEN 564-3
- Tech Elec-3

**Total Additional Engineering and Technical Elective Credits** | **21** | **9/10** | **23**

**Total Engineering and Tech. Elec. Credits** | **70** | **58/59** | **72**

**MMI (Music Media) + MTC (Music Theory)** | -- | 16 + 3 | --

**Total Math & Basic Sciences Credits** | 33 | 33 | 33

**Total General Education Credits** | 24 | 24 | 24

**Total Credits** | **127** | **134/5** | **129**
### MAJOR

**ELECTRICAL ENGINEERING OPTION - 127 credits**

<table>
<thead>
<tr>
<th>FRESHMAN YEAR</th>
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<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
<td><strong>Spring Semester</strong></td>
</tr>
<tr>
<td>EEN 111 Introduction to Engineering I</td>
<td>3</td>
</tr>
<tr>
<td>ENG 105 English Composition I</td>
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</tr>
<tr>
<td>MTH 110 Analytic Geometry and Calculus I</td>
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<tr>
<td>PHY 205 University Physics I</td>
<td>3</td>
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<th>SOPHOMORE YEAR</th>
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<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
<td><strong>Spring Semester</strong></td>
</tr>
<tr>
<td>EEN 201 Electrical Circuit Theory</td>
<td>3</td>
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<tr>
<td>EEN 218 Intermediate Computer Programming</td>
<td>3</td>
</tr>
<tr>
<td>MTH 210 Vectors and Matrices</td>
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<tr>
<td>PHY 207 University Physics III</td>
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<tr>
<td>PHY 209 University Physics III Lab</td>
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<tr>
<td>Humanities and Arts Elective*</td>
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<th>JUNIOR YEAR</th>
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<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
<td><strong>Spring Semester</strong></td>
</tr>
<tr>
<td>EEN 301 Electromagnetic Field Theory</td>
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<tr>
<td>EEN 306 Electronics II</td>
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</tr>
<tr>
<td>EEN 311 Electronics Laboratory</td>
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<tr>
<td>EEN 315 Digital Design Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>EEN 336 Signals and Systems</td>
<td>3</td>
</tr>
<tr>
<td>IEN/EEN 310 Engineering Probability</td>
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</tr>
<tr>
<td>People and Society Elective*</td>
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<th>SENIOR YEAR</th>
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<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
<td><strong>Spring Semester</strong></td>
</tr>
<tr>
<td>EEN 308 Linear Control Systems</td>
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</tr>
<tr>
<td>EEN 402 Electrical Machine Theory</td>
<td>3</td>
</tr>
<tr>
<td>EEN 415 Senior Project I</td>
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</tr>
<tr>
<td>EEN 435 Communication Electronics</td>
<td>3</td>
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<tr>
<td>EEN Elective</td>
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<tr>
<td>Adv. HA/PS Elective</td>
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*See description of electives under the Departmental Electives Section.*
# AUDIO ENGINEERING OPTION – 134/135 Credits

## FRESHMAN YEAR

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
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<tbody>
<tr>
<td>EEN 111 Introduction to Engineering I</td>
<td>EEN 112 Introduction to Engineering II</td>
</tr>
<tr>
<td>ENG 105 English Composition I</td>
<td>EEN 118 Introduction to Programming</td>
</tr>
<tr>
<td>MTH 110 Analytical Geometry and Calculus I</td>
<td>ENG 107 Writing about Science</td>
</tr>
<tr>
<td>PHY 205 University Physics I</td>
<td>PHY 206 University Physics II</td>
</tr>
<tr>
<td>MTC 110 Fundamentals of Music</td>
<td>PHY 208 University Physics II Lab</td>
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## SOPHOMORE YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Spring Semester</th>
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<tbody>
<tr>
<td>EEN 201 Electrical Circuit Theory</td>
<td>EEN 204 Electrical Circuits Laboratory</td>
</tr>
<tr>
<td>EEN 218 Intermediate Computer Programming</td>
<td>EEN 304 Logic Design</td>
</tr>
<tr>
<td>MTH 210 Vectors and Matrices</td>
<td>EEN 305 Electronics I</td>
</tr>
<tr>
<td>PHY 207 University Physics III</td>
<td>EEN 307 Linear Circuits and Signals</td>
</tr>
<tr>
<td>PHY 209 University Physics III Lab</td>
<td>CHM 151 Chemistry for Engineers I</td>
</tr>
<tr>
<td>MMI 201 Introduction to Music Recording</td>
<td>CHM 153 Chemistry Laboratory for Engineers</td>
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## JUNIOR YEAR

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
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<tbody>
<tr>
<td>EEN 306 Electronics II</td>
<td>EEN 312 Microprocessor</td>
</tr>
<tr>
<td>EEN 311 Electronics Laboratory</td>
<td>EEN 316 Structured Digital Design</td>
</tr>
<tr>
<td>EEN 315 Digital Design Laboratory</td>
<td>EEN 404 Communication Systems</td>
</tr>
<tr>
<td>EEN 336 Signals and Systems</td>
<td>EEN 436 Intro. Digital Signal Processing</td>
</tr>
<tr>
<td>IEN/EEN 310 Engineering Probability</td>
<td>MMI 172 Audio Design Workshop III</td>
</tr>
<tr>
<td>MMI 502 Digital Audio I</td>
<td>MMI 503 Digital Audio II</td>
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<tr>
<td>Humanities and Arts Elective*</td>
<td>MCY 132 The Understanding &amp; Enjoyment of Music II</td>
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## SENIOR YEAR

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
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<tbody>
<tr>
<td>EEN 415 Senior Project I</td>
<td>EEN 416 Senior Project II</td>
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<tr>
<td>EEN 435 Communication Electronics</td>
<td>EEN 540 Digital Speech and Audio Processing</td>
</tr>
<tr>
<td>EEN 437 Real-Time DSP Laboratory</td>
<td>MMI 436 Audio Postproduction</td>
</tr>
<tr>
<td>EEN 502 Engineering Acoustics</td>
<td>MMI 501 Transducer Theory</td>
</tr>
<tr>
<td>Audio Engineering or Tech. Elective</td>
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<tr>
<td>People and Society Elective*</td>
<td>Adv. HA/PS Elective*</td>
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<td>Adv. HA/PS Elective*</td>
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<td>16/17</td>
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</table>

* See description of electives under the Electrical and Computer Engineering Section.
** Note that MMI504 could be substituted for MMI 436
**FRESHMAN YEAR**

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
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<tbody>
<tr>
<td>EEN 111 Introduction to Engineering I</td>
<td>EEN 112 Introduction to Engineering II</td>
</tr>
<tr>
<td>ENG 105 English Composition I</td>
<td>EEN 118 Introduction to Programming</td>
</tr>
<tr>
<td>MTH 110 Analytical Geometry and Calculus I</td>
<td>ENG 107 Writing about Science</td>
</tr>
<tr>
<td>PHY 205 University Physics I</td>
<td>MTH 112 Calculus II</td>
</tr>
<tr>
<td>People and Society Elective*</td>
<td>PHY 206 University Physics II</td>
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<td>PHY 208 University Physics II Lab</td>
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<tr>
<th>Spring Semester</th>
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**SOPHOMORE YEAR**

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
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<tbody>
<tr>
<td>EEN 201 Electrical Circuit Theory</td>
<td>EEN 204 Electrical Circuits Laboratory</td>
</tr>
<tr>
<td>EEN 218 Intermediate Computer Programming</td>
<td>EEN 304 Logic Design</td>
</tr>
<tr>
<td>MTH 210 Vectors and Matrices</td>
<td>EEN 305 Electronics I</td>
</tr>
<tr>
<td>PHY 207 University Physics III</td>
<td>EEN 307 Linear Circuits and Signals</td>
</tr>
<tr>
<td>PHY 209 University Physics III Lab</td>
<td>CHM 151 Chemistry for Engineers I</td>
</tr>
<tr>
<td>Humanities and Arts Elective*</td>
<td>CHM 153 Chemistry Laboratory for Engineers</td>
</tr>
<tr>
<td><strong>16</strong></td>
<td>MTH 311 Ordinary Differential Equations</td>
</tr>
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</table>

**JUNIOR YEAR**

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
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<tbody>
<tr>
<td>EEN 301 Electromagnetic Field Theory</td>
<td>EEN 312 Microprocessor</td>
</tr>
<tr>
<td>EEN 306 Electronics II</td>
<td>EEN 316 Structured Digital Design</td>
</tr>
<tr>
<td>EEN 311 Electronics Laboratory</td>
<td>EEN 368 Internet Computing I</td>
</tr>
<tr>
<td>EEN 315 Digital Design Laboratory</td>
<td>EEN 404 Communication Systems</td>
</tr>
<tr>
<td>EEN 336 Signals and Systems</td>
<td>EEN 436 Intro. Digital Signal Processing</td>
</tr>
<tr>
<td>IEN/EEN 310 Engineering Probability</td>
<td>Humanities and Arts Elective*</td>
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<td>People and Society Elective*</td>
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**SENIOR YEAR**

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
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<tbody>
<tr>
<td>EEN 415 Senior Project I</td>
<td>EEN 416 Senior Project II</td>
</tr>
<tr>
<td>EEN 435 Communication Electronics</td>
<td>EEN 437 Real-Time DSP Lab</td>
</tr>
<tr>
<td>EEN 534 Communication Networks</td>
<td>EEN 563 Wireless Communication Lab</td>
</tr>
<tr>
<td>EEN 539 Digital Communications</td>
<td>EEN 564 Wireless Networks</td>
</tr>
<tr>
<td>EEN 562 Wireless and Cellular Communication</td>
<td>Wireless Communication or Tech. Elective</td>
</tr>
<tr>
<td>Adv. HA/PS Elective*</td>
<td>Adv. HA/PS Elective*</td>
</tr>
<tr>
<td><strong>16</strong></td>
<td><strong>13</strong></td>
</tr>
</tbody>
</table>

*See description of electives under the Departmental Electives Section.*
DOUBLE DEGREE PROGRAM - B.S.E.E. & B.S.B.E.
A BME student who satisfies the requirement of the B.S.B.E. degree with electrical orientation as described in this Bulletin may also qualify for the B.S.E.E. degree by taking the following additional courses: EEN 218, 301, 306, 308, 311, 312, 316, 336, 404, 405, 435, 436 and one of each from (EEN 503, 516, 542, 555) and (EEN 536, 537, 538, 553) as well as having an ECE Faculty as co-sponsor of the Senior Project.

THE FIVE-YEAR B.S.E.E.-M.S.E.C.E. DUAL DEGREE PROGRAM
This is a structured and integrated program with a minimum of 158 approved credits including two required courses EEN 615 & 616 and 12 Technical Elective courses as follows:

- At least one Analysis elective courses.
- At least two Computer Engineering elective courses.
- At least six EEN Elective Courses.
- An additional three EEN or other Technical Elective courses.

The above Elective courses are to be selected in consultation with the advisor such that: At least thirty credits must be at the graduate (500 or 600 level). Of these at least 12 credits must be at the 600 level.

Note that:
- Interested EEN Juniors with cumulative GPA above 3.0 may declare their intent to participate by submitting an official application to the Departmental Graduate Committee for admission into the MSECE portion of the program.
- A student wishing to drop out of the five-year program without the MSECE degree could receive the BSEE degree after completing all its requirements, including the senior design project.
- All students must take the Graduate Record Examination before beginning their fifth-year courses.
- To qualify for the MSECE degree, students must meet all the pertinent Graduate School requirements, including an acceptable GRE score and a minimum of 3.0 GPA in the 30 credits applied towards the MSECE degree.
- The student is awarded both the BSEE and the MSECE degrees after the requirements for both degrees are satisfied.
COURSE REQUIREMENT FOR THE BSEE-MSECE FIVE YEAR DUAL DEGREE PROGRAM (158 credits)

The first three years are the same as in the undergraduate B.S.E.E. program with 97 credits. The remaining 61 credits shown below should include at least ten graduate courses of which, at least four are at the 600 level. Also see description of electives under the Electrical and Computer Engineering Section.

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
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</thead>
<tbody>
<tr>
<td>EEN 308 Linear Control Systems</td>
<td>EEN 415 Senior Project I</td>
</tr>
<tr>
<td>EEN 402 Electrical Machine Theory</td>
<td>EEN or Tech. Elective*</td>
</tr>
<tr>
<td>EEN 435 Communication Electronics</td>
<td>Analysis Elective*</td>
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<tr>
<td>EEN Elective*</td>
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<td>Adv. HA/PS Elective*</td>
<td>Adv. HA/PS Elective*</td>
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FIFTH YEAR (GRADUATE CREDITS ONLY)

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<tr>
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<th>Spring Semester</th>
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<tbody>
<tr>
<td>EEN 615 M.S. Design Project I</td>
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<tr>
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<td>Computer Engineering Elective*</td>
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<tr>
<td>Computer Engineering Elective*</td>
<td>EEN or Tech. Elective*</td>
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<td>15</td>
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</table>

*See description of electives under the Departmental Electives Section.

MINOR IN ELECTRICAL ENGINEERING

Non-ECE Students wishing to minor in Electrical Engineering should satisfy a 15 credit requirement specified as follows:

1. A core of seven credits consisting of EEN 201, EEN 204, and EEN 305.

2. Eight or more credits of Electrical Engineering Electives. It is recommended that these elective credits be taken from one of the following two sets of EEN courses:
   - Communication (EEN 306, 307, 311, 336, 404, 436, 534)

3. Students with a major in Computer Engineering wishing to add a minor in Electrical Engineering must take six Electrical Engineering course credits in addition to those needed to satisfy their degree requirements.

4. A 2.0 grade point average in all EEN courses taken.
BACHELOR OF SCIENCE IN COMPUTER ENGINEERING (B.S.Cp.E.)

Computer engineering is concerned with the characterization, design, analysis and implementation of hardware, software and the overall architecture of computers and computer systems, and with the development of applications enabled by such configurations. This ranges from embedded microprocessors and associated software supporting a variety of familiar devices, to large-scale distributed computer systems interconnected by high-speed telecommunication networks controlled by sophisticated communication protocols. Since modern electronic computing systems are digital in nature, the program provides in-depth coverage of a range of topics dealing with digital information processing systems. Among the topics covered are digital system design, computer organization and architecture, operating systems, software engineering, database systems, image processing and computer vision, programming languages, microprocessor-based systems, digital communications, computer communication networks, wireless and mobile networks, design and implementation of very large scale integrated (VLSI) circuits and systems, artificial intelligence, data mining, agent technology, computer graphics, and multimedia systems and networks.

Computer engineering is a rapidly changing and evolving discipline driven by new technology developments and marketplace conditions. To adequately train students to meet the challenges of the future and to assume leadership roles in the practice of computer engineering, the department offers an up-to-date curriculum that reflects new technology developments that have the potential for significantly impacting professional practice in the industry. The curriculum is constantly updated to incorporate new technological, scientific and economic developments.

EDUCATIONAL OBJECTIVES

The educational objectives of the Computer Engineering Degree Program are to produce graduates who have the:

1. knowledge of mathematics, physics and the engineering sciences as well as the skill needed to plan, design, and develop successful solutions to computer engineering problems.

2. broad educational background, professional and ethical context, and communication and team skills expected from a successful and responsible practicing computer engineer.

3. background, preparation and experience necessary to be successful in graduate and professional degree programs, and a variety of alternative career paths.

4. foundations for independent learning and commitment to life-long education to continually improve, refine, and broaden their skills and competencies in the face of evolving technological developments and global needs.
DEGREE PROGRAM

This degree program endeavors to achieve its objectives by imparting to its students the fundamental principles underlying modern computer engineering, along with the necessary skills and experiences to apply standard practices, methodologies and modern tools for solving computer engineering problems. The major areas of Computer Engineering include digital systems, algorithms and data structures, programming languages, computer architecture, microprocessors, operating systems, software engineering, databases, and artificial intelligence.

The computer engineering design sequence is spread throughout the computer engineering curriculum. System design is emphasized during the last three semesters, culminating in the senior design project.

Graduates are expected to keep pace with this rapidly-evolving discipline. To this end, the faculty stresses the importance of continued education and life-long professional development, by trying to instill in their students a sense of excitement for the prospects of this evolving technology, tempered by a strong sense of responsibility and concern for its potential impacts on society.

MAJOR

COMPUTER ENGINEERING CURRICULUM - 129 Credits

<table>
<thead>
<tr>
<th>FRESHMAN YEAR</th>
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<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
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<tr>
<td>EEN 111 Introduction to Engineering I</td>
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<tr>
<td>EEN 118 Introduction to Programming</td>
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<td>ENG 105 English Composition I</td>
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<tr>
<td>PHY 205 University Physics I</td>
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<th>SOPHOMORE YEAR</th>
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<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
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<tr>
<td>EEN 304 Logic Design</td>
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<tr>
<td>EEN 318 Advanced Computer Programming</td>
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<td>MTH 210 Vectors and Matrices</td>
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<td>PHY 209 University Physics III Lab</td>
</tr>
<tr>
<td>Humanities and Arts Elective*</td>
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<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
</tr>
<tr>
<td>EEN 204 Electric Circuits Laboratory</td>
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<td>EEN 305 Electronics I</td>
</tr>
<tr>
<td>EEN 307 Electric Circuits II</td>
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<tr>
<td>EEN 312 Microprocessor</td>
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<tr>
<td>EEN 316 Structured Digital Design</td>
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<tr>
<td>MTH 311 Ordinary Differential Equations</td>
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<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
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<td>EEN 417 Embedded Microprocessor System Design</td>
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<td>EEN 418 Senior Project Planning</td>
</tr>
<tr>
<td>EEN 424 UNIX Systems and Servers</td>
</tr>
<tr>
<td>EEN 521 Computer Operating Systems</td>
</tr>
<tr>
<td>Computer Engineering Elective*</td>
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<tr>
<td>Adv. HA/PS. Elective*</td>
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</tbody>
</table>
*See description of electives under the Departmental Electives Section.

THE FIVE-YEAR B.S.Cp.E.-M.S.E.C.E. DUAL DEGREE PROGRAM

This is a structured and integrated program with a minimum of 160 approved credits that includes ten additional elective courses and replaces three technical elective courses as well as one senior design course currently required under the B.S.Cp.E. Degree as follows:

- Four required courses: EEN 368, 418, 615, 616.
- Two hardware elective courses from: EEN 532, 542, 614.
- Two software elective courses from: EEN 511, 512, 513, 572.
- Four elective courses from the following:
  - EEN 336, 436, 519, 534, 536, 538, 540, 548, 568, 570, 571, 574-578, 586, 587, 634, 638, 653, 671, and as well as CSC 544, 529.
- Three additional technical electives to be selected in consultation with the advisor from the appropriate courses listed above for each area.
- At least thirty credits must be at the graduate (500 or 600) level. Of these, at least twelve credits must be in courses open to graduate students only (600 level).
- Interested ECN juniors with cumulative GPA above 3.0 may declare their intent to participate by submitting an official application to the Departmental Graduate Committee for admission into the M.S.E.C.E. portion of the program.
- A student wishing to drop out of the five-year program without the M.S.E.C.E. degree could receive the B.S.Cp.E. degree after completing all its requirements, including the senior design project.
- All students must take the Graduate Record Examination before beginning their fifth-year courses.
- To qualify for the M.S.E.C.E. degree, students must meet all the pertinent Graduate School requirements, including an acceptable GRE score and a minimum of 3.0 GPA in the 36 credits applied towards the M.S.E.C.E. degree.
- The student is awarded both the B.S.Cp.E. and the M.S.E.C.E. degrees after the requirements for both degrees are satisfied.

COURSE REQUIREMENT FOR THE B.S.Cp.E. – M.S.E.C.E. FIVE YEAR DUAL DEGREE PROGRAM (160 credits)

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<thead>
<tr>
<th>FOURTH YEAR</th>
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<tr>
<td><strong>Fall Semester</strong></td>
<td><strong>Spring Semester</strong></td>
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<tr>
<td>EEN 417 Embedded Microprocessor System Design</td>
<td>EEN 368 Internet Computing I</td>
</tr>
<tr>
<td>EEN 424 UNIX Systems and Servers</td>
<td>EEN 418 Senior Project Planning</td>
</tr>
<tr>
<td>EEN 521 Computer Operating Systems</td>
<td>EEN 514 Computer Architecture</td>
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<tr>
<td>Adv. HA/PS Elective*</td>
<td>Computer Eng. Hardware Elective</td>
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<td>Adv. HA/PS Elective*</td>
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<tr>
<td><strong>FIFTH YEAR (GRADUATE CREDITS ONLY)</strong></td>
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<tr>
<td><strong>Fall Semester</strong></td>
<td><strong>Spring Semester</strong></td>
</tr>
<tr>
<td>EEN 615 M.S. Design Project I</td>
<td>EEN 616 M.S. Design Project II</td>
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* See description of electives under the Electrical and Computer Engineering Section.
MINOR IN COMPUTER ENGINEERING

Students wishing to minor in Computer Engineering must satisfy the following requirements:

1. A core of thirteen credits consisting of EEN 118, 218, 304, and 312.

2. At least five credits of computer engineering electives selected from the following courses: EEN 315, 316, 318, 368, 414, 424, 454/455, 511, 512, 513, 519, 521, 534, 537, 547, 567, 571.

3. Students with a major in Electrical Engineering wishing to add a minor in Computer Engineering must take six Computer Engineering course credits in addition to those needed to satisfy their degree requirements.

4. A minimum grade point average of 2.0 in all EEN courses taken.
BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY AND SOFTWARE ENGINEERING DEGREE PROGRAM (B.S.I.S.E.)

INFORMATION TECHNOLOGY AND SOFTWARE ENGINEERING PROGRAM
Information technology has had a profound impact on business and commerce, education and knowledge dissemination, entertainment and the arts, biomedical research and practice, scholarly research, and society in general. The Internet now interconnects millions of computers around the world allowing individuals, organizations and businesses to communicate freely and almost instantaneously and to share information on a worldwide basis. Modern information technology, based on a combination of highly dynamic and complex electronic computing environments together with networking infrastructure and software systems, requires practitioners who are well versed in a variety of these key areas of information technology. Individuals are needed with experience and hands-on training in the design, deployment, operational use, and management of these complex systems.

The Information Technology and Software Engineering (ITSE) Program at the University of Miami’s College of Engineering is designed to prepare students for a successful career as information technology professionals. The extensive practical nature of this curriculum is supported by the new Information Technology Laboratory, which serves as a microcosm of a real-world environment that encompasses enterprise issues such as network connectivity, systems interoperability, portable software development, redundant system architecture, web development, system integration, and multimedia delivery. The hardware and software systems that constitute the laboratory are those used in enterprises to provide their information technology solutions. Departmental laboratories utilized by this program include the following:

1. Multimedia Laboratory (Arnold Center for Confluent Media Studies)
2. Software Engineering Laboratory
3. Networks Laboratory
4. Microprocessor Laboratory
5. Embedded Systems Laboratory
6. Digital Signal Processing Laboratory
7. Digital Audio and Speech Processing Laboratory
8. Information Technology Laboratory

Information Technology option provides an in-depth training in the areas of computer organization and architectures, operating systems, software development and documentation, information retrieval and database systems, computer communication networks, the Internet and intranets, wireless and mobile networks, multimedia systems and networks, systems and network management, information modeling and characterization, and modern information processing concepts to prepare the information technology professional of the 21st century. The curriculum is constantly updated to incorporate new technological developments and reflect best practices in the information technology industry.
Software Engineering option is concerned with the sound application of engineering and mathematical techniques in designing, building, operating and maintaining reliable and economical software systems. As computer use has increased and the need for reliable, efficient, economical and ‘correct’ software systems has grown it is one of the fastest growing segments of the computing industry and plays an important role in almost every field. This option provides a solid background in the areas of general engineering, mathematics, science and a strong emphasis in software design and development. The rate of growth of software systems has far outpaced the growth of hardware systems in recent years. With this growing market, there is a need to produce engineers who have the formal training in sound engineering practices, while at the same time are able to work in team environments on large scale, complex software systems. This option prepares the student for the demands of this exciting field with a strong emphasis on hands-on training.

EDUCATIONAL OBJECTIVES

The educational objectives of the Information Technology and Software Engineering Degree Program are to produce graduates who have the:

1. knowledge of mathematics, science, and engineering, and the skills needed to analyze computer and information technology applications and requirements, and to plan, design, and develop successful solutions.

2. broad educational background, professional and ethical context, and communication and team skills expected from a successful and responsible practicing information technology professional.

3. background, preparation and experience necessary to be successful in graduate and professional degree programs, and a variety of alternative career paths.

4. foundations for independent learning and commitment to life-long education to continually improve, refine, and broaden their skills and competencies in the face of evolving technological developments and global needs.

DEGREE PROGRAM

This degree program endeavors to achieve its objectives by imparting to its students the fundamental principles underlying the field of information technology, along with the necessary skills and experiences to apply standard practices, methodologies and modern tools for developing information technology solutions. The major areas of Information Technology include algorithms and data structures, computer programming, web technologies, computer networks, network programming/computing, software development and testing, database management systems, and multimedia systems and networks.

The design experience involving a wide spectrum of information technologies is spread throughout the information technology curriculum. System design is emphasized during the last three semesters, culminating in the senior design project.

Graduates are expected to keep pace with this rapidly-evolving discipline. To this end, the faculty stresses the importance of continued education and life-long professional
development, by trying to instill in their students a sense of excitement for the prospects of this evolving technology, tempered by a strong sense of responsibility and concern for its potential impacts on society.

**MAJOR**

**INFORMATION TECHNOLOGY OPTION - 128 credits**

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<th>FRESHMAN YEAR</th>
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<tr>
<td><strong>Fall Semester</strong></td>
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<tr>
<td>EEN 111 Introduction to Engineering I</td>
<td>EEN 112 Introduction to Engineering II</td>
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<tr>
<td>EEN 118 Introduction to Programming</td>
<td>EEN 218 Intermediate Computer Programming</td>
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<tr>
<td>ENG 105 English Composition I</td>
<td>Basic Science Elective</td>
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<tr>
<td>MTH 110 Analytic Geometry and Calculus I</td>
<td>Basic Science Lab Elective</td>
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<tr>
<td>PHY 205 University Physics I</td>
<td>ENG 107 Writing About Science</td>
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<td>MTH 112 Calculus II</td>
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<td><strong>Fall Semester</strong></td>
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<tr>
<td>EEN 112 Introduction to Engineering II</td>
<td>EEN 111 Introduction to Engineering I</td>
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<tr>
<td>EEN 218 Intermediate Computer Programming</td>
<td>ENG 105 English Composition I</td>
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<tr>
<td>Basic Science Elective</td>
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<tr>
<td><strong>Fall Semester</strong></td>
<td><strong>Spring Semester</strong></td>
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<tr>
<td>EEN 304 Logic Design</td>
<td>EEN 201 Electric Circuits I</td>
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<tr>
<td>EEN 318 Advanced Computer Programming</td>
<td>EEN 368 Internet Computing I</td>
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<tr>
<td>MTH 210 Vectors and Matrices</td>
<td>MTH 309 Discrete Mathematics I</td>
</tr>
<tr>
<td>PHY 207 University Physics III</td>
<td>Basic Science Elective</td>
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<tr>
<td>PHY 209 University Physics III Laboratory</td>
<td>PHY 207 University Physics III</td>
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<tr>
<td>Humanities and Arts Elective*</td>
<td>Humanities and Arts Elective*</td>
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<td><strong>Spring Semester</strong></td>
<td><strong>Fall Semester</strong></td>
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<td>EEN 201 Electric Circuits I</td>
<td>EEN 304 Logic Design</td>
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<td>EEN 368 Internet Computing I</td>
<td>EEN 318 Advanced Computer Programming</td>
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<td>MTH 309 Discrete Mathematics I</td>
<td>MTH 210 Vectors and Matrices</td>
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<tr>
<td>Basic Science Elective</td>
<td>PHY 207 University Physics III</td>
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<tr>
<td>People and Society Elective*</td>
<td>PHY 209 University Physics III Laboratory</td>
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<td><strong>Fall Semester</strong></td>
<td><strong>Spring Semester</strong></td>
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<tr>
<td>EEN 312 Microprocessor</td>
<td>EEN 414 Computer Organization and Design</td>
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<td>EEN 424 UNIX Systems and Servers</td>
<td>EEN 567 Database Design and Management</td>
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<tr>
<td>IEN/EEN 310 Engineering Probability</td>
<td>EEN 570 Network Client-Server Programming</td>
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<tr>
<td>IEN 572 Management of Technology</td>
<td>EEN 575 Data Network Design and Management</td>
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<tr>
<td>or CIS 360 Analysis of Information Systems</td>
<td>I.T. Technical Elective*</td>
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<td>Humanities and Arts Elective*</td>
<td>People and Society Elective*</td>
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<td><strong>Spring Semester</strong></td>
<td><strong>Fall Semester</strong></td>
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<tr>
<td>EEN 414 Computer Organization and Design</td>
<td>EEN 312 Microprocessor</td>
</tr>
<tr>
<td>EEN 567 Database Design and Management</td>
<td>EEN 424 UNIX Systems and Servers</td>
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<tr>
<td>EEN 570 Network Client-Server Programming</td>
<td>IEN 572 Management of Technology</td>
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<tr>
<td>EEN 575 Data Network Design and Management</td>
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<td>I.T. Technical Elective*</td>
<td>Humanities and Arts Elective*</td>
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<td>People and Society Elective*</td>
<td>I.T. Technical Elective*</td>
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<tr>
<td><strong>Fall Semester</strong></td>
<td><strong>Spring Semester</strong></td>
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<tr>
<td>EEN 418 Senior Project Planning</td>
<td>EEN 419 Senior Project</td>
</tr>
<tr>
<td>EEN 534 Communication Networks</td>
<td>EEN 571 Interactive Multimedia Computing</td>
</tr>
<tr>
<td>EEN 576 Internet and Intranet Security</td>
<td>I.T. Technical Elective*</td>
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<td>I.T. Technical Elective*</td>
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<td>I.T. Technical Elective*</td>
<td>Adv. HA/PS Elective*</td>
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<tr>
<td><strong>Spring Semester</strong></td>
<td><strong>Fall Semester</strong></td>
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<tr>
<td>EEN 419 Senior Project</td>
<td>EEN 418 Senior Project Planning</td>
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<tr>
<td>EEN 571 Interactive Multimedia Computing</td>
<td>EEN 534 Communication Networks</td>
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<td>I.T. Technical Elective*</td>
<td>EEN 576 Internet and Intranet Security</td>
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<tr>
<td>Adv. HA/PS Elective*</td>
<td>I.T. Technical Elective*</td>
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</table>

*See description of electives under the Departmental Electives Section.*
AREAS OF CONCENTRATION WITHIN THE BSISE PROGRAM (IT OPTION):

GENERAL IT CONCENTRATION
Fifteen credits to satisfy the I.T. elective courses are selected in consultation with, and approval of, the academic advisor.

COMPUTER ENGINEERING IT CONCENTRATION
EEN 204  Electronic Circuits Laboratory (1 cr.)
EEN 315  Digital Design Laboratory (1 cr.)
EEN 316  Structured Digital Design (1 cr.)
EEN 454  Digital System Design and Testing (2 cr.)
EEN 455  Design-for-Testability Laboratory (1 cr.)
Three courses selected from EEN 514, 521, 532, 542 and CSC 529 (3 cr. each)
(EEN 305 is a prerequisite for EEN 532, 542)

COMPUTER SCIENCE IT CONCENTRATION
Select fifteen credits from:
CSC 517  Data Structures and Algorithm Theory (3 cr.)
CSC 518  Interpreters and Compiler Theory (3 cr.)
CSC/EEN 519 Programming Languages (3 cr.)
CSC 527  Theory of Computing (3 cr.)
CSC 529  Introduction to Computer Graphics (3 cr.)
CSC 540  Algorithm Design and Analysis (3 cr.)

MULTIMEDIA IT CONCENTRATION
EEN 586  Multimedia Networking (3 cr.)
EEN 589  Multimedia Databases (3 cr.)
CSC 529  Computer Graphics (3 cr.)
EEN 421  Intro. To 3D Computer Modeling and Animation (2cr)
Two courses from:
EEN 422  Character Design and Motion Capture for Computer Games (2cr.)
CSC 329  Game Programming (3cr.)
CSC 547  Computational Geometry (3cr.)

BUSINESS IT CONCENTRATION
Select fifteen credits in junior- and/or senior-level courses in the Business IT concentration to satisfy the I.T. Elective courses. Also, select at least nine credits to satisfy the University of Miami General education requirements, and possibly satisfy the prerequisite courses of the selected I.T. Elective courses. Both selections must be done with the approval of both the department chair and IT program coordinator.

COMMUNICATION IT CONCENTRATION
Select fifteen credits in junior- and/or senior-level courses in the Communication IT concentration to satisfy the I.T. Elective courses. Also, select at least nine credits to satisfy the University of Miami General education requirements, and possibly satisfy the prerequisite courses of the selected I.T. Elective courses. Both selections must be done with the approval of both the department chair and ITSE program coordinator.
SOFTWARE ENGINEERING OPTION - 131 credits

<table>
<thead>
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<th>FRESHMAN YEAR</th>
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<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
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<tr>
<td>EEN 111 Introduction to Engineering I</td>
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<td>EEN 118 Introduction to Programming</td>
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<td>ENG 105 English Composition I</td>
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<td>MTH 110 Analytic Geometry and Calculus I</td>
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<tr>
<td>PHY 205 University Physics I</td>
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<td><strong>Fall Semester</strong></td>
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<tr>
<td>EEN 304 Logic Design</td>
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<td>EEN 318 Advanced Computer Programming</td>
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<tr>
<td>PHY 207 University Physics III</td>
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<td>PHY 209 University Physics III Laboratory</td>
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<tr>
<td>MTH 210 Vectors and Matrices</td>
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<tr>
<td>Humanities and Arts Elective*</td>
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<th>JUNIOR YEAR</th>
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<tr>
<td><strong>Fall Semester</strong></td>
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<tr>
<td>EEN 414 Computer Organization and Design</td>
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<td>EEN 424 UNIX Systems and Servers</td>
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<tr>
<td>IEN/EEN 310 Engineering Probability</td>
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<tr>
<td>IEN 572 Management of Technology or CIS 360 Analysis of Information Systems</td>
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<tr>
<td>MTH 309 Discrete Mathematics I</td>
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<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
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<tr>
<td>EEN 418 Senior Project Planning (Software Engineering Project)</td>
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<tr>
<td>EEN 513 Software Design and Testing</td>
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<tr>
<td>EEN 521 Computer Operating Systems</td>
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<td>EEN 576 Internet and Intranet Security</td>
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<td>SE Technical Elective*</td>
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<td>Adv. HA/PS Elective*</td>
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*See description of electives under the Departmental Electives Section.*
THE FIVE YEAR B.S.I.S.E.-M.S.E.C.E. DUAL DEGREE PROGRAM
This is a structured and integrated program with a minimum of 159 approved credits including six elective courses as follows:

- Six credits of EEN elective courses selected from the following list: EEN 511, 512, 513, 514, 532, 536, 538, 540, 542, 553, 562, 563, 564, 565, 614, 638, and 671.
- Nine credits of technical elective courses selected in consultation with the Academic Advisor
- At least thirty credits must be at the graduate (500 or 600) level including twelve credits in courses open to graduate students only (600 level).
- Interested juniors with cumulative GPA above 3.0 may declare their intent to participate by submitting an official application to the Departmental Graduate Committee for admission into the M.S.E.C.E. portion of the program.
- A student wishing to drop out of the five-year program without the M.S.E.C.E. degree could receive the B.S.I.S.E. degree after completing all its requirements, including the senior design project.
- All students must take the Graduate Record Examination before beginning their fifth-year courses.
- To qualify for the M.S.E.C.E. degree, students must meet all the pertinent Graduate School requirements, including an acceptable GRE score and a minimum of 3.0 GPA in the thirty credits applied towards the M.S.E.C.E. degree.
- The student is awarded both the B.S.I.S.E. and the M.S.E.C.E. degrees after the requirements for both degrees are satisfied.

COURSE REQUIREMENT FOR THE B.S.I.S.E. - M.S.E.C.E. FIVE YEAR DUAL DEGREE PROGRAM (159 CREDITS)
The first two years are the same as in the B.S.I.S.E. Degree Program with 65 credits. The remaining 94 credits are specified below:

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<td><strong>Fall Semester</strong></td>
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<td>EEN 307 Linear Circuits and Signals</td>
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<tr>
<td>EEN 572 Management of Technology</td>
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<tr>
<td>CIS 360 Analysis of Information Systems</td>
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<tr>
<td>Technical Elective**</td>
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<td>Adv. HA/PS Elective*</td>
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<tr>
<td>Humanities and Arts Elective*</td>
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<tr>
<td>EEN 315 Digital Design Laboratory</td>
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<td>EEN 336 Signals and Systems</td>
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<td>EEN 414 Computer Organization and Design</td>
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<td>EEN 567 Database Design and Management</td>
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<td>EEN 568 Internet Computing II</td>
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<td><strong>Fall Semester</strong></td>
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<td>EEN 316 Structured Digital Design</td>
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<td>EEN 404 Communication Systems</td>
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<td>EEN 576 Internet and Intranet Security</td>
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<td>CIS 360 Analysis of Information Systems</td>
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<tr>
<td>EEN 418 Senior Project Planning</td>
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<td>EEN 454 Digital System Design and Testing</td>
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<td>EEN 455 Design-for-Testability Laboratory</td>
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<tr>
<td>EEN 562 Wireless and Cellular Communication</td>
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<td>EEN 563 Wireless Communication Lab</td>
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<td>EEN 570 Network Client-Server Programming</td>
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<td>EEN 575 Data Network Design and Management</td>
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<td>EEN 521 Computer Operating Systems</td>
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<tr>
<td>EEN 534 Communication Networks</td>
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<tr>
<td>EEN 615 M.S. Design Project I</td>
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<td>EEN Elective**</td>
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<td>Technical Elective**</td>
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<td><strong>Spring Semester</strong></td>
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<tr>
<td>EEN 571 Interactive Multimedia Computing</td>
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<td>EEN 616 M.S. Design Project II</td>
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<td>EEN Elective**</td>
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<tr>
<td>Technical Elective**</td>
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<td>15</td>
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</tbody>
</table>

*See description of electives under the Departmental Electives Section.
** Two of these six electives must be at the 600 level.
DEPARTMENTAL LABORATORIES

The Department maintains a variety of well-equipped laboratories and computers adequate for undergraduate instruction and graduate research. The laboratories and computer facilities include:

Electronics Laboratory
Wireless Communications Laboratory
Digital Signal Processing Laboratory
Electrical Energy Conversion Laboratory
Digital Design Laboratory
Information Technology Laboratory
Microprocessor Laboratory
Electro-Optics and Micro-Devices Laboratory
Distributed Decision Environments Laboratory
Computer Vision and Image Processing Laboratory
Embedded Systems Laboratory
Underwater Imaging Laboratory
Networks Laboratory
Multimedia Laboratory (Arnold Center for Confluent Media Studies)
Digital Audio and Speech Processing Laboratory
ECE Computing Laboratory
Optics and Fiber Communications Laboratory

DEPARTMENTAL ELECTIVES

1. Humanities and Arts/People and Society Electives: selected from the appropriate table found in this Bulletin under the Engineering section

2. Technical electives: Appropriate EEN, Math, Physics, Chemistry, Biology, Computer Science, or other Engineering Courses selected in consultation with, and with the approval of, the academic advisor.

3. Analysis Elective: selected from EEN 500 or 533 or any Elective Math course approved by the academic advisor.

4. Computer Engineering Technical Elective are selected in consultation with the Academic Advisor from the following list of courses: EEN 368, 511, 512, 513, 519, 532, 534, 537, 538, 542, 548, 553, 565, 568, 570, 571, 572, 574, 575, 576, 577, 578, 579, 586, and 587. The EEN 421 and 422 sequence can also be used as one technical elective. In addition, one computer engineering elective course may be selected from the following computer science courses: CSC 517, 518, 527, 529, 540, and 555.

5. Information Technology Technical Elective: selected in consultation with, and with the approval of, the academic advisor.

6. Software Engineering Technical Electives are selected from EEN 519, 537, 562, 568, 571, 572, 574, 577, 578, 579, 586, 587, CSC 329, 529, and 540.
INTERNSHIP PROGRAM

The Department of Electrical and Computer Engineering encourages its students to take advantage of the College of Engineering Internship Cooperative Program with Industry. Students could do that either on a part-time or a full-time arrangement. Students who wish to intern full-time for one semester or for twelve weeks in the summer may apply to earn as much as three credit hours that could be applied to their degree requirement as a Technical Elective. Students interested in such a possibility need to submit a proposal to the ECE Department describing the type of work they expect to accomplish approved by the industrial supervisor. If the proposal is approved the student will be assigned a Faculty Supervisor and will be able to register under EEN499. At the end of the Internship Program, the Student is expected to submit to the ECE Department a technical report with comments from the student industrial supervisor. The Faculty advisor will review the report and submit the appropriate grade for EEN499.

NOTE: An EEN course for which another EEN course is a prerequisite may not be taken unless the student has completed the EEN prerequisite course with a grade of C- or better.

DEPARTMENTAL HONORS

See College of Engineering section

Electrical and Computer Engineering Course Listing
ENGINEERING SCIENCE

INTRODUCTION

The curricula in the engineering sciences have been designed to prepare a student to fill the gap between the pure and applied sciences. The programs have been planned to enable the graduate to meet, work, and communicate with scientists and engineers at all levels of research and development, design and production, sales and distribution and to participate in the rapid and efficient translation of the latest scientific discoveries into technological achievements.

The general curriculum outlined below has been developed to give the student a firm foundation in the engineering sciences supported by a thorough grounding and facility in mathematics, physics and chemistry. In addition, each student will choose an area of specialization in at least one of the Engineering fields of architectural, civil, biomedical, electrical, industrial, or mechanical, and mathematics, chemistry or physics. By being well grounded in both the basic and applied sciences, the student, upon graduation, will be well prepared to assume responsibilities in his/her field of specialization or continue his/her professional development through graduate studies.

The engineering science program is intended primarily for students who expect to pursue graduate studies, and it will not satisfy the licensure requirements for professional engineering registration.

Premedical Studies: When BIL 150 and 160 are added to the course sequence for engineering science, basic premedical requirements are satisfied. Additional specific courses, such as genetics or biochemistry, may be required for admission to certain medical schools. For optimum timing and course selection students who combine premedical studies and engineering science should consult the faculty advisor for engineering science and the Coordinator, Committee on Premedical Studies.

Because of the nature of the curriculum and its goals, the student must maintain a B average. The degree of Bachelor of Science Engineering Science is awarded upon successful completion of the program.

The required curriculum for the degree of Bachelor of Science in Engineering Science (General Concentration) is shown below as is a typical premed curriculum. A Professional Chemistry Concentration in the Engineering Science Program is available (the Professional Chemistry Program, approved by the American Chemical Society, is also available in the College of Arts and Sciences).

MISSION STATEMENT

The mission of the Engineering Science program is to provide excellent undergraduate and graduate education in engineering that will prepare graduates to meet Society's changing needs and aspirations.
EDUCATIONAL OBJECTIVES

The objectives of the Engineering Science program are to educate engineers who:

- have a sound background in the fundamentals of engineering science grounded in mathematics, physics and chemistry
- have abilities and knowledge expected by graduate programs
- are prepared to enter graduate programs with a strong background in pure science

DEGREE PROGRAMS

ENGINEERING SCIENCE CURRICULUM (General Concentration) 123-124 credits

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Spring Semester</th>
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<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
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<tr>
<td>MAE 111 Introduction to Engineering I</td>
<td>MAE 112 Introduction to Engineering II</td>
</tr>
<tr>
<td>ENG 105 English Composition I</td>
<td>CAE 210 Mechanics of Solids I</td>
</tr>
<tr>
<td>MTH 110 Analytic Geometry and Calculus I</td>
<td>ENG 107 Writing about Science</td>
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<tr>
<td>PHY 205 University Physics I</td>
<td>MTH 112 Calculus II</td>
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<tr>
<td>MAE 207 Mechanics of Solids II</td>
<td>EEN 201 Electrical Circuit Theory</td>
</tr>
<tr>
<td>CHM 111 Principles of Chemistry I</td>
<td>MAE 202 Dynamics</td>
</tr>
<tr>
<td>CHM 113 Chemistry Laboratory I</td>
<td>CHM 112 Principles of Chemistry II</td>
</tr>
<tr>
<td>MTH 210 Vectors and Matrices</td>
<td>CHM 114 Chemistry Laboratory II</td>
</tr>
<tr>
<td>PHY 207 University Physics III</td>
<td>MTH 310 Multivariable Calculus</td>
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<tr>
<td>PHY 209 University Physics III Lab</td>
<td>PS/HA Elective*</td>
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<td><strong>Fall Semester</strong></td>
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</tr>
<tr>
<td>IEN 311 Applied Probability and Statistics</td>
<td>EEN 204 Electrical Circuits Laboratory</td>
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<tr>
<td>MAE 303 Thermodynamics I</td>
<td>MAE 241 Measurements Laboratory</td>
</tr>
<tr>
<td>MTH 311 Ordinary Differential Equations</td>
<td>MAE 309 Fluid Mechanics</td>
</tr>
<tr>
<td>PHY 350 Intermediate Electricity and Magnetism</td>
<td>CHM 201 Organic Chemistry I (Lecture)</td>
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<tr>
<td>PS/HA Elective*</td>
<td>MAE 301 Engineering Materials Science</td>
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<th>Senior Year</th>
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<tbody>
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<td><strong>Fall Semester</strong></td>
<td><strong>Spring Semester</strong></td>
</tr>
<tr>
<td>MAE 302 Mechanical Behavior of Materials</td>
<td>EEN 305 Electronics I</td>
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<tr>
<td>MAE 412 System Dynamics</td>
<td>PHY 351 Intermediate Electricity and Magnetism II OR</td>
</tr>
<tr>
<td>CHM 360 Physical Chemistry I (Lecture)</td>
<td>CHM 202 Organic Chemistry II (Lecture)</td>
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<tr>
<td>PHY 360 Introduction to Modern Physics</td>
<td>CHM 205 Organic Chemistry Laboratory I</td>
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<td>Applied Elective***</td>
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<td>13 or 15</td>
<td>PS/HA Elective*</td>
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</tbody>
</table>

* People and Society (PS)/Humanities and Arts (HA) Electives are selected from the appropriate table found in this Bulletin in the College of Engineering section.

** Technical Electives are advanced courses in mathematics, science or engineering, approved by the Faculty Advisor, as appropriate for individual objectives. The Department recommends that students take Engineering Administration (MAE 410) as a possible
technical elective. It is a part of the professional registration examinations, and professional registration, a desirable qualification for all engineers, is essential for those in consulting work and those employed by large utilities

*** Applied electives are advanced courses selected in coordination with the Faculty Advisor and require his/her approval.

**ENGINEERING SCIENCE (Premed Concentration) 124 credits**

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<tr>
<th>FRESHMAN YEAR</th>
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<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
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<tr>
<td>MAE 111 Introduction to Engineering I</td>
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<td>ENG 105 English Composition I</td>
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<tr>
<td>MTH 110 Analytic Geometry and Calculus I</td>
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<td>PHY 205 University Physics I</td>
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<th>SOPHOMORE YEAR</th>
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<tr>
<td><strong>Fall Semester</strong></td>
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<tr>
<td>BIL 150 General Biology</td>
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<tr>
<td>BIL 151 General Biology Laboratory</td>
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<tr>
<td>CHM 112 Principles of Chemistry II</td>
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<tr>
<td>CHM 114 Chemistry Laboratory II</td>
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<tr>
<td>PHY 207 University Physics III</td>
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<tr>
<td>PHY 209 University Physics III Lab</td>
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<tr>
<td>PS/HA Elective*</td>
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<tr>
<th>JUNIOR YEAR</th>
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<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
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<tr>
<td>MAE 202 Dynamics</td>
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<td>MAE 207 Mechanics of Solids II</td>
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<tr>
<td>CHM 201 Organic Chemistry I (Lecture)</td>
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<td>MTH 311 Ordinary Differential Equations</td>
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<td>PS/HA Elective*</td>
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<tr>
<th>SENIOR YEAR</th>
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<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
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<tr>
<td>IEN 311 Applied Probability and Statistics</td>
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<tr>
<td>MAE 302 Mechanical Behavior of Materials</td>
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<td>MAE 412 System Dynamics</td>
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</table>

* People and Society (PS)/Humanities and Arts (HA) Electives (to be selected from the appropriate table found in this Bulletin in the College of Engineering section).

** Electives are advanced courses selected in coordination with the Faculty Advisor and require his/her approval.
INDUSTRIAL ENGINEERING - Dept. Code: IEN
Industrial Engineering

Mission Statement

The Department of Industrial Engineering’s mission is to provide contemporary and relevant industrial and systems engineering education and research; impart knowledge and skills necessary to design and to improve a variety of manufacturing and service processes; promote life-long learning; and contribute to emerging societal needs.

Overview

Industrial Engineering combines science and technical knowledge with human sciences to design, plan, and analyze systems that involve people, materials, money, energy, equipment, and other resources. Industrial engineers work with personnel in research and development, accounting, engineers in other disciplines, maintenance, human resources, and production to increase organizational productivity, improve quality, reduce health care costs, conserve energy, develop public transportation systems, and improve industrial safety conditions. Industrial engineering distinguishes itself from other engineering professions because it has applications in manufacturing, service, commercial, and governmental activities. It is the major branch of engineering concerned not only with technology, but with people, making industrial engineers a prime source of management talent.

Through consultation with his/her academic advisor, a student is assisted in choosing electives which will prepare him/her for a degree of specialization compatible with his/her future goals. The available concentrations are Engineering Management and Manufacturing. Specific courses required in each concentration are described in Degree Programs Section.

The Department of Industrial Engineering offers graduate programs leading to the Master of Science in Industrial Engineering, Master of Science in Environmental Health and Safety, and Master of Science in Management of Technology. The Department also offers a Ph.D. program in Ergonomics and Human Factors and a Ph.D. in Industrial Engineering. For further information, see the Bulletin of the Graduate School.

The Department of Industrial Engineering in cooperation with the School of Business Administration offers a dual MSIE/MBA weekend executive program. For more details of this program contact the Department of Industrial Engineering.

EDUCATIONAL OBJECTIVES

BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING

Industrial Engineering Program Educational Objectives

The major goal of the Industrial Engineering program at the University of Miami is to prepare graduates to contribute to the economy by virtue of employment in a variety of industries: manufacturing (heavy and light, traditional and high technology) and service (health care, retail, transportation, logistics, government, consulting, banking, and insurance). In striving to achieve this goal, the objective of the faculty is to provide all
graduates with the mathematical, scientific, and design tools required to formulate problems accurately, generate alternative solutions, evaluate those alternatives, and present the best solutions to clients or decision makers in a fashion that facilitates decision-making processes. In addition, superior students are prepared for graduate studies and research. Within the first several years following graduation from the Industrial Engineering program, graduates are expected to be:

1. Working as professionals by adding value in any one of the following sectors:
   - Service
   - Government
   - Consulting
   - Retail
   - Manufacturing

2. Pursuing or holding a graduate degree and/or developing professionally through continuing education, licensure, certification and seminars in a new area or their chosen areas of expertise.

The curriculum includes required courses in mathematics and the physical sciences that ensure a firm scientific background while advanced departmental courses provide specialization. Required courses in the people and society - humanities and arts give students the social, ethical and ecological awareness needed in their profession. The courses are designed with the prerequisite structure in mind so that students have to draw from previously acquired knowledge to successfully complete upper level course requirements.

The engineering design experience is interwoven in the curriculum throughout the students’ four years of study.

- Starting with IEN 111 Introduction to Engineering I and IEN 112 Introduction to Engineering II, an introduction to Engineering graphics, Auto CAD, MATLAB, C++, advanced Excel and Access are given.
- The students then move on to take IEN 201 Methods Analysis & Project Management where they perform work measurement projects in industry, write reports, and make oral presentations to management. In addition, the students are exposed to techniques and tools in project management such as use of network flow and MSProject.
- In IEN 306 Manufacturing Processes the students are introduced to the principles of metal cutting, metal forming, and metrology.
- Students take IEN 361 Industrial Cost Analysis and IEN 380 Engineering Economy where they become aware of the impact of productivity on the economic and social well-being of industry and countries. The students are also introduced to basic models of decision making such as the formulation and evaluation of an economic strategy.
- IEN 406 Computer-Aided Manufacturing introduces the students to product design in manufacturing and modern concepts of CAD/CAM/Automation.
- IEN 441 Deterministic Models in Operations Research focuses on the formulation of linear programming problems and solutions by the simplex method. Related topics include sensitivity analysis, duality theory and network programming. Engineering applications are emphasized.
- IEN 442 Stochastic Models in Operations Research focuses on basic concepts and techniques of random processes that are used to develop models for a variety of
engineering and managerial problems. Topics include the Poisson Process, Markov chains, renewal theory, queuing models, and reliability.

- IEN 465 Production and Inventory Control provides a thorough treatment of modern production and inventory management policies, and their ramifications on supply chain management.
- Theory and applications of decision support systems in industrial engineering are covered in IEN 524 Decision Support Systems in IE. The topics include the study of model-based data-based, knowledge-based, and communication-based decision support systems.
- In IEN 557 Ergonomics and Human Factors Engineering both laboratory projects and real-world projects are designed, discussed, and conducted.
- Industry based projects are embedded into several other courses such as IEN 512 Statistical Quality Control and Quality Management, IEN 547 Computer Simulation Systems, and IEN 568 Materials Handling and Facilities Planning.
- IEN 494 Senior Project is a capstone project course where the students pool all of their knowledge and previous design experience into one major project integrating all components of the curriculum together. These projects are usually industry-based. Students prepare written and oral presentations. These presentations are made before top management or engineers of the organization where the projects were conducted in the presence of the faculty representatives from the department.

Real world projects are an integral part of most junior and senior level courses. In these courses, communication is emphasized through requirements for oral presentation and written technical reports. This experience provides the graduates with valuable industrial experience and communications skills while studying at the University of Miami.

The teaching laboratories meet current program needs and are constantly being improved. Equipment and experiments are geared to provide instruction in the areas of production system design, work methods and measurement, human factors engineering, manufacturing processes, computer applications in industrial engineering and operations research.
## DEGREE PROGRAMS

### BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING (128 Credits)

#### FRESHMAN YEAR

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
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<td><strong>Fall Semester</strong></td>
<td>IEN 111 Introduction to Engineering I</td>
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<td>ENG 105 English Composition I</td>
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<td><strong>Spring Semester</strong></td>
<td>IEN 112 Introduction to Engineering II</td>
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<td>ENG 107 Writing about Science</td>
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<td>MTH 112 Calculus II</td>
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<td>ECO 211 Economic Principles and Problems</td>
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<td>PHY 206 University Physics II</td>
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<td>PHY 208 University Physics II Lab</td>
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#### SOPHOMORE YEAR

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<tr>
<td><strong>Fall Semester</strong></td>
<td>ECO 212 Economic Principles and Problems</td>
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<tr>
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<td>IEN 201 Methods Analysis &amp; Project Management</td>
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<td>MTH 210 Vectors and Matrices</td>
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<td>PHY 207 University Physics III</td>
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<td>PHY 209 University Physics III Laboratory</td>
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<td><strong>Humanities and Arts Elective</strong></td>
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<td><strong>Spring Semester</strong></td>
<td>CAE 210 Mechanics of Solids I</td>
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<td>EEN 205 Principles of Electrical Engineering I</td>
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#### JUNIOR YEAR

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<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
<td>IEN 306 Manufacturing Processes</td>
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<td>IEN 310 Introduction to Engineering Probability</td>
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<td>IEN 351 Industrial Safety Engineering</td>
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<td>IEN 380 Engineering Economy</td>
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<td>IEN 441 Deterministic Models in Operations Research</td>
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<td>MTH 311 Ordinary Differential Equations</td>
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<td><strong>Spring Semester</strong></td>
<td>IEN 312 Applied Statistical Methods</td>
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<td>IEN 361 Industrial Cost Analysis</td>
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<td>IEN 406 Computer-Aided Manufacturing</td>
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<td>IEN 442 Stochastic Models in Operations Research</td>
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#### SENIOR YEAR

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<th>Credits</th>
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<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
<td>IEN 465 Production and Inventory Control</td>
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<td></td>
<td>IEN 512 Statistical Quality Control and Quality Management</td>
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<td>IEN 547 Computer Simulation Systems</td>
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<td>IEN 557 Ergonomics and Human</td>
<td>3</td>
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<td>Factors Engineering</td>
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<td>IEN Elective***</td>
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<tr>
<td><strong>Spring Semester</strong></td>
<td>IEN 494 Senior Project</td>
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<td>IEN 524 Decision Support Systems in IE</td>
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### INDUSTRIAL ENGINEERING CONCENTRATIONS
- Engineering Management Concentration
- Manufacturing Engineering Concentration
BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING

ENGINEERING MANAGEMENT CONCENTRATION (128 Credits)

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<th>FRESHMAN YEAR</th>
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<td><strong>Fall Semester</strong></td>
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<tr>
<td>IEN 111 Introduction to Engineering I</td>
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<td>ENG 105 English Composition I</td>
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<td>MTH 110 Analytic Geometry and Calculus I</td>
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<tr>
<td><strong>Fall Semester</strong></td>
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<tr>
<td>ECO 212 Economic Principles and Problems</td>
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<td>IEN 201 Methods Analysis &amp; Project Management</td>
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<td>MTH 210 Vectors and Matrices</td>
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<td>PHY 207 University Physics III</td>
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<td>PHY 209 University Physics III Lab</td>
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<td>BSL 212 Introduction to Business Law</td>
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<th>JUNIOR YEAR</th>
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<td>IEN 306 Manufacturing Processes</td>
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<td>IEN 310 Introduction to Engineering Probability</td>
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<td>IEN 351 Industrial Safety Engineering</td>
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<td>IEN 380 Engineering Economy</td>
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<td>MTH 311 Ordinary Differential Equations</td>
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<tr>
<td>IEN 465 Production and Inventory Control</td>
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<td>IEN 547 Computer Simulation Systems</td>
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<td>IEN 572 Management of Technology</td>
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## BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING

### MANUFACTURING ENGINEERING CONCENTRATION (128 Credits)

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<td>ENG 105 English Composition I</td>
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<td>MTH 110 Analytic Geometry and Calculus I</td>
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<td>IEN 201 Methods Analysis &amp; Project Management</td>
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<td>MTH 210 Vectors and Matrices</td>
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<td>PHY 207 University Physics III</td>
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<td>IEN 505 Robotics</td>
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<td>IEN 547 Computer Simulation Systems</td>
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FIVE-YEAR BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING AND MASTER OF SCIENCE IN INDUSTRIAL ENGINEERING (FIVE-YEAR BSIE/MSIE PROGRAM)

This program is specifically designed for those students who want to pursue their graduate study as soon as they complete their undergraduate study in Industrial Engineering. The special conditions for this Five-Year BSIE/MSIE Program are as follows:

1. The student must declare his/her intent to participate before the end of the Junior year by submitting an official application to the department graduate committee for admission into the MSIE portion of the program. Exceptions to this rule must be approved by the department faculty.
2. A student wishing to withdraw from the Five-Year Program without the MSIE degree must complete all the requirements for the BSIE program, including the IEN 494 Senior Project in order to get his/her BSIE degree.
3. To qualify for the MSIE degree, the student must meet all the pertinent Graduate School requirements, including an acceptable score on the GRE (Graduate Record Examination) and a minimum of 3.0 GPA.
4. The student is awarded both the BSIE and MSIE degrees at the end of the fifth year when all undergraduate and graduate requirements are satisfied.

FIVE-YEAR BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING AND MASTER OF SCIENCE IN INDUSTRIAL ENGINEERING

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<td>ECO 212 Economic Principles and Problems</td>
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<td>MTH 210 Vectors and Matrices</td>
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<td>IEN 351 Industrial Safety Engineering</td>
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<td><strong>Fall Semester</strong></td>
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<td>IEN 465 Production and Inventory Control</td>
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<td>IEN 512 Statistical Quality Control and Quality Management</td>
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<td>IEN 547 Computer Simulation Systems</td>
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<tr>
<td><strong>Fall Semester</strong></td>
<td><strong>Spring Semester</strong></td>
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<tr>
<td>IEN 594 Masters Capstone Design Project</td>
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<tr>
<td>IEN 612 Design of Experiments</td>
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<td>IEN 642 Linear Programming and Extensions</td>
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<td>IEN 664 Supply Chain Management</td>
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# FIVE-YEAR BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING (ENGINEERING MANAGEMENT CONCENTRATION) AND MASTER OF SCIENCE IN INDUSTRIAL ENGINEERING

## FRESHMAN YEAR

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<tbody>
<tr>
<td>IEN 111 Introduction to Engineering I</td>
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<tr>
<td>ENG 105 English Composition I</td>
<td>ENG 107 Writing About Science</td>
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<td>MTH 110 Analytic Geometry and Calculus I</td>
<td>MTH 112 Calculus II</td>
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<tr>
<td>PHY 205 University Physics I</td>
<td>ECO 211 Economic Principles and Problems</td>
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<td>PHY 206 University Physics II</td>
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<td>PHY 208 University Physics II Lab</td>
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## SOPHOMORE YEAR

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<th>Fall Semester</th>
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<tbody>
<tr>
<td>ECO 212 Economic Principles and Problems</td>
<td>CAE 210 Mechanics of Solids I</td>
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<tr>
<td>IEN 201 Methods Analysis &amp; Project Management</td>
<td>COS 211 Public Speaking</td>
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<td>MTH 210 Vectors and Matrices</td>
<td>IEN 205 Principles of Electrical Engineering I</td>
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<tr>
<td>PHY 207 University Physics III</td>
<td>or MAE 303 Thermodynamics I</td>
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<td>PHY 209 University Physics III Lab</td>
<td>CHM 151 Chemistry for Engineers</td>
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<td>BSL 212 Introduction to Business Law</td>
<td>CHM 153 Chemistry Laboratory for Engineers</td>
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## JUNIOR YEAR

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<tbody>
<tr>
<td>IEN 306 Manufacturing Processes</td>
<td>ECO 302 Micro Economic Theory</td>
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<tr>
<td>IEN 310 Introduction to Engineering Probability</td>
<td>IEN 312 Applied Statistical Methods</td>
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<td>IEN 351 Industrial Safety Engineering</td>
<td>IEN 361 Industrial Cost Analysis</td>
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<td>IEN 380 Engineering Economy</td>
<td>IEN 406 Computer-Aided Manufacturing</td>
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<td>IEN 441 Deterministic Models in Operations Research</td>
<td>IEN 442 Stochastic Models in Operations Research</td>
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<tr>
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## SENIOR YEAR

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<td>IEN 465 Production and Inventory Control</td>
<td>IEN 524 Decision Support Systems in IE</td>
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<td>IEN 512 Statistical Quality Control and Quality Management</td>
<td>IEN 568 Materials Handling and Facilities Planning</td>
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<td>IEN 547 Computer Simulation Systems</td>
<td>IEN 570 Engineering Management</td>
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<td>IEN 557 Ergonomics and Human Factors Engineering</td>
<td>IEN 571 Engineering Entrepreneurship</td>
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<td>IEN 572 Management of Technology</td>
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## FIFTH YEAR

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<tr>
<td>IEN 594 Masters Capstone Design Project</td>
<td>IEN 657 Ergonomics and Occupational Biomechanics</td>
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<td>IEN 612 Design of Experiments</td>
<td>IEN 665 Advanced Production Systems</td>
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<td>IEN 664 Supply Chain Management</td>
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<td>IEN 691 Industrial Engineering Seminar</td>
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MINOR

INDUSTRIAL ENGINEERING MINOR
A student majoring in another discipline who chooses to take a minor in Industrial Engineering must complete 15 credits of coursework consisting of the following:
IEN 201
IEN 351
IEN 380 and
Any two 300, 400 or 500 level IEN courses

Substitutions may be accepted with the permission of the Department Chairman.

Industrial Engineering Course Listing
MECHANICAL AND AEROSPACE ENGINEERING - Dept. Code: MAE
Mechanical and Aerospace Engineering

INTRODUCTION

Engineering is the art of applying the knowledge of science for the benefit of humanity. Mechanical Engineering is the most broadly based area of engineering. It is concerned with the analysis, design, development and application of equipment for such diverse fields as energy conversion, transportation, production machinery, consumer goods, and environmental control. Today’s advanced technology is largely a result of the skill of mechanical engineers who are heavily represented in most fields of modern industry.

Because of the varied careers and opportunities which are available to the Mechanical Engineering graduates, the curriculum emphasizes education in the fundamentals of the physical, mathematical, and engineering sciences, including materials science, solid mechanics, fluid mechanics and thermodynamics. These basic subjects are followed by courses in their application to the design and analysis of engineering devices and systems. The available mini- and micro-computers are utilized for analysis and design throughout the curriculum.

Aerospace Engineering is concerned with the analysis, design and development of a wide variety of aircraft and space vehicles and systems. The undergraduate aerospace engineering program is designed to provide a broad based foundation in aeronautics and astronautics, including topics such as aerodynamics, propulsion, aerospace structures and materials, flight dynamics, control and performance.

In the junior and senior years, the student is assisted in choosing technical electives in preparation for a degree of professional specialization or for further study in engineering, law, business or medicine. With the aid of an advisor and the concurrence of the department chairman, the student may select courses compatible with a variety of career goals.

The department offers two undergraduate degrees: Bachelor of Science in Mechanical Engineering and Bachelor of Science in Aerospace Engineering. Within the Bachelor of Science in Mechanical Engineering program, sequences of courses are available to provide advanced knowledge in such traditional areas as electromechanical design, heat transfer, applied mechanics, fluid mechanics, materials science, and nuclear engineering. There are concentrations in Aerospace Engineering, Environmental Engineering, Energy Engineering, Automobile Engineering, Combustion Engines/Exhaust Emissions, and Heating, Ventilation and Air Conditioning. In addition, a Biomedical Engineering concentration is offered in conjunction with the Department of Biomedical Engineering and the Medical School.

MISSION STATEMENTS

Mission of Mechanical and Aerospace Engineering Department

The mission of the Department of Mechanical and Aerospace Engineering is to provide excellent undergraduate education in aerospace engineering and undergraduate and graduate education in mechanical engineering that will prepare graduates to meet Society’s changing needs and aspirations.
Mission of the Mechanical Engineering Program
The mission of the Mechanical Engineering program is to provide excellent undergraduate education in Mechanical Engineering that will prepare graduates to meet society’s changing needs and aspirations.

Mission of the Aerospace Engineering Program
The mission of the Aerospace Engineering program is to provide excellent undergraduate education in Aerospace Engineering that will prepare graduates to meet society’s changing needs and aspirations.

EDUCATIONAL OBJECTIVES

The objectives of the mechanical engineering program are to educate engineers who:

(1) have a sound background in the fundamentals of engineering
(2) have the abilities and knowledge expected by industry
(3) are prepared for entry-level jobs in mechanical engineering
(4) are prepared for graduate work in mechanical engineering

The objectives of the aerospace engineering program are to educate engineers who:

(1) have a sound background in the fundamentals of engineering
(2) have the abilities and knowledge expected by industry
(3) are prepared for entry-level jobs in aerospace engineering
(4) are prepared for graduate work in aerospace engineering

GRADUATE STUDIES
Graduate programs leading to the degrees of Master of Science and Doctor of Philosophy are offered by the Department with options in various engineering and interdisciplinary fields. Detailed information is available in the Bulletin of the Graduate School.
DEGREE PROGRAMS

MECHANICAL ENGINEERING CURRICULUM (126 credits)

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<td>MAE 112 Introduction to Engineering II</td>
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<td>CAE 210 Mechanics of Solids I</td>
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<td>EEN 205 Principles of Electrical Engineering I</td>
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*** Applied Thermodynamics Electives are selected with approval of Faculty Advisor, e.g., MAE 308, MAE 408, MAE 503, MAE 510, MAE 520, MAE 570.
### AEROSPACE ENGINEERING CURRICULUM (126 CREDITS)

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### CONCENTRATIONS IN MECHANICAL ENGINEERING

**Aerospace Engineering Concentration**

The mission of the aerospace engineer is to design and manufacture payload carrying vehicles to travel distances at the lowest cost in the shortest period of time. The training of the aerospace engineer is by demand multidisciplinary and by spirit pioneering. It includes aerodynamics, propulsion, advanced materials, structures, controls, robotics, electronics and computer usage.

An option has been developed to allow students at the University of Miami to have a concentration of courses in Aerospace Engineering. This concentration in aerospace is built on the existing accredited degree program in Mechanical Engineering.
See Aerospace Engineering Concentration Curriculum.

**Energy Engineering Concentration**
This concentration provides the fundamentals and applications of various aspects of energy such as solar, hydrogen, electric and nuclear energy sources; energy conversion; internal combustion engines; and energy utilization in heating, ventilating, air conditioning and refrigeration systems. The technical electives related to this concentration include MAE 408, MAE 503, MAE 506, MAE 509, MAE 510, MAE 514, MAE 538, MAE 539, and MAE 540. Students can take special project courses in Internal Combustion Engines, Dorgan Solar Energy, Pollution Control, Fluid and Thermal Sciences, and Two-Phase Flow Laboratories.

**Biomedical Engineering Concentration**
This concentration is built around a 9-credit course sequence which has been developed to familiarize graduate and advanced undergraduate students with the rudiments of anatomy, physiology, biochemistry, and clinical medicine. Completion of the program is intended to aid the student in pursuing a career in medicine or in engineering and design in such areas as extracorporeal life-support systems and prosthetic devices.

The student should take Chemistry 201 as a prerequisite to Biomedical Engineering 501 and 502, Unified Medical Sciences I and II. These Biomedical Engineering courses satisfy the requirements for electives in the Mechanical Engineering Program, but under current regulations, the student will require 131 credits to graduate.

**Automotive Engineering Concentration**
This program is designed to acquaint the mechanical engineering student with the fundamental science and engineering underlying the design of both conventional and high performance internal combustion engines and the fundamentals of emission formation in combustion systems, automobile mechanisms and structures including vibrations and noise. Included are studies of conventional fuels and synthetic fuels of the future such as hydrogen and methanol.

Technical Electives are MAE 503, 514 and 521.

**Environmental Engineering Concentration**
In the students junior and senior years he or she should select three People and Society/Humanities and Arts electives from List A below, including one of the 500-level courses, and two Technical Electives from List B.

<table>
<thead>
<tr>
<th>List A</th>
<th>List B</th>
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<tr>
<td><em>Socio-Humanistic elective sequences recommended:</em></td>
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<tr>
<td>ECO 211, 212</td>
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<td>MAS 547</td>
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<td>BIL 150, 160</td>
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**HVAC Systems Concentration**
This concentration is offered to specialize the mechanical engineering student with the theory and applications of HVAC systems. At least the HVAC Technical Electives MAE 408, MAE 508, and MAE 539 should be selected. The design project for MAE 442-443 will involve air-conditioning component and system design.
Sustainable Engineering Concentration
The Sustainable Engineering concentration focuses on engineering that maximizes the benefits of technology to society while it minimizes the non-renewable resources utilized and the associated impact on the environment of producing and disposing of that technology. Projects in the design courses MAE 342, MAE 441 and MAE 442-443 will focus on Sustainable Engineering, and there will be a Special Project in the laboratory course MAE 404.

Other Concentrations
Concentrations may also be elected in electro-mechanical design, heat transfer, fluid mechanics, solid mechanics, computer aided design, nuclear engineering, materials science and chemical technology by judicious selection of technical electives.

MECHANICAL ENGINEERING CURRICULUM

AEROSPACE ENGINEERING CONCENTRATION (126 credits)

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DUAL-DEGREE PROGRAM

A dual-degree program leading to the two degrees, Bachelor of Science in Aerospace Engineering and Bachelor of Science in Mechanical Engineering, is available as per the following curriculum.

BACHELOR OF SCIENCE IN AEROSPACE ENGINEERING AND BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING CURRICULUM (147 CREDITS)

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technical elective. It is a part of the professional registration examinations, and professional registration, a desirable qualification for all engineers, is essential for those in consulting work and those employed by large utilities.

*** Applied Thermodynamics Electives are selected with approval of Faculty Advisor, e.g., MAE 308, MAE 408, MAE 503, MAE 510, MAE 520, MAE 570.

The five-year BS/MS program leads to both the B.S. degree and the M.S. degree in Mechanical Engineering in five years. The program is intended for exceptional students who are admitted to the graduate program in their junior year. Students applying for this program must have a grade point average of at least 3.0 and must attain a score of more than 1000 on the Graduate Record Examination (taken before the fifth year). The curriculum requirements for this program are as follows:

**BACHELOR of SCIENCE and MASTER of SCIENCE in MECHANICAL ENGINEERING**

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<th>FRESHMAN YEAR</th>
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<td>MAE 309</td>
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<td>MAE 342 Mechanical Design II</td>
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<td>MAE 341</td>
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<td>MAE 351 Mechanics Laboratory</td>
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<td>MAE Technical Elective**</td>
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<td>500 Level Technical Elective**</td>
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<td>MAE 501</td>
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<td>MAE 507 Advanced Mechanics of Solids</td>
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<td>MAE 512</td>
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<td>MAE 508 Intermediate Heat Transfer</td>
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<td>600 Level Technical Elective**</td>
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<td>600 Level Technical Elective**</td>
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*** Applied Thermodynamics Electives are selected with approval of Faculty Advisor, e.g., MAE 308, MAE 408, MAE 503, MAE 510, MAE 520, MAE 570.

MINOR

MECHANICAL ENGINEERING MINOR

A student in the College of Arts and Sciences choosing the general field of mechanical engineering as a minor must complete 15 credits consisting of the following:

1. A core of CAE 210 and MAE 111.

2. Nine additional credits of Mechanical Engineering electives. These nine credits must be chosen from one of the following areas of specialization:
   d. Thermal Engineering: MAE 303, MAE 308, MAE 310, MAE 408, MAE 441, MAE 503, MAE 508, MAE 510.

Mechanical and Aerospace Engineering Course Listing
OCEAN ENGINEERING/APPLIED MARINE PHYSICS

Ocean engineering concerns engineering in the marine environment. The ocean engineer provides solutions compatible with man's need for utilization of marine resources on one hand and his concern for ecological balance on the other. The largest structures ever known, fixed or floating, now are fabricated at sea. Delicate and complex underwater systems are designed to resist the harshness of the ocean environment. Population centers and industrial developments are clustered along our shoreline creating a number of problems which need to be solved. All these aspects of ocean engineering offer challenge and opportunities.

The College offers an M.S. in Ocean Engineering. This degree is sponsored jointly by the College of Engineering and the Rosenstiel School of Marine and Atmospheric Science.

Applied Marine Physics courses open to undergraduate students are listed under THE ROSENSTIEL SCHOOL OF MARINE AND ATMOSPHERIC SCIENCE elsewhere in this Bulletin.

For detailed information relative to graduate studies, see the Bulletin of the Graduate School.
DOROTHY H. AND LEWIS ROSENSTIEL
SCHOOL OF MARINE AND ATMOSPHERIC SCIENCE
UNDERGRADUATE

MARINE AND ATMOSPHERIC SCIENCE PROGRAM – Dept. Code: MSC
www.rsmas.miami.edu

INTRODUCTION

The Rosenstiel School of Marine and Atmospheric Science was established in 1943 as the Marine Laboratory of the University of Miami. It has grown from its modest beginnings in a boathouse to be one of the nation’s leading institutions for oceanographic and atmospheric research and education.

Originally a tropical marine biological facility, the Marine Laboratory initiated a program of studies leading to the Master of Science degree in 1949. In 1953, laboratory and classroom buildings were constructed on the School’s present campus on Virginia Key, and in the late fifties, the Marine Laboratory expanded its staff and developed its oceanographic capabilities in response to the increased interest in scientific research in the United States. It became the Institute of Marine Science in 1961. Ocean-going research vessels were acquired and additional buildings were constructed to accommodate new wide-ranging projects. In 1969, the Institute, now a School, was named for Dorothy H. and Lewis Rosenstiel in recognition of a major contribution, made through the Rosenstiel Foundation, to encourage progress in the marine and atmospheric sciences at the University of Miami. In 1977, the Rosenstiel School and College of Arts and Sciences joined together to establish an undergraduate Marine and Atmospheric Science program based on the Coral Gables campus. The degree granting authority for this program was formally transferred to the Rosenstiel School in 2008.

Today the Rosenstiel School has a faculty of 100 scientists who conduct sponsored research while offering studies leading to the Bachelor of Science, Bachelor of Arts, Master of Arts, Master of Science and Doctor of Philosophy degrees.

Government agencies and private organizations support basic and applied research at the Rosenstiel School. Graduate and undergraduate students are an integral part of the research effort, and research programs, many multidisciplinary in nature, provide the environment within which professors and students interact.

The Rosenstiel School has modern laboratory facilities and a state-of-the-art catamaran, unrivaled worldwide for both shallow and deep water research. The vessel, named the F. G. WALTON SMITH, in honor of the founder of the Rosenstiel School, signals a new era in scientific research.
MISSION

The Rosenstiel School strives to be in the forefront of basic and applied research as it applies to the ocean, atmosphere and global environment, with particular emphasis on subjects of societal significance. Our goal is to provide excellence in graduate and undergraduate education and research training, and to be a strong force towards improved environmental understanding and management.

ACADEMIC POLICIES

Admission

Applications for incoming freshmen are processed and reviewed by the Office of Admission. Enrollment in the Undergraduate Marine and Atmospheric Science Program is selective and highly competitive. Admission decisions are based on the secondary school record, SAT/ACT score, counselor’s evaluation and the applicant’s essay.

Student Responsibilities

Students of the Rosenstiel School are responsible for planning their own programs and for meeting degree requirements. It is the student’s responsibility to understand and fully comply with all the provisions set forth in this Bulletin and written changes to their program of study.

Academic Progress

The Rosenstiel School will review each student’s record at the end of each semester. All students in the Undergraduate Marine and Atmospheric Science Program must maintain a cumulative grade point average of 2.5 or better in order to remain in the program. Only those courses passed with a grade of C- or better may be applied to the major or minor.

DEGREE PROGRAMS

The Rosenstiel School of Marine and Atmospheric Science offers degree programs on both the undergraduate and graduate levels for students interested in marine and atmospheric science as a career.

UNDERGRADUATE DEGREE PROGRAMS

Marine and Atmospheric Science is an interdisciplinary program dealing with the study of the world’s oceans and atmosphere, their physical and biological constituents, the influence of oceanic resources on human society, and the conservation and future development of these resources.

The Rosenstiel School offers two undergraduate degree options, a Bachelor of Science in Marine and Atmospheric Science with majors in Marine Science and Meteorology and a Bachelor of Arts in Marine Affairs. The Bachelor of Science track in Marine Science is a full double major program that requires a major in Marine Science through the Rosenstiel School and a major in one of the basic sciences through the College of Arts and Sciences.
The accepted double major combinations are marine science/biology, marine science/chemistry, marine science/geology, marine science/physics, and marine science/computer science. The Bachelor of Science degree in Meteorology is a single major program, though students often combine meteorology with a second major in mathematics, physics, or ecosystem science and policy, among others. A double major combining meteorology and broadcast journalism through the School of Communications is an increasingly popular option.

The Bachelor of Science degree program is meant for students planning to continue with graduate studies in marine and atmospheric science, or for those who will pursue a technical career in this area in government or private industry.

The Bachelor of Arts degree will be useful to students planning either non-technical careers with government agencies or private industries directly or indirectly concerned with the ocean, or graduate studies in such areas as business, law, economics, political science, education, or communication.

In cooperation with the graduate program in Marine Affairs and Policy, a five-year BA/MA program in Marine Affairs is available. This program enables qualified students to earn a Bachelor of Arts in Marine Affairs in four years with the opportunity to earn a Master of Arts in Marine Affairs with only one additional year.

GRADUATE DEGREE PROGRAMS

Graduate courses in the marine and atmospheric sciences are offered through the Graduate School and the Rosenstiel School of Marine and Atmospheric Science and are listed under the following divisional headings of the Rosenstiel School graduate programs entry in the Bulletin:

- Applied Marine Physics
- Marine and Atmospheric Chemistry
- Marine Biology and Fisheries
- Marine Geology and Geophysics
- Meteorology and Physical Oceanography
- Marine Affairs and Policy

Courses at the 500-level may be taken for undergraduate credit with junior standing and departmental consent.
UNDERGRADUATE MAJORS

MARINE SCIENCE

The Bachelor of Science double major in Marine Science prepares students for admission to graduate programs and for careers in teaching and research as well as for technical careers in government and private industries concerned with the oceans. Each of the areas of concentration constitutes a rigorous program requiring 120-130 credits for graduation.

In addition to the courses that fulfill the General Education Requirements, the required courses for each area of concentration are:

Marine Science/Biology

- Marine Science 111, 215, 216, 230, 232*, 301, and 5 credits of elective in Marine Science
- Biology 150, 151, 160, 161, 235, 250, 255, 265 and 12 credits of elective as described for Biology majors
- (Marine Science 230 and one advanced biology course may fulfill requirements in both Biology and Marine Science)
- Chemistry 111, 112, 113, 114, 201, 202, 205, 206
- Geological Sciences 110 and 114
- Mathematics 111-112, one semester of a computer or statistics course. The following classes are approved to satisfy the computer/statistics requirement: MSC 200, BIL 311, Computer Science 120 or Mathematics 224, Industrial Engineering 124, Electrical and Computer Engineering 118, MSC 321, Psychology 204.
- Physics 205, 206, 207, and either 208 or 209; or Physics 101, 102, 106 and 108 (University Physics is recommended)

Marine Science/Chemistry

- Marine Science 111, 215, 216, 230, 232*, 301, and 5 credits of elective in Marine Science
- Biology 150, 151 or 160, 161
- Chemistry 111, 112, 113, 114, 201, 202, 205, 206, 304, 316, 320, 360, 364, 365, and one of CHM 401, 441, 520, 563 or BMB 401 or 502 as described for Chemistry majors
- Geological Sciences 110 and 114
- Mathematics 111-112, one semester of a computer or statistics course. The following classes are approved to satisfy the computer/statistics requirement: Chemistry 256 or Computer Science 120 or Electrical and Computer Engineering 118.
• Physics 205, 206, 207, and either 208 or 209

**Marine Science/Geological Sciences**

• Marine Science 111, 215, 216, 230, 232*, 301, and 5 credits of elective in Marine Science

• Biology 150, 151 or 160, 161

• Chemistry 111, 112, 113, 114

• Geological Sciences 110, 111, 114, 260, 360, 380, 410 or 420, 440, 480, 482, 580.

• (One course in Geological Sciences may fulfill requirements in both Marine Science and Geology.)

• Mathematics 111-112, one semester of a computer or statistics course.

• Physics 205, 206, 207, and either 208 or 209

**Marine Science/Physics**

• Marine Science 111, 215, 216, 230, 232*, 301, and 5 credits of elective in Marine Science.

• Biology 150, 151 or 160, 161

• Chemistry 111, 112, 113, 114

• Geological Sciences 110 and 114

• Mathematics 111-112, 210, 312, and one semester of a computer or statistics course. The following classes are approved to satisfy the computer/statistics requirement: Computer Science 120, Electrical and Computer Engineering 118.

• Physics 205, 206, 207, 208, 209, 321, 340, 350, 351, 360, 362, 540, 560 as described for Physics majors

**Marine Science/Computer Science**

• Marine Science 111, 215, 216, 230, 232, 301, 321 and 3 credits of elective in Marine Science

• Biology 150 or 160

• Chemistry 111, 112, 113, 114

• Computer Science 120, 220, 314, 322, 531 and 6 credits of elective

• Geography 199
• Geological Sciences 110, and 114
• Mathematics 112 and 309
• Physics 205, 206, 207 and one semester of laboratory or Physics 101, 102, 106 and 108

*Marine Biology and Fisheries 514 or MSC 231 may substitute for MSC 232.
METEOROLOGY

Meteorology is the study of the atmosphere and has many facets, including climate and climate variability, weather forecasting, cloud and precipitation physics, severe weather and hurricanes. Atmospheric scientists frequently develop and use computer models and sophisticated observing systems to describe and understand the atmosphere. Today’s meteorologists find rewarding and challenging jobs in industry, government, and education in such fields as space technology, air transportation, environmental impacts assessment, communication, agriculture, weather forecasting and basic research.

The Rosenstiel School offers a Bachelor of Science in Marine and Atmospheric Science with a major in Meteorology. In addition to the General Education Requirements, the following courses are required for the Meteorology major:

Marine and Atmospheric Science (28 credits):
MSC103, MSC111, MSC118, MSC243, MSC303, MSC305, MSC405, MSC406, MSC407, MSC409.

Mathematics (20 credits)*:
MTH111, MTH112, MTH210, MTH224, MTH310, and MTH311**
*Double majors in ECS and CBR must take either MTH224 or MTH311, but are not required to take both.
**Students may substitute MTH320 for MTH311.

Physics and Chemistry (14 credits):
PHY205, PHY206, PHY207, PHY208. CHM111, CHM113.

Computer Science (4 credits):
CSC120 or suitable elective.

Although Meteorology is approved as a single major program, students often combine Meteorology with a second major in such diverse fields as mathematics, broadcast journalism, or ecosystem science and policy. Sample curricula can be found at www.meteorology.miami.edu.
MARINE AFFAIRS

The ocean is acquiring an ever-increasing significance as an avenue of worldwide commerce and communication and as a source of food, energy, minerals and fuels. As nations and private concerns become more involved in the ocean, the need increases for qualified professionals to deal with the commercial and legal complexities of marine affairs. In order to meet this need, the Rosenstiel School offers a Bachelor of Arts degree with a major in Marine Affairs combined with a minor in Anthropology, General Business, Economics, Geography, Political Science, or Political Science/General Business. Students in the School of Communication may include Marine Affairs as their required second major. This program is designed for students who wish to prepare themselves for graduate studies and careers in ocean related areas of business, policy, management, law, and communication.

In addition to those courses that satisfy General Education Requirements, the required courses for the undergraduate major in Marine Affairs are:

- Biology 150, 160
- Chemistry 111, 112,
- Marine Science 111, 215, 230, 313 or 314, 491 and seven credits of approved electives in marine affairs.
- Geological Sciences 110
- Economics 211
- One course in computer programming or statistics

Marine Affairs courses offered through the graduate Marine Affairs and Policy division at the Rosenstiel School may be taken by upperclass students with permission.

5 Year BA/MA Program in Marine Affairs

The Rosenstiel School offers a 5 year BA/MA Program in Marine Affairs. This program enables qualified Marine Affairs students to earn a Bachelor of Arts in Marine Affairs in four years with the opportunity to earn a Master of Arts in Marine Affairs in one additional year. Conditional acceptance to the graduate Marine Affairs and Policy Division is based on the student’s GPA at the end of the sophomore year. Students must then apply for acceptance to the graduate program at the Rosenstiel School during their junior year.

MINORS

A Bachelor of Science minor in Marine Science requires the following courses:

To obtain a minor in Meteorology, students must complete: MSC103, MSC118, MSC 220, MSC243, MSC303.

A minor in Marine Affairs is currently not offered.

HONORS

Honors in the Marine and Atmospheric Science program may be earned by students who have a 3.5 GPA and have completed 6 credits of independent research and a senior thesis.
REQUIREMENTS FOR GRADUATION

In addition to satisfying the course requirements for graduation with majors in Marine Science, Meteorology and Marine Affairs (specified above under "Undergraduate Majors"), students are expected to satisfy the General Education Requirements required of students in the College of Arts and Sciences. General Education Requirements stress breadth of knowledge and the cultivation of intellectual abilities essential for the acquisition of knowledge. Courses taken for the major, the minor, and the writing requirement may also be used to satisfy the General Education Requirements.

AREAS OF PROFICIENCY

A) English Composition: 3-6 credits

Students (except those first enrolling in English 103) must take English 105 and 106, or their approved equivalents, in the first year of residence.

Students with an appropriate score on the Advanced Placement [AP] language and literature examination, or with an appropriate score on the International Baccalaureate [IB] higher level English examination, may earn 6 credits in English 105 and English 106. Those with an appropriate score on the SAT verbal or ACT verbal exams may be exempted from English 105. Those with transfer credit for English 105 will take English 106 or its equivalent in the first year of residence; those with credit for English 105 and 106 will take an approved advanced composition course or intensive writing course section in the first year of residence, unless otherwise exempted with the approval of the English Composition Program.

B) Writing Across the Curriculum

Every student must complete five (5) writing-oriented (W) courses beyond ENG 105 and 106. Students are required to write at least 4000 words in each W course. Writing assignments will be graded on both content and style. All literature and foreign language literature courses receive writing credit. Transfer students must satisfy at least three (3) courses of the writing requirement at the University of Miami.

C) Languages: 3-9 credits

Students must earn at least 3 credits of a language other than English at the 200 course level or higher. Special 100- and 200-level Spanish courses are required of native Spanish speakers who choose to fulfill the language requirement by taking Spanish. Students may fulfill the foreign language requirement from the following: Arabic, French, German, Greek Hebrew, Italian, Japanese, Latin, Portuguese and Spanish.

D) Mathematics

Bachelor of Arts in Marine Affairs: 3-6 credits
Bachelor of Science in Marine and Atmospheric Science: 11-12 credits

B.S. degree candidates must earn 11-12 credits, consisting of two semesters of Calculus: MTH 110-112, MTH 111-112, MTH 131-132 and either a) one semester of a computer course approved by the department; or b) a statistics course approved by the department.
B.A. degree candidates who do not place out of MTH 101 must take MTH 101 or MTH 107 during their first year. In addition, all B.A. degree candidates must take one of the following MTH courses: MTH 103, MTH 108, MTH 109, MTH 111, or MTH 131.

**AREAS OF KNOWLEDGE**

*A) People and Society (Social Sciences): 12 credits*

All students must earn twelve credits in the following social science disciplines: Africana Studies, American Studies (AMS only), Anthropology (except APY 203), Classics (CLA 301, 302, 303 and 304), Economics, Geography and Regional Studies (except GEG 120), History, International Studies, Judaic Studies (JUS ), Political Science, Psychology, Sociology, and Women’s Studies (WGS only). No more than six credits may be earned in any one discipline.

One approved First Year Seminar course may be taken for the Social Sciences requirement.

*B) Arts and Humanities: 12 credits*

Students must earn twelve credits in the three areas listed below. At least three credits must be earned in each area.

Fine Arts: courses in the departments of Art and Art History, Dance (DAN 250 only), Musicology, Music Theory (MTC 125 only), and Theatre Arts (THA 101 only) count toward this requirement.

Literature: literature courses in the departments of English (200-level and higher), Modern Languages and Literatures (300-level and higher) and Classics (CLA 220, CLA 310, CLA 311 and CLA 370) count toward this requirement.

Philosophy and Religious Studies: courses in the departments of Philosophy and Religious Studies count toward this requirement.

One approved First Year Seminar course may be taken for the Arts and Humanities requirement.

*C) Natural World (Natural Science)*

Bachelor of Arts in Marine Affairs: 9 credits
Bachelor of Science in Marine and Atmospheric Science: 4-8 credits

B.A. degree candidates must earn nine credits in two of the following disciplines: Biology, Chemistry, Ecosystem Science and Policy, Geological Sciences, Marine Sciences, Physical Sciences, and Physics. APY 203 and/or GEG 120 may also be taken for this requirement.

B.S. degree candidates minoring in one of the subjects approved as a B.S. major must earn 4 credits, and those minoring in other subjects must earn 8 credits, in one of the following departments: Biology, Chemistry, Geological Sciences or Physics. These credits must be taken in a department other than the major or the minor, and must be earned in courses that count toward a major in that department.

[Marine and Atmospheric Science Course Listing](#)
INTRODUCTION

The University of Miami Frost School of Music awards the Bachelor of Music degree with majors in nine areas: Composition, Performance, Music Education, Music Engineering Technology, Music Business and Entertainment Industries, Musical Theatre, Music Therapy, Studio Music and Jazz, and Bachelor of Science in Music Engineering.

The Bachelor of Arts in music degree is a non-professional degree designed for talented musicians who wish to pursue a broad liberal arts education. Curriculum flexibility affords students the opportunity for a variety of pre-professional studies, including premedical and prelegal. A minor outside the Frost School of Music is required. A second major outside the School of Music can sometimes be pursued.

The Master of Music is offered with majors in Music Education, Music Therapy, Theory, Composition, Performance (voice, piano, conducting, harp, woodwind, multi-woodwinds, brass, percussion, and stringed instruments), Musicology, Accompanying and Chamber Music, Jazz Performance, Jazz Pedagogy, Music Business and Entertainment Industries, Studio Jazz Writing, Media Writing and Production. Music Engineering Technology is offered by the School of Music as a Master of Science Degree.

The Doctor of Philosophy degree in Music Education and the Doctor of Musical Arts degree also are offered. Refer to the appropriate section of the Graduate Bulletin for policies concerning admission, course of study, residence, research, tool requirements, examinations, candidacy, and dissertation/final project requirements.

MISSION

As one of the most comprehensive music units in American higher education, and as a free-standing school within a major research university, the Frost School of Music perpetuates a historic commitment to the values inherent in the juxtaposition of professional and general studies in undergraduate curricula. The comprehensiveness of the School’s undergraduate and graduate programs manifests a philosophy that places importance upon establishing and maintaining connections between its instructional and associated activities and the broad spectrum of music and music-related fields for which it seeks to prepare its students.

In broadest terms, the four-fold mission of the Frost School of Music is to provide a high quality music education and training for its undergraduate and graduate majors; foster advancements in music performance, creativity, scholarship, and teaching among its faculty; serve the general student population of the University; and act as an educational and cultural resource for the University, South Florida, and as appropriate, for national and international constituencies.

ACCREDITATION

The Frost School of Music has been a member of the National Association of Schools of Music since 1939. The requirements for entrance and for graduation as set forth in this Bulletin are in accordance with the published regulations of this Association.
**GOALS**

The primary goals are:

1. to provide music majors with a high quality pre-professional education,

2. to provide opportunities for other University students to increase their musical skill, understanding, and appreciation,

3. to provide the music faculty with opportunities for creative activity and scholarly inquiry, and

4. to serve as an educational and cultural resource for the University, South Florida, and global communities.

**PHYSICAL FACILITIES**


Henry Fillmore Band Hall (1958) has a rehearsal hall, uniform and instrument storage, the band library, offices, and the Henry Fillmore Museum.

Nancy Greene Hall (1960) contains a rehearsal hall, studio-offices, and ensemble library.

The Percussion Building (1968) is the percussion teaching studio and office.

The Bertha Foster Memorial Music Building (1960, with second story addition completed in 1970), contains practice rooms and teaching studios, pipe organ studio, an electronic music laboratory, and two studios equipped for audio and video recording.

The Gusman Concert Hall (1975) houses the administrative offices, data processing center, and the Music Engineering Technology center. The 600 seat sound chamber is one of the finest concert facilities in the Southeast.

The L. Austin Weeks Center for Recording and Performance (1994) contains the 150 seat Victor E. Clarke Recital Hall, featuring adjustable acoustics, a pre-function area, a green room, and a state-of-the-art recording studio. The recording area of the building features 48-track digital recording capabilities with a computer automated console, and a multimedia workstation.

The Marta and Austin Weeks Music Library and Technology Center (2005) contains a 15,300 square-foot library which houses collections of books, scores, recordings, special collections, reference works, and computer facilities. The 5,200 square-foot advanced technology center contains six labs, each servicing a specific program for higher-level work, including a music engineering lab, two keyboard/computer labs, a multimedia instruction and learning lab, an electronic and computer music lab, and a media-writing and production lab.

**PERFORMING ENSEMBLES**

Through regular rehearsals and public concerts, ensembles provide performing experience for all students on the University of Miami campus. Membership in each of these performing ensembles is based on auditions. Students interested in instrumental music may participate in any of the following:
Accompanying
Avant Garde Ensemble
“Band of the Hour” Marching Band
Brass Chamber Music
Brass Choir
Clarinet Choir
Classical Guitar Ensemble
Concert Jazz Band
Contemporary Music Ensemble
E.C.M. Ensemble
Electronic Music Ensemble
Flute Choir
Funk/Fusion Ensemble
Horace Silver Ensemble
Jazz Bass Ensemble
Jazz Guitar Ensemble
Jazz Keyboard Ensemble
Jazz Saxophone Ensemble
Mallet Ensemble
Marimba Ensemble
Monk/Mingus Ensemble
Percussion Ensemble
Rock Ensemble
Salsa Ensemble
Saxophone Ensemble
Small Jazz Ensembles
String-Keyboard Chamber Music
Studio Jazz Band
Studio Rhythm Section
Symphonic Winds
Symphony Orchestra
Synthesizer Ensemble
The Other Music Ensemble
Trombone Choir
Tuba Ensemble
University Band
Wind Ensemble
Woodwind Chamber Music
XJazz Band
Choral experience may be gained through participation in the

Chamber Singers
Civic Chorale
Collegium Musicum
Jazz Vocal I-III
Men’s Chorale
Musical Theatre Workshop
Opera Theater
University Chorale
Women’s Chorale

PUBLIC PERFORMANCES

During the academic year the Frost School of Music presents more than 300 student forums, student and faculty recitals, concerts, lectures, master classes, and guest artist recitals. Student ensembles and faculty present numerous master classes, recitals, and concerts throughout the United States and abroad.

Students are encouraged to attend recitals, concerts, master classes, and festivals which are presented within the Frost School of Music as well as throughout metropolitan Miami.

PROFESSIONAL SOCIETIES

In addition to other extra-curricular activities of the University, the Frost School of Music has established on its campus active chapters of Phi Mu Alpha Sinfonia, Sigma Alpha Iota, Music Educators National Conference (student), American Musicological Society, Tau Beta Sigma, Pi Kappa Lambda, International Association of Jazz Educators, Music Entertainment Industry Student Association, and the Audio Engineering Society.

SCHOOL OF MUSIC SCHOLARSHIPS

The Frost School of Music grants scholarships based on music performance. All domestic students seeking scholarship funds are encouraged to complete a Free Application for Federal Student Aid and/or other required forms. Please consult with the Office of Financial Assistance Services for further information.

SPECIAL PROGRAMS

Workshops and clinics are offered to enrich the musical knowledge of in-service teachers and professional musicians during the academic year. The program of activities continues through the summer when special workshops and seminars are offered. Opportunities for pre-college students are provided in all areas of music and dance throughout the year.

MUSIC FOR NON-DEGREE STUDENTS

Certain music courses are available to students not enrolled in a music degree program. Pre-college students, matriculating University of Miami students, and interested community adults may enroll in these courses. Students who are not currently enrolled at the University of Miami but who wish to pursue courses will need to apply as a special student through the Frost School of Music Office of Admission.
Non-music majors wishing to enroll in performance study are required to audition and may, with the permission of the appropriate faculty member and the undergraduate or graduate dean, register for one or two credits a semester upon payment of tuition and an applied music fee of $200.00 per credit. Performance study by non-music majors is subject to teacher availability.

**ACADEMIC POLICIES**

**REQUIREMENTS FOR ADMISSION**

**ADMISSION TO THE FROST SCHOOL OF MUSIC**

Students admitted to the Frost School of Music must successfully complete a dual admission process. In addition to the general requirements for admission to the University, the undergraduate student must meet the following requirements of the Frost School of Music:

1. Submit a Frost School of Music Application directly to the Frost School of Music Admission Office.

2. Submit an Application for Undergraduate Study directly to the University Office of Undergraduate Admission.

3. Demonstrate performance proficiency by auditioning on campus, at designated regional audition centers, or by recording. The audition will be evaluated by appropriate faculty committees.

4. After being admitted to the University each student will be required to participate in placement auditions and exams in theory and applied music (performance). These examinations will be given just immediately to registration in the fall.

5. Transfer students who are admitted to the University will receive a tentative evaluation of their previous work from the office of Admission. Validation of credits in music will be based on the results of auditions and placement examinations discussed above. The Assistant Dean for Undergraduate Studies of the Frost School of Music determines which transferred courses will meet specific requirements for graduation.

6. Admission is granted in Fall semesters only.

Students who are admitted to the Frost School of Music must begin a program of specialized requirements in music during their first semester.

**ADMISSION TO THE UNIVERSITY (UNDERGRADUATE STUDENTS)**

Application forms and bulletins for undergraduate students may be secured from the University of Miami web site at [www.miami.edu](http://www.miami.edu). The University Office of Admission receives and processes all undergraduate applications, evaluates credentials, and mails letters of acceptance to applicants who qualify for entrance. Because of the University’s selective admissions policy and limited enrollment only those applicants are accepted who present evidence of intellectual promise, unusual talent and potential, and strong personal qualifications. Admission as a transfer student requires a 3.0 grade point average from the previous institution. Admission to the University in all cases is determined by the University Office of Admission and the Frost School of Music.
Prospective students should make formal application for admission in the fall of the senior year in high school. The Frost School of Music does not participate in the Early Decision or Early Action program.

**PLACEMENT TESTS**

Upon entering the Frost School of Music, students must demonstrate through placement auditions college-level performance on their instrument and in music theory. Results of placement tests will enable music advisors to assist students in selecting the appropriate program and level of study.

**ENGLISH and MATHEMATICS REQUIREMENTS**

Students requiring English 105, English 106, or Mathematics 101 must enroll for these classes during the first year in residence and are not permitted to drop.

**AUDIT**

Due to the nature of music courses, it is not possible for a student to audit courses offered in the Frost School of Music.

**PERFORMANCE STUDY**

**CATALOG DESCRIPTION**

The study of a musical instrument privately or in a small group. Prerequisite: Audition.

**PERFORMANCE MAJOR**

A Performance Major aspires to a professional career in music performance.

**PRINCIPAL INSTRUMENT**

Non-Performance Majors study a principal instrument to develop their music performance skills to the fullest extent possible.

**PERFORMANCE INSTRUCTION**

The letter designations A through R classify the levels of undergraduate and graduate performance instruction. The letters A through H signify undergraduate study; letters I through L, master’s study; and letters M through R, doctoral study. Transfer students enroll in Level A for the first semester and are placed at an appropriate classification level of study based on the results of the Jury at the end of each semester.

**CREDIT FOR LESSONS**

The number of credit hours awarded for performance study is determined by the student’s curriculum. Students enrolled for two or more credits of performance study are required to perform a Jury at the end of each semester.

**JURY**

The purpose of the Jury is to evaluate student musicianship and technique progress. Students enrolled for 2 to 4 credits of private lessons are required to play a Jury before a panel of performance faculty at the end of each semester. Juries are held during Reading Days. Students perform technical requirements and repertoire as assigned by their performance study teacher.
The private teacher prepares a Jury Sheet that lists the repertoire covered during the semester and the studio grade, for each student. Following a student performance, the grades of the Jury Panel are averaged. The final grade is comprised of the grade given by the teacher (65%) and the grade of the Jury Panel (35%). The grade is recorded on the Jury Sheet and placed in the student’s file. The final grade can be lowered as a result of poor recital attendance or other requirements specific to the student’s program of study.

**PERFORMANCE WARNING, PROBATION AND DISMISSAL**

The following applies to all majors and programs in the Frost School of Music:

Students earning a grade of C+ or lower in performance study will be placed on Performance Warning for one semester. A subsequent grade of C+ or lower in performance study will result in Performance Probation for one semester. Following Probation, an additional grade of C+ or lower in performance study will result in dismissal from the Frost School of Music.

**Students Who Fail to Successfully Complete a Music Course**

Students who fail to successfully complete a music course after the second enrollment will be dismissed from the Frost School. Courses may not be dropped during the second enrollment.

**SUMMER LESSONS**

During each of the five-week summer sessions, students may register for one credit of performance study and receive a one-hour lesson per week. Summer lessons do not fulfill degree requirements.

**SPECIAL FEES**

Students studying a secondary instrument beyond the required four semesters of secondary piano will be assessed a per-credit fee and must have the approval of the undergraduate dean and program director or department chair. Students who require an accompanist may be assessed an accompanying fee.

**REQUIREMENTS FOR GRADUATION**

The general requirements for graduation from the University of Miami are described in the General Information section of this Bulletin. These general requirements are included in the specific listing of requirements for various majors under the appropriate department in the Frost School of Music. Outlines of achievement levels in applied music for each major are available in the Office of the Dean of the Frost School of Music. The student should consult regularly with his/her advisor and download their Academic Credit Evaluations which track all courses taken to see that all requirements for his/her particular area of concentration degree requirements are being met. Changes or deviations from the printed requirements must be approved in writing by the Dean.

**WRITING COURSES**

Frost School of Music students are expected to complete five writing-intensive courses in addition to English 105 and 106. Courses designated to meet this requirement are identified in the semester course schedule.
Courses satisfying this requirement are those which involve a substantial amount of writing. The preparation of papers in these courses are corrected for diction, syntax, style, and content.

Non Music or Free Electives

Non – Music or Free Electives may be chosen from any courses offered by the University except ESS courses numbered below 140.

MINORS

MUSIC MINOR

Any student wishing to declare a minor in music must audition on an instrument and register with the Frost School of Music as a minor. A fee is assessed for private instruction. Please note that a minor in certain instruments may not be available. Minors are not available in Jazz Instruments or Jazz Voice. Availability on other instruments and voice varies from year to year depending on studio space.

A minor in music consists of 20 credits:
- Music theory (MTC) 111, 112, 121, 122: 6 Credits
- Music literature (MCY) 132, and 3 credit MCY elective: 6 Credits
- Music performance (Instrument/Voice, 4 semesters of 1 credit lessons): 4 Credits
- Ensembles: 2 Credits
- Music Electives: 2 Credits

HONORS

See general Honors program described elsewhere in Bulletin.
UNDERGRADUATE ACADEMIC PROGRAMS

DANCE – Dept. Code: DAN

There is currently no Undergraduate degree for Dance.

MINOR IN DANCE

A minor in dance is intended for students interested in developing basic teaching skills for elementary and secondary dance education. Prospective students interested in this minor are required to audition for acceptance as well as maintain a grade point average of 3.0 in dance courses. 20 credits are required.

Orientation to Dance (DAN 130) This course is a prerequisite for all students who are interested in the minor in Dance 2 credits
Advanced studio technique (DAN 311 or 411 and DAN 321 or DAN 421) 6 credits
Dance education and history (DAN 385 or DAN 585 and DAN 450 or DAN 550) 6 credits
Dance education electives (DAN 285, 286, 290 and 335) 6 credits
Studio Electives (DAN 111, DAN 190, DAN 121, DAN 140, DAN 211, DAN 221, DAN 235, DAN 240, DAN 340) 4 credits

Dance courses are open to all university students with the approval of their advisor. For further information, contact the Dance coordinator.

Dance Course Listing
PERFORMANCE

INTRODUCTION

The mission of the Bachelor of Music Degree is to (1) provide the highest quality of education possible in the areas of musicianship that will provide the foundation for graduate degree work which will lead toward a professional performance career as a classical artist; (2) to provide performance opportunities that integrate the skills learned in music and other classes and to foster creativity and research (3) to provide audition skills and repertoire as well as the skills for building and managing the non-performance aspects of a professional career.

EDUCATIONAL OBJECTIVES

- Students will develop musicianship skills and technique adequate for acceptance into graduate study for fostering a professional career as a solo classical performer.
- Students will be able to sight-read and prepare musical performances without assistance.
- Students will develop musicianship skills and technique for working within an ensemble adequate for acceptance into graduate study leading towards a professional career as a classical performer. Ensemble requirements will vary by applied area.
- Students will develop skills for acceptance into graduate study for fostering a professional career as a solo classical performer.
- Students will have a broad knowledge of music literature in their applied area as well as an understanding of stylistic and theoretical principles of the various musical and historical periods.

DEGREE PROGRAMS

Bachelor of Music in Performance

MAJOR

Instrumental Performance (MIP)
Keyboard Performance (MKP)
Vocal Performance (MVP)
INSTRUMENTAL PERFORMANCE - Dept. Code: MIP

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### JUNIOR YEAR

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* Must pass with grade of C or above.

** If math placement is higher than MTH 101, a 3-credit academic elective will be required.

*** Can be satisfied with 6 credits Natural World, or 3 credits of Natural World and 3 credits of Mathematics (MTH 103 or above).

Instrumental Performance Course Listing
KEYBOARD PERFORMANCE - Dept. Code: MKP PIANO

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<table>
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<tr>
<td><strong>First Semester</strong></td>
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<td>MKP 191*** Accompanying</td>
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<td>Ensemble</td>
<td>MKP 191*** Accompanying</td>
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<td>MIP or MTC 300+ Level Elective</td>
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<td>MTC 416 Orchestration</td>
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* Must pass with grade of C or above.

** Required if math placement is MTH 101 or lower.

*** Level I, II, or III to be determined by the Director of Accompanying and Chamber Music.

[Keyboard Performance Course Listing](#)
### Vocal Performance Course Listing

#### Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
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<tbody>
<tr>
<td>MVP 008 Voice Forum</td>
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<td>Ensemble</td>
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</tr>
<tr>
<td>*MTC 111 Music Theory I</td>
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<tr>
<td>+*MTC 121 Music Theory Laboratory I</td>
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<td>ENG 105 English Composition I</td>
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<td>**MTH 101 Algebra for College Students</td>
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<td>DAN 102 Movement for Opera</td>
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<td>MVP 252 German Diction for Singers</td>
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<td>***Language</td>
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#### Junior Year

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<td>***Language</td>
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#### Senior Year

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<td>MVP 438 Vocal Pedagogy</td>
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<td>MTC 515 Choral Arranging</td>
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<td>People and Society Elective</td>
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</table>

* Must Pass with grade of C or above

** Required if math placement is MTH 101 or lower.

*** Foreign language requirements: one semester each of Italian, French, and German and at least one additional semester of Italian, French, or German.

**** Vocal Performance major must pass a Proficiency Exam to enroll for MVP VOE Voice.

***** Can be satisfied with 6 credits Natural World, or 3 credits Natural World and 3 credits of Mathematics (MTH 103 or above).

+ MVP 105 Prerequisites (Must pass with grade of C or above)

Vocal Performance Course Listing
MUSICAL THEATRE

INTRODUCTION

The mission of the Bachelor of Music Degree in Musical Theatre is to (1) provide the highest quality of education possible in the areas of singing, acting and dancing that will foster a professional performance career in musical theatre; (2) provide performance opportunities that integrate the skills learned in music and theatre classes and to foster creativity and research; (3) assist the Jerry Herman Ring Theatre productions by providing musical direction, rehearsal pianists, conductors and instrumentals; and (4) provide the skills for managing the non-performance aspects of a professional career.

EDUCATIONAL OBJECTIVES

- Students will develop as a singer with musicianship skills adequate for beginning a professional career in musical theatre.
- Students will be able to sight-read and prepare musical performances without assistance.
- Students will develop the techniques of acting and script analysis that are adequate for beginning a professional career in musical theatre.
- Students will develop the ability to self-direct and acting performance for both musical and non-musical theatre.
- Students will develop skills for dancing in dancing and movement classes that are adequate for beginning a professional career in musical theatre.

DEGREE PROGRAMS

Bachelor of Music Degree in Musical Theatre

MAJOR

Musical Theatre (MTR)

The Musical Theatre - Conservatory degree is interdisciplinary in nature with emphasis in both music and theatre and requires four years to complete from the time a student enters the program.
# MUSICAL THEATRE - Conservatory

## FRESHMAN YEAR

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<thead>
<tr>
<th>First Semester</th>
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<tr>
<td>Voice (MVP VOA) or MVP 101</td>
<td>Voice (MVP VOB)</td>
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<td>MKP 122 Class Piano/MTR Majors Only (Level II)</td>
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<td>*MTC 111 Music Theory I</td>
<td>*MTC 112 Music Theory II</td>
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<tr>
<td>*MTC 121 Music Theory Laboratory I</td>
<td>*MTC 122 Music Theory Laboratory II</td>
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<tr>
<td>MCY 101 The World of Music and Its Powers</td>
<td>MVP 196 Singing for the Stage I-A</td>
</tr>
<tr>
<td>THA 111 Acting I-A</td>
<td>THA 112 Acting I-B</td>
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<tr>
<td>THA 113 Movement I-A</td>
<td>THA 114 Movement I-B</td>
</tr>
<tr>
<td>THA 116 Dance I-A</td>
<td>THA 117 Dance I-B</td>
</tr>
<tr>
<td>THA 141 Introduction to Theatre Crafts I (Lecture)</td>
<td>THA 121 Freshman Ensemble II</td>
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<tr>
<td>THA 143 Introduction to Theatre Crafts I (Laboratory)</td>
<td>THA 142 Introduction to Theatre Crafts II (Lecture)</td>
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<td>THA 198 Voice and Speech I-A</td>
<td>THA 199 Voice and Speech I-B</td>
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## SOPHOMORE YEAR

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<tr>
<td>Voice (MVP VOC)</td>
<td>Voice (MVP VOD)</td>
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<td>MKP 123 Class Piano/MTR Majors Only (Level III)</td>
<td>MKP 124 Class Piano/MTR Majors Only (Level IV)</td>
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<td>*MTC 211 Music Theory III</td>
<td>*MTC 212 Music Theory IV</td>
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<td>*MTC 221 Music Theory Laboratory III</td>
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<tr>
<td>MVP 197 Singing for the Stage 1-B</td>
<td>MVP 296 Singing for the Stage II-A</td>
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<tr>
<td>THA 211 Acting II-A</td>
<td>THA 212 Acting II-B</td>
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<td>THA 216 Dance II-A</td>
<td>THA 217 Dance II-B</td>
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<td>THA 298 Voice and Speech II-A</td>
<td>THA 299 Voice and Speech II-B</td>
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<td>ENG 105 English Composition I</td>
<td>ENG 106 English Composition II</td>
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## JUNIOR YEAR

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<tr>
<td>Voice (MVP VOE)</td>
<td>Voice (MVP VOF)</td>
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<tr>
<td>MVP 008 Voice Forum</td>
<td>MVP 008 Voice Forum</td>
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<td>MCY 541 Music of the Mediaeval, Renaissance, and Baroque Periods</td>
<td>MCY 542 Music of the Classical, Romantic, and Modern Periods</td>
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<td>MVP 181 Choral Conducting I</td>
<td>THA 312 Acting III-B</td>
</tr>
<tr>
<td>MVP 297 Singing for the Stage II-B</td>
<td>THA 314 Movement III-B</td>
</tr>
<tr>
<td>THA 311 Acting III-A</td>
<td>THA 317 Dance III-B</td>
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<tr>
<td>THA 313 Movement III-A</td>
<td>THA 399 Voice and Speech III-B</td>
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<tr>
<td>THA 316 Dance III-A</td>
<td>***Natural World Elective</td>
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<td>THA 398 Voice and Speech III-A</td>
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<tr>
<td>People and Society Elective</td>
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## SENIOR YEAR

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<td>MVP 008 Voice Forum</td>
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<tr>
<td>Voice (MVP VOG)</td>
<td>Voice (MVP VOH)</td>
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<tr>
<td>Choral Ensemble</td>
<td>Choral Ensemble</td>
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<tr>
<td>MVP 415 Auditioning I</td>
<td>MVP 416 Auditioning II</td>
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<td>MVP 431 Musical Theatre Styles I</td>
<td>MVP 420 Senior Studio</td>
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<td>People and Society</td>
<td>MVP 432 Musical Theatre Styles II</td>
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<td>***Natural World Elective</td>
<td>Music Elective</td>
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* Must pass with grade of C or above
** Required if math placement is MTH 101 or lower.
*** Can be satisfied with 6 credits Natural World, or 3 credits Natural World and 3 credits Mathematics (MTH 103 or above).
+ MVP 105 Prerequisite (Must pass with grade of C or above)
INTRODUCTION

A basic premise of the program is that music teachers must be both musicians and teachers; thus, competency as a musician is equally as important as having a strong theoretical foundation of music education methodology. We believe the instructional program should prepare students for teaching all areas of the instructional specialization (e.g. choral, general, instrumental music) while at the same time allowing them to develop a specialization in a given area of music teaching. We believe the basic theoretical foundations in our series of music education techniques and methods courses should be carefully coordinated and that all of these courses should emphasize sequencing of instruction in terms of student's musical development. This sequence should incorporate ideas drawn from theory, research, and the practical experiences of the faculty and other successful practitioners.

Program Goals:
- Help students develop the musical and teaching competencies necessary to enable them to demonstrate the generic and subject area competencies and the Florida Educational Accomplished Practices (FEAP) for becoming successful music teachers.
- Enable students to apply the musical and instructional skills developed in the program (and reinforced during field experience and the student internship) to the teaching of music in elementary, middle, and senior high schools. Prepare students to plan and sequence music instruction at all levels.
- Help students to develop the skills and desire to continue music-making as a lifetime endeavor both personally and professionally.
- Help students develop skills in integrating information from the diverse professional literature into their teaching.

EDUCATIONAL OBJECTIVES

- Students must demonstrate generic competencies required by the University, including 27 credits in general education.
- Students must demonstrate competencies related to the core Professional Education courses required by the State of Florida, including 24 credits in Teaching and Learning (TAL) and Student Teaching (MED).
- Students must demonstrate musical competencies related to the requirements of the Bachelor of Music degree, including 66 credits in music.
- Students must demonstrate teaching competencies related to the core courses in the music education specialization, including 21-22 credits in Music Education.

DEGREE PROGRAMS

Bachelor of Music

MAJOR
Music Education (MED)
Music Education with Jazz Emphasis Instrumental (MEDJI)
Music Education with Jazz Emphasis Vocal (MEDJV)
The Music Education curriculum is designed to prepare students to teach music in public and private schools at both the elementary and secondary grade levels. All Music Education majors must perform at a high level either vocally or on an instrument. Students must successfully complete the Florida General Knowledge Examination (FGKE) to be admitted to teacher candidacy and the Florida Teacher Certification Examination (FCTE) to graduate.

Instrumental majors must develop knowledge of and performance ability on wind, string, and percussion instruments sufficient to teach beginning students. All choral and general music majors must develop adequate vocal skills to assure effective use of the voice in teaching.

Admission to and/or retention in the music education curriculum leading to Florida Teacher Certification requires that students be formally screened with respect to specific criteria. Following are the Requirements for Admission to Teacher Candidacy and for Admission to Associate Teaching:

**Admission to Teacher Candidacy**
1. Acceptance as a major in the music education program.
2. Satisfactory performance on the FGKE and the FCTE.
3. Completion of 55 semester hours of credit. (Transfer students must have at least 12 semester hours of credit earned at the University of Miami.)
4. A 2.5 GPA in TAL and MED courses.
6. Required Background Check completed.

**Admission to Associate Teaching**
1. Two recommendations from faculty members familiar with academic proficiency.
2. Completion of 90 semester hours of credit.
3. Completion of at least three-fourths of the courses in the teaching major, verified by advisor.
4. Completion of and a C- or better in the following prerequisite courses: TAL 103, 304, 305, 480, 506, MED 240, 241, 242, 243, 245, 430, 542, 543, 544, 549, and for instrumental emphasis, MED 244, 340 choral emphasis, MVP 250 string emphasis, MIP 549
5. Completion of pre-internship field experiences with above-average evaluations.
MUSIC EDUCATION

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<thead>
<tr>
<th>FRESHMAN YEAR</th>
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<tr>
<td>First Semester</td>
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<td>MCT 101 The World of Music and Its Powers</td>
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<td>**MED Techniques Class</td>
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<td>MIP 182 Instrumental Conducting II or MVP 182 Choral Conducting II</td>
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<td>MIP 220 Computers, Keyboards, and Music</td>
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<td>TAL 305 Classroom &amp; Behavior Management</td>
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<td>Non – Music Elective</td>
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<td>MIP 282 Instrumental Conducting IV or MVP 282 Choral Conducting IV</td>
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<td>MTC 416 Orchestration</td>
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<td>MCY 541 Music of the Mediaeval, Renaissance, and Baroque Periods</td>
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<td>MTC 515 Choral Arranging</td>
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<td>MCY 542 Music of the Classical, Romantic, and Modern Periods</td>
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<td>#MED 549 Teaching Secondary Choral Music</td>
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<td>#MED 543 Teaching Elementary and Secondary Instrumental Music</td>
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<td>Second Semester</td>
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University of Miami Bulletin, 2009-2010
Undergraduate, Frost School of Music

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# MUSIC EDUCATION/JAZZ EMPHASIS (Vocal)

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# Must pass with grade of C- or above.
* Must pass with grade of C or above.
** Two semesters of MIP 170 Marching Band required of all brass, percussion, and woodwind principals.
*** Required if math placement is MTH 101 or lower.
+ Math 103 or higher may be substituted for one Natural World course.
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# Must pass with grade of C- or above.
* Must pass with grade of C or above.
** Required if math placement is MTH 101 or lower.
MUSIC THERAPY - Dept Code MTY

INTRODUCTION

The music therapy program provides students with the opportunity to develop comprehensive musicianship as well as clinical knowledge and skills within a rich musical, scholarly and communicative environment. Music therapy majors must demonstrate musical proficiency, either vocally or instrumentally, and must acquire musical competency on guitar, piano, voice and percussion.

Graduates of this program are prepared for careers as professional music therapists in a variety of health care and educational settings. Furthermore, graduates are eligible to take the Board Certification Exam in music therapy, leading to the credential, Music Therapist Board Certified (MT-BC). The music therapy curriculum is approved by the American Music Therapy Association, and is based on the clinical and research paradigm known as Neurologic Music Therapy.

To remain in the music therapy program, students must maintain a minimum GPA of 2.5. Additionally, music therapy core courses must be completed with a grade of C or higher.

EDUCATIONAL OBJECTIVES

The music therapy program is designed to address three primary objectives:

- Comprehensive musicianship: through intensive music study and performance experiences, students will articulate knowledge of music structure and style, produce aesthetically pleasing musical performances, and modify music for specific contexts.

- Knowledge of human behavior: by studying both theory and scientific evidence, students will develop an in-depth understanding of the systems of the human body, the intricacies of human behavior, as well as developmental norms and deviations in each domain of functioning.

- Knowledge of Music Therapy: students will engage in rigorous exploration of the theories and scientific evidence that support the use of music in a therapeutic context. Following the neurologic music therapy approach, all techniques learned in this program are based on scientific evidence regarding music perception and behavior. Furthermore, students have ample opportunity to establish and refine their therapeutic skills through six consecutive semesters of clinical practica in addition to a six-month, full-time clinical internship.
DEGREE PROGRAMS

Bachelor of Music in Music Therapy

MAJOR

Music Therapy (MTY)
Music Therapy & Music Education Double Major (MTY/MED)

The purpose of the program in Music Therapy is to prepare individuals for careers as professional music therapists in a variety of health care and educational settings. All Music Therapy majors must demonstrate acceptable musical skills, either vocally or on a traditional symphonic instrument. In addition, students must demonstrate musical competency in the following areas: guitar, piano, voice, and percussion.

The Music Therapy curriculum is approved by the American Music Therapy Association. Graduates are eligible to sit for the Music Therapy Board Certification Exam, leading to the credential, Music Therapist Board Certified (MT-BC).

To remain in the Music Therapy program, students must maintain a minimum of 2.5 GPA. Additionally, music therapy core courses must be completed with a grade of C or better.

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**MUSIC THERAPY**

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<td>MED 562 Psychology of Music (spring only)</td>
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</tr>
<tr>
<td>MTC Arranging/Orchestration Elective</td>
</tr>
<tr>
<td>MED 359 Clinical Orientation in Music Therapy</td>
</tr>
<tr>
<td>MED 545 Music in Rehabilitation</td>
</tr>
<tr>
<td>MED 562 Psychology of Music (spring only)</td>
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### SENIOR YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
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<tbody>
<tr>
<td>MED 010 Music Therapy Forum</td>
<td>MED 010 Music Therapy Forum</td>
</tr>
<tr>
<td>Ensemble</td>
<td>Ensemble</td>
</tr>
<tr>
<td>MKP 220 Computers, Keyboards and Music</td>
<td>MED 359 Clinical Orientation in Music Therapy</td>
</tr>
<tr>
<td>MVP 181 Choral Conducting I</td>
<td>MED 546 Music in Psychotherapy</td>
</tr>
<tr>
<td>MED 359 Clinical Orientation in Music Therapy</td>
<td>DAN 290 Introduction to Dance Movement Therapy</td>
</tr>
<tr>
<td>MED 450 Introduction to Research in Music (fall only)</td>
<td>PSY 204 Introductory Biobehavioral Statistics</td>
</tr>
<tr>
<td>PSY 352 Abnormal Psychology</td>
<td>TAL 330 Introduction to the Education of Exceptional Individuals</td>
</tr>
<tr>
<td>Natural World Elective</td>
<td>PSY 440 Abnormal Child Psychology</td>
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</tbody>
</table>

**NOTE:** MED 559/560 Internship (3 credits) required following successful completion of all coursework. Internship consists of a 6-month, full-time clinical placement at an approved site.

* Must pass with grade of C or above.

** Required if math placement is MTH 101 or lower.
# MUSIC EDUCATION and MUSIC THERAPY DOUBLE MAJOR (157-158 credits)

## FRESHMAN YEAR

**First Semester**
- MED 010 Music Therapy Forum 0
- MED 015 Music Education Forum 0
- Principal Instrument Forum 0
- Principal Instrument or Voice (A Level) 2
- Ensemble 1
- MKP 101 Class Piano I or Secondary Instrument 1
- *MTC 111 Music Theory I 2
- *MTC 121 Music Theory Laboratory I 1
- MCY 101 The World of Music and Its Powers 1
- MED 159 Introduction to Music Therapy 2
- ENG 105 English Composition I 3
- #MED Techniques Class 1
- **MTH 101 College Algebra 3**

**Second Semester**
- MED 010 Music Therapy Forum 0
- MED 015 Music Education Forum 0
- Principal Instrument Forum 0
- Principal Instrument or Voice (B Level) 2
- Ensemble 1
- MKP 102 Class Piano II or Secondary Instrument 1
- *MTC 112 Music Theory II 2
- *MTC 122 Music Theory Laboratory II 1
- MED 259 Pre-Practicum 2
- ENG 106 English Composition II 3
- PSY 110 Introduction to Psychology 3
- **TAL 305 Classroom and Behavior Management 3**

## SOPHOMORE YEAR

**First Semester**
- MED 010 Music Therapy Forum 0
- MED 015 Music Education Forum 0
- Principal Instrument Forum 0
- Principal Instrument or Voice (C Level) 2
- Ensemble 1
- MIP 181 Instrumental Conducting I or
- MVP 181 Choral Conducting I 1
- *MTC 211 Music Theory III 2
- *MTC 221 Music Theory Laboratory III 1
- MKP 103 Class Piano III or Secondary Instrument 1
- MKP 220 Computers, Keyboards, and Music 2
- BIL 109 Human Biology 3
- DAN 290 Introduction to Dance Movement Therapy 2
- PSY 203 Child and Adolescent Development 3

**Second Semester**
- MED 010 Music Therapy Forum 0
- MED 015 Music Education Forum 0
- Principal Instrument Forum 0
- Principal Instrument or Voice (D Level) 2
- Ensemble 1
- MIP 182 Instrumental Conducting II or
- MVP 182 Choral Conducting II 1
- *MTC 212 Music Theory IV 2
- *MTC 222 Music Theory Laboratory IV 1
- MKP 104 Class Piano IV or Secondary Instrument 1
- #MED 245 Functional Music Techniques 1
- MED 359 Clinical Orientation in Music Therapy 1
- PSY 202 Introduction to Psychobiology 3
- PSY 440 Abnormal Child Psychology 3

## JUNIOR YEAR

**First Semester**
- MED 010 Music Therapy Forum 0
- MED 015 Music Education Forum 0
- Principal Instrument Forum 0
- Principal Instrument or Voice (E Level) 2
- Ensemble 1
- MIP 281 Instrumental Conducting III or
- MVP 281 Choral Conducting III 1
- MCY 541 Music of the Mediaeval, Renaissance, and Baroque Periods 3
- #MED Techniques Class 1
- #MED Techniques Class 1
- MED 149 Functional Techniques in Music Therapy I 1
- MED 359 Clinical Orientation in Music Therapy 1
- #MED 542 Teaching Elementary General Music K-6 3
- MED 576 Music and Development (fall only) 3

**Second Semester**
- MED 010 Music Therapy Forum 0
- MED 015 Music Education Forum 0
- Principal Instrument Forum 0
- Principal Instrument or Voice (F Level) 2
- Ensemble 1
- MCY 542 Music of the Classical, Romantic, and Modern Periods 3
- #MED Techniques Class 1
- MED 249 Functional Techniques in Music Therapy II 1
- MED 359 Clinical Orientation in Music Therapy 1
- MED 545 Music in Rehabilitation (spring only) 3
- MED 562 Psychology of Music I (spring only) 3
- TAL 304 Reading in Content Area 3

## SENIOR YEAR

**First Semester**
- MED 010 Music Therapy Forum 0
- MED 015 Music Education Forum 0
- Principal Instrument Forum 0
- Principal Instrument or Voice (G Level) 2
- Ensemble 1
- #MED Techniques Class 1
- MED 340 Marching Band Fundamentals or
- MIP 549 String Repertoire and Pedagogy (string)

**Second Semester**
- MED 010 Music Therapy Forum 0
- MED 015 Music Education Forum 0
- Ensemble 1
- MTC 416 Orchestration or
- MTC 515 Choral Arranging 3
- MED 543 Teaching Elementary and Secondary Instrumental Music or
- #MED 544 Teaching Secondary General
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<tr>
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<tr>
<td>MED 433 Senior Seminar in Music Education</td>
<td>MED 559 Internship in Music Therapy</td>
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<tr>
<td>MED 471 Associate Teaching in Elementary</td>
<td>MED 560 Internship in Music Therapy</td>
</tr>
<tr>
<td>School Music (K-5)</td>
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<tr>
<td>MED 473 Associate Teaching in Secondary</td>
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<tr>
<td>School Music (6-12)</td>
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<td>TAL 480 Seminar in Teaching</td>
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<td>Music (6-12)</td>
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<td>MED 546 Music in Psychotherapy</td>
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<tr>
<td></td>
<td>PSY 204 Introductory Biobehavioral Statistics</td>
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<tr>
<td></td>
<td>PSY 352 Abnormal Psychology</td>
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</tbody>
</table>

**FIFTH YEAR**

**NOTE:** It is recommended that students plan to take general education courses in the summer. This will reduce the academic load during the regular school year.

Minimum 2.5 GPA must be maintained in music education core courses.

A grade of C or above is required in all music therapy core courses.

# Must pass with a grade of C- or above.

* Must pass with a grade of C or above.

** Required if math placement is MTH 101 or lower.

In order to apply for graduate studies in music therapy, students must complete either a bachelor’s degree in music therapy or a music therapy equivalency program.

**THE MUSIC THERAPY EQUIVALENCY PROGRAM**

The equivalency program is designed for the individual who has already completed a bachelor’s degree in a related discipline, including the following courses:

Music Theory I, II, III and IV; Music History I and II; Conducting, Arranging, Applied Lessons (6 semesters), Performing Ensembles (8 semesters), Piano Competency (4 semesters of either lessons or group piano) and Introduction to Psychology.

Beyond these courses, the program consists of 50 credit hours that can be completed in two years, followed by a six-month clinical internship. Please contact the Music Therapy Program Director for a listing of the 50 credit hours.

If any of the prerequisite courses have not yet been completed, they can be taken at the University of Miami. Taking these additional courses, however, may lengthen the amount of time required to complete the equivalency program. In certain situations, alternate courses from other universities can substitute for the required courses. Depending on the nature of the course, this decision will be made by the undergraduate dean, in consultation with the Music Therapy Program Director.
In order to determine exactly how many credits are required to complete the equivalency program, the student should obtain official transcripts for their previous degree and meet with the music therapy program director. Following completion of the course and internship, students are then eligible to sit for the music therapy board certification exam and can become professional members of the American Music Therapy Association (AMTA).

For students wishing to pursue graduate studies in music therapy, the equivalency program can be combined with the master’s degree in music therapy.

[Music Education and Music Therapy Course Listing]
MUSIC MEDIA AND INDUSTRY - Dept. Code: MMI

The Department of Music Media and Industry includes two programs, Music Engineering Technology and Music Business and Entertainment Industries.

INTRODUCTION

The Bachelor of Music in Music Business and Entertainment Industries is a professional degree program designed to prepare qualified musicians for careers in the business management, financial, legal, and artistic areas of the music industry. Music, business, and music business courses are combined in an interdisciplinary curriculum which includes a minor in Marketing, Legal Studies, Business Administration, Management, Finance, Computer Information Systems, Public Relations, or other approved business-related area. The MBEI program also features a capstone music or entertainment industry internship.

EDUCATIONAL OBJECTIVES

- Students will have a conceptual understanding of the structures and inter-relationships of the music and entertainment industries.
- Students will acquire knowledge and understanding of the vocabulary and terminology associated with the music and entertainment industries.
- Students will be able to comprehend and apply basic music publishing procedures including copyright administration, mechanical licensing and royalties distribution.
- Students will know how to promote and sell a music industry product.
- Students will have an understanding of the performing artist as a major economic factor in the marketplace.
- Students will develop a set of skills applicable to the music industry including: financial and project management, create and enact marketing and promotional plans, the ability to write basic agreements and licenses, and copyright management and administration.

DEGREE PROGRAMS

Bachelor of Music

MAJORS

Music Business & Entertainment Industries (MBEI)
Music Business & Entertainment Industries with Entrepreneurship and Management Emphasis (MBEM)
Music Business & Entertainment Industries with Entrepreneurship and Management Emphasis and a minor in Creative American Music (MBEC)

MINORS

MINOR IN MUSIC BUSINESS AND ENTERTAINMENT INDUSTRIES (MBEI) (No audition required)

A minor in Music Business and Entertainment Industries consists of 12 credits:
- Entertainment Industry Survey (MMI 178) 3 Credits
- 9 Additional Credits in Music Business

MINOR IN CREATIVE AMERICAN MUSIC (CAM)
(See below under The Bruce Hornsby Creative American Music Program)
MUSIC BUSINESS AND ENTERTAINMENT INDUSTRIES (MBEI)

The objective of the Music Business and Entertainment Industries program is to prepare interested and qualified students for positions in all areas of the music industry. The program is interdisciplinary in nature; emphasis is placed upon courses in music, business, and music business and carries a built-in business-related minor.

| FRESHMAN YEAR |  |  |
|---------------|  |  |
| **First Semester** | **Second Semester** |  |
| MMI 014 Music Industry Forum | MMI 014 Music Industry Forum | 0 |
| Principal Instrument Forum | Principal Instrument Forum | 0 |
| Principal Instrument/Voice (A Level) | Principal Instrument/Voice (B-Level) | 2 |
| Piano | Piano | 1 |
| Ensembles | Ensembles | 2 |
| *MTC 111 Music Theory I | *MTC 112 Music Theory II | 2 |
| *MTC 121 Music Theory Laboratory I | *MTC 122 Music Theory Laboratory II | 1 |
| MCY 101 The World of Music and Its Powers | MMI 178 Entertainment Industry Survey | 3 |
| ENG 105 English Composition I | ENG 106 English Composition II | 3 |
| **MTH 103 Finite Mathematics** | ECO 211 Economics | 3 |
|  |  | 15 |

| SOPHOMORE YEAR |  |  |
|----------------|  |  |
| **First Semester** | **Second Semester** |  |
| MMI 014 Music Industry Forum | MMI 014 Music Industry Forum | 0 |
| Principal Instrument Forum | Principal Instrument Forum | 0 |
| Principal Instrument/Voice (C Level) | Principal Instrument/Voice (D Level) | 2 |
| Piano | Piano | 1 |
| Ensembles | Ensembles | 2 |
| *MTC 211 Music Theory III | *MTC 212 Music Theory IV | 2 |
| *MTC 221 Music Theory Laboratory III | *MTC 222 Music Theory Laboratory IV | 1 |
| ACC 211 Principles of Financial Accounting | MMI 274 Introduction to Music Copyright | 3 |
| BSL 212 Business Law | MMI 376 Networking in the Ent. Ind | 1 |
|  | PSY 204 Introductory Biobehavioral Statistics | 3 |
|  | (or CBR 102, COM 101, COM 110) |  |
|  |  | 14 |

| JUNIOR YEAR |  |  |
|--------------|  |  |
| **First Semester** | **Second Semester** |  |
| MMI 014 Music Industry Forum | MMI 014 Music Industry Forum | 0 |
| Principal Instrument Forum | Principal Instrument Forum | 0 |
| Principal Instrument/Voice (E Level) | Principal Instrument/Voice (F Level) | 2 |
| Ensemble | Ensemble | 1 |
| Approved MCY Elective | CIS Elective | 3 |
| MTC Elective (300 level or higher) | MMI 537 Recorded Music Operations | 3 |
| MMI 378 Entertainment Industry Contracts | MMI 573 International Music Publishing | 2 |
| MMI 273 Artists Development & Live Performance | MMI 377 Royalties in the Music Publishing Ind. | 1 |
| MKT 301 Marketing Foundations | ENG 330, COS 333 or ENG 331 (W) | 3 |
|  |  | 18 |

| SENIOR YEAR |  |  |
|--------------|  |  |
| **First Semester** | **Second Semester** |  |
| MMI 014 Music Industry Forum | MMI 014 Music Industry Forum | 0 |
| Ensemble | Ensemble | 1 |
| MMI Elective | MMI Elective | 3 |
| Minor Course | Minor Course | 3 |
| Natural World Elective | MIN 353 Org and Oper of Small Business | 3 |
| Minor Course | Minor Course or Approved Elective | 3 |
| Approved MCY Elective | MMI 455 Internship in Music Industry | 2 |
|  |  | 16 |

**NOTE:** To remain in the Music Business and Entertainment Industries program, students must maintain a minimum 2.70 G.P.A.

* Must pass with grade of C or above.

** If not initially placed in MTH 103, prerequisites must be taken as required.

Music Media and Industry Course Listing
MUSIC BUSINESS ENTREPRENEURSHIP MANAGEMENT EMPHASIS (MBEM)

The objective of the Music Business Entrepreneurship Management emphasis is to prepare interested and qualified students to start and operate a music-related business. The curriculum is interdisciplinary in nature; emphasis is placed upon courses in music, business, and music business and carries a built-in Minor in Business Administration.

<table>
<thead>
<tr>
<th>FRESHMAN YEAR</th>
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<tbody>
<tr>
<td><strong>First Semester</strong></td>
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<tr>
<td>MMI 014 Music Industry Forum</td>
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<td>Principal Instrument Forum</td>
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<td>Principal Instrument/Voice (A Level)</td>
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<td>Piano</td>
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<td>*MTC 111 Music Theory I</td>
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<tr>
<td>*MTC 121 Music Theory Laboratory I</td>
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<tr>
<td>MCY 101 The World of Music and Its Powers</td>
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<tr>
<td>ENG 105 English Composition I</td>
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<tr>
<td><strong>MTH 103 Finite Mathematics</strong></td>
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<tr>
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<tr>
<td>MMI 014 Music Industry Forum</td>
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<tr>
<td>Principal Instrument Forum</td>
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<tr>
<td>Principal Instrument/Voice (C Level)</td>
</tr>
<tr>
<td>Piano</td>
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<tr>
<td>Ensembles</td>
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<tr>
<td>*MTC 211 Music Theory III</td>
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<tr>
<td>*MTC 221 Music Theory Laboratory III</td>
</tr>
<tr>
<td>ACC 211 Principles of Financial Accounting</td>
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<tr>
<td>MMI 273 Artist Development &amp; Live Performance</td>
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<td>Principal Instrument/Voice (E Level)</td>
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<tr>
<td>Ensemble</td>
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<tr>
<td>Approved MCY Elective</td>
</tr>
<tr>
<td>MMI 378 Entertainment Industry Contracts</td>
</tr>
<tr>
<td>COM 101, COM 110, CBR 102, or PSY 204(4cr)</td>
</tr>
<tr>
<td>MKT 301 Marketing Foundations</td>
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<tr>
<td>Ensemble</td>
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<tr>
<td>MMI Elective</td>
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<tr>
<td>MMI 530 Entrepreneurship for Musicians (W)</td>
</tr>
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<td>MGT 304 Organizational Behavior</td>
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<tr>
<td>Approved MCY Elective</td>
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</tbody>
</table>

**NOTE:** To remain in the Music Business and Entertainment Industries program, students must maintain a minimum 2.70 G.P.A.

* Must pass with grade of C or above.
** If not initially placed in MTH 103, prerequisites must be taken as required.
THE BRUCE HORNSBY CREATIVE AMERICAN MUSIC PROGRAM

The Bruce Hornsby Creative American Music Program is designed to develop the creative skills of talented performing songwriters by immersing them in the diverse traditions that form the foundation of modern American songwriting. This rigorous approach will require students to become intimate, both in understanding and practice, with the vast and varied legacy that is American music. The CAM Program is open to all Frost School of Music students by audition. Those who successfully complete the program will earn a Minor in Creative American Music.

Courses Leading to a Minor in Creative American Music

<table>
<thead>
<tr>
<th>Courses</th>
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<tbody>
<tr>
<td>MCY 211 African American Song Traditions</td>
<td>3</td>
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<tr>
<td>MMI 207 African American Song Workshop</td>
<td>1</td>
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<tr>
<td>MCY 212 Anglo American Song Traditions</td>
<td>3</td>
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<tr>
<td>MMI 208 Anglo American Song Workshop</td>
<td>1</td>
</tr>
<tr>
<td>MCY 311 Modern American Pop Music I</td>
<td>3</td>
</tr>
<tr>
<td>MMI 307 Modern American Pop Workshop I</td>
<td>1</td>
</tr>
<tr>
<td>MCY 312 Modern American Pop Music II</td>
<td>3</td>
</tr>
<tr>
<td>MMI 308 Modern American Pop Workshop II</td>
<td>1</td>
</tr>
<tr>
<td>MMI 311 Contemporary Lyric Writing (W)</td>
<td>3</td>
</tr>
<tr>
<td>MMI 445 Senior Project/Portfolio</td>
<td>1</td>
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</tbody>
</table>

Total Credits: 20

THE CONTEMPORARY PERFORMANCE PRINCIPAL

Recognizing the fact that many talented songwriters do not always have a background in traditional performance areas, the Frost School has created a new category of principal instrument to accommodate Creative American Music students who are not classical or jazz musicians. Contemporary Guitar, Voice, Bass, Keyboard, and Percussion (Drums) principals can choose to major in Music Business and Entertainment Industries, Media Writing and Production, Music Engineering Technology, Music Education, and Music Therapy. The Contemporary Performance Principal is exclusively for students in the Creative American Music Program and requires auditions in songwriting and performance.
MUSIC BUSINESS ENTREPRENEURSHIP MANAGEMENT EMPHASIS with Double Minor in Creative American Music and Business Administration (MBEC)

This curriculum is for Contemporary Performance principals. It combines the Music Business Entrepreneurship Management emphasis with the Creative American Music minor and is designed to prepare aspiring performing songwriters for a variety of entrepreneurial opportunities. The curriculum is interdisciplinary in nature; emphasis is placed upon courses in music, business, and music business and carries a built-in Minor in Business Administration.

<table>
<thead>
<tr>
<th>FRESHMAN YEAR</th>
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<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td><strong>Second Semester</strong></td>
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<tr>
<td>MMI 014 Music Industry Forum</td>
<td>0</td>
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<tr>
<td>Principal Instrument Forum</td>
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<tr>
<td>Principal Instrument/Voice (A Level)</td>
<td>2</td>
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<tr>
<td>Piano</td>
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<tr>
<td>Ensembles</td>
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<tr>
<td>*MTC 111 Music Theory I</td>
<td>2</td>
</tr>
<tr>
<td>*MTC 121 Music Theory Laboratory I</td>
<td>1</td>
</tr>
<tr>
<td>MCY 101 The World of Music and Its Powers</td>
<td>1</td>
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<tr>
<td>ENG 105 English Composition I</td>
<td>3</td>
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<tr>
<td><strong>MTH 103 Finite Mathematics</strong></td>
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<td><strong>FIRST SEMESTER</strong></td>
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<td>Principal Instrument Forum</td>
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<tr>
<td>MMI 178 Entertainment Industry Survey</td>
<td>3</td>
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<tr>
<td>ENG 106 English Composition II</td>
<td>3</td>
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<tr>
<td>ECO 211 Economics</td>
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<td><strong>SOEOMORE YEAR</strong></td>
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<td>*MTC 212 Music Theory IV</td>
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<td>*MTC 222 Music Theory Laboratory IV</td>
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<tr>
<td>MMI 274 Introduction to Music Copyright</td>
<td>3</td>
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<tr>
<td>MMI 276 Networking in the Ent. Ind.</td>
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<tr>
<td>MMI 211 Anglo American Song Tradition</td>
<td>3</td>
</tr>
<tr>
<td>MMI 208 Anglo American Songwriting Workshop</td>
<td>1</td>
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<tr>
<td><strong>JUNIOR YEAR</strong></td>
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<td><strong>First Semester</strong></td>
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<tr>
<td>MMI 014 Music Industry Forum</td>
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<tr>
<td>Applied Lessons E</td>
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<tr>
<td>MCY 311 Modern American Pop Music I</td>
<td>3</td>
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<tr>
<td>MMI 308 American Pop Music I Workshop</td>
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<tr>
<td>MMI 320 Contemporary Lyric Writing (W)</td>
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<tr>
<td>MMI 373 International Music Publishing</td>
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<tr>
<td>MKT 301 Marketing Foundations</td>
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<td><strong>SECOND SEMESTER</strong></td>
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<td>MMI 014 Music Industry Forum</td>
<td>0</td>
</tr>
<tr>
<td>MMI 308 American Pop Music I Workshop</td>
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<tr>
<td>MMI 537 Recorded Music Operations</td>
<td>3</td>
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<tr>
<td>MMI 573 International Music Publishing</td>
<td>2</td>
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<td>MMI 377 Royalties in the Music Publishing Ind.</td>
<td>1</td>
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<tr>
<td>EN 330, COS 333 or EN 331 Law (W)</td>
<td>3</td>
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<tr>
<td></td>
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<tr>
<td><strong>SENIOR YEAR</strong></td>
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</tr>
<tr>
<td><strong>First Semester</strong></td>
<td><strong>Second Semester</strong></td>
</tr>
<tr>
<td>MMI 014 Music Industry Forum</td>
<td>0</td>
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<tr>
<td>Ensemble</td>
<td>1</td>
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<tr>
<td>Approved Elective</td>
<td>3</td>
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<tr>
<td>MMI 530 Entrepreneurship for Musicians (W)</td>
<td>3</td>
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<tr>
<td>MGT 304 Organizational Behavior</td>
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<tr>
<td>COM 101, COM 110, CBR 102, or PSY 204 (4cr)</td>
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<td>Natural World Elective</td>
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<td></td>
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<td><strong>SECOND SEMESTER</strong></td>
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<tr>
<td>MMI 014 Music Industry Forum</td>
<td>0</td>
</tr>
<tr>
<td>EN 300 Finance</td>
<td>3</td>
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<tr>
<td>MMI 455 Internship in Music Industry</td>
<td>2</td>
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<tr>
<td>MMI 445 Senior Project/Portfolio</td>
<td>1</td>
</tr>
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<td></td>
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</tbody>
</table>

**NOTE:** To remain in the Music Business and Entertainment Industries program, students must maintain a minimum 2.70 G.P.A.

* Must pass with grade of C or above.

** If not initially placed in MTH 103, prerequisites must be taken as required.

*** Contemporary Performance is available in Guitar, Bass, Drums, Keyboards, and Voice by audition only upon acceptance into the Creative American Music Program.
MUSIC ENGINEERING TECHNOLOGY

INTRODUCTION

The mission of the Music Engineering Technology program is to (1) provide the highest quality education in the field of music engineering; (2) promote advancements in the fidelity and creativity of music recording, production and reproduction; and (3) promote advancements in the invention, design and implementation of audio hardware and software. The goals of the Music Engineering Technology program are to (1) further enhance the program's national and international stature; (2) obtain teaching infrastructure and resources needed to provide contemporary education in the field of music engineering technology; (3) ensure that curricular offerings are current and able to educate students in new and future theory and practice; and (4) to help graduates find professional career positions.

EDUCATIONAL OBJECTIVES

- Understanding the theoretical basis of sound recording, processing and reproduction.
- Understanding the practice techniques used in sound recording, processing and reproduction.
- Designing and implementing original audio hardware and/or software.
- Understanding the principles of computer science (Bachelor of Music) or electrical engineering (Bachelor of Science).

DEGREE PROGRAMS

Bachelor of Music in Music Engineering Technology (MUE)
Bachelor of Science in Music Engineering Technology (MEC)

MAJORS

Music Engineering (MUE)
Music Engineering with Double Major in Computer Science (MEC)

The Music Engineering Technology curriculum is designed for musicians interested in pursuing a career in music recording, audio hardware and software design, and related professions in the audio, audio-video, multimedia, and internet industries. The program is interdisciplinary in nature; it includes courses in music, music engineering, computer science, electrical engineering, and mathematics. This program includes a minor in Electrical Engineering or a double major in Computer Science. Freshman students are expected to enroll in calculus, which carries a prerequisite of Trigonometry and Analytical Geometry. Prospective students are expected to have a strong background in music performance and in mathematics.
### Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
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<tbody>
<tr>
<td>MMI 013 Music Engineering Forum</td>
<td>MMI 013 Music Engineering Forum</td>
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<tr>
<td>Principal Instrument/Voice Forum</td>
<td>Principal Instrument/Voice Forum</td>
</tr>
<tr>
<td>Principal Instrument/Voice (A Level)</td>
<td>Principal Instrument/Voice (B Level)</td>
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<tr>
<td>Piano</td>
<td>Piano</td>
</tr>
<tr>
<td>Ensemble</td>
<td>Ensemble</td>
</tr>
<tr>
<td>*MTC 111 Music Theory I</td>
<td>*MTC 112 Music Theory II</td>
</tr>
<tr>
<td>*MTC 121 Music Theory Laboratory I</td>
<td>*MTC 112 Music Theory II</td>
</tr>
<tr>
<td>MCY 101 The World of Music and Its Powers</td>
<td>MCI 151 Desktop Audio Production</td>
</tr>
<tr>
<td>MMI 201 Introduction to Music Recording</td>
<td>ENG 106 English Composition II</td>
</tr>
<tr>
<td>ENG 105 English Composition I</td>
<td>EEN 118 Introduction to Programming</td>
</tr>
<tr>
<td>MTH 111 Calculus I</td>
<td>MTH 112 Calculus II</td>
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<td><strong>Total Credits:</strong> 18</td>
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### Sophomore Year

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<thead>
<tr>
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<tr>
<td>MMI 013 Music Engineering Forum</td>
<td>MMI 013 Music Engineering Forum</td>
</tr>
<tr>
<td>Principal Instrument/Voice Forum</td>
<td>Principal Instrument/Voice Forum</td>
</tr>
<tr>
<td>Principal Instrument/Voice (C Level)</td>
<td>Principal Instrument/Voice (D Level)</td>
</tr>
<tr>
<td>Piano</td>
<td>Piano</td>
</tr>
<tr>
<td>Ensemble</td>
<td>Ensemble</td>
</tr>
<tr>
<td>MMI 160 Ensemble Recording Workshop I</td>
<td>MMI 161 Ensemble Recording Workshop II</td>
</tr>
<tr>
<td>*MTC 211 Music Theory III</td>
<td>*MTC 212 Music Theory IV</td>
</tr>
<tr>
<td>*MTC 221 Music Theory Laboratory III</td>
<td>*MTC 222 Music Theory Laboratory IV</td>
</tr>
<tr>
<td>MMI 401 Audio Electronics</td>
<td>EEN 305 Electronics I</td>
</tr>
<tr>
<td>EEN 201 Electrical Circuit Theory</td>
<td>EEN 204 Electrical Circuits Laboratory</td>
</tr>
<tr>
<td>PHY 205 University Physics I</td>
<td>EEN 218 Intermediate Computer Programming</td>
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<td><strong>Total Credits:</strong> 17</td>
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### Junior Year

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<tr>
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<tbody>
<tr>
<td>MMI 013 Music Engineering Forum</td>
<td>MMI 013 Music Engineering Forum</td>
</tr>
<tr>
<td>Principal Instrument/Voice Forum</td>
<td>Principal Instrument/Voice Forum</td>
</tr>
<tr>
<td>Principal Instrument/Voice (E Level)</td>
<td>Principal Instrument/Voice (F Level)</td>
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<tr>
<td>Ensemble</td>
<td>Ensemble</td>
</tr>
<tr>
<td>MMI 502 Digital Audio I</td>
<td>MMI 172 Audio Design Workshop III</td>
</tr>
<tr>
<td>#EEN 318 Advanced Computer Programming OR</td>
<td>EEN 306 Electronics II OR</td>
</tr>
<tr>
<td>#EEN 424 Unix Systems and Servers</td>
<td>#EEN 424 Unix Systems and Servers</td>
</tr>
<tr>
<td>EEN 304 Logic Design</td>
<td><strong>Approved MUE Elective</strong></td>
</tr>
<tr>
<td><strong>Approved MUE Electives</strong></td>
<td><strong>Approved MUE Elective</strong></td>
</tr>
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<td><strong>Total Credits:</strong> 15</td>
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### Senior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMI 013 Music Engineering Forum</td>
<td>MMI 013 Music Engineering Forum</td>
</tr>
<tr>
<td>Ensemble</td>
<td>Ensemble</td>
</tr>
<tr>
<td>MCY 541 Music of the Medieval, Renaissance, and Baroque Periods</td>
<td>MKT 301 Marketing Foundations OR</td>
</tr>
<tr>
<td><strong>Approved MUE Elective</strong></td>
<td>BSL 212 Introduction to Business Law</td>
</tr>
<tr>
<td>MMI 361 Acoustics</td>
<td>MCY 542 Music of the Classical, Romantic, and Modern Periods</td>
</tr>
<tr>
<td>EEN 315 Digital Design Laboratory</td>
<td>EEN 316 Structured Digital Design</td>
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<td>People and Society Elective</td>
<td>People and Society Elective</td>
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**Note:** A minimum 2.70 GPA is required to remain in the Music Engineering Technology program. A grade of C- or better is required in all CSC courses. The overall GPA for CSC courses must be 2.5 or better.

* Must pass with a grade of C or above
** Approved courses at 400 level or higher which contain substantial technical/creative content. Some examples include:

- MMI 504 Audio Analysis & Synthesis
- MMI 505 Advanced Audio Signal Processing
- MMI 416 Orchestration
- MMI 504 Audio Analysis & Synthesis
- MMI 465 Internship in Music Engineering
- CMP 594 Motion Picture – Sound Design/Sound Theory

# For Electrical Engineering, take EEN 306
# For Computer Engineering, take EEN 318 or EEN 424
# For dual minor in electrical engineering and computer engineering, take EEN 306 and (EEN 318 or EEN 424)

## MUSIC ENGINEERING TECHNOLOGY with Double Major in Computer Science (MEC)

### FRESHMAN YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
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<tbody>
<tr>
<td>MMI 013 Music Engineering Forum</td>
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<tr>
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<td>Piano</td>
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<tr>
<td>Ensemble</td>
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</tr>
<tr>
<td>*MTC 111 Music Theory I</td>
<td>2</td>
</tr>
<tr>
<td>*MTC 121 Music Theory Laboratory I</td>
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<tr>
<td>MMI 101 The World of Music and Its Powers</td>
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<tr>
<td>MMI 201 Introduction to Music Recording</td>
<td>3</td>
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<tr>
<td>ENG 105 English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>MTH 111 Calculus I</td>
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### SOPHOMORE YEAR

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<tr>
<td>Principal Instrument/Voice (C Level)</td>
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<td>Ensemble</td>
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</tr>
<tr>
<td>MMI 160 Ensemble Recording Workshop I</td>
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<tr>
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</tr>
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<td>*MTC 221 Music Theory Laboratory III</td>
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<td>MMI 401 Audio Electronics</td>
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<td>Natural World Elective</td>
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<tr>
<td>CSC 220 Computer Programming II</td>
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### JUNIOR YEAR

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<tr>
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<td>Principal Instrument/Voice Forum</td>
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</tr>
<tr>
<td>Principal Instrument/Voice (E Level)</td>
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</tr>
<tr>
<td>Ensemble</td>
<td>1</td>
</tr>
<tr>
<td>MMI 502 Digital Audio I</td>
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</tr>
<tr>
<td>CSC 314 Computer Architecture</td>
<td>3</td>
</tr>
<tr>
<td>CSC 517 Data Structures and Algorithm Analysis</td>
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<td>**Approved MUE Elective</td>
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### SENIOR YEAR

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<tr>
<td>MMI 361 Acoustics</td>
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<tr>
<td>McY 541 Music of the Mediaeval, Renaissance and Baroque Periods</td>
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<td>**Approved MUE Elective</td>
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<tr>
<td>CSC 531 Software Engineering</td>
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<td>People and Society Elective</td>
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</table>
Note: A minimum 2.70 GPA is required in the Music Engineering Technology program. A grade of C- or better is required in all CSC courses. The overall GPA for CSC courses must be 2.5 or better.

* Must pass with a grade of C or above

** Approved courses at 400 level or higher which contain substantial technical/creative content. Some examples include:

- MMI 504 Audio Analysis & Synthesis
- MMI 505 Advanced Audio Signal Processing
- MTC 416 Orchestration
- MMI 460 Recital Recording and Sound Reinforcement
- MMI 465 Internship in Music Engineering
- CMP 594 Motion Picture – Sound Design/Sound Theory

*** For Electrical Engineering, take EEN 306
*** For Computer Engineering, take EEN 318 or EEN 424
*** For dual minor in electrical engineering and computer engineering, take EEN 306 and (EEN 318 or EEN 424)
MUSICOLGY – Dept. Code: MCY

There is currently no Bachelor’s degree available in Musicology.

BACHELOR OF ARTS IN MUSIC

INTRODUCTION

The mission of the Bachelor of Arts in Music is to provide students with the highest quality education possible in music, provide a broad education in the liberal arts, and provide in-depth study in an academic area outside of the Frost School of Music.

EDUCATIONAL OBJECTIVES

- Students will acquire a thorough knowledge of music theory and music history, and develop advanced competence in musical performance.
- They will develop the ability to think, speak, and write clearly with the capacity to explain and defend their views effectively and rationally based on substantive knowledge of the liberal arts.
- The student will acquire competency in a selected non-music academic area that includes a broad understanding of the area and contemporary thought within the area.

DEGREE PROGRAMS

Bachelor of Arts in Music

MAJOR

Bachelor of Arts in Music (BAM)

The Bachelor of Arts in music degree is a non-professional degree designed for talented musicians who wish to pursue a broad liberal arts education. Curriculum flexibility affords students the opportunity for a variety of pre-professional studies, including premedical and prelegal. A minor outside the Frost School of Music is required.

BACHELOR OF ARTS IN MUSIC (Sample Curriculum)

<table>
<thead>
<tr>
<th>FRESHMAN YEAR</th>
<th>Second Semester</th>
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</thead>
<tbody>
<tr>
<td>First Semester</td>
<td>Second Semester</td>
</tr>
<tr>
<td>Instrument/Voice (A Level)</td>
<td>Instrument/Voice (B Level)</td>
</tr>
<tr>
<td>*MTC 111 Music Theory I</td>
<td>*MTC 112 Music Theory II</td>
</tr>
<tr>
<td>+*MTC 121 Music Theory Laboratory I</td>
<td>*MTC 122 Music Theory Laboratory II</td>
</tr>
<tr>
<td>MCY 101 The World of Music and Its Powers</td>
<td>Ensemble(s)</td>
</tr>
<tr>
<td>Ensemble(s)</td>
<td>***Music Elective</td>
</tr>
<tr>
<td>***Music Elective</td>
<td>ENG 106 English Composition II</td>
</tr>
<tr>
<td>ENG 105 English Composition I</td>
<td>MTH 103 Finite Mathematics (or higher level)</td>
</tr>
<tr>
<td>**MTH 101 Algebra for College Students</td>
<td>Natural World Elective</td>
</tr>
<tr>
<td>Natural World or People and Society Elective</td>
<td>People and Society Elective</td>
</tr>
<tr>
<td></td>
<td>Natural World Elective</td>
</tr>
<tr>
<td>SOPHOMORE YEAR</td>
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</tr>
<tr>
<td><strong>First Semester</strong></td>
<td><strong>Second Semester</strong></td>
</tr>
<tr>
<td>Instrument/Voice (C Level)</td>
<td>Instrument/Voice (D Level)</td>
</tr>
<tr>
<td>*MTC 211 Music Theory III</td>
<td>*MTC 212 Music Theory IV</td>
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<td>*MTC 221 Music Theory Laboratory III</td>
<td>*MTC 222 Music Theory Laboratory IV</td>
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<tr>
<td>Ensemble(s)</td>
<td>Ensemble(s)</td>
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<td>***Music Elective</td>
<td>***Music Elective</td>
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<td>Humanities Elective</td>
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<td>Foreign Language</td>
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<td>People and Society Elective</td>
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<table>
<thead>
<tr>
<th>JUNIOR YEAR</th>
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</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td><strong>Second Semester</strong></td>
</tr>
<tr>
<td>Instrument/Voice (E Level)</td>
<td>Instrument/Voice (F Level)</td>
</tr>
<tr>
<td>MTC 311 Analysis and Experience or MTC 312 Twentieth Century Techniques</td>
<td>MTC 416 Orchestration or MTC 515 Choral Arranging</td>
</tr>
<tr>
<td>Ensemble(s)</td>
<td>Ensemble(s)</td>
</tr>
<tr>
<td>MCY 541 Music of the Mediaeval, Renaissance, and Baroque Periods</td>
<td>MCY 542 Music of the Classical, Romantic, and Modern Periods</td>
</tr>
<tr>
<td>Arts Elective</td>
<td>Music Elective</td>
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<tr>
<td>Minor</td>
<td>Arts Elective</td>
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<tr>
<td></td>
<td>Natural World Elective</td>
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<td>3</td>
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<table>
<thead>
<tr>
<th>SENIOR YEAR</th>
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</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td><strong>Second Semester</strong></td>
</tr>
<tr>
<td>Instrument/Voice (G Level)</td>
<td>Instrument/Voice (H Level)</td>
</tr>
<tr>
<td>Ensemble(s)</td>
<td>Ensemble(s)</td>
</tr>
<tr>
<td>Music Elective</td>
<td>Minor or Academic Elective</td>
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<tr>
<td>Minor</td>
<td>Elective (300 level or higher)</td>
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<td>Elective (300 level or higher)</td>
<td>Natural World or People and Society Elective</td>
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<tr>
<td>Non-Music Electives</td>
<td>Non-Music Electives</td>
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<td>People and Society Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
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<td></td>
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<td>17</td>
</tr>
</tbody>
</table>

**NOTE:** Many students take 2 credits of Instrument/Voice in order to receive a full hour lesson per week (1 credit lessons are a half hour per week.)

* Must pass with grade of C or above.

** Required if math placement is MTH 101 or lower

*** Cannot be satisfied by all ensembles

+ MVP 105 Prerequisite for vocalists. (Must pass with grade of C or above)

[Musicology Course Listing](#)
MUSIC THEORY-COMPOSITION - Dept. Code: MTC

INTRODUCTION

The Bachelor of Music in Composition is designed to (1) provide students with a learning environment conducive to the pursuit, fostering, development, and exchange of ideas and information, particularly as it pertains to music composition, production, and performance; (2) to provide student access varied composition communities; (3) to continue to build upon the Frost School of Music’s reputation as an innovative, forward-thinking, and first-rate center for advanced study; and (4) to maintain the highest educational, professional, and ethical standards. Goals of the program are (1) to provide students with training to be fluent in basic compositional skills; (2) to help students understand various directions that available to composers in the 21st century; and (3) to help students perform, produce, or realize their music.

The Commercial Music & Production track within the Theory & Composition curriculum is designed to prepare undergraduate students for the many issues facing today’s commercial music writers and producers. In this specialized program, successful students complete diverse compositional assignments, develop technical and practical skills in the recording studio, and acquire an understanding of the music industry. Prospective students should furnish evidence of outstanding compositional ability as well as basic sequencing and music notation skills.

EDUCATIONAL OBJECTIVES

- Students develop basic compositional skills of varying lengths and genres.
- Students compose or produce works utilizing various compositional techniques and styles.
- Students compose works for varied instrumentation and/or media.

DEGREE PROGRAMS

Bachelor of Music in Composition

MAJOR

Music Theory and Composition (MTC)
Media Writing & Production (MWP)

MINOR

MINOR IN MUSIC COMPOSITION

A minor in music composition is primarily intended for students in the Frost School of Music who are pursuing majors in other fields within the Frost School. Students interested in this
minor are required to submit a portfolio to the chairman of the department for approval before declaring the minor. The minor consists of 15 credits.

Composition I (MTC 101) 2 credits
Composition II (MTC 102) 2 credits
Composition III (MTC 201) 2 credits
Composition IV (MTC 202) 2 credits
Composition Workshop (MTC 182) 4 credits
Orchestration (MTC 416) or Twentieth Century Techniques (MTC 312) 3 credits

The curriculum in Composition is designed for those students intending to pursue a career as a composer and/or to pursue graduate degrees in Theory or Composition. Prospective students are expected to furnish evidence of compositional ability.

**COMPOSITION**

<table>
<thead>
<tr>
<th>FRESHMAN YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
</tr>
<tr>
<td>MTC 012 Composition Forum</td>
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<tr>
<td>Principal Instrument Forum</td>
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<td>MTC 182 Composition Workshop</td>
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<td>Ensemble</td>
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<tr>
<td>MTC 101 Composition I</td>
</tr>
<tr>
<td><strong>MTC 111 Music Theory I</strong></td>
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<tr>
<td><strong>MTC 121 Music Theory Laboratory I</strong></td>
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<td>MKP 102 Class Piano</td>
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<td><strong>MTC 112 Music Theory II</strong></td>
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<td><strong>MTC 122 Music Theory Laboratory II</strong></td>
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<tr>
<td>MTC 012 Composition Forum</td>
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<td>Principal Instrument (C Level)</td>
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<td>MIP 317 Basic Conducting or MVP 181 Choral Conducting</td>
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<td>MIP 418 Instrumental Conducting or MVP 182 Choral Conducting II</td>
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<td>MTC 301 Composition V</td>
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<td>MTC 312 Twentieth Century Techniques</td>
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<td>MTC 516 Advanced Orchestration</td>
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446
### SENIOR YEAR

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<td>MTC 401 Composition VII</td>
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<td>MTC 506 MIDI and Control Processing</td>
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<td>Non-Music Elective</td>
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<td>300+ Level MCY Elective</td>
<td>Natural World Elective</td>
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<td>People and Society Elective</td>
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<td>* Must pass with grade of C or above.</td>
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### COMMERCIAL MUSIC AND PRODUCTION EMPHASIS

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<td>*MTC 121 Music Theory Laboratory I</td>
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<td>MCT 101 The World of Music and Its Powers</td>
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<td>MSJ 203 Jazz Piano Class I</td>
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<td>MTC 251 Audio, Computers and MIDI I</td>
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<td>MTC 203 Pop Composition I</td>
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<td>CAD 114 Principles of Advertising</td>
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<td>CEM 102 Introduction to Electronic Media</td>
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<td>*MTC 212 Music Theory IV</td>
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<td>MTC 252 Audio, Computers and MIDI II</td>
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<td>MTC 204 Pop Composition II</td>
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<td>MMI 173 Multinational Recorded Music Industry</td>
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<td>MSJ 305 Jazz Piano Class III</td>
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<td>MIP 317 Basic Conducting (Instrumental) **</td>
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<td>MMI 573 International Music Publishing</td>
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<td>MCT 541 Music of the Medieval, Renaissance and Baroque Periods</td>
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<td>MTC 312 Twentieth-Century Techniques</td>
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<td>MIP 418 Instrumental Conducting **</td>
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<td>MTC 304 Media Composition II</td>
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<td>MCY 542 Music of the Classical, Romantic, and Modern Periods</td>
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<td>CEM 245 Introduction to Electronic Media Production</td>
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## SENIOR YEAR

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<td>MTC 015 Commercial Music &amp; Production Forum 0</td>
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<td>MTC 499 Senior Recital 1</td>
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<td>MTC 403 Media Production Project I 2</td>
<td>MTC 404 Media Production Project II 3</td>
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<td>MTC 511 Film Scoring I or MSJ 509 Jazz Composition I</td>
<td>MMI 574 A &amp; R Administration and Music Licensing or</td>
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<td>Non-Music Elective 3</td>
<td>MMI 530 Entrepreneurship for Musicians 3</td>
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<td>Humanities Elective 3</td>
<td>MTC 512 Film Scoring II or MSJ 510 Jazz Composition II</td>
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<td>Natural World Elective 17</td>
<td>Non-Music Elective 3</td>
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[Music Theory - Composition Course Listing](#)
STUDIO MUSIC AND JAZZ - Dept. Code: MSJ

INTRODUCTION

The mission of the Studio Music and Jazz Performance Program is to: (1) prepare jazz instrumentalists to enter the music profession or graduate school; (2) identify, recruit, and retain high quality students who seek to pursue studio/jazz performance as a career; (3) foster faculty creativity and performance which serves as a role model for students; (4) develop, and revise courses in jazz improvisation, jazz arranging/composition and provide on and off campus performance opportunities; (5) produce in our on campus facility, recordings for the Down Beat Student Music Awards, compact disks, radio and Internet broadcast; and (6) provide a platform of learning that includes performance, composition/arranging, technology, conducting, scholarship and production.

EDUCATIONAL OBJECTIVES

- Students will develop musical performance skills necessary to make them competitive in the jazz world.
- Students will develop performance skills in a variety of large and small ensembles that allow a student to participate in the professional jazz world.
- Students will develop the skills necessary to play in a chamber setting emphasizing spontaneous interaction and improvisation.
- Students will develop the skills necessary to play in large jazz ensembles emphasizing the development of ensemble skills necessary in a reading situation.
- Students will perform a senior recital of sixty-minute duration that demonstrates their capabilities in the jazz idiom.
- Students will develop the skills necessary to arrange and compose in a variety of styles appropriate to the jazz and contemporary music field.

DEGREE PROGRAMS

Bachelor of Music in Studio Music & Jazz

MAJOR

Studio Music & Jazz Instrumental (MSJI)
Studio Music & Jazz Vocal (MSJV)
Double Major Studio Music & Jazz Instrumental with Instrumental Performance

MINOR
MINOR IN STUDIO MUSIC AND JAZZ (INSTRUMENTAL)
A 12 credit minor is available for students enrolled in the Frost School of Music whose principal performance medium is a jazz instrument. Permission of studio teacher required. The following courses must be taken to fulfill the requirement of this minor:

Analysis and Evolution of Jazz Styles (MSJ 113) 3 credits
Introduction to Jazz Improvisation (MSJ 124) 3 credits
Jazz Improvisation Theory I (MSJ 371) 3 credits
Advanced Modern Arranging I (MSJ 519) 3 credits

**INSTRUMENTAL EMPHASIS**
The instrumental curriculum in Studio Music and Jazz is designed for interested and qualified students who desire to continue to develop to the highest degree their background and skills in the performance of studio music and jazz. Admission to this major pre-supposes musical training in jazz on the principal instrument.
## Studio Music and Jazz Instrumental Emphasis

### Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
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<tr>
<td>MSJ 003 Jazz Forum</td>
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<td>Principal Instrument Forum</td>
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<tr>
<td>Principal Instrument (A Level)</td>
<td>Principal Instrument (B Level)</td>
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<tr>
<td>Ensembles</td>
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<tr>
<td>*MTC 111 Music Theory I</td>
<td>*MTC 112 Music Theory II</td>
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<tr>
<td>*MTC 121 Music Theory Laboratory I</td>
<td>*MTC 122 Music Theory Laboratory II</td>
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<tr>
<td>MSJ 113 Analysis and Evolution of Jazz Styles or</td>
<td>MSJ 113 Analysis and Evolution of Jazz Styles or</td>
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<tr>
<td>*MSJ 124 Introduction to Jazz Improvisation</td>
<td>*MSJ 124 Introduction to Jazz Improvisation</td>
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<tr>
<td>MCY 101 The World of Music and Its Powers</td>
<td>ENG 106 English Composition II</td>
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<td>ENG 105 English Composition I</td>
<td>People and Society Elective</td>
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<tr>
<td>**MTH 101 Algebra for College Students</td>
<td>**Natural World Elective</td>
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### Sophomore Year

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<td>*MSJ 203 Jazz Piano Class I</td>
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<td>*MTC 211 Music Theory III</td>
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<td>*MTC 221 Music Theory Laboratory III</td>
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<td>*MSJ 371 Improvisation I</td>
<td>MMI 530 Entrepreneurship for Musicians</td>
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### Junior Year

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<td>Principal Instrument (E Level)</td>
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<td>*MSJ 305 Jazz Piano Class III</td>
<td>*MSJ 306 Jazz Piano Class IV</td>
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<td>MIP 317 Basic Conducting</td>
<td>MTC 311 Analysis and Experience or</td>
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<tr>
<td>*MSJ 519 Advanced Modern Arranging I</td>
<td>MTC 312 Twentieth Century Techniques or</td>
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<tr>
<td>*MSJ 565 Advanced Improvisation I</td>
<td>MTC 313 18th Century Counterpoint</td>
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<td>MCY 541 Music of the Mediaeval, Renaissance, and Baroque Periods</td>
<td>MSJ 520 Advanced Modern Arranging II</td>
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<td>MCY 542 Music of the Classical, Romantic, and Modern Periods</td>
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### Senior Year

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<td>MTC 512 Film Scoring II</td>
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<td>**MSJ 566 Advanced Improvisation II</td>
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* Must pass with grade of C or above
** Required if math placement is MTH 101 or lower.
*** Can be satisfied with 6 credits Natural Science and 3 credits of Mathematics (MTH 103 or above).
VOCAL EMPHASIS

The vocal curriculum in Studio Music and Jazz is designed for interested and qualified vocalists who desire to continue to develop to the highest degree their backgrounds and skills in the performance of studio music (recording), jazz, and contemporary pop music. Admission to this major pre-supposes music training in jazz.

STUDIO MUSIC AND JAZZ VOCAL EMPHASIS

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<th>FRESHMAN YEAR</th>
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<td>MSJ 125 Introduction to Jazz Improvisation/Vocal</td>
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<td>MCY 101 The World of Music and Its Powers</td>
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<td>MED 242 Percussion Techniques (Drum set)</td>
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<tr>
<td>MTC 221 Music Theory Laboratory III (Jazz)</td>
<td>MTC 212 Music Theory IV</td>
<td>2</td>
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<tr>
<td>MSJ 371 Improvisation I (Vocal)</td>
<td>MTC 222 Music Theory Laboratory IV</td>
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<tr>
<td><strong>Natural World Elective</strong></td>
<td>MSJ 372 Improvisation II</td>
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<tr>
<td>16</td>
<td>Humanities Elective</td>
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<th>SOPHOMORE YEAR</th>
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<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td><strong>Second Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSJ 018 Jazz Vocal Forum</td>
<td>MSJ 018 Jazz Vocal Forum</td>
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<td>MSJ 305 Jazz Piano Class III</td>
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<tr>
<td>MVP 181 Choral Conducting I</td>
<td>MKP 220 Computers, Keyboards, and Music</td>
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<tr>
<td>MSJ 519 Advanced Modern Arranging I</td>
<td>MSJ 516 Jazz Vocal Arranging</td>
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<td>MCY 541 Music of the Mediaeval, Renaissance, and Baroque Periods</td>
<td>MCY 542 Music of the Classical, Romantic, and Modern Periods</td>
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<td>Humanities Elective</td>
<td>People and Society Elective</td>
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<tr>
<td><strong>Second Semester</strong></td>
<td><strong>First Semester</strong></td>
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<td>MSJ 018 Jazz Vocal Forum</td>
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<td>Jazz Voice (MSJ VOF)</td>
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<tr>
<td>MSJ 499 Senior Recital</td>
<td>MSJ 509 Jazz Composition I</td>
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<td>Ensemble</td>
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<td>MTC 311 Analysis and Experience</td>
<td>MTC 313 18th Century Counterpoint</td>
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<td>MTC 314 Twentieth Century Techniques</td>
<td>MMI 530 Entrepreneurship for Musicians</td>
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<td>Non-Music Elective</td>
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<tr>
<td>People and Society Elective</td>
<td>Free Elective</td>
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<tr>
<td><strong>Natural World Elective</strong></td>
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| JUNIOR YEAR | |
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** Required only if math placement is MTH 101 or lower.
*** Can be satisfied with 6 credits Natural World, or 3 credits of Natural World and 3 credits of Mathematics (MTH 103 or above).

**DOUBLE MAJOR - STUDIO MUSIC AND JAZZ INSTRUMENTAL EMPHASIS and INSTRUMENTAL PERFORMANCE**

<table>
<thead>
<tr>
<th>FRESHMAN YEAR</th>
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<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td><strong>Second Semester</strong></td>
</tr>
<tr>
<td>MSJ 003 Jazz Forum</td>
<td>MSJ 003 Jazz Forum</td>
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<tr>
<td>Principal Instrument Forum</td>
<td>Principal Instrument Forum</td>
</tr>
<tr>
<td>Principal Instruments (MIP/MSJ - A Level)</td>
<td>Principal Instruments (MIP/MSJ - B Level)</td>
</tr>
<tr>
<td>MCY 101 The World of Music and Its Powers</td>
<td>MKP 102 Class Piano</td>
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<tr>
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<tr>
<td>MSJ 113 Analysis and Evolution of Jazz Styles</td>
<td>*MTC 112 Music Theory II</td>
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<tr>
<td>*MTC 111 Music Theory I</td>
<td>*MTC 122 Music Theory Laboratory II</td>
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<tr>
<td>*MTC 121 Music Theory Laboratory I</td>
<td>*MSJ 124 Introduction to Jazz Improvisation</td>
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<tr>
<td>ENG 105 English Composition I</td>
<td>ENG 106 English Composition II</td>
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<tr>
<td><strong>MTH 101 Algebra for College Students</strong></td>
<td>People and Society Elective</td>
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<tr>
<td><strong>First Semester</strong></td>
<td><strong>Second Semester</strong></td>
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<tr>
<td>MSJ 003 Jazz Forum</td>
<td>MSJ 003 Jazz Forum</td>
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<tr>
<td>Principal Instrument Forum</td>
<td>Principal Instrument Forum</td>
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<tr>
<td>Principal Instruments (MIP/MSJ - C Level)</td>
<td>Principal Instruments (MIP/MSJ - D Level)</td>
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<td>*MSJ 203 Jazz Piano Class I</td>
<td>*MSJ 204 Jazz Piano Class II</td>
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<td>*MTC 212 Music Theory IV</td>
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<td>*MTC 221 Music Theory Laboratory III</td>
<td>*MTC 222 Music Theory Laboratory IV</td>
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<tr>
<td>MSJ 371 Improvisation I (Vocal)</td>
<td>Natural World Elective</td>
</tr>
<tr>
<td>MKP 220 Computers, keyboards, and Music</td>
<td>Humanities Elective</td>
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<th>JUNIOR YEAR</th>
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<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td><strong>Second Semester</strong></td>
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<td>MSJ 003 Jazz Forum</td>
<td>MSJ 003 Jazz Forum</td>
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<tr>
<td>Principal Instrument Forum</td>
<td>Principal Instrument Forum</td>
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<tr>
<td>Principal Instruments (MIP/MSJ - E Level)</td>
<td>Principal Instruments (MIP/MSJ - F Level)</td>
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<td>*MSJ 305 Jazz Piano Class III</td>
<td>*MSJ 306 Jazz Piano Class IV</td>
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<tr>
<td>MIP 317 Basic Conducting</td>
<td>MTC 311 Analysis and Experience or</td>
</tr>
<tr>
<td>MIP 547 Instrumental Repertoire and Pedagogy</td>
<td>MTC 312 Twentieth Century Techniques</td>
</tr>
<tr>
<td>*MSJ 519 Advanced Modern Arranging I</td>
<td>MSJ 520 Advanced Modern Arranging II</td>
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<tr>
<td>MCY 541 Music of the Mediaeval, Renaissance, and Baroque Periods</td>
<td>MMI 530 Entrepreneurship for Musicians</td>
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<td>Natural World Elective</td>
<td>MCY 542 Music of the Classical, Romantic, and Modern Periods</td>
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<td><strong>First Semester</strong></td>
<td><strong>Second Semester</strong></td>
</tr>
<tr>
<td>MSJ 003 Jazz Forum</td>
<td>MSJ 003 Jazz Forum</td>
</tr>
<tr>
<td>Principal Instrument Forum</td>
<td>Principal Instrument Forum</td>
</tr>
<tr>
<td>Principal Instruments (MIP/MSJ - G Level)</td>
<td>Principal Instruments (MIP/MSJ - H Level)</td>
</tr>
<tr>
<td>MIP 499 Senior Recital</td>
<td>MSJ 499 Senior Recital</td>
</tr>
<tr>
<td>Ensembles</td>
<td>Ensembles</td>
</tr>
<tr>
<td>MSJ 509 Jazz Composition I or</td>
<td>MTC 313 18th Century Counterpoint</td>
</tr>
<tr>
<td>MTC 511 Film Scoring I</td>
<td>MSJ 510 Jazz Composition II or</td>
</tr>
<tr>
<td>*MSJ 565 Advanced Improvisation I</td>
<td>MTC 512 Film Scoring II</td>
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<td>Non-Music Elective</td>
<td>*MSJ 566 Advanced Improvisation II</td>
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<td>People and Society Elective</td>
<td>Non-Music Elective</td>
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</table>

* Must pass with grade of C or above.
** Required if math placement is MTH 101 or lower.

[Studio Music and Jazz Course Listing](#)
SCHOOL OF NURSING AND HEALTH STUDIES – UNDERGRADUATE NURSING

Please consult your 2009-10 Student Handbook for the applicable curriculum and progression policies.

The University of Miami School of Nursing and Health Studies (SONHS) offers courses leading to the degrees of Bachelor of Science in Nursing (BSN), Master of Science in Nursing (MSN), Doctor of Nursing Practice (DNP) and Doctor of Philosophy (PhD). Baccalaureate education is the primary foundation for professional nursing, as well as for graduate education; students who successfully complete the baccalaureate program are eligible to sit for the licensure examination to practice professional nursing. Graduates of diploma and associate nursing degree programs are admitted as transfer students to get their BSN degree. Students that hold a baccalaureate degree in other fields and would like to pursue their BSN in Nursing are admitted in the Accelerated Program.

The School of Nursing and Health Studies is committed to academic excellence, the advancement of nursing as a discipline, and service to society. Opportunities are available for students to study and earn course credit in a variety of international settings.

MISSION

The mission of the School of Nursing and Health Studies is to educate students and support faculty committed to excellence in the art and science of nursing and health studies through creating and disseminating health knowledge and developing culturally competent leaders to provide service to our community, the nation, and the world.

ACCREDITATION

The nursing baccalaureate program is approved by the Florida Board of Nursing and accredited by the Commission of Collegiate Nursing Education (CCNE), One DuPont Circle NW, Suite 530, Washington, DC 20036, (202) 887-6791.

FACILITIES:

The School of Nursing and Health Studies is located on the Coral Gables Campus. The four-story Jerusalem-stone and stucco Schwartz Center features classrooms and clinical practice labs, seminar and conference rooms, two computer labs, and a simulation academy, all equipped with the latest technology. The spacious 53,000-square-foot facility supports the work of more than 40 nurse scientists and clinical educators and our 500 undergraduate and graduate students enrolled in the school’s nursing and health science programs annually. The building opened in fall 2006. Library resources for nursing students are at the Otto G. Richter Library on the Coral Gables Campus and the Calder Medical Library on the Medical Center Campus. Clinical experiences are offered in a variety of hospitals and health related agencies in the community.
ACADEMIC POLICIES

ADMISSION:

Admission to the BSN Program is open to individuals who have demonstrated that they have the intellectual ability and the personal qualifications necessary for the profession of nursing. All applicants must meet the requirements for admission to the University of Miami; requests for admission should be directed to the Office of Admissions on the Coral Gables Campus.

Transfer students from accredited universities, colleges, or junior colleges may be admitted with advanced standing as space allows provided they have completed courses comparable to those required by the University of Miami. Transfer students are advised to contact the office of Student Services at School of Nursing and Health Studies concerning prerequisites.

An RN transition option is offered which allows Associate degree diplomas and Prepared RNs to earn the BSN Degree. Academic transcripts are evaluated to determine that the 60 credits of transferable course work has been successfully completed.

REQUIREMENTS FOR ENROLLMENT INTO CLINICAL COURSES:

To be eligible to enroll, a student must have achieved junior standing with an overall grade point average of no less than 3.0

Transfer students must have a minimum cumulative GPA of 3.3 and a prerequisite GPA of 3.00.

Accelerated Option students must have a minimum GPA of 3.0 with a 3.00 for prerequisite courses.

To be considered for progression or admission to clinical coursework, students are allowed to repeat only 1 prerequisite course.

Requirements for enrollment into nursing courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Traditional BSN</th>
<th>Accelerated Option BSN</th>
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</thead>
<tbody>
<tr>
<td>Chemistry w/ Lab CHM 103/105</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Human Anatomy w/ Lab HCS 212/213</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Physiology HCS 215</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Microbiology MIC 320</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Behavioral Statistics PSY 204</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Intro to Psychology PSY 110</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>College Algebra MTH 101</td>
<td>✓</td>
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<tr>
<td>General Biology w/ Lab BIL 150/151</td>
<td>✓</td>
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</tr>
</tbody>
</table>
Students are required to have a health examination prior to enrollment in clinical nursing courses. All students must provide evidence of a current TB screening test, hepatitis B vaccination, MMR vaccination, tetanus vaccination, polio vaccination, and certification in Basic Life Support. Students must submit to drug screening and background checks. See the School of Nursing and Health Studies Student Handbook 2008-2009 for further information on these or other requirements.

**ACADEMIC PROGRESS:**

To be assured of uninterrupted progression through the program, students must maintain a grade point average of 2.0 or better.

Student records are reviewed at the close of each semester, and those students with a cumulative average of less than 2.0 are subject to being placed on academic probation according to the University of Miami Policy on Academic Probation and Dismissal. A grade of C- is not an acceptable passing grade on any nursing course within the BSN program. When a clinical nursing course is repeated both theoretical and clinical components must be repeated. When a course must be repeated the progression in the nursing program will be altered in order for prerequisites to be met. Such alteration will in all likelihood lengthen the time required to complete the nursing program. Students will be required to fulfill the requirements that are in effect at the time of the current program. No special courses will be created for students that are repeating the same course.

Students are allowed to repeat only one failed nursing course. Failure of the same course again or any other nursing course will be grounds for dismissal from SONHS.

**REGISTERED NURSE LICENSURE:**

Graduates of the BSN program are eligible to take the National Council Licensure Examination (NCLEX) registered nursing licensure examination after the student passes all the courses, completes the credit hours and completes the requirements for the HESI exit exam.

**STUDENTS WITH DISABILITY ACCOMMODATION POLICY:**

It is the policy of the University of Miami School of Nursing and Health Studies to adhere to Standards of the Americans with Disabilities Act. Any students needing special accommodations to complete a course must submit written documentation to the Office of Disability Services (ODS). This office is the primary source responsible for the coordination of auxiliary aids and services for students with disabilities. Information and/or services are available to prospective and enrolled students, their parents and/or sponsors.

**FINANCIAL ASSISTANCE:**

Students interested in obtaining financial aid in the form of student loans and grants should contact the Office of Financial Assistance Services. Limited scholarships are available.
through the School of Nursing and Health Studies. The qualifications for these scholarships vary; further information is available from the School of Nursing and Health Studies, Student Services Office, and in the SONHS website (www.miami.edu/sonhs).

REQUIREMENTS FOR GRADUATION

1. STUDENT RESPONSIBILITIES:

Students in the School of Nursing and Health Studies are responsible for meeting the degree requirements. It is the student's responsibility to understand fully, and comply with all the provisions of the Bulletin. Changes to academic requirements and policies are transmitted by written notice to the School of Nursing and Health Studies Undergraduate Handbook.

The general requirements for graduation from the University of Miami are further described in the GENERAL INFORMATION section of the Bulletin.

General Education Requirements

AREAS OF PROFICIENCY
Proficiency requirements are intended to ensure that students either already possess, or will develop at the University, the ability to express themselves effectively, to use mathematics with facility, and to reason cogently.

1. English Composition 6 credits

English 105 and English 106 or the equivalent

2. Writing Across the Curriculum (W) 5 courses
In addition to English 105/106, students must complete five (5) courses designated as Writing Across the Curriculum (W) courses. Courses designated as writing courses ("W" courses) require a substantial amount of writing and the preparation of papers that are corrected for diction, syntax, style, and content. Some courses satisfying this Writing Across the Curriculum requirement may simultaneously fulfill Areas of Knowledge requirements (described below).

3. Mathematics
Students fulfill this requirement by satisfactorily completing a course in mathematics numbered above MTH 101 (excluding MTH 107), or MAS 110, or an approved course in statistics.

AREAS OF KNOWLEDGE
These requirements are designed to help students understand and appreciate the intellectual achievements in major areas of human inquiry and creative endeavor.

1. Natural World (formerly Natural Sciences) - 6 credits
   a. Biology 150/151
   b. Chemistry 103/105

2. People and Society (formerly Social Sciences) - 6 credits
   a. Psychology 110
   b. 3 additional credits
Courses in the following areas may be used to fulfill this requirement: Africana Studies (AAS); American Studies (AMS); Anthropology (except APY 203); Economics (ECO); Education and Psychological Studies (EPS); Geography and Regional Studies (except GEG 120); International Studies (INS); Judaic Studies (JUS); History (HIS); Political Sciences (POL); Psychology (PSY); Sociology (SOC); Teaching and Learning (TAL); Women’s and Gender Studies (WGS), and the following courses: Broadcasting and Broadcast Journalism (CBR 102); Mass Media Communication in Society (COM 101); Communication Theory (COM 110); Interpersonal Communication (COS 112); Nonverbal Communication (COS 118); Political Communication (COS 336); Persuasion (COS 472); Freshman Seminars in the Social Sciences (FSS 190-199).

3. Arts and Humanities - 12 credits

Courses in the following areas may be used to fulfill this requirement: Architecture; Music; Art and Art History; Theatre Arts; Motion Pictures and Photography; English (200-level or above); Modern Languages and Literature (300-level or above); Philosophy; Religious Studies; and the following courses: Public Speaking (COS 211); World History of the Dance (DAN 250); Freshman Seminars in the Arts and Humanities (FLT, FPR 190-199).

**ACADEMIC PROGRAMS:**

**BSN TRADITIONAL**  
**PROGRAM OF STUDY**  
**LOWER DIVISION**  
**NURSING MAJOR**  
(Approved 2008)

These are intended as examples only. Students have several options for completing the first two years of study. The Office of Student Services will assist students to select specific courses which most accurately reflect the student’s interests, abilities, and career goals. Students must complete all prerequisite requirements prior to entering junior year of clinical coursework.

**Freshman Year**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eng 105 English Comp</td>
<td>3 cr</td>
<td>Eng 106 English Comp</td>
<td>3 cr</td>
</tr>
<tr>
<td><strong>Bil 150/151 General Biology w/ Lab</strong></td>
<td>5 cr</td>
<td><strong>Hcs 212/213 Human Anatomy w/ Lab</strong></td>
<td>4 cr</td>
</tr>
<tr>
<td>Arts/Hum</td>
<td>3 cr</td>
<td>Arts/Hum</td>
<td>3 cr</td>
</tr>
<tr>
<td><strong>Mth 101 College Algebra</strong></td>
<td>3 cr</td>
<td><strong>Psy 110 General Psychology</strong></td>
<td>3 cr</td>
</tr>
<tr>
<td>UMX 106 University Experience</td>
<td>1 cr</td>
<td>Elective</td>
<td>3 cr</td>
</tr>
<tr>
<td></td>
<td>15 credits</td>
<td></td>
<td>16 credits</td>
</tr>
</tbody>
</table>

458
### Sophomore Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hcs 215</td>
<td>3 cr</td>
<td>Psy 204</td>
<td>4 cr</td>
</tr>
<tr>
<td>Arts/Hum</td>
<td>3 cr</td>
<td>Mic 320</td>
<td>3 cr</td>
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<tr>
<td>Chm 103/105</td>
<td>4 cr</td>
<td>NUR 317</td>
<td>2 cr</td>
</tr>
<tr>
<td>NUR 306</td>
<td>2 cr</td>
<td>Arts/Hum</td>
<td>3 cr</td>
</tr>
<tr>
<td>People &amp; Society</td>
<td>3 cr</td>
<td>Elective</td>
<td>Optional</td>
</tr>
</tbody>
</table>

|               |         | 15 credits                     |         |

**Prerequisites in Bold**

### BSN TRADITIONAL
PROGRAM OF STUDY
UPPER DIVISION
NURSING MAJOR*

(Approved 2008/Modified 2009)

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 304 Adult Health I</td>
<td>6 cr</td>
</tr>
<tr>
<td>NUR 307 Pharmacology</td>
<td>3 cr</td>
</tr>
<tr>
<td>NUR 311 Theories &amp; Concepts of Nursing (W)</td>
<td>2 cr</td>
</tr>
<tr>
<td>NUR 314 Health Assessment</td>
<td>3 cr</td>
</tr>
<tr>
<td>NUR 315 Pathophysiology</td>
<td>3 cr</td>
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</table>

|               | 17 cr   |

<table>
<thead>
<tr>
<th>Spring</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 308 Adult Health II</td>
<td>8 cr</td>
</tr>
<tr>
<td>NUR 318 Maternal Health Nursing</td>
<td>4 cr</td>
</tr>
<tr>
<td>NUR 320 Pediatric Health Nursing</td>
<td>4 cr</td>
</tr>
</tbody>
</table>

|               | 16 cr   |

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 411 Adult Health III</td>
<td>5 cr</td>
</tr>
<tr>
<td>NUR 440 Population Focused Nursing</td>
<td>4 cr</td>
</tr>
<tr>
<td>NUR 448 Psychiatric Mental Health Nursing</td>
<td>4 cr</td>
</tr>
</tbody>
</table>

|               | 13 cr   |

<table>
<thead>
<tr>
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<th></th>
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</thead>
<tbody>
<tr>
<td>*XXXXXX Elective (W)</td>
<td>3 cr</td>
</tr>
<tr>
<td>NUR 400 Theories Research and Evidence Based Practice (W)</td>
<td>3 cr</td>
</tr>
<tr>
<td>NUR 450 Role Transition (W)</td>
<td>8 cr</td>
</tr>
</tbody>
</table>

|               | 14 cr   |

|               | 60 credits |

(W) Indicates Writing Intensive Course
*Nursing elective may be taken fall or spring
### BSN ACCELERATED PROGRAM OF STUDY
#### NURSING MAJOR
(Approved 2008/Modified 2009)

<table>
<thead>
<tr>
<th>Summer</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 304 Adult Health I</td>
<td>6cr</td>
</tr>
<tr>
<td>NUR 307 Pharmacology</td>
<td>3cr</td>
</tr>
<tr>
<td>NUR 314 Health Assessment</td>
<td>3cr</td>
</tr>
<tr>
<td>NUR 315 Pathophysiology</td>
<td>3cr</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15 cr</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 308 Adult Health II</td>
<td>8cr</td>
</tr>
<tr>
<td>NUR 318 Maternal Health Nursing</td>
<td>4cr</td>
</tr>
<tr>
<td>NUR 320 Pediatric Health Nursing</td>
<td>4cr</td>
</tr>
<tr>
<td>NUR 400 Theories, Research and Evidence Based Practice</td>
<td>3cr</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>19 cr</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 411 Adult Health III</td>
<td>5cr</td>
</tr>
<tr>
<td>NUR 440 Population Focused Nursing</td>
<td>4cr</td>
</tr>
<tr>
<td>NUR 448 Psychiatric Mental Health Nursing</td>
<td>4cr</td>
</tr>
<tr>
<td>NUR 450 Role Transition (W)</td>
<td>8cr</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>21 cr</td>
</tr>
</tbody>
</table>

**55 credits**

### RN to BSN
#### PROGRAM OF STUDY
(Currently Under Revision)

Nursing Course Listing
SCHOOL OF NURSING AND HEALTH STUDIES - UNDERGRADUATE HEALTH SCIENCE

The University of Miami School of Nursing and Health Studies offers courses leading to the degree of Bachelor of Science in Health Science. Baccalaureate education provides the foundation for further education in specialized health professional fields. Pre-professional tracks include Pre-physical Therapy, Pre-pharmacy, Pre-forensics, Health Science/Business Administration, Pre-physician Assistant and Health Science General.

ACADEMIC POLICIES

ADMISSION:

In accepting students into the Health Science program, the University does not in any way assure admittance into any professional graduate programs. Admission to any of these programs is dependent upon the academic performance in the pre-clinical course-work and is determined independently by the faculty of the school or program involved.

Because of the increasingly sophisticated skills necessary in the health sciences, to be accepted into the program, entering freshmen must have a minimum SAT score of 1100 or an ACT score of 24. Transfer students must have a minimum cumulative grade point average of 3.0 for the pre-physical therapy track or a 2.8 for the other tracks. The program director may drop from, or refuse to accept into, the program any student who falls below these minimum cumulative grade point averages.

REQUIREMENTS FOR ADMITTED STUDENTS:

The Health Science degree requires courses in biology, chemistry and health science with a minimum grade of C- in each course. Students must satisfy both the general degree requirements listed below and the requirements of a specific track, to be awarded the Bachelor of Science in Health Science degree. Students must maintain at least a 2.8 GPA in the courses listed under the track requirements with no grade below a C-.

ACADEMIC PROGRAMS

The Pre-Physical Therapy track is a program developed in conjunction with the Physical Therapy Program of the Department of Orthopaedics and Rehabilitation in the Miller School of Medicine. The School of Nursing and Health Studies will award a Bachelor of Science in Health Science after completion of the requirements listed below.

The Health Science Program also offers curricula that are designed to prepare students for other health professional or graduate education programs. Also available is a pre-pharmacy track for students wishing to attend a graduate pharmacy program, a pre-forensics track for students interested in attending a forensics graduate program, and a program of study for students wishing to enroll in a physician assistant program. Programs of study can also be tailored for students wishing other health occupation options. Students are encouraged to contact graduate programs directly to ascertain if there are specific course requirements that might differ from health science track requirements. Any course requirements may be added to a student’s undergraduate curriculum track.
No minor is offered in Health Science. Health Science students may not minor in biology.

**GENERAL DEGREE REQUIREMENTS:**

1. **English Composition - 3-6 credits**

   Except as indicated below, students must take English 105 and 106 (or its equivalent) during the first year of enrollment. Admission to ENG 105 requires a placement score acceptable to the Department of English. Students whose placement scores are deemed unacceptably low will be required to take the non-credit course, ENG 103, before taking ENG 105 and 106. Such students must fulfill the English Composition requirement within the first three semesters. Students whose placement scores are high may be exempted from ENG 105 but not from ENG 106 or its equivalent.

2. **Mathematics - 4 credits**
   a. MTH 111 or equivalent

3. **Statistics and Computer Programming - 6-7 credits**
   a. MTH 224 or PSY 204 (MAS 201 for Bus. Admin. Track)
   b. EEN 118, IEN 124, CSC or CIS

4. **Arts and Humanities - 12 credits**

   B.S.H.S. degree candidates must earn twelve credits in the three areas listed below. At least three credits must be earned in each area.

   a. Fine Arts: courses in the departments of Art and Art History, Dance (DAN 250 only), Musicology (only the following: either MCY 131 or MCY 132, but not both, MCY 325, MCY 361 and MCY 362), Music Theory (MTC 125 only), and Theatre Arts (THA 101 only) count toward this requirement.

   b. Literature: courses in the departments of English (200-level and higher) and Foreign Languages and Literatures (300-level and higher) count toward this requirement.

   c. Philosophy and Religious Studies: courses in the departments of Philosophy and Religious Studies count toward this requirement.

   d. An additional 3 credits from a, b, or c above or 3 credits in a foreign language other than ones native language. A Freshman Seminar in the Arts and Humanities (FLT, FPR 190-199) may count towards this requirement.

5. **(People and Society) Social Science - 6 credits**

   B.S.H.S. degree candidates must earn six credits in the following social science disciplines: African-American Studies, American Studies, Anthropology (except APY 203), Economics, Geography and Regional Studies (except GEG 120), History, International Studies, a Judaic Studies Social Science course, Political Science, Psychology, Sociology, and Women’s Studies. No more than three credits may be earned in any one discipline.

   A Freshman Seminar in the Social Sciences (FSS 190-199 may count towards this requirement).
6. Writing - 15 credits

May include any of the courses listed above except ENG 105 and ENG 106.

TRACK REQUIREMENTS:

1. Pre-Physical Therapy Track
Biology 150/151, 160/161, 250, 255 and three credits of electives in biology or health science above 100 level.
Health Science 212, 213, 215
Chemistry - two semesters with lab, must include 104/106 or 201/205.
Physics - two semesters with lab.
Psychology 203 or 352
A minor in a discipline accepted by the School of Nursing and Health Studies.

2. Pre-Pharmacy Track
Biology 150/151, 160/161, 250, 255 and three credits of electives in biology or health science above the 100 level.
Health Science 212, 213, 215.
Physics - two semesters with lab.
Economics 211, 212.
Biochemistry and Molecular Biology 401.
Communication 211.
(Transfer students who do not complete the chemistry minor at the University of Miami must choose another minor accepted by the School of Nursing and Health Studies.)

3. Pre-Forensics Track
Biology 150/151, 160/161, 250, 255 and three credits of electives in biology or health science above the 100 level.
Health Science 212, 213, 215, 216, and BIL 251 or BIL 252.
Psychology 110 and 352.
(Transfer students who do not complete the chemistry minor at the University of Miami must choose another minor accepted by the School of Nursing and Health Studies.)

4. Health Science/Business Administration Track
Biology 150/151, 160/161, and 12 credits of electives in biology or health science above the 100 level.
Health Science 212, 213, 215.
Chemistry - two semesters with lab, must include 104/106 or 201/205.
Physics - two semesters with lab.
Business Administration minor including ACC 211, 212, CIS, MAS 201, MGT 304, MKT 301, and FIN 300.

5. Pre-Physicians Assistant Track
Biology 150/151, 160/161, 250, 255 and three credits of electives in biology or health science above the 100 level.
Health Science 212, 213, 215, 216.
Physics - two semesters with lab.
Microbiology 301.
Psychology 110 and 3 additional credits in PSY.
Sociology 101.
Communication 211.
(Transfer students who do not complete the chemistry minor at the University of Miami must choose another minor accepted by the School of Nursing and Health Studies.)

6. Health Science General Track
Biology 150/151, 160/161, 250, 255 and three credits of electives in biology or health science above 100 level.
Health Science 212, 213, 215.
Chemistry - two semesters with lab must include 104/106 or 201/205.
Physics - two semesters with lab.
A minor in a discipline accepted by the School of Nursing and Health Studies.
This program may be modified to meet the needs of various students. See the Program Director for more details.

Health Science Course Listing
THE GRADUATE SCHOOL
www.miami.edu/grad

All graduate work (except for the Masters degree/J.D. in Law, Masters in Business Administration and M.D. degree) at the University of Miami is under the direction of the Dean of the Graduate School and the Graduate Council.

All graduate students at the University of Miami are subject to the general standards and requirements of the University and its various programs in regard to attendance, examinations, payment of fees, and conduct, as well as to the specific requirements of the Graduate School. The graduate student is expected to assume the initiative in completing all requirements in the time specified.

Admission requirements are described in the Bulletin of the Graduate School, and may be obtained from the individual department or program. Information is also available on the Internet at www.miami.edu/grad.

Application forms are distributed by and processed through the various Schools and Colleges. See www.miami.edu/grad/apply for a listing of online applications by program.

Prospective students should note that “graduate study” means an integrated program of advanced, specialized study, based on an undergraduate major and/or adequate background, presupposing academic and personal maturity, and making much more than average demand upon the industry, initiative, and scholarship of the student. The term must be distinguished from “post-graduation study” which means merely that courses, not necessarily of graduate level, are taken after the student has received a bachelor’s degree.

To preserve its ideals of scholarship, conduct, and character the Graduate School reserves the right and the student by his/her registration concedes the right to require the withdrawal of any student for any reason deemed sufficient by the Graduate School at any time.

MISSION

The mission of the Graduate School is to promote graduate education, scholarship, and research; to support individuals, departments, and programs in the pursuit of excellence; to foster innovative, multidisciplinary, and interdisciplinary activities; and to maintain high ethical and academic standards in graduate studies.

The standards of study and conduct in the Graduate School are high. They are not set and maintained by the Graduate School but rather by the faculty who determine the standards for their individual program. The Graduate School through its Council sets no course requirements for a degree. It does set certain general residence, grade and examination standards. Fundamentally the Graduate School delegates responsibility to the student and his/her program. Within this broad responsibility the recommendation for the degree rests with the Committee.
ACADEMIC POLICIES

RECENCY OF CREDIT
All work must be completed within four years of the time of admission to graduate work, for those studying for the various master’s degrees; and within six years for those studying for doctoral degrees. For those admitted directly into a Ph.D. program without a master’s degree in field, work must be completed within eight years. Exceptions may be granted by the Dean of the Graduate School at the request of the Graduate Program Director.

VALIDATION FOR OVER-AGED CREDITS
Graduate credits transferred from another university may not be applied toward a graduate degree at the University of Miami if their age at the time of acceptance into the UM program exceeds ten years. On an individual basis, students may be permitted to validate over-aged credits by examination, with program approval.

REGISTRATION
Graduate students can register on the first day of registration or at any time after. For more information on registration, students should contact their respective School or College. See academic calendar for dates: http://www6.miami.edu/UMH/CDA/UMH_Main/0,1770,2385-1;56961-2;27396-2,00.html

FULL-TIME STUDY
The categories of full-time students include:

1. Graduate students taking eighteen or more graduate credits during the calendar year (nine credits in a regular semester, or 3 credits in a summer session).
2. Graduate teaching and research assistants taking sixteen or more graduate credits during the calendar year (eight credits in regular semester or 3 credits in a summer session).
3. Graduate students enrolled in any course numbered 700 or above, i.e., any 700-level course required for the completion of the degree.
4. All MBA for Executives and Professionals students and Master of Science in Professional Management students are considered full-time.

In all cases, determination as to whether or not a student is in full-time study is the privilege of the Dean of the Graduate School.

The maximum number of credits allowed for full-time study is 12 for each semester and three for each summer session. Exception to this policy can only be made by the Dean of the Graduate School or his/her designee and requires a signed recommendation from the Program Director.

Full-time registration is required during the semester or summer session in which a candidate defends the thesis or dissertation.

No full-time faculty member may be a full-time student, whether or not working toward a degree. Nor may a full-time student be a full-time faculty member.

No full-time student will be a principal investigator in any grant or contract, whether in name or fact. And no principal investigator will be a full-time student.
Exceptions to these rules may be made in cases in which students are encouraged to apply individually for small research grants that are consistent with and contribute to their field of study and their dissertation work, and, in certain programs, in which students in a terminal degree status are obliged, as a part of their degree program, to teach as de facto faculty members. (Note: Faculty from School of Nursing and Health Sciences and from the Physical Therapy program are permitted to pursue Doctoral degrees in their home program/school.)

WITHDRAWALS
Withdrawals, either from individual courses or from a Graduate program, should be processed through the office of the Dean of the School of the student’s program. The date of withdrawal is that on which the student notifies the office of the Dean or the date of receipt of a letter requesting withdrawal. No withdrawal from the University is official until the student has consulted with the Dean of his/her school and has completed the necessary forms. The withdrawal procedure is described in detail at http://www6.miami.edu/UMH/CDA/UMH_Main/0,1770,2385-1;6241-2;6247-3,00.html

Veterans and children of deceased or totally disabled veterans attending the University as students under the government’s educational benefits bills must also clear their withdrawal with the main campus Veterans Affairs office in the Whitten University Center, Room 121.

To officially withdraw from the MBA Program or Master of Science in Professional Management program, students must inform the Office of Graduate Business Programs in writing prior to the beginning of a course/term. Tuition will be refunded on a prorated basis based on the number of class meetings attended. No tuition refund will be granted when class attendance has exceeded 50% of class meetings.

LEAVE OF ABSENCE
Leave of absence assumes that no scholarly work in connection with the degree is being carried on by the student. Leave may be obtained by petition of the Program Director followed by the approval of the Dean of the Graduate School. Leave of Absence officially stops the recency of credit clock.

GRADES AND CREDITS
The same letter grades are used for graduate and undergraduate students, but with somewhat different meaning.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Excellent accomplishment</td>
</tr>
<tr>
<td>B</td>
<td>Good accomplishment</td>
</tr>
<tr>
<td>C</td>
<td>Fair, but below that expected of graduate students (C- is the lowest passing grade. Some programs may require higher standards.).</td>
</tr>
<tr>
<td>S</td>
<td>Symbol used for acceptable (U-unacceptable) thesis, dissertation, practicum, and internship credit. It may be used for regular courses under special circumstances with the prior approval of the instructor, department chairman, and the Dean of the Graduate School.</td>
</tr>
<tr>
<td>D</td>
<td>Poor (not acceptable for credit toward the advanced degree).</td>
</tr>
<tr>
<td>F</td>
<td>Failure</td>
</tr>
<tr>
<td>W</td>
<td>Course dropped prior to the last day for withdrawing from classes as published in the official calendar of the university. Courses dropped after last date must have approval of Dean of graduate school. Credit can be earned only by successful repetition of the course.</td>
</tr>
</tbody>
</table>
**I** | Incomplete work in passing status with the instructor’s permission to complete the course. (Not to be used for thesis or dissertation credits). The “I” should be changed to a letter grade within one (1) calendar year after it is given, unless the Academic Dean of the student’s primary school or college and the Dean of the Graduate School approve the delay. If the “I” is not changed within one year, credit can be earned only by successful repetition of the course. (Note: Fellowships and financial aid may be withdrawn if there is an excess accumulation of “I”s on a student’s transcript).

**IP** | Denotes in progress grade given by instructor for any course (500G, 600, or 700 level) in which a student has made *expected or clearly satisfactory* progress during the semester, but has yet fully to complete requirements for the course. “IP” is to be given for 700-level internships, research, thesis, and dissertation courses that have not been completed. Upon satisfaction of all Graduate School requirements, the Dissertation Coordinator of the Graduate School will issue final credit for all master’s thesis and doctoral dissertation courses (*e.g.*, 710, 720, 730, 735, 740 and 750). Zero-credit courses (*e.g.*, 720 and 750) will be changed to S. Please note that all “IP”s must be converted to “S”, letter grade, or “I” at graduation. “IP” will also be converted to “I” upon any departure from the University for a period in excess of one year.

**NG** | Symbol assigned by Enrollment Services indicating that the instructor has not yet reported the student’s grade. For a student to receive credit for the course, the instructor must report a passing grade prior to the student’s graduation.

* Faculty Senate Legislation #85005(B)

An average of B (3.0) is required for a graduate degree, and no “D” credit may be counted toward the degree. All work leading to the graduate degree and taken as a graduate student will be counted in computing the quality point average, including courses graded “D”.

No transferred credits are calculated into the University of Miami G.P.A.

**AWARD OF ACADEMIC MERIT**

Students who obtain a 3.8 GPA or better will receive an Award of Academic Merit from the Graduate School. The Award is mailed to the student’s home address after conferral of the degree.

**Quality points are awarded as follows:**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
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</tr>
<tr>
<td>A</td>
<td>4.00</td>
</tr>
<tr>
<td>A-</td>
<td>3.70</td>
</tr>
<tr>
<td>B+</td>
<td>3.30</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
</tr>
<tr>
<td>B-</td>
<td>2.70</td>
</tr>
<tr>
<td>C+</td>
<td>2.30</td>
</tr>
<tr>
<td>C</td>
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<tr>
<td>D</td>
<td>0.00</td>
</tr>
<tr>
<td>E</td>
<td>0.00</td>
</tr>
</tbody>
</table>

The quality point average is then determined by dividing the total of quality points earned by the total of credits attempted. The symbols “S”, “W”, and “I” are not counted as credit attempted.
REPEAT RULE
A student may repeat a course in which a failing grade was earned, but the repetition of the course will not eliminate the previous grade from the record. A course may be repeated only once unless written authorization is provided by the Dean of the Graduate School. All grades are included in the computation of the quality point average. If a course in which an unsatisfactory grade (as determined by the program advisor) was earned is repeated and the repeat grade is a “C-” or higher, the number of credits required for graduation will be increased by the number of credits repeated.

Registrations which involve repeating a course in which a grade of “A” or “B” has already been earned may not earn quality points or credit hours, nor count as credits attempted.

LEVELS OF GRADUATE STUDY
Graduate study implies the need for a minimum of formal courses and a maximum of independent work under faculty supervision. Coursework, in itself, is not necessarily a determinant of graduate progress and achievement. The appropriate determinants are the ability of the qualified student to master the various qualifying and comprehensive examinations that a program requires of the student. All work taken by a graduate student in the major area or area of concentration shall be at the graduate level (500 or above).

With the permission of the major department or program of major concentration a student may take elective credits (not prerequisite to the major) at any level provided the following limits are observed:

<table>
<thead>
<tr>
<th>TOTAL GRADUATE COURSE CREDITS</th>
<th>MAXIMUM COURSE CREDITS BELOW 500 LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>24-30</td>
<td>3</td>
</tr>
<tr>
<td>31 or above</td>
<td>6</td>
</tr>
</tbody>
</table>

Approval for undergraduate credits as part of the graduate degree program can be made only after a minimum of 12 credits is completed. Award may not be made retroactively, nor are credits accepted from another institution.

RA, TA, GA Hourly Guidelines
Graduate students with appointments as RAs, TAs or GAs will have work assignments limited to 20-hours per week with the exception of efforts directly required for dissertation research.

International students may work on campus provided the student is maintaining F1 status and does not work more than a total of 20 hours per week (including any off campus work the student may have been authorized to perform) while school is in session. Questions regarding work for international students should be directed to International Student and Scholar Services: [http://www6.miami.edu/international-student](http://www6.miami.edu/international-student).

Graduate students with Assistantships and Fellowships will be classified with the following designations. *(FE) Fellows, *(RA) Research Assistant, *(TA) Teaching Assistant, *(GA) Graduate Assistant, *(TR) Trainee. *Please contact the Graduate School for specific codes.
Definitions:

FE (Fellow): Responsibilities do not include the provision of direct services to the University and require internal/external fellowship support.

RA (Research Assistant): Responsibilities are mainly conducting research and/or assisting with research projects.

TA (Teaching Assistant): Responsibilities are mainly teaching and/or assisting in the area of teaching.

GA (Graduate Assistant): Responsibilities are mainly in professional support of University operations and programs. Graduate students should not be hired to perform clerical duties.

TR (Trainee): Designated as such by specific federal guidelines which indicate a complex process wherein the trainee takes on an increasingly independent role in the selection, conceptualization, and execution of research projects under the supervision of an experienced mentor.

In definitions where the word “mainly” is used, “mainly” is defined as greater than 50%.

Requirements for Teaching Assistants

1. Graduate teaching assistants who are the instructors of record and responsible for assigning grades in a course must have a master’s in the teaching discipline or 18 graduate credit hours in the discipline.
2. Graduate teaching assistants must be directly supervised by a faculty member in the teaching discipline, must attend regular in-service training provided by the Instructional Advancement Center (in coordination with the Graduate School or provided by the specific graduate program), and must be reviewed by the supervising faculty member once a semester.
3. Graduate Teaching Assistants who have previous teaching experience and indication of competency may be exempted from TA Training by the Dean of the Graduate School in consultation with the Graduate Program Director in the discipline. A request for waiver must be submitted to the Dean of the Graduate School by the Graduate Program Director.

POLICY ON OUTSIDE EMPLOYMENT FOR RA/TA/GA
A graduate student must have prior approval from the chair or advisor to work outside the department, since such activities might impede progress toward his/her degree. Any question or concern should be discussed with the Dean of the Graduate School.

1. A graduate student is allowed to supplement his/her stipend by tutoring undergraduate students in courses in which he/she has no direct responsibility at the time.
2. A graduate student who is teaching a class or lab of a multi-section course using a common syllabus and common exams may not tutor any student in any section of that course.
3. A graduate student, like any other member of the teaching faculty, may offer review sessions for his or her students to which he or she may invite students from other sections of the same course. The graduate student arranging such sessions may not under any circumstances take money from the students in attendance.
4. A graduate student may use his or her office for tutoring or may ask
departmental permission to use a classroom or other appropriate university
facility.
5. The graduate advisor or department chair may require a graduate student to limit
his or her outside employment or tutoring activity if, in the view of the
department, such activity is impeding the graduate student’s academic progress
or keeping him or her from fulfilling responsibilities within the department.
6. International students should clear their work instructions with International
Student and Scholar Services.

GRADUATION
It is the responsibility of the student to apply for graduation through MyUM during the
student’s final semester before the date indicated on the Graduate School calendar and the
Schedule of Classes. These dates are published at
http://www6.miami.edu/UMH/CDA/UMH_Main/0,1770,2385-1;2326-2,00.html. Students
who previously applied for a diploma but did not receive the degree must repeat the
application procedure. Deadlines for the commencement program are firm. Students may
walk in the graduation ceremony, but the program will indicate “in progress” if information
is missing. Students will be degree candidates until they have been cleared by the Graduate
School.

Graduation ceremonies are held in May and December only. Those completing degree
requirements during the Fall, Spring or Summer sessions may, if they wish, participate in
the graduation ceremonies of the previous or following May or December. Students
receiving a Ph.D., D.M.A., D.N.P, D.P.T, or Ed.D. degree that are participating in the
hooding ceremony and all masters marching in the graduation ceremony must have the
approval of the graduate advisor, director, or appropriate person in the department/school
to participate in the ceremonies.

Participation in graduation for students in all graduate programs is contingent upon the
following:

1. The student must have met the requirements for their program.
2. The student must have a minimum of 3.00 cumulative grade point average;
3. The student (doctoral only) must be admitted to candidacy one semester prior to
   graduation;
4. The student may not have any outstanding debt including, but not limited to, tuition,
   fines, and fees. Tuition for the last semester of study must be paid in full by the
   beginning of the final semester.
5. The student must complete an electronic thesis or dissertation (ETD) according to
   the Graduate School’s requirements and submit all hard copies, paperwork, and fees
   (if required) by the last day of exams in the semester the student wishes to
   graduate. It is recommended that students begin the ETD process early in the
   semester by discussing with their advisors a suitable timetable for completing the
   defense of their thesis or dissertation two weeks before the last day of classes in the
   semester they wish to graduate. The Graduate School also encourages students to
   familiarize themselves with the ETD process at
   http://etd.library.miami.edu/students.html or contact the Dissertation Editor early in
   the semester at grad.dissertation@miami.edu if they have questions regarding any
   aspect of the ETD process. (See dissertation section of the Ph.D. description.)
CLEARANCE FOR DEGREE CONFERRAL
For the Graduate School to clear a student for graduation:

1. All original documents (transcripts from previous degrees, GRE scores, etc.) must be on record in the Graduate School (except for MBA students).
2. The Admission to Candidacy form must have been completed by the program at least one semester before graduation.
3. The student must defend his/her thesis or dissertation no later than two weeks before the last day of class in the semester he/she wishes to graduate.
4. The student must submit his/her final, Dissertation Editor-approved thesis or dissertation with all corrections completed and final paperwork turned in to the Graduate School by the last day of exams in the semester he/she wishes to graduate for their clearance to be processed in time.

CLASS ATTENDANCE AND ABSENCES
Regular and punctual class attendance is expected of all graduate students. It is the student’s responsibility to know the instructor’s policies regarding examinations, penalties for absences, and late or missed work.

V.A. students will be provided a grade report at the end of each semester period. A copy of the report will be placed in the student’s permanent file maintained by the Veteran Affairs Office. Because of the far-reaching effects of these revisions in the V.A. educational benefits program, it is suggested that you exercise care and judgment in your program planning and in the selection of your courses.

STUDENT RESPONSIBILITY
Standards of study and conduct in the Graduate School are set and maintained, not by fiat of the Graduate School, but rather by the faculty who determine the standards. The Graduate School through its Council sets no course requirements for a degree. It does set certain general residence, grade and examination standards. Fundamentally the Graduate School devolves responsibility upon the student and the appointed committee. Within this broad responsibility the recommendation for the degree rests with the committee.

All graduate students at the University of Miami are subject to the general standards and requirements of the University and its various departments in regard to attendance, examinations, payment of fees, and conduct, as well as to the specific requirements of the Graduate School. The graduate student is expected to assume the initiative in completing all requirements at the time specified.

To preserve its ideals of scholarship, conduct, and character, the Graduate School reserves the right and the student by his/her registration concedes the right to require the withdrawal of any student for any reason deemed sufficient by the Graduate School at any time.

It is the responsibility of the student to be informed concerning all regulations and procedures required. In no case will a regulation be waived or an exception granted because a student pleads ignorance of the regulation or asserts that he/she was not informed of it by an advisor or other authority. The student should become familiar with the Bulletin, including

1. The section presenting the requirements for the degree to be undertaken;
2. The offerings and requirements of the major department.
3. The Graduate Student Honor Code.
After the applicant has been admitted to the Graduate School but before the first registration, the student should consult the school or college and program in which the major work will be done concerning course requirements, deficiencies, if any, the planning of a program, special regulations, etc. Programs may have additional degree requirements that are not listed in this Bulletin. All registrations require the signature of the dean of the school or college (or his/her representative) in which the degree is to be awarded.

Only the Council of the Graduate School may waive requirements stated in this Bulletin.

GRADUATE STUDENT CODE OF ETHICS
Graduate students agree to abide by the Graduate Student Honor Code.

The University of Miami expects all graduate students to adhere to the highest standards of ethics and academic integrity. All forms of academic fraud are strictly prohibited. These include, but are not limited to, plagiarism, cheating, collusion, falsification, violation of professional ethics or misrepresentation of research data. Students certify that all work (whether an examination, dissertation, thesis, research paper, research project, form of creative expression, experimental data, or any other academic undertaking) submitted for evaluation, presentation, or publication meets these standards. Additionally, graduate students are expected to respect and appreciate the diversity of the community and to respect the rights of others, be they property, privacy, opinion, or expression. Students found to be in violation of these standards are subject to disciplinary actions by the students program and/or the Graduate School through the process described in the Graduate Student Honor Code. All graduate students are bound by the rules and regulations of the University of Miami that apply to them. The Honor Code can be reviewed at http://www6.miami.edu/dean-student/honor-code/.

GRADUATE SCHOOL GRIEVANCE GUIDELINES

INTRODUCTION
These University of Miami Graduate Grievance Procedures provides an opportunity for the resolution of disputes involving graduate students in a fair and collegial manner. These Graduate Student Grievance Procedures supersede all prior such procedures in effect or formerly utilized at the graduate level. They do not supplant UM Students Rights & Responsibilities or any other published policy or procedure relating to graduate students.

PURVIEW OF THE GUIDELINES
The formal grievance process described herein is intended for cases not involving grades or matters covered by the Honor Code, which have not been resolved at the department or program level, and it is available only after a final determination within the relevant School or College has been reached. Students are encouraged to seek assistance from the University Ombudsperson for possible resolution before initiating the formal graduate grievance process. The procedures set forth here are applicable to any of the following types of grievances by graduate students who are enrolled in any graduate program at the University of Miami, except exclusively in the MD and JD programs:
1. grievances alleging improper dismissal or suspension from a graduate program;
2. grievances alleging the improper withholding or termination of financial support of any kind;
3. grievances alleging any other improper treatment, either substantive or procedural, of a graduate student by a faculty member, department or program, or university agency or administrator except:
a. allegations of improper evaluation of the quality and/or quantity of academic work (see UM Student Rights & Responsibilities);

b. allegations of unfair recommendation for employment or further graduate study;

c. allegations of discriminatory treatment arising from the student complainant’s age, race, gender, sexual preference, handicap, national origin, or religion. (Such allegations ordinarily are handled by the Office of Equality Administration);

CONSTITUTION OF THE COMMITTEE AND GRIEVANCE PANEL

The Graduate Council Grievance Committee (GCGC) is a standing committee comprised of the Schools’ and Colleges’ alternate representatives to the Graduate Council. Grievances as understood herein shall be heard by ad hoc appeals panels, constituted from time to time by the Dean of the Graduate School to review individual graduate grievances. The grievance review panel (GRP) shall consist of five disinterested members: four faculty members of the GCGC and one graduate student appointed by the executive board of the Graduate Students’ Association. Notice of the constitution of the GRP shall be given by the Office of the Graduate Dean in writing to all parties to the grievance within ten (10) days after the grievance review request is properly filed.

Any party to the grievance may challenge the disinterestedness of a GRP member in writing to the Dean of the Graduate School within five (5) days after notification of the appointment. The challenge must specify reasons that would prevent the committee member or graduate student from making an unbiased recommendation with respect to the grievance. If such a challenge is determined to be valid by the Graduate Dean, a substitute appointment shall be made and the process will resume accordingly.

PROCEDURE AND TIME LIMITS FOR FILING A GRIEVANCE

After a final determination has been made in the relevant School or College (or by the head of the relevant administrative office in the event of a grievance against a university agency), a student who believes he or she has grounds for appeal within the purview of these guidelines may file a written grievance review request with the Office of the Dean of the Graduate School. The request shall describe the student’s allegations in a clear and concise fashion and shall clearly identify the individual(s), program(s), department, School or College, and/or University agency or administrator against whom the grievance is brought. The student’s written grievance review request shall be filed within thirty (30) days of the final determination. No grievance review request nor any other appeal of any kind will be granted after this time limit has expired unless a written extension of time is granted by the Dean of the Graduate School based on a written request from the grievant stating good cause.

DEFINITIONS AND ASSUMPTIONS

Burden of Persuasion: The burden of persuasion is on the grievant.

Final Determination: This grievance process is available only after a final determination within the relevant School or College has been reached. This provision is intended to require the grievant to exhaust the remedies available within the relevant School or College before appealing to the Graduate Dean. In the case of a student in an interdisciplinary program who does not yet have a chair and/or committee assembled, the Dean of the Graduate School shall make a final determination in the student’s case subject thereafter to the appeal contemplated by this policy. Appeal from the Graduate School Dean’s decision follows this same procedure, except that the GRP shall be constituted by the Office of the Provost from the pool of GCGC members. Written notice of the constitution of the GRP in the case of a student in an interdisciplinary program without a chair or committee, shall be given by the Office of the Provost to all parties to the grievance within ten (10) days after
the grievance review request is properly filed. All other deadlines, requirements, procedures, and the hearing format remain the same.

Originals: Wherever possible, the party in possession of an original document in support of or rebuttal to or at issue in the grievance shall provide it to the GRP within the time frames set out in the Hearing Materials and Preparation Deadlines. If a party has only a copy of a document not received by him, her, or it, the copy shall serve as an original. Digital documents or email messages in contention shall be printed and may then serve as originals.

Party: A party is the student grievant or the individual, program, department, School or College, or University agency or administrator against whom the student brings his or her grievance.

Time Limits: All time limits shall be calculated based on working days of the Fall and Spring Semesters, excluding reading and exam periods and University holidays. Grievances originally filed after the end of the Spring semester will be heard at the beginning of the following Fall Semester. Any stated time limit herein may be extended with the written consent of the grievant and the Dean of the Graduate School.

Written: Any document to which these guidelines refer as written signifies paper (hard) copy. Email messages and digital or other electronic versions do not meet the requirement that a form or notice be provided in writing. However, a party may transmit a digital version of any written document by email in addition to providing it in paper form.

DEADLINES FOR HEARING MATERIALS, PREPARATION, AND WITNESS IDENTIFICATION
All materials to be considered for review by the members of the GRP must be submitted in writing to the Office of the Dean of the Graduate School at least fourteen (14) days before the scheduled date of the hearing, at which time such materials will be distributed to all parties to the grievance and to the members of the GRP. Thereafter, to the extent that any of the parties wishes to have additional materials considered by the GRP, such materials must be received by the Graduate School no later than seven (7) days before the scheduled date of the hearing, at which time all such additional written materials will be distributed to the parties as well as to the members of the GRP. Any party submitting written materials for consideration shall submit the original(s) and five (5) copies thereof to the Office of the Graduate Dean at his, her, or its own expense.

The name of any witness to be called by any party at the hearing shall be provided in writing to the Office of the Graduate Dean no less than five (5) days before the scheduled date of the hearing.

HEARING
The grievance review hearing is chaired by a designated member of the GRP. The hearing is staffed by the non-voting Administrative Assistant of the Dean of the Graduate School, who will record it for archival purposes only. The hearing will proceed as follows:

a. GRP chair’s introduction, summary of issues, and process overview.
b. Student’s presentation of issues (15 minutes maximum).
c. University representative’s presentation of issues (15 minutes maximum).
d. Optional: Presentation(s) by witnesses (limited to 3 per side and a maximum of 15 minutes total per side).
e. Questions by members of the GRP.
f. All presenters and witnesses are excused.
g. Deliberation by GRP.

Presentation of the issues should be concise and relevant. Undoubtedly the dispute is somewhat complex or it would not have reached this stage. Points of dispute or ambiguity may be summarized or illustrated by anecdote at the hearing. Experience suggests, however, that the best approach is to minimize formal presentations and allow the GRP members maximum time for questions.

**GRP DECISION AND AUTHORITY**
No additional substantive information may be submitted by any party following the hearing, unless requested by the grievance review panel. The GRP may but need not seek additional information from other sources during its deliberations, which will be conducted in closed session. Following its deliberations, and within ten (10) days of the date of the grievance review hearing, the GRP will make its confidential advisory recommendation to the Dean of the Graduate School [Office of the Provost in the event of a student in an interdisciplinary program who does not yet have a chair or committee]. The subsequent decision by the Dean of the Graduate School [Office of the Provost], which shall be rendered within ten (10) days of the GRP’s recommendation, is final.

Note: The above guidelines pertain only to matters which do not involve representation by an attorney. If an attorney is involved in the grievance, the Office of Legal Counsel at the University should be contacted.

**MODIFICATIONS**
These procedures may be modified or withdrawn with or without notice.
ADMISSION

ELIGIBILITY FOR ADMISSION
In addition to holding the baccalaureate degree from an institution accredited by a regional accrediting body, the applicant for admission to the Graduate School should have the prerequisite coursework required by the program to which he/she is applying. In general, those applying for graduate admission should have achieved an overall average grade of “B” or better (3.0 G.P.A. on a 4.0 scale). Foreign students will be required to give evidence of adequate knowledge of English through a TOEFL or IELTS test score. University of Miami faculty members above the rank of instructor are not eligible to apply for the doctorate at the University of Miami. (Note: Faculty from the School of Nursing and Health Sciences and from the Physical Therapy program are permitted to pursue doctoral degrees in their home program/school.)

For specific admission requirements see also statements of the various programs.

Admission of a student to the University of Miami for any semester does not imply that such student will be re-enrolled in any succeeding academic semesters.

All those wishing to take courses for graduate credit, whether or not they wish to become candidates for a degree, must make application for admission directly to the program of interest prior to registration.

REQUIREMENTS FOR ADMISSION APPLICATION

1. The completed online application form
2. Official transcripts of all college work, both undergraduate and graduate
3. The official score report of the appropriate entrance examination
4. Letters of recommendation sent directly to the graduate program director of the academic program.

<table>
<thead>
<tr>
<th>GRE</th>
<th>All applicants must submit recent (within five years) Graduate Record Examination (GRE) scores which include 1) the aptitude portion; and 2) the most relevant advanced test in the major field if required by the program.</th>
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</thead>
<tbody>
<tr>
<td>GMAT</td>
<td>Applicants for the Master or Ph.D. of Business Administration, the Master of Professional Accounting, the Master of Science in Management Science (Operations Research/Applied Statistics), or Taxation must submit the Graduate Management Admissions Test (GMAT) scores</td>
</tr>
<tr>
<td>TOEFL/IELTS</td>
<td>International applicants whose native language is not English must take the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS) and the Graduate Record Examination</td>
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</tbody>
</table>
5. Other requirements as may be required/requested by individual programs. Contact the specific program to which you are applying for their requirements, or for exemptions from the entrance examination.

6. Application fee
7. All materials and the fee should be sent directly to the School or academic department as indicated on the application.

*Materials submitted in support of an application cannot be released for other purposes nor returned to the applicant.*

**CATEGORIES OF ADMISSION**

1. **Regular** admission with or without specified deficiencies. Under circumstances in which it is difficult to evaluate the academic background of intellectually qualified applicants, they may be admitted with specified deficiencies. Such status is often appropriate for foreign students. Only one semester or one summer session of study in deficiency status is permitted and the student who fails to qualify at the end of that time will be requested to withdraw from the Graduate School.

2. **Post Baccalaureate.** This category provides an opportunity for graduate study for:
   a. qualified applicants who, for good reason, do not wish to work toward an advanced degree. This would be appropriate for those students who have special objectives for professional study or scholarly work;
   b. students enrolled in a graduate program elsewhere but desiring to earn graduate credit at the University of Miami for the purpose of transferring it to the other institution;
   c. students already holding the master’s degree or doctorate but who desire additional coursework in their field.

Those admitted to a post-baccalaureate status should realize that their future admission to regular status is improbable unless they achieve the qualifications originally appropriate to admission to those categories. This is to say that the mere accumulation of graduate course credits is not sufficient to permit entrance into another graduate category. No more than a total of twelve (12) credit hours may be taken while in post-baccalaureate status.

Transient students described in (b) above should have sent to the Graduate School a letter from the Dean of the graduate school at which they expect to earn a degree, stating that they are in good standing there and have permission to transfer credit. If possible, this letter should indicate specific courses to be taken. The students described in (c) above should have a transcript showing their most recent graduate work and graduate degree [to be sent directly by the issuing institution to the Graduate School].

3. **Certification/Professional Goals.** This category provides an opportunity for graduate study for qualified teachers or professionals who do not wish to work toward an advanced degree but who for professional reasons need to continue to take graduate courses and have already taken 12 credits in Post-Baccalaureate Status. No credit taken in this status can be applied toward a graduate degree at the University. A letter explaining the need for the course work by the student’s employer must accompany the application.

Every applicant for admission can be assured that all credentials will be carefully studied in an effort to select appropriately qualified students. Each application for admission is examined by the members of the faculty responsible for the graduate program. The program informs each applicant of the results.
It is expected that most applicants for admission will be candidates for an advanced degree. Except under unusual circumstances those who already hold an advanced degree are not admitted to candidacy for the same degree. Graduate programs vary as to whether students who do not hold the Master’s degree are required to initiate graduate studies at that level. The faculties in some fields wish their students to do this, and in other fields accept students directly into a Ph.D. program.

Applicants should note the following:
1. M.B.A. applicants should send applications and all documents to the Office of Graduate Business Programs in the School of Business Administration; P.O. Box 248505, Coral Gables, FL 33124;
2. all other correspondence, applications and documents should be sent directly to the academic department;
3. no action is taken until a file is complete and all documents are available;
4. application files should be complete at least one month before registration, much earlier for some applications, as specified elsewhere in this Bulletin;
5. admission to graduate status does not imply admission to candidacy for a degree;
6. some departments close admissions early because of limited capacity;
7. materials submitted in support of an application are not released for other purposes and cannot be returned to the applicant.

International Students Admissions
All international students who have been admitted to a program of full-time study at the University of Miami need to enter the U.S. on a student visa. In order to apply for the F-1 student visa at a U.S. embassy or consulate, the student is required to complete and submit the Form I-20 issued by International Admissions. For specific questions regarding I-20 issuance, please contact Nancy Ortiz, Sr. Associate Director, International Admission (nortiz@miami.edu).

FOR UNIVERSITY OF MIAMI UNDERGRADUATES ONLY
Senior-Graduate Status. University of Miami undergraduates within 30 credits of meeting the requirements for the Baccalaureate Degree may be considered for concurrent admission to graduate study in non-degree senior-graduate status, and in this status may take and receive credit for graduate courses, while completing the requirement for the baccalaureate.

Admission to Senior-Graduate Status requires:

1. Must have a minimum of 3.000 GPA. the submission of a special form (which can be obtained at the Graduate School) which will not require the application fee;
2. the written approval of the Chairman of the Department, the Dean of the Undergraduate School or College, and of the Graduate Dean prior to registration on the special form.

Admission to Senior-Graduate status does not automatically admit the student, upon graduation, to status as an applicant for a graduate degree at the University of Miami.

The graduate credits earned may NOT be used to meet undergraduate graduation requirements or be used to meet the 120 credit hour requirements at the University of Miami.
No more than six (6) hours credit may be taken in one semester, and no more than a total of twelve (12) hours credit may be taken while in Senior-Graduate Status. Students may take no more than 13 credits of combined undergraduate and graduate courses per semester.

Students electing Senior Graduate status must register and be processed centrally at the Office of the Registrar, University Center.

**READMISSION**

Unless a leave of absence has been requested and approved, students who have not been continuously enrolled for sessions must request readmission. Contact the appropriate program office well in advance of registration. If additional college work has been completed elsewhere since the last enrollment at the University of Miami, an official transcript of this will be required. Recency of credit rules will apply.
DEGREE PROGRAMS

The University of Miami offers majors leading to graduate degrees as follows:

- **MASTER OF ARCHITECTURE (M. Arch.)**
- **MASTER OF ARCHITECTURE IN SUBURB AND TOWN DESIGN (M.Arch.S.T.)**
- **MASTER OF ARCHITECTURE IN REAL ESTATE AND URBANISM (MRED&U)**
- **MASTER OF ARTS (M.A.) with concentrations in the following:**
  - Applied Marine Physics
  - Art History
  - Communication
  - Communication Studies
  - Film Studies
  - Television Broadcast
  - Print Journalism
  - Public Relations
  - Spanish Print in Journalism
  - Economics
  - English
  - Geography and Regional Studies
  - History
  - International Administration
  - International Studies
  - Latin American Studies
  - Marine Affairs and Policy
  - Marine Biology and Fisheries
  - Marine Geology and Geophysics
  - Marine and Atmospheric Chemistry
  - Mathematics
  - Meteorology and Physical Oceanography
  - Sociology

- **MASTER OF ARTS IN LIBERAL STUDIES (M.A.L.S.)**
- **Master in Accounting (M.P.Acc.)**
- **MASTER OF BUSINESS ADMINISTRATION (MBA)**
- **MASTER OF SCIENCE IN EDUCATION (M.S.Ed.) with concentrations in the following:**
  - Counseling and Research
  - Early Childhood Special Education
  - Elementary Education
  - Exercise Physiology
  - Higher Education/Enrollment Management
  - Higher Education/Student Life & Development
  - Marriage and Family Therapy
  - Mental Health Counseling
  - Research, Measurement and Evaluation
  - Sport Administration (Focus athletics or recreational sports)
  - Sports Medicine

- **MASTER OF FINE ARTS (M.F.A.) with concentrations in the following:**
  - Art (Studio Work)
  - Painting
  - Sculpture
  - Graphic Design / Multimedia
  - Ceramics / Glass
  - Photography/Digital Imaging
  - Printmaking
  - Creative Writing
  - Motion Pictures
  - Production
  - Producing
  - Screenwriting

- **MASTER OF MUSIC (M.M.) with concentrations in the following:**
  - Accompanying and Chamber Music
  - Choral Conducting
  - Composition
  - Electronic Music
  - Instrumental Conducting
  - Instrumental Performance
  - Jazz Pedagogy
  - Jazz Performance
  - Keyboard Performance and Pedagogy
  - Media Writing and Production
  - Multiple Woodwinds
  - Music Business and Entertainment Industries
  - Piano Performance
  - Music Education
  - Music Theory
  - Music Therapy
  - Musicology
  - Studio Jazz Writing
  - Vocal Performance
• **MASTER OF SCIENCE (M.S.)** with concentrations in the following:

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<th>Concentrations</th>
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<tr>
<td>Applied Marine Physics</td>
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<td>Biology</td>
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<td>Chemistry</td>
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<td>Computer Information Systems</td>
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<td>Computer Science</td>
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<td>Engineering</td>
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<td>Management Science</td>
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<td>Marine Affairs and Policy</td>
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<td>Marine Geology and Geophysics</td>
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<td>Marine and Atmospheric Chemistry</td>
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<td>Meteorology and Physical</td>
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<td>Oceanography</td>
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<td>Physics</td>
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<td>Professional Management</td>
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<td>Psychology</td>
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<td>Taxation</td>
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• **MASTER OF SCIENCE IN ARCHITECTURAL ENGINEERING (M.S.A.E.)**

• **MASTER OF SCIENCE IN BIOMEDICAL ENGINEERING (M.S.B.E.)**

• **MASTER OF SCIENCE IN CIVIL ENGINEERING (M.S.C.E.)**

• **MASTER OF SCIENCE IN ELECTRICAL AND COMPUTER ENGINEERING (M.S.E.C.E.)**

• **MASTER OF SCIENCE IN INDUSTRIAL ENGINEERING (M.S.I.E.)**

• **MASTER OF SCIENCE IN MECHANICAL ENGINEERING (M.S.M.E.)**

• **MASTER OF SCIENCE IN MUSIC ENGINEERING TECHNOLOGY (M.S.M.E.T.)**

• **MASTER OF SCIENCE IN NURSING (M.S.N.)**

• **MASTER OF SCIENCE IN TAXATION (M.S.Tax.)**

• **MASTER OF PUBLIC ADMINISTRATION (M.P.A.)**

• **MASTER OF PUBLIC HEALTH (M.P.H.)**

• **SPECIALIST IN EDUCATION (Ed.S.)** with concentrations in the following:

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<th>Concentrations</th>
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<tr>
<td>Early Childhood Special Education</td>
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<td>Higher Education Leadership</td>
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• **SPECIALIST IN MUSIC EDUCATION (Spec.M.)**

• **DOCTOR OF MUSICAL ARTS (D.M.A.)** with concentrations in the following:

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<td>Accompanying and Chamber Music</td>
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<td>Multiple Woodwinds</td>
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<tr>
<td>Performance (Applied Music)</td>
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<tr>
<td>Jazz Performance</td>
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</tbody>
</table>

• **Doctor OF NURSING PRACTICE (D.N.P.)**

• **DOCTOR OF PHYSICAL THERAPY (D.P.T.)**

• **DOCTOR OF PHILOSOPHY (Ph.D.)** with concentrations in the following:

<table>
<thead>
<tr>
<th>Concentrations</th>
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<tbody>
<tr>
<td>Applied Marine Physics</td>
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<tr>
<td>Biochemistry and Molecular Biology</td>
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<tr>
<td>Biomedical Engineering</td>
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<tr>
<td>Business Administration</td>
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<tr>
<td>Cancer Biology</td>
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<td>Chemistry</td>
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<td>Civil Engineering</td>
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<tr>
<td>Communication</td>
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<tr>
<td>(Communication, Film)</td>
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<tr>
<td>Computer Science</td>
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<td>Counseling Psychology</td>
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<tr>
<td>Economics</td>
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<tr>
<td>Electrical and Computer Engineering</td>
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<td>English</td>
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<td>Epidemiology and Public Health</td>
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<td>Health</td>
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<td>Ergonomics</td>
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<td>Exercise Physiology</td>
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<td>History</td>
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<td>Industrial Engineering</td>
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<tr>
<td>International Studies</td>
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<tr>
<td>Marine and Atmospheric Chemistry</td>
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<td>Marine Biology and Fisheries</td>
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<td>Marine Geology and Geophysics</td>
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<td>Mathematics</td>
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<td>Mechanical Engineering</td>
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<td>Meteorology and Physical</td>
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<td>Oceanography</td>
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<td>Microbiology and Immunology</td>
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<td>Molecular and Cellular Pharmacology</td>
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<td>Molecular Cell and Developmental Biology</td>
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<td>Music Education</td>
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<td>Neuroscience</td>
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<td>Nursing</td>
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<td>Philosophy</td>
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<td>Physical Therapy</td>
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<td>Physics</td>
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<td>Physiology and Biophysics</td>
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<td>Psychology</td>
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<td>Research and</td>
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<td>Evaluation/Exercise</td>
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<td>Romance Languages</td>
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<td>French</td>
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<td>Spanish</td>
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<td>Sociology</td>
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<td>Teaching and Learning</td>
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<td>Language and Literacy</td>
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<tr>
<td>Learning in Multilingual settings</td>
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<td>Mathematics and Science</td>
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<tr>
<td>Education</td>
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<tr>
<td>Special Education</td>
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</table>
INTERDISCIPLINARY GRADUATE STUDIES - Dept. Code: IDS

The Graduate School is no longer accepting applications for the IDS program. This will not affect current IDS students.
The Master of Arts in International Administration, known as the MAIA program, is an interdisciplinary degree program designed to integrate theory and real-world experiences in international affairs. The degree is awarded by the College of Arts and Sciences.

The MAIA program is designed to provide students with the skills and knowledge needed to advance professionally and to build a solid international career. The degree features advanced study in specialized subject matter with an emphasis on research skills and practical applications. MAIA is a university wide program with the participation of eight departments, five schools and upward of twenty faculty members. The faculty is drawn from the best resources of the University of Miami and from highly skilled professionals from the fields of diplomacy, journalism, law, international business, and other related areas. The program is directed by the assistant provost for university-wide international studies, a professor of International Studies.

For complete information on the faculty and staff of the MAIA program, and for many other details of the program, please visit the MAIA web site www.miami.edu/maia.

**Core Requirements**

Six core courses are required of all MAIA students. Students then complete the degree with three graduate-level electives, which may be chosen from among other UM graduate offerings. Finally, all MAIA students must enroll in and complete a practicum, details of which are described below. The core courses are taught in an integrated fashion, designed to give students the maximum learning experience in an efficient manner. The courses are a mixture of theory and practice, skills and knowledge, geared toward the demands of international professional careers.

In the core courses, students will

1. develop skills in writing, speaking, and numerical and historical analysis;
2. learn how to collect, interpret and report complex social, political, and economic data;
3. increase skills in methods of research, communications skills;
4. master strategic and tactical thinking and negotiation;
5. build practical and theoretical knowledge in international relations, international economics, intercultural communication, and public administration in an international context.

Core courses include

1. International Administration (IGS 612)
2. World Affairs (IGS 614)
3. World Cultures (IGS 613)
4. Organizational Administration (IGS 616)
5. International Economics (IGS 615)
6. International Organizations (IGS 611)

**Practicum in International Administration (IGS 517)**

The purpose of the practicum is to give students the opportunity to apply academic theory and acquired skills in international administration under real world conditions. Students are expected to complete the practicum during the summer months with a minimum time commitment of at least 200 hours. A final report/case study analysis is required as part of successful completion of the practicum. A fuller guide to the practicum and the...
requirements for the practicum is provided to students during meetings with the practicum advisor.

**Other Requirements for Graduation**

In addition to completing 30 credits at the graduate level, which must include the six required core courses and the practicum course, students must satisfy the following additional program requirements.

The information technology boot camp is an intensive six-day program, which is generally the new student’s introduction to MAIA and is taken just prior to the start of the semester of admission. This boot camp is a special edition of the UM Office Specialist (UMOS), a certification course created by the University of Miami to establish a nationally recognized standard of business computer skills. The MAIA/UMOS boot camp is an intensive, hands-on computer course that trains, tests and certifies all the core skills for Microsoft Windows, Word, Excel, Access, PowerPoint, FrontPage and Outlook.

The accounting and taxation boot camp is a two-day, non-credit workshop that covers key subjects essential to successful budgeting and financial control for NGOs and other not-for-profit companies. It is taught by a professional financial manager and is offered once a year.

MAIA students must demonstrate proficiency in a second language prior to graduation. They are tested by staff and faculty with the Intensive Language Institute of the Division of Continuing and International Education. If students need additional language training after the testing result, they will be recommended to enroll in non-credit language courses to attain the necessary proficiency.

All MAIA students must complete their degree with three graduate level elective courses. Electives must be approved by MAIA directors and students are encouraged to use the electives to create a specialization in an area of study. For example, students may specialize in marine affairs by taking courses at RSMAS, public health by taking courses in the School of Medicine’s MPH program, or public administration by taking courses in the School of Business’ MPA program. Students may also seek elective credits within other disciplines in the College of Arts and Sciences to round out the program. Electives may be taken at Charles University, Prague or at the School of International Relations at the St. Petersburg State University, Russia. (For elective credit conversions please consult International Admissions, 305-284-2271 or admission@miami.edu.

Students must also select an area of regional focus. While enrolling in the program’s six core courses, students would gear final presentations, group projects, and class reports with an emphasis on their chosen region of expertise. Students are then assigned to regional advisors chosen from among UM’s faculty experts in that area or region of the world.

[Interdisciplinary Global Studies (IGS) Course Listing](#)

**Dual Degree Program: MAIA/MPH**

The MAIA program and the School of Medicine’s Department of Epidemiology offer a dual degree sequence leading to the award of both the Master of Arts in International Administration and the Master of Public Health degrees. This sequence is particularly appropriate for individuals seeking careers in the growing field of international public health. A major advantage of this program is that the two offering bodies have agreed to accept a number of courses from each other's programs as partially fulfilling requirements for the two degrees.
UM INTERNATIONAL EDUCATION AND EXCHANGE PROGRAMS -
Dept. Code: SAP

Opportunities for study abroad may be available for some graduate degree programs.
The particular courses must be developed by the student and the program in which the degree is to be earned.

For further information contact: UM International Education and Exchange Programs, PO Box 248005, Coral Gables, FL 33124-1610, (305) 284-3434, e-mail: ieep@miami.edu.

In some programs it is possible to earn graduate credits for study taken abroad. Curriculum must be worked out by the student in conjunction with an advisor.
THE MASTER’S DEGREE - GENERAL

The minimum residence requirement is two semesters in full-time study or the equivalent in part-time work. In practice, most students need at least three semesters, or two semesters plus summer work, to complete degree requirements.

FOREIGN LANGUAGE
The requirements in a foreign language or languages are established by the student’s program. In those cases where the program deems it necessary that the student have competency in a foreign language, the student will be required to demonstrate such competence by examination in one or more languages. The choice of language or languages required will be by the program.

THESIS
Decision as to the thesis subject must be approved by the program. The thesis committee will consist of not less than three members. At least one of these must be a regular member of the Graduate Faculty of the University of Miami, and one must be from outside of the program awarding the degree. The committee is nominated by the Graduate Program Director of the department or program concerned. The duties of the thesis committee are similar to those of the dissertation committee. Thesis Committees cannot be appointed prior to admission to candidacy. The student who presents a thesis must enroll for a total of six hours of thesis credit. Ordinarily no more than six credits may be granted.

When a student has completed coursework, it is recommended that those students in programs requiring a thesis or dissertation make their first appointment with the Dissertation Editor at the Graduate School once their thesis topic has been approved by the major department. The Dissertation Editor will provide information on the guidelines and deadlines that will become critical in the final months of the degree process. The Graduate School office telephone number is (305) 284-4154, the email address is grad.dissertation@miami.edu.

Master’s degree students who are required to write a thesis must defend their thesis by the date specified in the academic calendar and submit a Dissertation Editor-approved hard and electronic copy and paperwork to the Graduate School by the last day of exams in the semester the student wishes to graduate. It is recommended that students begin the process early in the semester by discussing with their advisors a suitable timetable for meeting these deadlines. All information pertaining to the formatting and electronic guidelines for electronic thesis and dissertation submission can be found at http://etd.library.miami.edu/students.html. The Graduate School also encourages students to contact the Dissertation Editor early in the semester at grad.dissertation@miami.edu if they have questions regarding any aspect of the ETD process.

FINAL EXAMINATION
A final public oral defense of the thesis is required. However, none but the members of the thesis committee may interrogate the candidate. In addition there may be required, if desired by the program, a final written integration examination to test the candidate’s ability to integrate the whole graduate program and the thesis in relation to it. These examinations must be held at least two weeks prior to commencement.
RESEARCH IN RESIDENCE
Once a student has completed all course and required research credits, he or she must enroll in Research in Residence status until the degree has been granted. Research in Residence status is considered full-time enrollment. Time restrictions on obtaining degrees will be strictly enforced and can be waived only by the Dean of the Graduate School. (See Recency of Credit section of the Bulletin.) Research in Residence students, while not required, may purchase or receive any perquisites that are normally available to graduate students.

COMPREHENSIVE EXAMINATION
In most programs a comprehensive examination, either written, oral or both, is a requirement. When the thesis is not a part of the program, an examining board, at least one of whose members must be a regular member of the Graduate Faculty, will be appointed by the program. A student failing the comprehensive may be allowed one opportunity to retake it if the students committee so advises. The re-examination may not be taken during the same semester or summer session, and must be taken within one calendar year.

TRANSFER OF CREDIT
Upon recommendation of the major program and the approval of the Graduate School, a maximum of six semester hours of graduate credit, with grades of B or above, may be transferred from another accredited graduate institution, in partial satisfaction of a Masters degree requiring less than 36 semester hours. Nine hours of graduate credit may be approved for transfer to a degree program requiring 36 semester hours or more. Work taken more than ten years prior to transfer will not be accepted. Work taken by extension, correspondence or online is not acceptable. All work transferred is subject to examination by the program. In no case will credit be transferred until the student has completed acceptably an equivalent number of credits at the University of Miami. The satisfaction of the requirements of another university does not relieve the student from the University of Miami’s requirements. An official transcript of work to be transferred must be on file in the Graduate Office. Credits that pertain to or have been counted toward another degree cannot be transferred. Students enrolled in the Master of Business Administration program are not eligible for credit transfers.

Exceptions must be approved by the Dean of the Graduate School.

No transferred credits are calculated into the University of Miami G.P.A.

A SECOND MASTER’S DEGREE
A student enrolled in a University of Miami master’s degree program or holding a University of Miami master’s degree may earn a second master’s degree in a related area at the University by completing a minimum of 21 hours toward the second degree, as long as all program and admission requirements for the degree are met. Each degree must have a separate thesis if two thesis options are elected. The second program decides if the areas are related enough to qualify for the reduced number of credits.
DOCTOR OF PHILOSOPHY

(For Doctor of Musical Arts, D.MA., see music section of bulletin. For Doctor of Physical Therapy, D.PT., see medicine section of bulletin. For Doctor of Nursing Practice, D.N.P., see Nursing & Health Studies section of bulletin, for Ed.D, see School of Education section.)

GENERAL
The Graduate School does not specify course requirements for the Ph.D. However, the Graduate School will not, ordinarily, approve the taking of the qualifying examination until the student has had a minimum of one continuous academic year of graduate work in courses, seminars, and directed or tutorial study. Sixty credits beyond the baccalaureate degree are the minimum requirement for the Ph.D., and not less than half of the total credits must be in work open only to graduate students. At least 24 must have been taken in residence at the University of Miami. A minimum of 12 dissertation credits must be taken. Graduate students studying for the Ph.D. who have received their master’s degree in the same field must take at least twenty-four (24) hours in residence at the University of Miami in doctoral status.

The specific course requirements for the Ph.D. are established by the major department or program which may require such additional graduate credit as it deems necessary. Such requirements will be found in that part of the Bulletin which lists course offerings.

REGISTRATION
To maintain status as a graduate student, registration in each fall and spring semester is required. Otherwise, admission lapses and permission to re-enter must be granted. Doctoral students for whom course work is no longer appropriate and who are engaged on their dissertation should consult the following section.

DISSERTATION
A student must take a minimum of 12 hours of dissertation research except where otherwise stated. Not more than 12 hours of research may be taken in a regular semester, nor more than six in a summer session.

Ph.D., D.M.A., or Lecture Recital degree students must defend their dissertation, or doctoral essay, or lecture recital essay at least two weeks before the last day of classes and submit a Dissertation Editor-approved hard copy and paperwork to the Graduate School by the last day of exams in the semester the student wishes to graduate. It is recommended that students begin the process early in the semester by discussing with their advisors a suitable timetable for meeting these deadlines. All information pertaining to the formatting and electronic guidelines for electronic thesis and dissertation submission can be found at http://etd.library.miami.edu/students.html. The Graduate School also encourages students to contact the Dissertation Editor early in the semester at grad.dissertation@miami.edu if they have questions regarding any aspect of the ETD process.

Three typewritten, unbound copies of the thesis, in approved form on proper paper (the original and two legible copies), conforming in style to the standards set by the Graduate School, must be deposited with the Office of the Graduate School on or before the last day of exams in the semester the student wishes to graduate. It is the duty of the student to acquire a copy of the guidelines for preparing theses and dissertations and to conform to the requirements therein. Each dissertation must be accompanied by two certificates of approval of oral defense of thesis signed by all members of the Committee. Forms should be obtained in the Graduate School Office or downloaded from http://etd.library.miami.edu/students.html.
RESEARCH IN RESIDENCE
Once a student has completed all course and required research credits, he or she must enroll in Research in Residence status until the degree has been granted. Research in Residence status is considered full time enrollment. Time restrictions on obtaining degrees will be strictly enforced and can be waived only by the Dean of the Graduate School. Research in Residence students, while not required, may purchase or receive any perquisites that are normally available to graduate students. (see Recency of Credit section.)

RESIDENCE
The student must spend at least two consecutive semesters beyond the first year’s graduate work, wherever taken, in full-time study at the University of Miami. With program approval, a) one summer of full-time study in sessions I and II can be substituted for one semester of residence, or b) full-time study for two successive summers can be substituted for two regular semesters. Residence requirements may be altered only by the Dean of the Graduate School. (At least 24 credits must be taken in residence.)

THE SUPERVISORY AND DISSERTATION COMMITTEES
A supervisory committee is usually appointed when a student is formally admitted to a doctoral program. The committee must be comprised of at least four members; this includes the committee chair, who shall be a member of the program or department of concentration (this includes secondary appointments), as well as a regular member of the Graduate Faculty. Of the remaining members, it is also required that two shall be from Graduate Faculty, and one from outside the program or department of concentration. A department, program, or school or college may require additional members.

This committee is nominated by the chairperson of the program or department concerned. It is appropriate for the chairperson to consult with the student regarding the membership of the committee. The supervisory committee is empowered to plan the course of study for the student; to determine deficiencies, if any; to set language and other requirements; to request applicable transfer of credit where appropriate and to make up and administer the qualifying examination.

When the student is admitted to candidacy, a dissertation committee is formed. This may be the supervisory committee, but it may also be a committee formed anew to undertake the duties of advising and passing upon the dissertation. The dissertation committee is nominated by the department or program concerned, and appointed by the Graduate Program Director and approved by department chair. As with the supervisory committee, it must be comprised of at least four members; this includes the committee chair, who shall be a member of the program or department of concentration, as well as a regular member of the Graduate Faculty. Of the remaining members, it is also required that two shall be from Graduate Faculty and one from outside the program or department of concentration. A department, program, or school or college may require additional members. The duties of the Dissertation Committee are:

1. to consult with and to advise students on their research;
2. to meet, at regular intervals, to review progress and expected results;
3. to read and comment upon the draft dissertation;
4. to meet, when the dissertation is completed, to conduct the final oral examination and to satisfy itself that the dissertation is a contribution to knowledge and that it is written in lucid and correct English and submitted in approved form.
The candidate is well advised to have a final, acceptable typescript of the dissertation in the hands of each member of his/her committee at a time reasonably in advance of the final defense of the work a minimum of two weeks prior to the defense.

Three copies of the dissertation in approved form on proper paper and two copies of an abstract of not over 350 words will be handed in to the Graduate School on or before the date specified in the calendar published each session, accompanied by 1 certificate of approval of doctoral dissertation defense. It is the duty of the student to acquire a copy of the guidelines for preparing dissertations from the Graduate School or http://etd.library.miami.edu/students.html and to conform to the requirements therein. All dissertations are published by ProQuest/University Microfilms, Inc.

No student gains the right to be recommended for the degree simply by fulfilling requirements. This right is reserved to the student’s committee. Changes of committee members must be approved by Graduate Program Director.

QUALIFYING EXAMINATIONS
A written qualifying examination is to be taken by each doctoral degree (Ph.D., D.M.A., D.N.P, D.P.T., Ed.D.) candidate at the time that the student and the Supervisory Committee deem appropriate. The school or major program may specify that its students must take an oral examination as well. In those cases, normally, the student shall pass the written examination before the oral examination is conducted. Upon completion of the examination process, the supervisory committee shall notify the Graduate School and the instructional school or program that the student has passed or failed the examination. A student who fails the examination will be given one opportunity to retake it with the permission of the supervisory committee. Some programs do not administer qualifying examinations during the summer months. Check with the Graduate Program Director for specific program requirements.

ADMISSION TO CANDIDACY
When the student has met all requirements and passed the qualifying examinations, admission to candidacy for the degree is approved. No student may receive the degree in the same semester or summer session in which he or she is admitted to candidacy. The student must be admitted to candidacy before the defense of dissertation is scheduled.

FINAL EXAMINATION
A final public oral defense of the dissertation is required. However, only the members of the dissertation committee may interrogate the candidate. In addition there may be required, if desired by the program, a final written integration examination to test the candidate’s ability to integrate the whole graduate program and the dissertation in relation to it. See academic calendar for deadlines regarding dissertation defense.

TRANSFER OF CREDIT
Transfer of graduate credit from another institution will not be made until the student has completed a like amount of credit at the University of Miami, and the transfer has been approved by the supervisory committee and the Dean of the Graduate School. Credit transferred is subject to the same recency rules as all other credit counted toward the degree, and is also subject to examination by the program. An official transcript of work to be transferred must be on file in the Graduate School. Credits that pertain to or have been counted toward another degree cannot be transferred.
Florida International University and University of Miami agreement for Ph.D. Courses
Effective as of Fall 2007, students may take up to six credits at the host institution as long as the following requirements are met:

1. Approval from both home and host institution;
2. Approval of Graduate School Deans;
3. Space at the host institution is available.

Tuition and fees are to be paid at the home institution. Performance level is set at host institution. Contact the Graduate School for more information.
The School of Architecture at the University of Miami offers both a professional and a post-professional Master of Architecture degree.

The School is a member of the Association of Collegiate Schools of Architecture.

The School of Architecture’s location in Coral Gables within the Miami metropolitan area provides an outstanding laboratory for research and advanced study; the challenges of conservation and development are intense in one of the nation’s fastest growing urban areas. These challenges result in an increasing demand for skilled professionals.

Students have the opportunity to work with the faculty in the exploration of theoretical issues as well as in the resolution of practical problems.

The School of Architecture values and sustains a creative, open and supportive environment, emphasizing personalized instruction in small classes and studio courses.

The school’s resources, including an accredited undergraduate program in architecture and a state-of-the-art computer laboratory, are enhanced by the interdisciplinary opportunities offered by the other schools and colleges of the University of Miami. A distinguished faculty is joined each semester by internationally renowned visiting scholars and designers.

All students admitted full time to the Master of Architecture program may be eligible for partial tuition scholarships and/or graduate assistantships, based on academic record.

Scholarships may vary in amounts and are intended to assist the recipient pursue studies as required by the program. Scholarships will be awarded on a competitive basis. Graduate assistantships require service in the form of teaching, research assistance, or other appropriate educational activities as designated by the director of the graduate program.

The school is a member of the Association of Collegiate Schools of Architecture and the Association of Collegiate Schools of Planning, and is fully accredited by the National Architectural Accreditation Board, who asks each school to include the following paragraph on professional degrees in all literature:

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted a 6-year, 3-year, or 2-year term of accreditation, depending on the extent of its conformance with established educational standards. Master’s degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.
ADMISSION REQUIREMENTS

Applications are for the fall semester only. Applications completed by February 1st will be given the highest priority. Admission to the graduate program is subject to the rules, regulations and procedures of the Graduate School as stipulated in the University Graduate Bulletin. It is the responsibility of each student to understand these requirements and to ensure that they are met.

The minimum requirements for application to the Master of Architecture Degree program are:
1. 3.0 cumulative grade point average.
2. 1000 cumulative Graduate Record Examination score on verbal and quantitative sections / 550 TOEFL score for international applicants and/or those whose native language is not English.
3. For Master of Architecture: Suburb and Town Design; Master of Architecture: Research - a Professional Degree in Architecture (Bachelor of Architecture or Master of Architecture).

RESOURCES

The school’s resources, including a state-of-the-art computer laboratory, are enhanced by the interdisciplinary opportunities offered by the other schools and colleges of the University of Miami. A distinguished faculty is joined each semester by internationally renowned visiting scholars and designers.

Other programs that offer academic opportunities for graduate architecture students include: the Historic Preservation Certificate, the Suburb and Town Design, the BSAE/MARCH and the BARCH/MBA.

DEGREE PROGRAMS

MASTER OF ARCHITECTURE: PROFESSIONAL DEGREE

The Master of Architecture is designed for college graduates seeking a first professional degree in architecture. It consists of the following two tracks:

3.5-year Track: A 3.5-year program for students holding undergraduate degrees in non-design fields. Completion of 105 credit hours required.

Advanced Standing Track: A program for students holding a previous non-professional degree in architecture or a closely related field. Completion of 51-60 credit hours required.

Masters degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree, which, when earned sequentially, compromise an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.
MASTER OF ARCHITECTURE: POST PROFESSIONAL DEGREE

The Master of Architecture post-professional program provides an environment for serious inquiry into the nature of architecture.

Post-professional study is available to students holding an accredited degree in architecture who wish to develop a specialization in architectural theory and practice.

Three areas of study offer students the opportunity to investigate specific aspects of architecture and to elaborate their understanding for future teaching, research, publications and professional practice.

Master of Architecture: Suburb and Town Design

This concentration consists of three semesters of directed study to explore in-depth the existing state of suburbs and cities, study precedents and propose design solutions.

The faculty is dedicated to seeking alternatives to modern patterns of urban growth.

The Miami metropolitan area provides a laboratory for the identification of urban problems and for the exploration of design solutions.

Each semester is comprised of a design studio and a seminar in parallel, studying both the real and ideal solutions for three aspects of town planning: new town design, housing and the redesign of existing situations.

The School of Architecture faculty teaches the curriculum with field condition input from visiting faculty and other experts such as developers, marketing experts and bankers.

Master in Real Estate Development and Urbanism

A one-year interdisciplinary program that will blend the fundamentals of real estate development with the School of Architecture's strengths in the New Urbanism, community design and civic engagement.

Master of Architecture: Research

This program allows students to specialize in a specific area of study within the context of the discipline.

Each student must complete 36 credits, normally over three semesters. A specific program of study, reflecting the proposed professional objectives, is established for each student. In addition, a six-credit thesis is required.

An advisory committee of the faculty of the school supervises the progress of the students. The program is based on studio work combined with cross-disciplinary and specialized studies.

The program culminates in a comprehensive project tailored to meet the needs of the individual student.
**DEGREE REQUIREMENTS**

**Master of Architecture: Professional Degree**  
**3.5 Year Track - For students with prior non-architecture degrees**

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<th>Spring Semester II</th>
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<td>ARC 501 Architecture Design and Theory I</td>
<td>ARC 502 Architecture Design and Theory II</td>
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<tr>
<td>ARC 511 Drawing</td>
<td>ARC 513 Computing</td>
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<tr>
<td>ARC 561 Building Construction</td>
<td>ARC 531 Building Structures</td>
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<tr>
<td>ARC 567 History of Architecture I: Ancient, Medieval and Renaissance</td>
<td>ARC 568 History of Architecture II: Baroque through Contemporary</td>
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<tr>
<th>Fall Semester III</th>
<th>Spring Semester IV</th>
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<tbody>
<tr>
<td>ARC 503 Architectural Design and Theory III</td>
<td>ARC 607 Architecture Design</td>
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<tr>
<td>ARC 532 Building Structures II</td>
<td>ARC 533 Building Structures III</td>
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<tr>
<td>ARC 562 Building Systems I</td>
<td>ARC 563 Building Systems II</td>
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<tr>
<td>Architecture Elective</td>
<td>ARC 622 Seminar on Housing</td>
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<th>Fall Semester V</th>
<th>Spring Semester VI</th>
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<td>ARC 608 Architecture Design</td>
<td>ARC 609 Architecture Design</td>
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<tr>
<td>History of Architecture Elective</td>
<td>ARC 652 Management of Professional Practice</td>
</tr>
<tr>
<td>Architecture Electives - 2 courses</td>
<td>ARC699 Pre-Thesis</td>
</tr>
<tr>
<td></td>
<td>Architecture Elective</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fall Semester VII</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ARC 610 Architecture Design Degree Project</td>
<td></td>
</tr>
<tr>
<td>Architecture Electives - 3 courses</td>
<td></td>
</tr>
</tbody>
</table>

Curriculum notes: this program assumes that the student has completed college level mathematics and physics.

**Master of Architecture: Professional Degree**  
**Advanced Standing Track - For students with non-professional degrees in architecture**

<table>
<thead>
<tr>
<th>Fall Semester I</th>
<th>Spring Semester II</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARC 607 Architecture Design</td>
<td>ARC 608 Architecture Design</td>
</tr>
<tr>
<td>Professional Requirements and Electives</td>
<td>Professional Requirement and Electives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fall Semester III</th>
<th>Spring Semester IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARC 609 Architecture Design</td>
<td>ARC 610 Architecture Design</td>
</tr>
<tr>
<td>Architecture Electives - 3 courses</td>
<td>Degree Project</td>
</tr>
<tr>
<td></td>
<td>Architecture Electives - 3 courses</td>
</tr>
</tbody>
</table>

Architecture and professional courses completed in a pre-professional bachelor’s degree program will be evaluated to identify courses that may be waived in the Master of Architecture Professional Degree Program.

A maximum of 54 credits, including three design studios, may be waived; generally architecture and professional courses with a grade of B- or higher will be accepted. Requirements for the degree will be contingent on the evaluation of the student’s prior work.
Master of Architecture: Suburb and Town Design
Post-professional Degree

<table>
<thead>
<tr>
<th>Fall Semester I</th>
<th>Spring Semester II</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARC 601 Town Design</td>
<td>ARC 602 Housing Design</td>
</tr>
<tr>
<td>ARC 621 Seminar on Town Design</td>
<td>ARC 622 Seminar on Housing</td>
</tr>
<tr>
<td>Architecture Elective</td>
<td>Architecture Elective</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Summer Semester III</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARC 603 Redesign of Suburbia</td>
</tr>
<tr>
<td>ARC 623 Seminar on Redesigning Suburbia</td>
</tr>
</tbody>
</table>

Master in Real Estate Development and Urbanism

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Winter Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED 601</td>
<td>RED 640</td>
</tr>
<tr>
<td>Introduction</td>
<td>National</td>
</tr>
<tr>
<td>to Real Estate</td>
<td>Charrette</td>
</tr>
<tr>
<td>Development</td>
<td>Institute</td>
</tr>
<tr>
<td>&amp; Urbanism</td>
<td></td>
</tr>
</tbody>
</table>

| RED 610       |               |
| Financing     |               |
| Urban Real    |               |
| Estate        |               |
| Development   |               |

| RED 620       |               |
| Real Estate   |               |
| Law           |               |

| RED 630       |               |
| Market Analysis for Urban Real Estate |               |

| ARC 590       |               |
| History of Cities |               |

<table>
<thead>
<tr>
<th>Spring Semester</th>
<th>Summer Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED 650</td>
<td>RED 690</td>
</tr>
<tr>
<td>Complex Urban</td>
<td>Integrated</td>
</tr>
<tr>
<td>Real Estate</td>
<td>Real Estate</td>
</tr>
<tr>
<td>Transactions</td>
<td>Development</td>
</tr>
<tr>
<td>RED 660</td>
<td>Case Studies</td>
</tr>
<tr>
<td>Urban Infill,</td>
<td>Practicum</td>
</tr>
<tr>
<td>Preservation,</td>
<td></td>
</tr>
<tr>
<td>&amp; Redevelopment</td>
<td></td>
</tr>
<tr>
<td>RED 670</td>
<td>Capstone</td>
</tr>
<tr>
<td>Construction &amp;</td>
<td>Real Estate</td>
</tr>
<tr>
<td>Project</td>
<td>Development</td>
</tr>
<tr>
<td>Management</td>
<td>&amp; Urbanism</td>
</tr>
<tr>
<td>RED 680</td>
<td>Charrette</td>
</tr>
<tr>
<td>Entrepreneurship:</td>
<td></td>
</tr>
<tr>
<td>Building a Real</td>
<td></td>
</tr>
<tr>
<td>Estate</td>
<td>Development</td>
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<tr>
<td>Development</td>
<td>Company</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
</tr>
</tbody>
</table>

Master of Architecture: Research
Post Professional Degree
An individual curriculum is developed for each student in consultations with the research program faculty and the director of graduate studies.


AWARDS AND SCHOLARSHIPS

American Institute of Architects Henry Adams Medal awarded by the American Institute of Architects to the highest ranking graduating student for scholarship and excellence in architecture.

American Institute of Architects Henry Adams Certificate awarded to the second highest ranking graduating student for scholarship and excellence in architecture.
Other honors, distinctions, and awards are presented annually for excellent student performance.

Architecture Course Listing
COLLEGE OF ARTS AND SCIENCES – GRADUATE
www.as.miami.edu

DEPARTMENTS
Art and Art History
Biology
Chemistry
Computer Science
Creative Writing
English
Geography and Regional Studies
Geological Sciences (Master’s degree available from RSMAS)
History
International Studies
Latin American Studies
Liberal Studies
Mathematics
Philosophy
Physics
Political Science
Psychology
Sociology

ADMISSION REQUIREMENTS

Please consult the general section of the Graduate Bulletin for the Graduate School admission requirements, and the specific program description for additional department specific admission requirements.

DEGREE PROGRAMS

Master of Arts
Master of Fine Arts
Master of Public Administration
Master of Science
Doctor of Philosophy

DEGREE REQUIREMENTS

Please consult the specific department section for information related to degree requirements in addition to general degree requirements for the various degrees as listed by the Graduate School.
OTHER

The Max and Peggy Kriloff Fund is a fund that provides travel support for students earning degrees from the College of Arts and Sciences. The fund provides support for students to present papers, or posters at professional conferences worldwide. Students will need to fill out an application form available in Ashe 200 and submit it, along with the necessary supporting documentation to the Office of Graduate and Administrative Services in the Ashe Building.
ANTHROPOLOGY - Dept. Code: APY

The Department of Anthropology does not have a graduate program. The courses may be taken for graduate credit with the consent of the major department.

Anthropology Course Listing

ART AND ART HISTORY - Dept. Codes: ART, ARH
www.as.miami.edu/art

DEGREE PROGRAMS

Two programs serve the needs of graduate students in Art and Art History.

Master of Fine Arts program in the studio areas of
- Painting
- Sculpture
- Graphic Design/Multimedia
- Ceramics/Glass
- Printmaking
- Photography/Digital Imaging

Master of Arts program in Art History

MASTER OF ARTS

The M.A. degree is designed for students in art history who plan academic, museum or gallery careers. It entails a minimum of 36 credits in art history and related courses, including six credits of thesis. M.A. students must pass a slide examination and a comprehensive examination. Reading knowledge of a foreign language appropriate to the study of Art History (e.g. French, German, Italian, Spanish) is required.

REQUIREMENTS FOR THE MASTER OF ARTS DEGREE IN ART HISTORY ARE:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art History at 500 level or above</td>
<td>21</td>
</tr>
<tr>
<td>Electives not restricted to courses in Art</td>
<td>9</td>
</tr>
<tr>
<td>Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

Admission to the Master of Arts program requires a minimum of eighteen semester hours of undergraduate study in Art History.

Applicants for admission are required to submit an example of an art history research paper they have done in addition to the general requirements of transcripts, GRE scores and letters of recommendation. It is highly recommended that applicants have reading knowledge of a foreign language (e.g., French, German, Italian, Spanish).

A maximum of six semester hours of graduate credit may be transferred from another institution, providing that the credits have been taken within six years prior to matriculation at the University of Miami and have been passed with a grade of B or higher.
Applicants for admission to the Master of Arts program are responsible for the submission of the following materials to the Graduate Secretary in Art and Art History:
All transcripts of college-level academic work;
GRE scores (and TOEFL score for foreign students);
A research paper from an undergraduate art history course;
Three letters of recommendation;
Application form.

Applicants for the M.A. degree are considered in the Spring and Fall. The deadlines for applying are February 15 for Fall admission and September 15 for Spring admission.

FINANCIAL AID: Graduate Teaching Assistantships and tuition waivers are awarded by the department in both studio areas and Art History.

The G.R.E. is required for the M.A., but not for the M.F.A. degree.

All M.F.A. and M.A. students with Teaching Assistantships must contribute to the teaching program as an essential part of their responsibilities.

**MASTER OF FINE ARTS**

The Master of Fine Arts degree is the terminal degree for students interested in the creation of art who plan to pursue careers as practicing artists/teachers.

The students will take a minimum requirement of 60 credit hours in approved graduate courses.

Teaching assistants can opt to take 10 credits each semester, or will take 9 credits each semester the first year, 12 credits each semester the second year, and 9 credits each semester the third year.

A Supervisory Committee will be assigned when the student is formally admitted to the program.

It will be comprised of at least four members.
The Supervisory Committee chair will be from the student’s area of concentration and a member of the graduate faculty.
The head of the Supervisory Committee will select the membership of the Committee after conferring with the student.
The Supervisory Committee will formally review the student’s progress; the student may be put on probation at the end of any semester, and given one semester to improve or be removed from the program.

Application for candidacy may be made any time after the completion of 30 credits, but must be attained prior to registration for the final semester.

The Supervisory Committee will determine whether the student should be admitted to candidacy.
When the student is admitted to candidacy, a Thesis Committee is formed with at least four members, who need not be the same as the Supervisory Committee.
The Chair should be from the student’s area of concentration and a member of the graduate faculty.

Two others should be department faculty, and the fourth person must be from outside the studio faculty.

This committee will consult with and advise the student on his or her work, meet twice a semester to review progress, read and comment on the thesis document, and conduct a final oral exam during the thesis exhibition.

The thesis exhibition will be scheduled after the successful completion of ART 599; the show will be installed after the candidate has submitted an accepted thesis document. All incompletes must be cleared before the exhibition can be scheduled.

No student gains the right to be recommended for the degree simply by completing requirements. This right is reserved to the student’s Thesis Committee in coordination with the Graduate Program Director.

**REQUIREMENTS FOR THE MASTER OF FINE ARTS DEGREE IN STUDIO:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARH 598, ART 604, ART 681 (3 seminars);</td>
<td>9 credits</td>
</tr>
<tr>
<td>Area of studio concentration;</td>
<td>24 credits</td>
</tr>
<tr>
<td>Art History at 500 or 600 level</td>
<td>6 credits</td>
</tr>
<tr>
<td>Electives, not restricted to courses in Art or Art History;</td>
<td>12 credits</td>
</tr>
<tr>
<td>ART 599 Exhibition Preparation</td>
<td>3 credits</td>
</tr>
<tr>
<td>Thesis, consisting of a body of studio work accompanied by a written document.</td>
<td>6 credits</td>
</tr>
</tbody>
</table>

Applicants for admission to the Master of Fine Arts program are responsible for the submission of the following materials to the Graduate Secretary in Art and Art History:

1. All transcripts of college-level academic work;
2. 20 slides of studio work; OR 20 images on a CD/DVD
3. Three letters of recommendation;
4. Application form.

Applicants for MFA degrees are considered in the Spring and Fall. February 15 is the postmark deadline for Fall admission and September 15 is the postmark deadline for the Spring admission. Teaching Assistantships are available only with Fall admission. The deadline for international applications for the following Fall semester is January 15.
BIOLOGY - Dept. Code: BIL
www.bio.miami.edu

DEGREE PROGRAMS

APPLICATION FOR ADMISSION

Applications are due January 1.
In applying for admission, applicants must select either the Master's or the Ph.D. track.

Students with an appropriate B.S. degree may seek direct entry to either M.S. track or Ph.D. track.

Applicants who were admitted on the Master's track, but wish to change to a Ph.D. track without completing the Master's may apply for admission to the Ph.D. program before the end of their second semester. Letters of support from three U of M Biology faculty, including a major advisor, should be added to the applicant's file. The file must be current. Such applicants will be judged by the same criteria that are applied to other Ph.D. applicants.

Applicants to the Ph.D. track who were admitted on the Master's track and wish to complete the M.S. degree, should follow the same procedures as all other applicants, but they must include letters of support from three U of M Biology faculty. Such applicants will be judged by the same criteria that are applied to other Ph.D. applicants.

Applicants must send the following to the Director of Graduate Studies in Biology:

A. completed application form.

B. all undergraduate and graduate official transcripts (photocopies are not accepted).

C. official scores from recent Graduate Record Examinations (within five years), including the aptitude portion; the Biology subject matter test is also recommended (photocopies of scores are not accepted).

D. international applicants whose native language is not English must additionally submit the TOEFL (Test of English as a Foreign Language) and the TSE (Test of Spoken English) official scores (photocopies of scores are not accepted).

E. letters of recommendation, from three science instructors/ supervisors that address: nature and duration of relationship to applicant; motivation; ability to conceptualize and deal quantitatively with biological problems, and research potential.

F. cover letter that identifies interests, suggests possible research projects and states career goals.

G. copies of any research papers (e.g., publications, manuscripts, senior reports, etc.).

H. written confirmation of a faculty sponsor; applicants MUST secure the sponsorship of a faculty member as a condition for admission; the research interests of the applicant and the faculty sponsor should be well-matched; the sponsor will be the major advisor.

I. application fee of $65.
A limited number of applicants to the Ph.D. program may be invited to interview at departmental expense.

*Materials submitted in support of an application cannot be released for other purposes or returned to the applicant.*

**DEGREE REQUIREMENTS**

All students are required to satisfy the general requirements for the appropriate degree that are listed in the Graduate Studies Bulletin, whether or not they are listed among the Biology requirements.

**MASTER OF SCIENCE** - This degree may be attained by either of the two following routes.

**A. M.S. with thesis (a three year program)**

1. Credits: a total of 30 credits are required:
   - 24 course credits, including the two semester departmental core courses for graduate students and at least one graduate course in statistics. Students are encouraged to take courses from more than one area; they are encouraged to select courses and independent studies that will prepare them for research, as listed under the Ph.D. requirements. No more than 9 credits from the independent study series (BIL 671-675) may be used to fulfill the 24 course credits. At times these course numbers are used by professors to teach a new course or a special topics course, in which case the corresponding credits can be counted as a non-independent study credit. Course selection requires committee approval.
   - 6 research credits (BIL 710); no more than 6 M.S. research credits are allowed.
   - The minimum acceptable grade average in all coursework towards the degree is a "B (3.0)" and no grade may be below a "C."

2. Research Proposal: public presentation and successful defense to the committee of a written research proposal.

3. Admission to candidacy is made by recommendation of the committee.

4. Thesis: A well-written and successfully defended thesis of publishable quality; a defense is successful if all members of the committee sign the grad school form and the signature page of the dissertation.

5. Other requirements described under "The Master's Degree," including but not limited to:
   - a total of at least 30 credits (course credits plus research credits). The Graduate School and the Department concur in requiring at least 24 course credits and exactly 6 research credits (BIL 710) for a thesis M.S.);
   - once a student has completed all required credits, she/he must enroll in "Research in Residence" (BIL 720) status until the degree is granted. This course carries 0 credits, but is considered full-time enrollment. Even though no credit is earned, a tuition charge equivalent to 1 course credit normally applies to this course.

6. About the committee:
A single committee will combine the responsibilities of the supervisory and thesis committees.

The supervisory committee will be determined by the student in consultation with his or her advisor. The committee will consist of a minimum of three faculty, one of whom must be from outside the department, and one of whom must be a member of the graduate faculty. There is no sub-disciplinary representation requirement.

The thesis committee is formed officially when the student is admitted to candidacy. It may be comprised of the same individuals as are on the supervisory committee, or it may be formed anew. The student in consultation with the advisor suggests the membership of the committee to the graduate school. The committee will consist of a minimum of three faculty, one of whom must be from outside the department, and one of whom must be a member of the graduate faculty. There is no sub-disciplinary representation requirement.

The thesis committee is nominated by the department, but it must be approved and appointed by the Dean of the Graduate School. There is a special form that must be filed with the graduate school.

Committee meetings are required at least once a year (recommended at least once a semester); the student is responsible for arranging meetings; the student should consult with the committee about major changes in research goals and about problems. Memos summarizing each meeting should be in the student’s file.

7. About the time table:

- A written thesis proposal is due no later than the middle of the second semester. Please take note of this deadline. The scope of the M.S. thesis should be in line with the time table.
- Admission to candidacy normally occurs after completion of one year or 12 credits of graduate work and successful defense of the thesis proposal.
- Analysis of data and a polished draft of the thesis should be completed and in the hands of the committee by the middle of the sixth semester. Please take note of this deadline. The scope of the M.S. thesis should be in line with the time table.
- Defense of the thesis and its submission to the Graduate School must meet or precede the deadline for graduation immediately following the sixth semester unless an extension has been approved by GAAC upon recommendation of the thesis committee. Notice of the defense must be submitted on a special form to the graduate school in advance of the defense and must be posted publicly in the department.
- The oral defense of the thesis must be given during regular sessions of the Fall or Spring semesters, not during summer sessions, intersessions, reading days or finals weeks.
- No student may receive the degree in the same semester in which she/he is admitted to candidacy.
- The indicated dates form firm deadlines. A student's committee, however, may submit a written petition to GAAC for an extension of time detailing reasons for the request. An extension will only be granted under extraordinary circumstances and will be effective upon written approval by GAAC.
- Proposals to change the schedule for any reason should be preceded by a study of the graduate bulletin sections on leaves of absence, full time student status and recency of credit and explicitly address how the proposed change of schedule relates to these matters. The memo requesting the change should also address the proposed financial support.
B. M. S. without thesis (a two year program)

1. Credits:

- A total of 36 course credits are required by the Biology Department, including the two semester departmental core courses for graduate students and at least one graduate course in statistics. Students are encouraged to take courses from more than one core area, listed under the Ph.D. requirements. No more than 9 credits from the independent study series (BIL 671-675) may be used to fulfill the 36 course credits. At times these course numbers are used by professors to teach a new course or a special topics course, in which case the corresponding credits can be counted as a non-independent study credit. Course selection requires committee approval.
- The minimum acceptable grade average in all coursework towards the degree is a "B (3.0)" and no grade may be below a "C."

2. Admission to candidacy.

3. Passing a written comprehensive exam given by the committee.

4. About the committee

- A single committee will combine the responsibilities of the initial supervisory and the comprehensive examination committees. The committee will be determined by the student in consultation with her/his advisor. The committee will consist of a minimum of three faculty, one of whom must be from outside the department, and one of whom must be a member of the graduate faculty. There is no sub-disciplinary representation requirement.
- The examination committee is formed officially when the student is admitted to candidacy. It may be comprised of the same individuals as are on the supervisory committee, or it may be formed anew. The student in consultation with the advisor suggests the membership of the committee to the graduate school. The committee will consist of a minimum of three faculty including the student’s advisor, one of whom must be from outside the department, and one of whom must be a member of the graduate faculty. There is no sub-disciplinary representation requirement.
- The examination committee is nominated by the department, but it must be approved and appointed by the Dean of the Graduate School. There is a special form that must be filed with the graduate school.
- Committee meetings are required at least once a year (recommended at least once a semester); the student is responsible for arranging meetings; the student should keep the committee advised of major changes in the graduate program plan; memos summarizing each meeting should be in the student’s file.

5. Other requirements described under "The Master's Degree," including but not limited to:

Note that although the Graduate School requires only 30 credits for an M.S. degree, the Department requires 36 course credits for a non-thesis M.S.

6. About the time table:

- **Admission to candidacy** normally occurs after completion of one year or 12 credits of graduate work.
• The comprehensive exam must be passed by the end of the fourth semester.
• No student may receive the degree in the same semester in which she/he is admitted to candidacy.
• The indicated dates form firm deadlines. A student's committee, however, may submit a written petition to GAAC for an extension of time detailing reasons for the request. An extension will only be granted under extraordinary circumstances and will be effective upon written approval by GAAC.
• Proposals to change the schedule for any reason should be preceded by a study of the graduate bulletin sections on leaves of absence, full time student status and recency of credit and explicitly address how the proposed change of schedule relates to these matters. The memo requesting the change should also address the proposed financial support.

C. DOCTOR OF PHILOSOPHY

1. Credits: a total of 60 credits (including both course and research credits) beyond the Bachelor’s degree are required:
   • At least 18 course credits that are not from the independent study series, including the two semester departmental core courses for graduate students and at least one graduate course in statistics. The independent study series is BIL 671-675. However, at times these course numbers are used by professors to teach a new course or a special topics course, in which case the corresponding credits can be counted as a non-independent study credit. Course selection requires committee approval.
   • At least 12 research credits (BIL 730 and/or BIL 740). There is no cap on the number of Ph.D. research credits, but once the overall number of required credits (see below) has been reached, there is no need to take additional research credits.
   • An additional 30 credits from any combination of graduate courses (500 and 600 level regular courses and independent study courses) and research credits (700 level) to bring the total number of credits beyond the Bachelor's Degree to 60 credits. (One example: 18 required course credits + 12 required research credits + 15 additional course credits + 15 additional research credits = 60 total; another example would be 18 additional course credits and only 12 additional dissertation credits, etc.)
   • Students who already have a Master’s Degree in the same field may not need as many course credits (consult Graduate School rules on transfer credits), but at least 24 credits must be taken in residence at UM.
   • The committee may decide that students with previous graduate level courses may be exempt from some of the course requirements.
   • The minimum acceptable grade average in all coursework towards the degree is a "B (3.0)" and no grade may be below a "C."
   • CONCEPTUAL AREAS: Students are encouraged to take courses and independent studies from at least 3 main conceptual areas and urged to take courses and independent studies that will prepare them for research and for the comprehensive qualifying exam. Students are also encouraged to participate in seminars and study groups. They are also encouraged to take special courses in other departments of UM, at our Coalition for Excellence in Tropical Biology partner institutions, from the Organization for Tropical Studies, or other special interdisciplinary courses. Such courses should be appropriate to their course of study and research area as determined by their committees. Conceptual areas offered in our department include: EVOLUTION (graduate level evolution courses are in the series 520’s or 620’s, also 519 is included); ECOLOGY (graduate level ecology courses are in the series 530’s or 630’s), BEHAVIOR (graduate level behavior courses are in the series 540’s or 640’s); GENETICS AND MOLECULAR BIOLOGY (graduate level genetics
courses include BMB 509, and BIL 530 in addition the series 550’s or 650’s); and PHYSIOLOGY AND CELL BIOLOGY (graduate level physiology courses are in the series 560’s or 660’s). Special concentrations in our department and/or in collaboration with other departments include: Tropical Biology, Mathematical Ecology, Neuroscience and Behavior.

2. Comprehensive qualifying exam should be passed by the end of the third semester.
   - A single committee (see number 9 below about the committee membership) will advise the student on both comprehensive and research training. To fulfill the **comprehensive function**, the committee will be responsible for ensuring breadth, significant background and depth in at least 3 conceptual areas (examples include but are not limited to the areas listed above).
   - To establish intellectual communication between the committee members and students early on, the committee will begin to work with the student in the first semester. Faculty will suggest reading lists, courses and/or independent study, as needed, to prepare the student with sufficient background for the comprehensive examination which will include 3 areas, one of which is the research area. The committee and student will interactively define the scope of comprehensive training and thus of the comprehensive examination in these 3 areas.
   - The comprehensive examination will be held in the third semester. The committee will designate a chair to administer the examination. The written part of the exam will not be open book and it will be administered on campus for a discrete period of time (up to 4 hours within each of two consecutive days) by the examination chair. All members of the committee will grade all the questions. There will be an oral exam about one week later, after the committee has read the written answers, for the purpose of further exploring the student’s grasp of the subject matter.
   - Each committee member will decide on a pass/fail grade based on the total picture (written plus oral). For the student to pass the examination, 3 of the 4 examiners must vote a grade of pass. An oral and written summary of the committee’s evaluation must be prepared by the chair of the **examination committee** and given to the student and to GAAC. If the student does not pass the examination, there will be a chance to retake it the following semester. In the case of failure a second time, he/she will be terminated from the program.

3. Research proposal: public presentation of a research proposal and defense of a written research proposal to the complete research committee (see below) should be completed by the middle of the fourth semester. Students are encouraged to follow the format of a grant proposal to a major funding agency. At the proposal defense, the student will receive either a pass or a fail. A grade of pass will be recorded if no more than one member of the complete research committee (see below) votes to fail the student. If the student fails the proposal defense, she/he will be given a **second chance** to defend no later than the sixth week of the fifth semester. If the defense is failed a second time, the student will be terminated from the program.

4. Admission to candidacy: (application is made on a form available in the grad school and in the department). This normally will occur at the end of the fourth semester. Requirements are passing the comprehensive examination and successfully defending a written research proposal.

5. Teaching: All students on the Ph.D. track in Biology are required to serve satisfactorily at least one semester as a teaching assistant in one of the courses offered as part of the Department's training program.
6. Grants: Submission of a grant proposal to a major funding agency (e.g., NSF, NIH, National Geographic, World Wildlife Fund, etc.). All students are required to seek outside funding for their research. This must be a research project proposal. Application for an NSF pre-doctoral fellowship does not meet this requirement, but application for an NSF dissertation improvement grant does qualify.

7. Ph.D. Dissertation: A well-written and successfully defended dissertation containing an original contribution to the field and of quality appropriate for publication in a scientific journal; a defense is successful if all members of the committee sign the grad school form and the signature page of the dissertation. A public dissertation seminar is also made at the time of the defense.

8. Other requirements described under "Doctor of Philosophy," including but not limited to:
   - a total of at least 60 credits (course credits plus research credits).
   - once a student has completed all required credits, she/he must enroll in "Research in Residence" (BIL 750) status until the degree is granted. This course carries 0 credits, but is considered full-time enrollment. Even though no credit is earned, a tuition charge equivalent to 1 course credit normally applies to this course.

9. A single committee will advise the student on both comprehensive and research training. The committee will be responsible for ensuring breadth, significant background and depth in at least 3 conceptual areas (examples include but are not limited to the areas listed above). The research function of the committee is to advise the student on research, including preparation, training, project choice, project design, implementation and evaluation of the research. The committee will go through several phases and its membership will be determined by the advisor and student together, contingent upon approval of GAAC and/or the Graduate School, as appropriate at each phase:
   - The **initial committee** will consist of at least 4 faculty, 2 appointed to ensure breadth of training (from two areas outside the research area) and 2 from the research area. It will be formed to help the student choose courses during the first few weeks of the first semester. This committee will decide whether students having a M.S. in biology (botany, zoology, etc.) from another institution can substitute a graduate level course taken elsewhere for a departmental course requirement; it will also decide which additional courses should be taken for both research and breadth. The choice of areas will be briefly outlined in a memo to GAAC.
   - The **initial committee of at least 4 faculty** will be responsible for preparing and administering the comprehensive examination.
   - The **complete committee of at least 4 faculty** including one from outside the department, should be formed by the end of the third semester; all four members should participate in the proposal evaluation which will take place in the fourth semester. The committee will consist of a minimum of four faculty, which includes the committee chair, who must be a member of the Graduate Faculty. Of the remaining members, it is also required that two shall be from the Graduate Faculty.
   - The **dissertation committee (of four)** is formed officially when the student is admitted to candidacy. It will usually be comprised of the same individuals as are on the complete research committee, or it may be formed anew. The student and advisor consult on the membership of the committee, and the department nominates the committee to the graduate school. The committee will consist of a minimum of four faculty, which includes the committee chair who is the advisor, who must be a member of the Graduate Faculty. Of the remaining members, it is also required that two shall be from the Graduate Faculty and one from outside the department of concentration. The dissertation committee is nominated by the department, but it must be approved and appointed by the Dean of the Graduate School. There is a special form that must be filed with the graduate school.
Committee meetings are **required at least once a year** (recommended at least once a semester in the early phases). The student is responsible for arranging meetings; the student should consult with the committee about any major changes in research goals and any problems; memos summarizing each meeting should be in the student’s file.

10. About the time table:

- The written **comprehensive qualifying examination** must be passed by the **end of the third semester**.
- A polished, written **dissertation proposal** must be **defended to the committee in the fourth semester** together with a **public presentation of the proposal**. This must take place by mid-April of the spring semester or mid-November of the fall semester.
- **Admission to candidacy** normally occurs after the comprehensive qualifying exam and proposal defense are passed upon the recommendation of the committee and the approval of the Graduate School. Application for admission to candidacy is made to the graduate school on a special form.
- Analysis of data and a **polished draft of dissertation** should be completed and in the hands of the dissertation committee **no later than the middle of the tenth semester**.
- **Defense of the dissertation and its submission to the Graduate School** must meet or precede the deadline for graduation immediately following the **tenth semester** unless an extension has been approved by GAAC upon recommendation of the dissertation committee. Notice of the defense and of the public seminar must be submitted on a special form to the graduate school in advance of the defense and must be posted publicly in the department.
- The oral **defense of the dissertation** must be given during **regular sessions** of the Fall or Spring semesters, not during summer sessions, intersessions, reading days or finals weeks.
- **No student may receive the degree in the same semester in which she/he is admitted to candidacy.**
- The indicated dates form **firm deadlines**. A student's committee, however, may submit a written petition to GAAC for an extension of time detailing reasons for the request. **An extension will only be granted under extraordinary circumstances and will be effective upon written approval by GAAC.**
- Proposals to change the schedule for any reason should be preceded by a study of the **graduate bulletin** sections on **leaves of absence, full time student status** and **recency of credit** and explicitly address how the proposed change of schedule relates to these matters. The memo requesting the change should also address the **proposed financial support** of the student beyond the 10 semesters of normal departmental support.

11. Public presentations must be during regular semesters. The public presentation associated with the defense of the proposal and the public seminar associated with the defense of the dissertation must be given during regular sessions of Fall or Spring semesters, not during summer sessions, inter-sessions, reading days, or finals weeks.

**IMPLEMENTATION**

All Graduate students will be reviewed each fall semester by GAAC.

A. The advisor will review the student’s progress to date.
B. The student will provide updates for a student progress database every October.
C. The student will provide written evidence that the advisor and committee have reviewed her/his progress and plans.
D. Each student will receive a letter summarizing the results of the discussion concerning his/her progress.
E. All graduate students shall have the right to respond to GAAC, and, if necessary, the graduate faculty in matters pertaining to the review.
F. Possible outcomes of the review:
   1. Student making satisfactory progress
   2. Student not making satisfactory progress; recommendations for improvement
   3. Student not making satisfactory progress; his/her tenure terminated

FINANCIAL SUPPORT
A. The Department intends to support all doctoral students in good standing for up to 10 semesters. Support beyond 10 semesters is contingent upon GAAC approval.
B. Students who do not provide annual updates for the student progress database will not be eligible for continued funding. Students who will be off-campus are still responsible for making sure that GAAC receives the data.
C. Students holding full Maytag fellowships or research assistantships will not normally be given teaching assignments, nor will students be permitted to hold Maytag fellowships and research assistantships simultaneously. Exceptions require GAAC approval.

Biology Course Listing
Prospective graduate students are expected to have completed, during their undergraduate training:

The candidate must hold a B.S./B.A. degree from an accredited institution. Consideration is given to applicants who have successfully completed general chemistry (two semesters), organic chemistry (two semesters), physical chemistry (two semesters), and the related laboratories. A course in advanced inorganic chemistry is strongly recommended, and remedial work in this area may be required of students who have not taken such a course. The mathematics and physics courses that are normally included in a B.S. program in chemistry are also required.

Undergraduate deficiencies are treated as such and must be overcome during the first year of graduate study.

**M.S. Degree**

The MS degree requires a minimum of 30 credits. The department will cover tuition costs up to 30 credits for students on assistantships and fellowships. At least 18 credits must be formal lecture courses. The remaining 12 credits must be broken down as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Chemistry Seminar (CHM 679)</td>
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</tr>
<tr>
<td>Chemistry Seminar (CHM 680)</td>
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</tr>
<tr>
<td>Introduction to Research (CHM 685)</td>
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</tr>
<tr>
<td>Master's Thesis (CHM 710)</td>
<td>7</td>
</tr>
</tbody>
</table>

Students must take a minimum of 9 credits of formal lecture courses in the fall semester of their first year and a minimum 9 credits of formal lecture courses in the spring semester of their first year. Of the 18 credits, 3 core courses totaling 9 credits should be taken by all graduate students.

- The required number of credits in the chemistry seminars (CHM 679 and 680) and Introduction to Research (CHM 685) must be taken in the first and second year.
- The required number of credits in research (CHM 710) must be taken in the second year.
- A dissertation based on research of a quality acceptable for publication in a recognized scientific journal must be completed before the end of the second year.

The remaining courses may be selected from 600-level chemistry courses or 500- or 600-level courses in other departments.

The M.S. degree may be earned with or without a thesis. In order to complete a MS degree without thesis, an advanced comprehensive exam must be passed.

The exam is administered at the end of the second year in the program.
Ph. D. Degree

The general requirements for the doctorate in Chemistry are set forth in this Bulletin under the heading Doctor of Philosophy. The Department of Chemistry has the following specific requirements:

The PhD degree requires a minimum of 60 credits. The department will cover tuition costs up to 60 credits for students on assistantships and fellowships. At least 18 credits must be formal lecture courses. The remaining 42 credits could be broken down as follows:

<table>
<thead>
<tr>
<th>Courses</th>
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<tbody>
<tr>
<td>Chemistry Seminar (CHM 679)</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry Seminar (CHM 680)</td>
<td>2</td>
</tr>
<tr>
<td>Introduction to Research (CHM 685)</td>
<td>2</td>
</tr>
<tr>
<td>Problems in Research Planning (CHM 688)</td>
<td>2</td>
</tr>
<tr>
<td>Pre-candidacy Doctoral Dissertation (CHM 730)</td>
<td>28</td>
</tr>
<tr>
<td>Post-candidacy Doctoral Dissertation (CHM 740)</td>
<td>4</td>
</tr>
</tbody>
</table>

Students must take a minimum of 9 credits of formal lecture courses in the fall semester of their first year and a minimum 9 credits of formal lecture courses in the spring semester of their first year. Of the 18 credits, 3 core courses totaling 9 credits should be taken by all graduate students.

- The required number of credits in the chemistry seminar (CHM 679) must be taken in the first and second year.
- The required number of credits in Introduction to Research (CHM 685) must be taken in the first year.
- The required number of credits in the chemistry seminar (CHM 680) must be taken in the second and fourth year.
- The required number of credits in Pre-candidacy Doctoral Dissertation (CHM 730) must be taken in the first, second, third and fourth year.
- The required number of credits in Post-candidacy Doctoral Dissertation (CHM 740) must be taken in the fourth year.

Four Cumulative Examinations must be passed before the end of the first year.

- An Oral Comprehensive Exam must be passed before the end of the second year.
- An original research proposal in Problems in Research Planning (CHM 688) must be presented and defended before the end of the third year.
- A dissertation based on research of a quality acceptable for publication in a recognized scientific journal must be completed before the end of the fifth year.

Chemistry Course Listing
COMPUTER SCIENCE

DEPT. CODE: CSC

www.cs.miami.edu

DEGREE PROGRAMS

The department of Computer Science offers a Master of Science in Computer Science and a Doctor of Philosophy in Computer Science.

MASTER OF SCIENCE IN COMPUTER SCIENCE

The Master of Science program in Computer Science is overseen by the Computer Science Graduate Committee (CSGC). The basic guidelines for approval of a student's program are recommendations appearing in the Communications of the Association for Computing Machinery (ACM), the professional society in Computer Science.

Prerequisites

Completion of the following courses, or their equivalents, is prerequisite to entry into the program: CSC 120, CSC 220, CSC 314, CSC 517, CSC 527, MTH 111, MTH 224, and MTH 309. Students may be admitted with deficiencies; these must be completed in addition to the degree requirements.

Requirements

Students must complete either the thesis option or the coursework option.

1. Thesis option:
   - CSC 710 – Master's Thesis (6 credits) and coursework, one of:
     - 12 credits from CSC 6XX courses and 15 credits from other approved courses.
     - 9-11 credits from CSC 6XX courses and 19-21 credits from other approved courses.

2. Coursework option:

   36 credits of approved courses, including, at least 18 credits from CSC 6XX courses. At least 18 credits, exclusive of the thesis credits, must be earned in courses offered by the Department of Computer Science.

   Each program must include both theoretical and experimental topics, and may not include more than 3 credits from CSC 670.

Recommended subjects include:

Operating Systems, Programming Languages, Analysis of Algorithms, Theory of Computation, and Computer Architecture or Software Development. The approval is made by the CSGC and the Department Chairman or designate. Programs may thus be individually tailored to meet varied backgrounds and objectives. It is recognized that there are still individuals with undergraduate degrees in other fields wishing to pursue graduate work in Computer Science, and other individuals with work experience in the field wishing to advance their formal training in Computer Science.
DOCTOR OF PHILOSOPHY IN COMPUTER SCIENCE

The Doctor of Philosophy program in Computer Science is overseen by the Computer Science Graduate Committee (CSGC). The basic guidelines for approval of a student's program are recommendations appearing in the Communications of the Association for Computing Machinery (ACM), the professional society in Computer Science.

Prerequisites
In order to be admitted to the Ph.D. program in Computer Science, an applicant must have obtained a minimum of 15 credits in courses at sophomore level and above. These courses in the Department of Computer Science are numbered 200 and above. Applicants may be admitted with deficiencies; these must be completed in addition to the degree requirements.

Requirements

Written Qualifying Exam:
The student must pass a three-hour written exam of general knowledge of Computer Science at the end of the first year. Upon failure, the student may petition the CSGC to allow a second attempt at the end of the second year. The exam will be administered once a year in the early weeks of the summer session. It will cover expected knowledge of all first-year graduate students. Included in this material are a fundamental understanding of algorithm analysis and design, advanced skills in programming, basic knowledge of computer architecture, and a general understanding of computer systems.

Classroom Course Requirements:
In the first two years, the student must take eight CSGC-approved classroom courses, for a total of 24 credits. At least four of these courses (12 credits) must be open only to graduate students. These courses are numbered 600 and above. The eight courses must include two courses from each of the areas of Analysis, Applications, and Systems. The student should work with the Director of Graduate Studies to select a cohesive set of courses as approved by the CSGC. The CSGC will have sole authority in designating the areas to which each course belongs. In the case that a course is designated in more than one area, a student may apply the course to only one area. The designation of current CSGC-approved courses appears at the end of this description.

Project Course Requirements:
By the end of the second year the student must complete two graduate level project courses for a minimum total of 6 credits. Each project shall be under the supervision of a different faculty member in the Department. All Ph.D. students must find faculty willing to supervise their project in the semester preceding the project. The deadline for finding a supervisor shall be the first full week in April or November for the Fall and Spring terms, respectively. This deadline does not require identifying a specific project but only finding a faculty member willing to supervise a project. Upon completion of a project, the student must write a detailed project report. This report shall become a public document and shall be kept on file by the Department. The student must present the finished project to a quorum of the CSGC at a time to be approved by the chairman of the Department. The supervisor and CSGC must approve each project as applicable toward candidacy for a Ph.D. A primary factor in determining approval shall be the stated willingness of the supervisor to become an initial Ph.D. advisor for the student.
Annual Presentations:
After passing the written qualifying exam, the student must make a public oral presentation to the Department at least once per year. These presentations include the two project presentations, the thesis proposal, and the thesis defense. The goals are to develop the student’s oral and presentation skills, to provide a means for the Department to check the research and progress of the student, and to present the opportunity for feedback to improve the student’s research.

Teaching Experience:
Each student must teach a lab-based course for a minimum of one semester. Lab-based courses typically require the student to present material in a relaxed lecture format, re-emphasizing material learned in the general lecture as well as introducing new material to the students.

Approved Courses for Doctor of Philosophy

<table>
<thead>
<tr>
<th>Analysis</th>
<th>Applications</th>
<th>Systems</th>
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<tbody>
<tr>
<td>CSC 506 - Logic</td>
<td>CSC 523 - Database Systems</td>
<td>CSC 518 - Compiler Theory</td>
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<tr>
<td>CSC 517 - Data Structures and Algorithm Analysis</td>
<td>CSC 529 - Introduction to Computer Graphics</td>
<td>CSC 519 - Programming Languages</td>
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<td>CSC 545 - Introduction to Artificial Intelligence</td>
<td>CSC 521 - Principles of Computer Operating Systems</td>
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<td>CSC 555 - Multimedia Systems</td>
<td>CSC 523 - Database Systems</td>
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<td>CSC 548 - Bioinformatics Algorithms</td>
<td>CSC 524 - Networks and Information Security</td>
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<td>CSC 545 - Introduction to Artificial Intelligence</td>
<td>CSC 555 - Multimedia Systems</td>
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<td>CSC 540 - Algorithm Design and Analysis</td>
<td>CSC 645 - Expert System Design</td>
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<td>CSC 550 - Logic Programming</td>
<td>CSC 646 - Neural Computing</td>
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<td>CSC 560 - Cryptography and Data Security</td>
<td>CSC 645 - Expert System Design</td>
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<td>CSC 611 - Theory of Computation</td>
<td>CSC 518 - Compiler Theory</td>
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<td>CSC 611 - Theory of Computation</td>
<td>CSC 519 - Programming Languages</td>
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<td>CSC 648 - Automated Reasoning</td>
<td>CSC 521 - Principles of Computer Operating Systems</td>
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<td>EEN 656 - Information Theory</td>
<td>EEN 534 - Computer Communication Networks</td>
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<td>MTH 509 - Discrete Mathematics II</td>
<td>MTH 614 - Advanced Computer Architecture</td>
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<td>MTH 520 - Numerical Analysis I</td>
<td>EEN 634 - Modeling and Analysis of Computer</td>
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<td>MTH 521 - Numerical Analysis II</td>
<td>EEN 634 - Modeling and Analysis of Computer</td>
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<td>MTH 528 - Combinatorics</td>
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<td>CSC 506</td>
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<td>CSC 529</td>
<td>Introduction to Computer Graphics</td>
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<td>CSC 531</td>
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<td>Topics in Computer Science</td>
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<td>CSC 606</td>
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<td>CSC 609</td>
<td>Data Security and Cryptography</td>
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<td>CSC 611</td>
<td>Theory of Computation</td>
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<td>CSC 612</td>
<td>Complexity Theory</td>
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<td>CSC 613</td>
<td>Computer System Performance Evaluation</td>
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<td>CIS 620</td>
<td>Information Systems Analysis and Design</td>
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<tr>
<td>CSC 623</td>
<td>Theory of Relational Databases</td>
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<td>CSC 624</td>
<td>Mobile Wireless Systems</td>
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<td>Parallel Algorithms</td>
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<td>CSC 644</td>
<td>Advanced Computer Modelling</td>
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<td>MTH 525</td>
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<td>MTH 621</td>
<td>Mathematical Statistics</td>
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<tr>
<td>MTH 638</td>
<td>Stochastic Processes</td>
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**Approved Graduate Courses**

- CSC 506 - Logic
- CSC 517 - Data Structures and Algorithm Analysis
- CSC 518 - Interpreters and Compiler Theory
- CSC 519 - Programming Languages
- CSC 521 - Principles of Computer Operating Systems
- CSC 523 - Database Systems
- CSC 524 - Computer Networks
- CSC 527 - Theory of Computing
- CSC 529 - Introduction to Computer Graphics
- CSC 531 - Introduction to Software Engineering
- CSC 540 - Algorithm Design and Analysis
- CSC 544 - Computer Modeling
- CSC 545 - Introduction to Artificial Intelligence
- CSC 548 - Bioinformatics Algorithms
- CSC 555 - Multimedia Systems
- CSC 595-599 - Topics in Computer Science
- CSC 606 - Logic Programming
- CSC 609 - Data Security and Cryptography
- CSC 611 - Theory of Computation
- CSC 612 - Complexity Theory
- CSC 613 - Computer System Performance Evaluation
- CIS 620 - Information Systems Analysis and Design
- CSC 623 - Theory of Relational Databases
- CSC 624 - Mobile Wireless Systems
- CSC 628 - Parallel Algorithms
- CSC 644 - Advanced Computer Modelling
- CSC 645 - Introduction to Expert Systems
- CSC 646 - Neural Computing
- MTH 509 - Discrete Mathematics II
- MTH 520 - Numerical Analysis I
- MTH 521 - Numerical Analysis II
- MTH 524 - Introduction to Probability Theory
- MTH 525 - Introduction to Mathematical Statistics
- MTH 528 - Combinatorics
- MTH 621 - Mathematical Probability
- MTH 638 - Stochastic Processes

[Computer Science Course Listing](#)
CREATIVE WRITING
www.as.miami.edu/english

DEGREE PROGRAMS

The Department of English offers a two-year program in fiction or poetry writing leading to the Master of Fine Arts degree. The program provides an opportunity for students of superior ability in imaginative writing to develop their skills and critical judgment through the practice of writing and the study of literature.

The creative writing program is a member of the Associated Writing Programs.

For further information, please consult the description of the M.F.A. in English.

ENGLISH - Dept. Code: ENG
www.as.miami.edu/english

DEGREE PROGRAMS

The Department of English offers programs leading to the degrees of M.A. and Ph.D. The Ph.D. program is an innovative scholarly course of study offering substantial work in all areas of English, American, and Transnational literature, including Anglo-Irish literature, with some opportunities for advanced work in comparative literature.

A. Master of Arts

1. Program of Study
A candidate must complete 36 credits at the 600-level in literature and literary theory. Six hours of graduate credit from related fields may be included with the consent of the Director of Graduate Studies.

2. Language Requirements
A reading knowledge of a foreign language is required.

B. Doctor of Philosophy

1. Courses
Ph.D. students must complete 54 credits (if entering with a B.A.) or 36 credits (if entering with an M.A.) of 600-level courses in literature and literary theory.

2. Language Requirements
A reading knowledge of two foreign languages is required.

3. Qualifying Examination
All Ph.D. students are required to pass a qualifying examination. Students may not take the qualifying examination until they have
- completed the required Ph.D. coursework,
- satisfied the foreign language requirement
- enrolled for English 697 (Readings for the Qualifying Examination).
4. Dissertation
Students may proceed with the dissertation after the dissertation committee has been appointed and the dissertation proposal has been accepted by the committee and approved by the department.
The dissertation itself must be an investigation of a substantial critical or scholarly topic. A final oral defense of the dissertation is required.
Further information on the department’s graduate programs is contained in the Guide for Graduate Students, available from the Department of English.

English Course Listing
GEOGRAPHY AND REGIONAL STUDIES - Dept. Code: GEG
www.as.miami.edu/geography

DEGREE PROGRAMS

The Department of Geography offers a graduate M.A. program. For more information, please contact Dr. Ira Sheskin at isheskin@miami.edu or visit the Geography Department’s web page at www.as.miami.edu/geography.

The following graduate level courses may be taken for graduate credit with the consent of the major department:
GEG 501, GEG 503, GEG 510, GEG 511, GEG 520, GEG 521, GEG 522, GEG 523, GEG 525, GEG 535, GEG 545, GEG 552, GEG 570, GEG 582, GEG 591, GEG 595, GEG 603, GEG 620, GEG 625, GEG 637, GEG 645, GEG 651, GEG 661, GEG 672, GEG 681, GEG 710, GEG 720, GEG 725

Geography and Regional Studies Course Listing
GEOLOGICAL SCIENCES - Dept. Code: GSC
www.as.miami.edu/geology

DEGREE PROGRAMS

A 5-year B.S./M.S. in Geological Sciences and Marine Geology allows qualified students to complete a master’s degree in one year of study beyond the B.S.

The B.S. degree in Geological Sciences is offered through the Department of Geological Sciences in the College of Arts and Sciences.

The Master of Science (M.S.) degree in Marine Geology and Geophysics is offered through the Division of Marine Geology and Geophysics in the Rosenstiel School of Marine and Atmospheric Science (RSMAS).

Undergraduate requirements are listed under the B.S. degree above.

By the spring of their Junior year students should have obtained a graduate faculty advisor, selected an approved topic for research, and begun work on their senior thesis as preparation for the M.S. In the senior year, students will increase their focus on graduate courses and work closely with their graduate faculty advisor.

Contact Dr. Harold Wanless at the departmental office (305-284-4253) for more information.

Geological Course Listing
HISTORY - Dept. Code:  HIS
www.as.miami.edu/history

DEGREE PROGRAMS

I. REQUIREMENTS FOR THE M.A. DEGREE IN HISTORY

A. Admissions

We are looking for applicants with a record of outstanding achievement and evidence of potential success in graduate studies, attributes which can be measured in various ways such as grades, recommendations, written work, and test scores. Students with a master’s degree from an accredited institution may apply for admission to the doctoral program. Students with a bachelor’s degree only and with very strong credentials may be admitted into the doctoral program. Applicants must meet the admissions requirements set by both the graduate school, which are listed in its materials, and the department of history.

Because one of the strengths of our program is a close working relationship between faculty members and students, we cannot always accept qualified applicants when no one in the department can provide the guidance they need in their area of interest. Applicants should explore the listing of faculty on our website and contact the DGS or relevant faculty members if they have any questions.

The complete application contains:

1) A completed application form.

2) A completed financial aid application, if seeking aid.

3) Three letters of recommendation, preferably from applicant’s former professors.

4) Recent Graduate Record Examination scores on the General Test.

5) TOEFL scores (for international students).

6) Official transcripts.

7) A detailed statement from the student indicating:
   (a) the student’s background and education;
   (b) the student’s interests (field, topic, etc.);
   (c) why the student wants to pursue a graduate degree in history at the University of Miami;
   (d) what the student plans to do with the degree upon completion. This statement constitutes a very important part of the application review process and should indicate the student’s understanding of the professional nature of the training that the student is about to begin.

8) A representative writing sample.

Deadlines

January 20: Applications for admission and aid for Fall semester.
B. Committee

Upon admission to the masters program in history, the student is assigned a provisional major advisor. An advisory committee of three, including the major advisor and a faculty member representing the student's secondary field, must be formed no later than the student's second semester in the program. There are then two options for completing the masters. One requires 27 hours of coursework and an exam. The other requires 21 hours of coursework, a master's thesis (6 thesis credits), and an exam. In the case of both options, one member of the committee may be from a cognate discipline, but this is not required. It is the responsibility of the student and the advisor to form the committee and to notify the DGS of its composition. The major advisor chairs the advisory committee and oversees the student's course of study and progress in the program. The advisory committee also administers the oral comprehensive exam that is given in the case of either option. In the case of the second (thesis) option, the advisory committee and the thesis committee are usually, but not necessarily, composed of the same faculty members.

C. Requirements

27 credits at the 500 level or above, of which at least 18 must be at the 600 level or above.

Passage of an oral exam in two fields.

Completion of History 695 (Historiography). This course is normally given in the fall semester. All students are required to take the Historiography course in their first year.

Students may, if they wish, write an M.A. thesis. Students who elect this option should consult with their advisor. Any student writing a thesis should register for 6 credits of History 710, which count toward the 27 required credits.

Language Requirements: Students must demonstrate a reading knowledge in at least one foreign language. Reading knowledge in additional languages may be required by the major advisor.

See under Ph.D. requirements for more information on fulfilling language requirements.

The student must apply for graduation in his or her penultimate semester (i.e. fall semester for spring semester).

The comprehensive examination for the M.A. degree in history is an oral examination in two fields that will normally not exceed two hours. Though the exam is in two fields, all members of the advisory committee will participate. Students selecting the thesis examination should expect questioning on the thesis as well as their fields during the examination. For such students the comprehensive will also act as a thesis defense.

D. Fields

See H under Requirements for the Ph.D.
II. REQUIREMENTS FOR THE PH.D. DEGREE IN HISTORY

A. Admissions
We are looking for applicants with a record of outstanding academic achievement and evidence of potential success in graduate studies, attributes which can be measured in various ways such as grades, recommendations, written work, and test scores. Students with a master’s from an accredited institution may apply for admission to the doctoral program. Students with a bachelor’s degree only and with very strong credentials may be admitted into the doctoral program. Applicants must meet the admissions requirements set by both the graduate school, which are listed in its materials, and the department of history.

Because one of the strengths of our program is a close working relationship between faculty members and students, we cannot always accept qualified applicants when no one in the department can provide the guidance they need in their area of interest. Applicants should explore the listing of faculty on our website and contact the DGS or relevant faculty members if they have any questions.

The complete application contains:

1) A completed application form.

2) A completed financial aid application, if seeking aid.

3) Three letters of recommendation, preferably from the applicant’s former professors.

4) Recent Graduate Record Examination scores.

5) For international students, TOEFL scores.

6) Official transcripts.

7) A detailed statement from the student indicating: a) the student’s background and education; b) the student’s interests (field, topic, etc.); c) why the student wants to pursue a graduate degree in history at the University of Miami; and d) what the student plans to do with the degree upon completion. This statement constitutes a very important part of the application review process and should indicate the student’s understanding of the professional nature of the training that the student is about to begin.

8) A representative writing sample.

Admission from M.A. to Ph.D. Status
Students admitted at the master’s level who are performing well in their studies are encouraged to proceed to Ph.D. status. Advisors who believe that a student should be admitted to the Ph.D. program, and have the consent of the student, inform the DGS of this desire early in the spring semester and at least before the annual departmental meeting reviewing graduate students’ progress. The request is then reviewed by the department at its annual meeting for recommendation to the graduate committee. Students who move from the M.A. to the Ph.D. program are eligible for the same number of years’ aid as students entering the Ph.D. program directly from the B.A., minus the years of aid they have already received. For course requirements, see below.
Deadlines
January 20: Applications for admissions and aid for Fall semester.

B. Committee
Upon admission to the program, the student is assigned a provisional major advisor. As noted above, students should then concur or select a different advisor by the beginning of the second semester in the program. An advisory committee of four or five, including the major advisor and faculty members representing the second and third fields, must be formed no later than the student’s third semester in the program. Concurrent with the formation of the committee, the student should choose the 4 fields of study. One of these must be from a cognate discipline. It is the responsibility of the student and the advisor to form this committee and notify the DGS of its composition. The major advisor chairs the advisory committee and oversees the student’s course of study and progress in the program. The advisory committee will also administer the oral and written comprehensive examinations. Students may change advisor and other committee members throughout the program provided that the faculty member(s) selected agree(s).

C. Requirements

1a) For students entering the Ph.D. program with a B.A., 45 credit hours (5 semesters) of graduate coursework at the University of Miami.

1b) For students entering the Ph.D. program with a masters from another university, at least 27 credit hours (3 semesters) of graduate coursework at the University of Miami.

1c) For students entering the Ph.D. program with a Masters from another program at the University of Miami, at least 27 additional credit hours (3 semesters) of graduate coursework at the University of Miami.

1d) For students entering the Ph.D. program with a Masters from the History department at the University of Miami, 24 additional credit hours of graduate coursework (to conform to a Graduate School requirement) at the University of Miami.

1e) All doctoral students are expected to take their comprehensive exams no later than their 6th semester in the History Graduate Program at the University of Miami.

2) Completion of History 695 (Historiography), included in the above number of credits. All students are required to take the Historiography course in their first year.

3) Completion of History 693 (the two-semester Research Seminar), included in the above number of credits, at least once. Typically, students take History 693 in their 2nd and 3rd semesters in the program.

4a) Passage of a major field in written and oral exams.
4b) Passage of a 2nd field in written and oral exams.
4c) Passage of a 3rd field in written and oral exams.
4d) Passage of a 4th (cognate) field in the oral exam alone.

5) Following completion of course credit hours, students will need to take sufficient dissertation research credits (History 730 if before the comprehensives have passed; History 740 after the comprehensives have been passed) to reach a total of 60 credits hours beyond the B.A. in order to receive the doctorate. Graduate School rules require that students take a minimum of 12 dissertation credits. Students who enter the Ph.D. program
with an M.A. from another university or from another program at the U. of M. receive 30 credit hours towards the 60 credit hour requirement.

The required credits of coursework are only the formal minimum. Although coursework is necessary preparation for the comprehensive examination, students are examined on the mastery of fields of knowledge rather than courses. The number of courses taken depends on the student’s background, choice of fields, nature of related work, language skills, etc. Courses should be selected only after consultation with the Major Advisor.

D. Incompletes

All incompletes from the fall semester must be made up by the official end of the following spring semester. All incompletes from the spring semester must be made up before the official start of the subsequent fall semester. No student will be allowed to proceed to exams until all incompletes have been made up.

E. Languages Requirement

Reading knowledge of at least one foreign language is required. More than one foreign language may be required if the major advisor deems it necessary. The Modern Languages and Literatures Department administers examinations in the languages that it teaches and offers preparation courses in a handful of languages. Students may contact the DGS for the various options for taking courses in foreign languages. Students must, in conjunction with their advisor, prepare a plan that specifies how they will demonstrate language proficiency. The language requirement must be completed before a student can take the comprehensive examinations (see below).

F. Comprehensive Examinations

It is the responsibility of the student and major advisor to organize the comprehensive examinations. Students may take them at any time of the year that classes are in session. Arrangements for the exams, including selection of their dates and a final list of committee members, should be made by the end of the first month of the semester in question, with notification to the Department Chair and DGS.

The student takes the written part of the examinations in three history fields, which are normally administered over a period of two successive weeks. The portion for each field is four hours in duration. Only after the advisory committee deems that the student has successfully passed the written portions for each field is the student permitted to take the oral part of the examination.

The oral section covers the three history fields and one cognate field and is approximately two hours in duration. The prospectus may form part of the discussion, but the examination will focus on coverage of the fields. The committee consists of four to five faculty members. One member of the examining committee must be from outside the department. Normally this is the committee member representing the cognate field.

The student advances to candidate status after passing the comprehensive examinations and submitting an acceptable dissertation prospectus.

Students who have not already received a master’s degree from the University of Miami will be awarded an M.A. upon successful completion of their doctoral comprehensive exams.

G. Dissertation

After passing the examinations, students form a dissertation committee. This may be the original advisory committee, but it may also be revised to meet the needs of the dissertation work. The students, in consultation with the Major Advisor, put forward the names of individuals suggested to serve on the dissertation committee. The committee is then approved and appointed by the dean of the graduate school.
The dissertation must make a significant contribution to the candidate’s field of specialization. It must meet the highest standards of research, substance, and form, and demonstrate an ability to conduct and report independent and original scholarly investigation.

The student must apply for graduation in his or her penultimate semester (i.e. fall for spring semester).

Upon completion of the dissertation and its tentative approval by the dissertation committee, the student takes a final oral examination that is a “defense” of the dissertation and that lasts for approximately two hours. It is open to the university community. Following the defense of the dissertation, the dissertation committee will render its decision to accept or reject the dissertation. Approval of the dissertation must be indicated by the signature of all members of the dissertation committee.

H. Fields

Chronological/Geographical fields
Medieval Europe
Early Modern Europe
Modern Europe
Early American History
Modern U.S. History
Colonial Latin America
Modern Latin America
East Asia
Russia
Africa
Caribbean

Topical Fields. These must cover either two of the geographic or two of the temporal fields listed above.
African Diaspora
Race and Ethnicity
Gender and Sexuality
History of Religion
History of Science and Medicine
History of Crime and Law
Political History
Diplomatic History
Urban and Environmental History
Economic History
Business History
Labor History
History of Sport
Military History
Cultural and Intellectual History
Public History
Atlantic World

Customized Fields
Students may create their own fields in consultation with their advisory committee. The student opting for this approach must file a plan of study listing relevant courses, the
faculty member(s) involved, and the rationale. To pursue the individualized concentration, the student must obtain written approval of the plan by the major advisor, DGS, and the Department Chair.
The plan and signed approvals are placed in the student's file. With rare exceptions, a customized field may not be the major field of study.

History Course Listing
INTERNATIONAL STUDIES - Dept. Code: INS
www.as.miami.edu/international-studies/

DEGREE PROGRAMS
The Department of International Studies offers interdisciplinary social science programs leading to the Ph.D. and MA degrees. Ph.D. and MA programs offer advanced students the opportunity to study issues such as globalization, democratic governance, comparative and international political economy, post-Cold War conflicts and security threats, new forms of civil society mobilization in world politics, global environmental challenges and the management of the global commons. To organize the study of these debates in the social sciences, the Department offers three major fields of specialization:

- **International Relations**: international relations theory; globalization; social movements beyond the nation-state; security studies; peace and conflict studies; international law and organization; international political economy; foreign policy analysis, global public health, and related fields.

- **Comparative Politics**: theory and methods of comparative analysis; authoritarian and democratic political regimes; democratic governance and citizenship; comparative political economy; contentious politics and social movements; civil-military relations; and appropriate courses on selected regions, such as the European Union, Latin America, or the Post-Soviet countries.

- **International and Comparative Political Economy**: the politics and institutions regulating the global trade, investment, and financial regimes; comparative international development; the politics and economics of international environmental regimes; democracy, partisan politics, and global governance, the domestic and international distributive impacts of globalization; international economic theory; applied macroeconomics, etc.

Ph.D. Degree Requirements
The Department’s Ph.D. program’s primary objective is to prepare a relatively small group of highly qualified doctoral students for careers in academic teaching and research. The requirements include:

- Complete a total of 66 degree credits (12 semester courses) to obtain the Ph.D. degree (i.e., 36 credits at the doctoral level beyond the MA degree).
- Complete one seminar on quantitative methods and one seminar on qualitative methods in the social sciences.
- Complete a sequence of two core seminars in two of the Department’s three major fields of study: International Relations; Comparative Politics; and International and Comparative Political Economy.
- Pass written and oral examinations in two of the Department’s three fields of study.
- Complete at least one of the basic core seminars in the third (non-examination) field.
- Complete the Doctoral Workshop.
- Successfully defend a dissertation proposal/prospectus.
- Pass a foreign language examination.
- Complete 12 dissertation credits.
- Research, write and orally defend a dissertation that makes an original contribution to knowledge.
See the INS Graduate Student Handbook (insert link) for a complete description of the requirements for the Ph.D. degree.

**MA Degree Requirements**

The Department’s MA program prepares students for careers in international diplomacy, business, trade and finance, for service in government and non-governmental organizations and international institutions, and with the necessary degree and academic training to enter a doctoral program. The requirements include:

- Complete ten semester courses (30 credits).
- Complete a seminar on social science methodology.
- Complete two of the core seminars in one of the Department’s fields of study, and at least one of the core seminars in either of the other two fields. These fields include: International Relations; Comparative Politics; International and Comparative Political Economy.
- Pass a written qualifying (comprehensive) examination in one of the three fields of specialization.
- Pass a foreign language examination.
- MA candidates with a cumulative grade point average of at least 3.5 may, with the permission, substitute the qualifying examination with a written MA thesis.
- See the INS Graduate Student Handbook (insert link) for a complete description of the requirements for the MA degree.

**International Studies Course Listing**
**LATIN AMERICAN STUDIES - Dept. Code: LAS**

http://www.as.miami.edu/lasp/degrees/masters

http://www.as.miami.edu/lasp/degrees/filas

**DEGREE PROGRAMS**

**MASTER OF ARTS IN LATIN AMERICAN STUDIES**

A. The M.A. in Latin American and Caribbean Studies is a 36-credit interdisciplinary degree, with a strong emphasis on Latin American politics and U.S.-Latin American relations as well as opportunities to specialize in History, Literary and Cultural Studies, and other fields.

B. The program consists of two core Latin American and Caribbean seminars and a minimum of eight or nine additional seminars to be taken as electives.

C. Students are required to write a master’s thesis or pass a comprehensive exam.

D. Students must demonstrate advanced language competence in either Spanish or Portuguese by passing a course taught in the target language at the 500-level or above, or by passing an equivalent language competency exam.

Students must also demonstrate basic knowledge of a second Latin American language by passing a course at the 105 level or equivalent.

E. The Latin Americanist faculty have research expertise and teach a broad variety of graduate level seminars on topics ranging from
   1. Globalization and social change.
   2. Latin American and Caribbean literary, film, and cultural studies.
   3. Social and political movements.
   4. Regime transitions, democratization, and citizenship.
   5. Museums and representations of identity.
   6. Civil-military relations.
   7. Political economy of market reforms.
   8. Colonial and post-colonial studies.
   10. Latin American and Caribbean political thought.

With approval from the Director of Latin American Studies degree programs, students may also take their elective credits with Latin Americanists in other Schools such as Communication, Law, Business, or Marine Sciences.

**FILAS (Fellows in Latin American Studies)**

In this highly selective Honors Program, students follow a rigorous, accelerated curriculum to complete a dual degree (B.A./M.A.) in Latin American and Caribbean Studies in five years. The program provides exciting collaborative research, travel, and work opportunities.

Working with UM’s world-class faculty in various academic disciplines, **FILAS** participants design individualized curricula. In addition to the regular general education course requirements of the College of Arts and Sciences, **FILAS** students choose one focus track for their most advanced courses: Social Sciences, Literature & Culture, Communication, Public Health, Environmental
Studies, or History. For broad-based, multi-disciplinary preparation, students choose courses that focus on Latin America and the Caribbean from the following categories (at least ten of these courses must be taken at the Master’s level):

- One gateway seminar in Latin American Studies
- Two History courses
- Two International Studies courses
- Two Economics courses
- Three advanced Languages and Literatures courses
- Seven courses in Study Abroad
- Two courses as internship/co-op credits
- Three courses above the 300-level (third-year) in a range of disciplines
- Ten courses in one focus track

150 total credits

FILAS students also write a thesis based on an original research project. In addition, they present their findings in a meeting of the UM Center for Latin American Studies in their final semester.

FILAS ADMISSION REQUIREMENTS
- SAT1 composite score of 1360 or ACT 31.
- Top 10% of high school graduating class.
- Regular Application for Admission to the University of Miami. We recommend students submit their applications by November 15.
- Recommendations from three high school teachers.
- Statement of interest in FILAS, emphasizing prior language or area study
- To continue through the Master’s level, students must maintain at least a 3.4 GPA and they must take the GRE Exam.

REQUESTS FOR INFORMATION
For more information, contact:

LAS Degree Programs
University of Miami
1111 Memorial Drive
Coral Gables, FL 33124-2302
(305) 284-8180
FAX (305) 284-2796
lasgrad@miami.edu

Latin American Studies Course Listing
LIBERAL STUDIES - Dept. Code: MLS  
www.as.miami.edu/mals

DEGREE PROGRAMS

The Liberal Studies program is founded on an interdisciplinary approach to issues and questions central to the history and development of human culture. It is designed to provide a broad understanding of these issues and questions through a focused and systematic program of study drawing upon faculty from various disciplines in the humanities, the social sciences, and the basic sciences.

THE MASTER OF ARTS IN LIBERAL STUDIES

The Master of Arts in Liberal Studies degree requires 24 credits, plus a six-credit thesis OR an additional six credits of coursework and a representative portfolio. In addition all students are required to participate in the MALS Writing Seminar. The curriculum is drawn from three core courses as well as additional courses designed for MALS students. Students may select from other graduate level courses with the approval of the director.

For the program with a thesis, a candidate must complete a minimum of 30 credits on the graduate level which includes:

- Three 3-credit core courses.
- 15 approved graduate credits.
- Six credits for thesis.

For the program without a thesis, a candidate must complete a minimum of 30 credits on the graduate level which includes:

- Three 3-credit core courses.
- 21 approved graduate credits.
- A portfolio representative of works completed.

For further information regarding this program, please write to:  
Master of Arts in Liberal Studies Program  
125-G Memorial Classroom Building  
Coral Gables, FL 33124-2302

Call 305-284-6731 and/or email mals@miami.edu

Liberal Studies Course Listing
MATHEMATICS - Dept. Code: MTH
www.math.miami.edu

DEGREE PROGRAMS

The Mathematics Department offers graduate degree programs leading to the

- Master of Arts
- Master of Science
- Doctor of Philosophy

Prerequisites and requirements for these degrees are described below:

MASTER OF ARTS IN MATHEMATICS
A. Prerequisite:
   A minimum of nine credits in mathematics courses numbered 200 and above is required.
B. Requirements:
   1. A total of 30 credits must be earned; at least 18 credits of which are in mathematical courses numbered 500 or above. These courses must include at least one of the following year-long sequences: 513-514, 515-516, 524-525, 531-532, 533-534, and 561-562. All courses from other departments must be numbered 600 or above, be pertinent to the teaching of secondary school mathematics, and be approved by the graduate committee.
   2. A three-hour written examination covering the material in one of the year-long sequences listed above.

MASTER OF SCIENCE IN MATHEMATICS
A. Prerequisite:
   A minimum of 15 credits in mathematics courses numbered 200 and above is required.
B. Requirements:
   1. A total of 30, 33, or 36 credits in approved courses must be earned, depending on whether at least 15, 12-14, or 9-11 credits, respectively, are in mathematics courses numbered 600 and above.
   2. A minimum of 24 credits must be earned in mathematics courses.
   3. At least two of the basic sequences 531-532, 533-534, and 561-562 are required.
   4. Three written exams, at least two of which are on the basic sequences of the above list, must be passed.

DOCTOR OF PHILOSOPHY IN MATHEMATICS
The following requirements are in addition to the general requirements for the Doctor of Philosophy Degree as described by the Graduate School (see section on Doctor of Philosophy elsewhere in this Bulletin).

1. A minimum of 36 credits must be earned in mathematics courses numbered 600 and above.
2. All four basic sequences 630-631, 632-633, 640-641, and 661-662 or their equivalents are required.
3. Preliminary and three written qualifying exams must be passed. Of these written exams, two must be from the above basic sequences; the other may be another from the basic sequences or in the candidate’s area of specialty.
4. A proficiency in one of the languages French, German, or Russian must be demonstrated.
MASTER OF SCIENCE IN STATISTICS
The university offers an interdepartmental M.S. degree in statistics. The program is a cooperative effort between the Department of Mathematics and the Department of Management Science. For details, see the section of this Bulletin entitled Interdisciplinary and Interdepartmental Programs.

Mathematics Course Listing
MODERN LANGUAGES AND LITERATURES
Dept. Codes: FRE, GER, ITA, MLL (former FLL) POR, SPA
www.as.miami.edu/mll

DEGREE PROGRAMS

The Department of Modern Languages and Literatures offers programs leading to the Ph.D. in Romance Studies with concentrations in French and Spanish. Graduate course work comprehends all major periods and areas, providing the breadth needed for interdisciplinary work and required of today’s teachers. The program is designed to prepare students for careers as university professors, teachers and research scholars. It includes training in advanced language, teaching, and research skills that may also contribute to other professions. For additional information on teaching and research opportunities, faculty, program policies and application requirements, visit http://www.as.miami.edu/mll/graduate/.

The Ph.D. in Romance Studies (with concentrations in French and Spanish) is designed to prepare you for a career as a university professor and research scholar. It also provides training in advanced language, teaching, and research skills that can be used in other professions. The requirements set out below for the Ph.D. in Romance Studies are minimum requirements; the Committee on Graduate Studies, the Director of Graduate Studies, or your advisor may set additional requirements.

1. a) for students entering on the “five year plan” (B.A. or M. A., see below), passing satisfactorily a minimum of 45 credits in approved courses;
b) for students entering on the “four year plan” (M.A., see below) passing satisfactorily a minimum of 36 credits in approved courses;

2. passing “Introduction to Literary Theory” (MLL 611; former MLL 505), “Introduction to Modern Language Teaching” (MLL 611; former MLL 503), and a minimum of 3 graded credits in each of the following areas:

<table>
<thead>
<tr>
<th>French</th>
<th>Spanish</th>
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<tr>
<td>• Middle Ages and/or 16th Century</td>
<td>• Middle Ages and/or Golden Age</td>
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<tr>
<td>• 17th Century and/or 18th Century</td>
<td>• 18th-19th-Century Spain and/or 20th-Century Spain</td>
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<tr>
<td>• 19th Century and/or 20th Century</td>
<td>• Colonial Latin America</td>
</tr>
<tr>
<td>• Francophone Studies</td>
<td>• 19th-Century Latin America</td>
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<td>• 20th-Century Latin America</td>
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Note: Ordinarily, students will take at least two graduate courses in the dept each semester.

3. in addition to proficiency in English and the language of study, demonstrating the following
   a) reading knowledge of two other languages, or
   b) holistic knowledge of one other language by passing the equivalent of a course on at least the 300-level;
Note: In consultation with the student’s advisor, appropriate languages of study will be determined (e.g. Latin American literature students may be encouraged to study Portuguese; students of Early Modern literature may be encouraged to study Italian, etc.)

c) if area of specialization is Medieval or Early Modern (including Colonial Latin America), then also demonstrating reading knowledge of Latin.

4. passing a breadth exam that covers either three periods in one region or two periods in two regions;

5. passing a qualifying exam, on an approved topic;
The exam includes three general approaches that focus on literature, theory, and a cognate discipline (e.g. history, sociology, art, film, etc.);

6. successfully defending a dissertation prospectus;

7. completing and defending satisfactorily a dissertation;

8. satisfying the requirements of the Graduate School as stated in the Bulletin.

ADMISSIONS REQUIREMENTS

We accept applications for Fall admission only, and only for doctoral study (we do not have an independent Master’s program). You may apply for the Ph.D. while holding either a B.A. or an M.A. degree.

The priority deadline to apply to begin classes in Fall 2009 is January 15, 2009 (all fellowships and most teaching assistantships are awarded to those who apply by this deadline). However, we will continue to accept applications through March 15, 2009

Your completed application must include the following (incomplete applications will not be considered):

1. A completed application form, including a detailed statement of purpose. We only accept on-line applications. Visit our web page for on-line application instructions: http://www.as.miami.edu/mll/graduate/admissions.html

2. A completed Graduate Assistantship Application (to be considered for departmental and university awards).

3. Three substantial letters of recommendation (please provide each recommender with a cover sheet, available on line at: http://www.as.miami.edu/mll/graduate/admissions.html).

4. GRE scores, mailed directly from the testing agency (optional if you hold an M.A. degree and do not wish to be considered for fellowships)

5. Official transcripts from all colleges and/or universities you have attended and listed in your application. If the transcripts are from international institutions, you must provide an official translation.

6. A substantial writing sample in English (research papers are preferable)
7. A substantial writing sample in the language of study (French or Spanish; research papers are preferable)

8. International students only: TOEFL scores, mailed directly from the testing agency

9. Application fee of $65.00.

Letters of recommendation and other printed materials should be sent to:

Graduate Program Admissions  
Department of Modern Languages & Literatures  
University of Miami  
P. O. Box 248093  
Coral Gables, Florida 33124-4650  
FAX: 305-284-2068  
E-mail: grad.fll@mail.as.miami.edu

We strongly encourage African-American and Hispanic candidates to apply for the Florida Education Fund domestic African American and Hispanic McKnight Doctoral Fellowships. Applications must be postmarked no later than January 15th of each year. The Fellowship is open to any incoming domestic Ph.D. African American or Hispanic student in ANY discipline. You may apply online at www.fefonline.org. The Florida Education Fund may be reached at (813) 272-2772. If an applicant who is accepted into our Ph. D. program receives a McKnight Fellowship, the College of Arts and Sciences will increase the amount of the fellowship’s stipend to match the current Teaching Assistantship stipend amount.

Modern Languages and Literatures Course Listing

Course Listings for: French and Spanish
PHILOSOPHY - Dept. Code: PHI
www.as.miami.edu/phi

DEGREE PROGRAMS

The requirements for the Master of Arts degree in philosophy may be satisfied in two ways.

A. The first is through
   1. passing satisfactorily a minimum of 24 course credits in philosophy, at least 12 of which must be at the 600 level;
   2. presenting and defending orally an acceptable thesis;
   3. satisfying the requirements of the Graduate School as stated in this Bulletin.

B. The second is through
   1. completing satisfactorily a minimum of 45 course credits in philosophy, at least 24 of which must be at the 600 level;
   2. passing a comprehensive examination;
   3. satisfying the requirements of the Graduate School as stated in this Bulletin.

The requirements for the Ph.D. degree in philosophy

A. Course requirements
   Satisfactory completion of a minimum of 45 course credits in philosophy, at least 24 of which must be at the 600 level. Students are required to pass the following 500-level courses:
   1. Logic requirement: PHI510
   2. Ethics requirement: PHI530 or 533.
   3. One course from the epistemology and metaphysics group: PHI540-545.
   4-5. Two courses from the history group: PHI560-583.

B. Qualifying examination
   A comprehensive qualifying examination must be taken before the student’s dissertation proposal is approved. It is a broad examination in a general area of philosophy close to the student’s proposed dissertation topic or intended area of specialization, for example, epistemology, philosophy of mind, metaphysics, or ethics and political philosophy. The examination is based on a list of core texts in the area in question, but some of the required texts are chosen for each student individually by the committee for qualifying examinations. Students can apply for Ph.D. candidacy after they have passed this examination and their dissertation proposal has been approved.

C. The language requirement
   A student who submits a dissertation proposal must possess the linguistic proficiency required by the proposed dissertation topic. This is determined by the dissertation proposal committee on the basis of examinations or coursework.

D. Ph.D. dissertation
   Presentation and oral defense of an acceptable dissertation.

E. The requirements of the Graduate School as stated in this Bulletin

Philosophy Course Listing
DEGREE PROGRAMS

All graduate students in physics must plan their entire program with the advice and approval of a departmental advisor.

The program of graduate studies in physics emphasizes research work, but also includes teaching experience as an essential element. Research and thesis opportunities are at present available in the fields of astrophysics and cosmology, atmospheric and ocean optics, complexity, condensed matter physics, elementary particle theory, plasma physics.

In addition to the general requirements for graduate degrees, the Physics Department makes the following specific requirements.

A. Submission of scores on the Graduate Record Examination (Aptitude Test and Advanced Test in Physics) with the application for admission.
B. A minimum of 24 physics course credits at the 500-600 level are required for the PhD.
C. The following specific courses, or their equivalent, are required for the PhD degree: PHY 540, 560, 561, 623, 650, 651, 670, 671. Also required: three additional physics lecture courses at the 500 or 600 level.
D. For the M.S. degree no more than three credits for reading courses may be counted, and no more than two credits of seminars. Up to six credits may be earned in thesis work for this degree.
E. The physics department offers a comprehensive graduate examination each year. A passing grade at an appropriate level is required for either the M.S. or the Ph.D. A student is required to take the exam each year and is allowed two attempts toward a passing grade.
F. Courses taken outside the department should be relevant to the students program and approved by the graduate advisor.
G. Students are required to participate in research at the earliest opportunity. Specifically, upon passing the written graduate examination and before the end of the following semester, the student is required to select a faculty member who consents to serve as the students Ph.D. thesis advisor. Student and thesis advisor are to form, in a timely fashion, a dissertation committee to review an oral presentation of the student’s initial research activities and future plans. Should a student need to select a new thesis advisor, this selection must be made without delay, and the review process must be repeated.
H. Renewal of financial support from the department is contingent, each semester, upon satisfactory performance of teaching duties and research activities, and upon timely progress towards completion of all requirements for the Ph.D. degree.

Physics Course Listing
POLITICAL SCIENCE - Dept. Code: POL  
www.as.miami.edu/politicalscience/graduate

DEGREE PROGRAMS

The Department of Political Science offers a Masters degree in Public Administration.

The requirements for the Masters in Public Administration degree are:

A. Thirty-six to forty-eight credits at the graduate level, depending on government management experience and academic preparation.

B. Completion of core and specialized track course requirements as specified by the POL Department in consultation with the student’s career goals and interests.

C. An option exists for those students who wish to complete in five years their Bachelors degree and a Master of Public Administration. Contact POL Department for details.

D. All other requirements as stated in sections Requirements for the Master of Arts Degree and General Information.

SECOND MASTERS DEGREE IN PUBLIC HEALTH (MPA/MPH)

The Master of Public Administration/Master of Public Health combines programs from the College of Arts and Sciences and the School of Medicine and is designed for students who seek an in-depth knowledge of management and public policy administration with training in public health.

It is possible for full-time students to complete the requirements for both degrees requirements within two and one-half years.

Interested students must apply and be accepted by both Departments. For further information, contact the Department of Political Science at (305) 284-2401 or the Department of Epidemiology and Public Health at (305) 243-6759.

Political Science Course Listing
PSYCHOLOGY - Dept. Code: PSY
www.psy.miami.edu

DEGREE PROGRAMS

Ph.D.

I. The principal goal of the graduate program in Psychology is that of preparing the student for a career contributing to the growth of scientific knowledge in psychology.

II. Applicants for admission to graduate status in psychology shall have
   A. a minimum average of B over-all
   B. at least 18 hours of psychology that must include courses in Introductory Psychology, Statistics, and Experimental Psychology or Research Methods.
   C. Students lacking the necessary preparation must ordinarily make up deficiencies prior to admission to the Graduate School.

III. All applicants must present the Graduate Record Examination (Aptitude Tests; Advanced Test in Psychology preferred). In all cases admission to graduate degree programs in Psychology is competitive, since available resources do not permit admission of all qualified applicants.

IV. The Ph.D. programs are categorized into three Divisions:
   • Health Psychology (including Health Clinical Psychology, Behavioral Medicine and Behavioral Neurosciences)
   • Child Psychology (including Clinical Child Psychology, Pediatric Health Psychology Applied Developmental Psychology)
   • Adult Psychology (including Adult Clinical Psychology)
     1. All Ph.D. programs in Psychology require a minimum of 72 credits, including thesis and dissertation credits:
     2. Psychology 680 and 681 will not be counted toward the 72 credit minimum.
     3. A Master of Science in Psychology based upon 24 credits of course work and six credits of Master's thesis research is required in all programs.
     4. In cases in which a student has a prior graduate degree, the number of credits required for the Ph.D. may be reduced at the discretion of the Department.
     5. All programs in Clinical Psychology require an internship.

V. All students must successfully complete six foundation courses
   A. PSY 604, 605, 614, 620, 625, and 640 or 641.
   B. methodological courses 631, 632, and either 633, 634 or 698.
   C. A minimum grade average of B is required for all students.
   D. All students seeking an advanced degree in Psychology must participate substantially in the teaching of course offerings in the Psychology Department as an essential part of their education.

Psychology Course Listing
RELIGIOUS STUDIES - Dept. Code: REL

The Department of Religious Studies does not offer a graduate degree program. The graduate level courses may be taken for graduate credit with the consent of the major department.

Religious Course Listing

SOCIOLOGY - Dept. Code: SOC
www.as.miami.edu/sociology

DEGREE PROGRAMS

The Department of Sociology at the University of Miami offers two graduate degrees, the Master of Arts (M.A.) and the Doctor of Philosophy (Ph.D.). Graduate study in the Department of Sociology equips students with the theoretical, methodological, and analytical tools required for teaching, research, and scholarship in academic and non-academic settings.

I. The Ph.D. program in Sociology

Graduate students in the Ph.D. program are encouraged to choose concentrations from three substantive program areas: (1) Criminology; (2) Race & Ethnic Relations; and (3) Medical Sociology. Although the strengths of the department lie within these major programmatic fields, students may also plan one course of study that meets their own research interests and career objectives. Our current faculty and graduate students study a wide range of exciting topics, including Aging/Life Course, Crime/Delinquency, Economics of Crime, Health Economics, Mental Illness, Morbidity/Mortality, Neighborhood Context, Race/Ethnicity, Racism/Discrimination, Sex/Gender, Social Psychology, Socioeconomic Status, and Substance Abuse.

II. Requirements for the Master of Arts degree with a major in Sociology are:
   A. Candidates must complete at least 31 hours of graduate credit at the 500 level or above.
   B. Candidates must submit and successfully defend a thesis in accordance with current Graduate School policy.
   C. Course work must include Sociology 601, 602, 604, 610 or 613, 611, and 615 or 616.
   D. Six credit hours must be counted toward thesis work.
   E. No more than 6 hours of “independent study” can be applied toward the M.A. degree.
   F. With prior departmental approval, 3 hours of course work in a related discipline may be counted toward the M.A. degree.
   G. A maximum of 6 hours can be transferred from acceptable graduate institutions.

III. Requirements for the Ph.D. degree with a major in Sociology are:
   A. Candidates must hold an M.A. degree.
B. Candidates must complete at least 42 hours of graduate credit beyond the M.A. degree.
C. Course work must include Sociology 612, one of 613 or 610, 622, 615 or 616, and 18 hours split evenly between two of our three areas of concentration.
D. Some candidates may be required to complete courses in areas where they have incomplete backgrounds (e.g., statistics, research methods, or theory).
E. Candidates must pass four comprehensive examinations.
F. Candidates must submit and successfully defend a dissertation in accordance with current Graduate School policy.

For more details, consult the Guide to Graduate Study in Sociology available through the Sociology Department.

Sociology Course Listing
SCHOOL OF BUSINESS
GRADUATE BUSINESS PROGRAMS
www.bus.miami.edu

DEPARTMENTS

Accounting
Business Law
Computer Information Systems
Economics
Finance
Management
Management Science
Marketing

DEGREE PROGRAMS

The School of Business offers the following degrees:
Doctor of Philosophy in Economics, Marketing, Management, and Management Science
Master degree in Business Administration (MBA)
Master of Professional Accounting
Master of Science in Taxation
Non-degree executive education programs are also available

The requirements for the Doctor of Philosophy degree are the same as those listed in the general section of this Bulletin.

MASTER OF BUSINESS ADMINISTRATION

The University of Miami School of Business offers two full-time Master of Business Administration degrees.

FULL-TIME TWO-YEAR MBA PROGRAM

The Full-time two-year MBA Program is innovative, flexible, and career focused. It is designed to meet the needs of the student with an undergraduate background in business as well as the student who is just entering the business arena. The curriculum not only prepares business leaders of the future, but also adds a valuable dimension to other professions.

UM's Full-time MBA program is a 56-58 credit, lock-step program that is completed in less than two calendar years. Students typically enroll in elective courses during the third semester and the first term of the fourth semester of the program. Students may be able to complete a concentration based on completion of appropriate electives.
CURRICULUM

YEAR ONE

FALL SEMESTER – Building Management Skills

Term 1-1
BUS 604 MBA Career Development and Enrichment
ACC 670 Financial Reporting and Analysis
MAS 631 Statistics for Managerial Decision Making
MGT 675 Business Policy and Strategy

Term 1-2
BUS 602 Critical Thinking and Effective Writing
ACC 671 Accounting for Decision Making
ECO 685 Managerial Decisions in a Global Economy
MGT 620 Managing Through People

SPRING SEMESTER – Making Management Decisions

Term 1-3
BUS 603 Critical Thinking and Effective Presentation
FIN 641 Valuation and Financial Decision Making
MAS 632 Management Science Models for Decision Making
MKT 640 Foundations of Marketing Management

Term 1-4
CIS 610 Foundations of Management Information Systems
FIN 642 The Financial Environment
MGT 643 Principles of Operations Management

YEAR TWO

FALL SEMESTER – Expanding Career Opportunities

Term 2-1
BUS 604 MBA Career Development and Enrichment
Elective
Elective
Elective
Elective

Term 2-2
Elective
Elective
Elective
Elective

SPRING SEMESTER – The Executive Perspective

Term 2-3
Elective
Elective
Elective
Elective
Term 2-4
BSL 690 Legal and Ethical Implications of Business Decision Making
MGT 677 Corporate Strategy and Organization
MKT 650 Strategic Marketing

Students may be able to complete a concentration based on completion of required electives. Areas of concentration include: Accounting, Computer Information Systems, Finance, International Business, Management, Management Science, Six Sigma, Management Science Consulting, Marketing, and Real Estate. Elective offerings are based on student demand. Students beginning the program in January obtain a cross-functional MBA in lieu of a concentration. This multi-disciplinary MBA program will expose students to various areas of business.

FULL-TIME ONE-YEAR MBA PROGRAM

The Full-time one-year MBA Program is offered once per year in January. This program is designed to meet the needs of the student with an undergraduate degree in business, who graduated in the last seven years from an accredited university. The curriculum prepares business leaders of the future, adding a valuable dimension to their education.

CURRICULUM

The One-Year MBA program is a 33-credit, cohort program that is completed in one year. There are no summer classes. Internship opportunities may be available through the Ziff Graduate Career Services Center during the summer months. The program is “lock-step” and students progress together through a sequential pattern of sixteen 2-credit courses, eight of which are electives and one 1-credit course. There are two semesters totaling 28 weeks of class time. Each semester consists of two 7 week terms. There are no prerequisite courses required. Concentrations are not available or granted.

SPRING SEMESTER

Term 1-1
BUS 604 MBA Career Development and Enrichment
FIN 641 Valuation and Financial Decision Making
MAS 632 Management Science Models for Decision Making
Elective
Elective

Term 1-2
BSL 690 Legal & Ethical Implications of Business Decision Making
CIS 610 Foundations of Management Information Systems
FIN 642 The Financial Environment
MGT 645 Principles of Supply Chain Management
FALL SEMESTER

Term 1-3
Elective
Elective
Elective
Elective

Term 1-4
MGT 677 Corporate Strategy and Organization
MKT 650 Strategic Marketing
Elective
Elective

DUAL DEGREE PROGRAMS

The University of Miami offers dual degree programs in the areas of JD/MBA, MD/MBA, and Master of Science in Industrial Engineering. Dual degree programs are only available in conjunction with the Full-time two-year MBA Program. Admissions and all requirements for each program must be fulfilled in order to apply to the MBA program. Effective Spring 2010, Architecture students will be able to apply to the BARCH/MBA dual degree program.

For more information on dual degree programs, please contact the Office of Recruiting and Admissions at 305-284-2510 or visit our website at www.bus.miami.edu/grad.

INTERNSHIPS

The School of Business encourages students to augment their classroom experience through a comprehensive internship program. Students who are interested in internships must register with the Ziff Graduate Career Center as soon as they arrive on campus.

ADMISSION REQUIREMENTS

The Graduate Admissions Committee welcomes applications from individuals whose undergraduate degrees are from accredited colleges or universities. Acceptance is based upon an evaluation of all credentials presented by the applicant. The following are the requirements for admission for both the Full-time two-year and one-year MBA Programs:

- Completed application, which includes an essay
- Application Fee of $100.00
- Resume
- Transcripts
- Letter(s) of Recommendation
- Official GMAT Score Report
- Test of English as a Foreign Language (TOEFL), if applicable
- International Student Financial Statement, if applicable
- Campus Visit, encouraged
- Interview, optional but may be required
EXECUTIVE MBA PROGRAMS AND THE MBA FOR WORKING PROFESSIONALS

The University of Miami offers Executive MBA Programs and an MBA for Working Professionals that are designed for accomplished professionals who are ready to take their career to the next level. Participants gain insight and understanding into the business environment by gaining a more global outlook and are better equipped to meet the challenges of today's business world. They become better negotiators, strategic thinkers, and more effective team players in a variety of business related situations.

CURRICULUM

To obtain detailed program curricula on the Executive MBA and MBA for Working Professional Programs, please reference the program brochures which can be requested by contacting the Office of Recruiting and Admissions at (305) 284-2510 or visit our website at www.bus.miami.edu/grad.

EXECUTIVE MBA

The Executive MBA programs provide business executives and professionals the opportunity to earn an MBA by attending class on Saturdays. Saturday programs include:

- Executive MBA
- Executive MBA - Health Administration and Policy Concentration
- Executive MBA - Master of Science in Industrial Engineering Dual Degree
- Executive MBA – Off Campus Programs across Florida in Tampa, Orlando, and Palm Beach County and in Puerto Rico (anticipated start date of October 2009)

ADMISSION REQUIREMENTS

- Completed application
- Application Fee of $100.00
- Resume
- Transcripts
- Letter(s) of Recommendation
- Official GMAT Score Report, may be required
- Test of English as a Foreign Language (TOEFL), if applicable
- International Student Financial Statement, if applicable
- Campus Visit, encouraged
- Interview, optional but may be required

MBA FOR WORKING PROFESSIONALS

The MBA for Working Professionals Program also provides professionals the opportunity to earn an MBA by attending class on Monday evenings and Saturday mornings. The program offered under this structure includes:

- MBA for Working Professionals
ADMISSION REQUIREMENTS

- Completed application
- Application Fee of $100.00
- Resume
- Transcripts
- Letter(s) of Recommendation
- Official GMAT Score Report, may be required
- Test of English as a Foreign Language (TOEFL), if applicable
- International Student Financial Statement, if applicable
- Campus Visit, encouraged
- Interview, optional but may be required
MASTER OF SCIENCE IN PROFESSIONAL MANAGEMENT (MSPM)

The Master of Science in Professional Management with a concentration in International Business is a graduate business program targeted to Spanish-speaking executives and working professionals. Although the program is taught in Spanish, textbooks are in English; therefore, a reading knowledge of English is required.

The program is designed especially for managers and executives who live in or work extensively with Latin America.

This 36-credit hour program is taught in five, two-week sessions.

Each session students take two classes and earn six credit hours. Additionally, there is a six credit supervised, independent directed study course related to the students business to be completed by the end of the program. The same group of students progress through the entire program.

CURRICULUM

Session 1
- CIS 621 Management Information Systems 3 credits
- MGT 651 Behavioral and Organizational Systems 3 credits
- ESP 734 Research Project 6 credits

Session 2
- ACC 607 Financial Accounting & Reporting 3 credits
- MKT 660 Foundations of Marketing Management 3 credits

Session 3
- BSL 696 Legal and Ethical Implications in Executive Decision Making 3 credits
- FIN 602 Fundamentals of Finance 3 credits

Session 4
- ECO 675 Economic Problems of Latin America 3 credits
- MGT 659 Management of Multinational Enterprise 3 credits

Session 5
- BSL 612 Legal Aspects of International Business 3 credits
- MGT 658 Strategic Management 3 credits

TOTAL CREDITS 36 credits

ADMISSION REQUIREMENTS

- Completed application
- Application Fee of $100.00
- Resume
- Transcripts
- Letter(s) of Recommendation
- Campus Visit, encouraged
- Interview, optional but may be required

MSPM graduates can seek an MBA degree by continuing their studies through an additional three, two-week sessions consisting of 24 credits. For more information, please contact the Office of Recruiting and Admissions at 305-284-2510.
CERTIFICATE PROGRAMS

GENERAL BUSINESS CERTIFICATE

The General Business Certificate program provides professionals and graduate students an opportunity to add basic business courses to their portfolio. The program consists of four three-credit courses in functional areas of accounting, finance, management and marketing. Students can take one or more courses for credit but must satisfactorily complete all four courses to be awarded the certificate. Students must have an undergraduate degree to be eligible for this certificate. Classes meet on Saturday from 8:00 a.m. – 12:00 p.m. and 1:00 p.m. – 5:00 p.m.

CURRICULUM
ACC 600 Accounting for Decision-Making and Control (3 credits)
FIN 602 Fundamentals of Finance (3 credits)
MGT 600 Managing Responsible Behavior in Organizations (3 credits)
MKT 660 Foundations of Marketing Management (3 credits)

For complete information on the General Business Certificate program, including course dates and descriptions, please visit the Graduate Business Programs website at www.bus.miami.edu or call 305-284-2510.

ADMISSION REQUIREMENTS

The Graduate Admissions Committee welcomes applications from individuals whose undergraduate degrees are from accredited colleges or universities. Acceptance is based upon an evaluation of all credentials presented by the applicant. The following are the requirements for admission:

- Completed application
- Application Fee of $50.00
- Resume
- Transcripts

INVESTMENT CERTIFICATE

The Certificate in Investments program offers a rigorous and structured course of study in the field of investments. It is designed for those with an MBA degree who want training in this field beyond what is typically available from the core MBA curriculum. Taught over 15 Saturdays, the coursework spans topics in investment analysis, portfolio construction, and financial derivatives. Applicants should have an MBA degree from an accredited institution. Applicants with undergraduate business degrees with appropriate experience will also be considered on an exceptional basis. Classes meet on Saturday from 8:00 a.m. – 12:00 p.m. and 1:00 p.m. – 5:00 p.m.

CURRICULUM
FIN 620 Investment Analysis
FIN 621 Portfolio Construction and Management
FIN 622 Financial Options and Futures
For complete information on the Investment Certificate program, including course dates and descriptions, please visit the Graduate Business Programs website at www.bus.miami.edu or call 305-284-2510.

ADMISSION REQUIREMENTS

The Graduate Admissions Committee welcomes applications from individuals who have already obtained an MBA degree from an accredited college or university. Acceptance is based upon an evaluation of all credentials presented by the applicant. The following are the requirements for admission:

- Completed application
- Application Fee of $50.00
- Resume
- Transcripts
RESEARCH INSTITUTES

INSTITUTE FOR THE STUDY OF QUALITY IN MANUFACTURING AND SERVICE

The University of Miami Institute for the Study of Quality in Manufacturing and Service (UMISQ) exists to advance the theory and practice of Quality Science. Its mission is to promote the improvement and innovation of quality on local, national, and international levels through the acquisition, dissemination, and application of knowledge in the areas of science, technology, and management as related to Quality Science in general, and Lean Six Sigma Management specifically.

Objectives

1. To conduct research in Quality Science and to publish its results through appropriate professional and academic outlets.
2. To educate and train management, labor, UM students, and others in the theories and practices of Quality Science in general, and Lean Six Sigma Management specifically.
3. To create internships for M.B.A. students in which they can solve real world problems using Quality Science theory and practice in general, and Lean Six Sigma management theory and practice in particular.
4. To remain financially self-sufficient.

The Institute pursues its objectives through involvement of faculty, students, and client organizations in all sectors of the economy.

INTELLIGENT COMPUTER SYSTEMS RESEARCH INSTITUTE

The Intelligent Computer Systems Research Institute is a center for research and information dissemination in applied artificial intelligence.

Applied Artificial Intelligence is the use of science and technology to assist the human mind (and body as in an intelligent robot) to do something it already does, or would like to be able to do faster, more elegantly, even innovatively.

The devices, the artifacts-computers, knowledge machines, logical circuits, inference engines, software-to accomplish such ends are designed and programmed by humans.

Multidisciplinary studies will cover areas of computer technology and software as applied to business, education, engineering, law, medicine, government, communications, and other fields in which the computer enhancement of mental capabilities should be significant.

The Institute acts as a repository and communicator of applied artificial intelligence knowledge.
THE GRADUATE STUDENT ASSOCIATION

The Graduate Student Association (GSA) is the student government organization representing students in the Graduate School (and all schools and colleges included under the Graduate School). Established in 1969, the GSA is one of the oldest graduate student governments in the United States. The primary function of the GSA is to provide the means for responsible and effective graduate student participation in the planning and conduct of University affairs. The GSA serves as a liaison between graduate students, individually and collectively, the faculty and the administration. In addition, the GSA exists as a social and intellectual forum to support and improve the quality of the graduate student environment at the University of Miami.

The Graduate Student Association is made up of seven officers and nearly fifty full- and part-time senators; the role of the GSA is both supervisory and implementary, and its scope encompasses both academic and social interests of the University’s graduate student body. Officers and Senators meet regularly to discuss important issues and are often required to attend University-wide meetings with faculty, staff, administration and fellow students. The Graduate Student Senate is the primary body that represents the interests and concerns of the entire graduate student body at the University of Miami. The Senate is made up of one representative from every graduate department or program (currently there are 46 recognized graduate programs) at the University of Miami. The Senate coordinates most of the graduate activities and programs that the GSA sponsors, and acts as a hub for the exchange of information between different departments and programs. Typically, senators are either elected or appointed by their peers or program directors and serve for a one-year term. Each senator has one vote in the senate. Throughout the semester, the senate can issue directives, bills and resolutions pertaining to any aspect of graduate student life at the University of Miami, and works extremely closely with the Dean of the Graduate School in effecting changes and/or improvements.

The Senate, also as part of its charge, decides on and elects the new Executive Board of the Graduate Student Association each spring semester. Alternates are also elected or appointed to assist the senator when they are unable to carry out their duties.

The office of the GSA is located at Suite 21-T, 5606 Merrick Drive, please call 305-284-6750, e-mail: gsa@miami.edu, or visit our website at www.miami.edu/gsa for more information.

GRADUATE ACTIVITY FEE ALLOCATION COMMITTEE (GAFAC)

The unallocated portion of the graduate activity fee produces an annual fund that is available for graduate students to seek for enrichment of their various activities. The monies are allotted by a graduate student committee composed of nine elected representatives from Architecture, Arts and Sciences, Business, Communication, Education, Engineering, International Studies, Music and Nursing; and the Treasurer of the Graduate Student Association.

Petitions for funds are judged on the merits of the individual requests, the anticipated direct or indirect benefit to the University, the effort of the petitioners to generate support from other areas, past experience with the petitioning group, if applicable, and the current amount of funds available.
Forms for petitions are available in the Office of the Vice President for Student Affairs, Room 244, Ashe Building.

THE GRADUATE BUSINESS STUDENT ASSOCIATION

The Graduate Business Student Association (GBSA) is a professional and social student-run organization. All graduate business students become members once enrolled in a business masters program and are encouraged to attend meetings and events. The GBSA organizes presentations by executives from the business community on topics of interest to graduate students, and sponsors numerous social events and activities. The GBSA is governed by a committee that consists of a president, vice president professional, vice president social, secretary, member relations, treasurer, and promotions director. Elections take place at the end of each spring semester.

FINANCIAL ASSISTANCE

GRADUATE ASSISTANTSHIPS AND FELLOWSHIPS

There are a limited number of merit-based graduate assistantships which are awarded at the time of admission to qualified full-time MBA students entering in the fall semester only. Graduate Business Programs begins awarding assistantships in March. A graduate assistantship covers a portion of tuition for the MBA degree. Graduate assistantships are not automatically renewed.

In addition to graduate assistantships, there are a limited number of Emery Means Findley, Jr. Fellowships and scholarships which are awarded by Graduate Business Programs to applicants with outstanding academic credentials. Any applicant who wishes to be considered for a graduate assistantship or a fellowship, must indicate this in the space provided on the application. Awards are available to both domestic and international students.

DONOR SCHOLARSHIPS

Several endowed scholarships are made available to incoming graduate business students on a one-time basis through the generosity of alumni and friends of the University of Miami School of Business Administration. These donor scholarships are for the purpose of recruiting students of high academic merit. The total number and amount of scholarship awards vary from year to year.

Scholarships will be awarded based on the recommendations of the Faculty Admissions Committee on a first come, first served basis. Since the number of scholarships is limited, students who meet the minimum criteria are not guaranteed a donor scholarship award.

We regret that a student is ineligible for financial awards if he/she receives tuition benefits from the University of Miami or accepts any assistantship, scholarship, grant or fellowship from the University of Miami, in addition to our offer. This includes employees, their spouses, and dependents.
BANK OF AMERICA - ENDOWED BUSINESS SCHOLARSHIPS*
Criteria: A graduate business school student based on a combination of scholarship and financial need, who will preferably specialize in Finance, Accounting, or Management.

JACK R. BORSTING - GRADUATE SCHOLARSHIP ENDOWMENT
Criteria: Outstanding candidate for a master's level business degree.

PATRICK J. CESARANO – ENDOWED SCHOLARSHIP*
Criteria: Outstanding candidate for a master's level business degree.

PAT & LON WORTH CROW - SCHOLARSHIP ENDOWMENT*
Criteria: Graduate business student specializing in Finance, who possesses several years of work experience, preferably with an expressed interest in a career in banking or a banking-related field. U.S. citizen, preferably resident in South Florida community.

EMY MEANS FINDLEY, JR. – ENDOWED GRADUATE FELLOWSHIPS IN BUSINESS
Criteria: Outstanding candidates for Graduate Business Programs.

ALBERT AND ESTHER GREEN ENDOWED SCHOLARSHIP
Criteria: Graduate Business Student with a health challenge, or student studying or working in Health Administration.

ALLAN M. HERBERT & PATRICIA M. HERBERT – ENDOWED GRADUATE BUSINESS SCHOLARSHIP*
Criteria: Outstanding graduate business student, well-rounded, willing to finance his/her own education, and who appreciates the value of work and strives to combine study, work and extra-curricular activities.

JAMES W. McLAMORE – GRADUATE BUSINESS FELLOWSHIPS
Criteria: To recruit and retain outstanding graduate business students.

BRUCE E. MCLAUGHLIN & CYNTHIA M. SWOL - ENDOWED SCHOLARSHIP IN MARKETING*
Criteria: Graduate business student with concentration in Marketing, who has significant work experience prior to entering the MBA program. U. S. citizen, with preference given to female students with unmet financial need.

MERRILL LYNCH & CO. FOUNDATION, INC. – FELLOWSHIPS IN INTERNATIONAL FINANCE
Criteria: Graduate business student preparing for a career in International Finance.

SOUTHEAST BANKING CORPORATION FOUNDATION – ENDOWED SCHOLARSHIPS*
Criteria: Graduate student in the MBA program who is a Florida resident. Based on academic excellence and financial need.
* Essay Required

In 300 words or less, please explain why you need financial assistance to complete your MBA degree. The essay must be included with your application.

Various other donor scholarships are available based upon need, merit, or other specified criteria.

Students enrolled in M.A. or PH.D. programs through the Department of Economics should be aware of the following:

1. All candidates for the degree are required to be involved in teaching and/or research activities. The teaching and/or research is intended to be of primary benefit to the recipient in furtherance of his/her education and training.

2. Limited scholarship assistance is available on a competitive basis to Ph.D. candidates. These scholarships are not intended as compensation for services but are intended to assist outstanding students in furthering their education.

ZIFF GRADUATE CAREER SERVICES CENTER

A. The Ziff Graduate Career Services Center’s mission is to provide top quality resources and career guidance to School of Business graduate students and build strong partner relationships with the corporate community.

1. The Ziff Career Services Team is committed to providing each student a personalized program and the resources and skills needed to be competitive in the marketplace.

2. The Ziff Career Services Team is the student’s frontline resource to securing employment upon graduation. Students who engage with the Ziff Graduate Career Services Center will utilize the staff to assist them in developing an effective career strategy and marketing campaign that will prepare them for a successful job search at all levels of their career. The marketing campaign will equip the student with a strategic résumé, perfect their interview skills, generate contacts, develop networking opportunities, and prepare them for a successful career transition.

B. RESOURCES

1. Ziffcareercenter.com – The center’s online portal where students find access to the Ziff Professional Network, links to many of Ziff’s career resources, access to all current job postings and upcoming events.

2. Careerleader – An assessment tool specifically developed for MBA students that provides expert assessment of a student’s unique pattern of business relevant interests, values and abilities.

3. InterviewStream – Take a virtual interview which will provide feedback and tips of non-verbal behavior and communication missteps.

4. Careershift - a tool that provides you access to thousands of national contacts based on company, alumni affiliation, location and create targeted contact lists. One-stop location to conduct national and local job search for both full-time and internship opportunities.

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5. Vault.com – Provides inside information and advice on industries, companies, the job search and industry interview prep.
6. MonsterTrak – Job search tool to search graduate level jobs and internships from local and national companies.
7. GoingGlobal – the leading provider of both country-specific and USA city-specific career and employment information. Features 30 Country Career Guides, 41 USA City Career guides, corporate profiles and more than 500,000 internship and job listings within the USA and around the world.
8. US Jobs – For international students to identify opportunity for H1B jobs and Visa sponsorships.
9. Myvisajobs.com - Current job listings and information on companies that hire international students.

C. REGISTRATION
1. Graduate business students that are seeking employment post graduation are required to register with the Ziff Graduate Career Center to commence your Career Management Plan.
2. The registration process begins with the Pre-MBA On-Boarding Program. Students are required to complete key assignments prior to orientation.

D. ON CAMPUS INTERVIEWS/CORPORATE RECRUITING
1. The recruiting program begins in the fall semester from mid-September through mid-December and continues from mid-January through May.
2. The Ziff Graduate Career Center has a national focus, contacting Fortune 1000 and southeast regional companies to form a recruiting relationship with them to increase exposure for University of Miami School of Business Administration graduates.
3. MBA/Masters students can utilize the Ziff Graduate Career Services Center’s Internet Employment system, www.ziffecareercenter.com to sign up for on-campus interviews, monitor corporate presentation schedules, upload resumes and cover letters, and stay abreast of job opportunities offered by companies that are recruiting on campus and to access the Ziff Professional network.

E. INTERNSHIPS
1. The School of Business Administration encourages students to augment their classroom experience through participation in a summer internship.

F. CAREER EMPLOYMENT LISTINGS
1. The School of Business has established relationships with many companies both locally and nationally.

2. The Ziff Graduate Career Center regularly receives career opportunities that are made available through www.ziffecareercenter.com to students and alumni alike so they can review career opportunities listed with the center.

G. RÉSUMÉ BOOKS
1. Each year, the Ziff Graduate Career Center produces for employers, targeted résumé books of graduating students and students seeking summer
internships.

2. With the student’s permission, the Ziff Graduate Career Center will place the student’s résumé on the Ziff Web Résumé Book, providing access to recruiters throughout the world, who seek University of Miami résumés.

H. CAREER INFORMATION

1. Company contact information can be accessed by students through many resources including the Ziff Professional Network, CareerShift, LinkedIn and MiamiAlumni.net.

2. Available online resources are Vault, and many other sources providing comprehensive business information via the Web. Additional corporate information is available in the Career Resource Room in the form of business publications and newspapers.

3. Students can access numerous popular web sites listing positions both nationally and internationally using state-of-the-art computers in the Ziff Resource Room.

I. NETWORKING CONTACTS

1. Ziff Professional Network – Students can increase their network by using the online Ziff Professional Network tool. The network includes employer contacts and alumni who serve as mentors, provide career advice and are willing to share their industry knowledge and work experience.

2. 'Cane Connections is an online University of Miami database that allows students to talk to alumni throughout the United States about their work experiences and gather other career related information. The database is a valuable network of contacts in a variety of fields. It is accessible through www.miamialumni.net.

3. Students are invited to join the School of Business MBA group on Linkedin and Facebook, an easy way to reach out to more contacts and build your network circle.

J. STUDENT RESPONSIBILITY

1. Ultimately, success in securing a job is defined by the student. Together with the Ziff Graduate Career Center as a partner, the student can create a successful marketing campaign that will connect him/her to a network of contacts and networking opportunities leading to interviews and job offers.

2. Students are to register online with the Ziff Graduate Career Center during the Pre-MBA On-Boarding cycle. All pre-MBA assignments need to be completed prior to orientation. The career action plan and strategy will be built through numerous advising appointments and workshop events.

3. Students are required to meet with a career advisor in term one to discuss their career goals and develop a personalized career action plan/marketing campaign that will lay out the strategy and timing sequence of their goals.
4. Students are expected to visit the Ziff Graduate Career Center regularly and access [www.ziffecareercenter.com](http://www.ziffecareercenter.com) to identify and attend on-campus recruiting activities, corporate presentations, relevant workshops and MBA clubs sponsored events.

The Ziff Graduate Career Services Center is located in the School of Business complex on the first floor of the Jenkins Building.

**THE MENTOR PROGRAM**

1. The School of Business Mentor Program is designed to enhance the classroom experience by matching students one-to-one with local professionals working in the students’ area of career interest, or versed in areas of professional development.

2. Through personal interaction with experienced business professionals, students gain an understanding of corporate culture, career directions, and networking. Students also have the opportunity to interact with other mentors by attending regular roundtables, hosted by the School.

3. Graduate business students are encouraged to participate.

4. Applications are available at the School of Business Office of Alumni Relations, 215 Jenkins Building. Phone: 305-284-4052
DEGREE PROGRAMS

The Department of Accounting offers two degree programs leading to the Masters degree:

Master of Professional Accounting (MPrA) and
Master of Science in Taxation (MST).

While the programs are similar in that they offer an opportunity to concentrate in accounting, they differ in degree of specialization and career path orientation.

For the undergraduate accounting major these programs should satisfy the educational requirements to become eligible to be a CPA in the State of Florida as well as in most other states. The State of Florida requirements include (for students with an undergraduate degree from an accredited university):

1. an additional 30 semester credit hours of work beyond the bachelors degree (not necessarily at the graduate level),
2. 36 semester hours of accounting beyond principles of accounting (ACC 211 and 212)
3. 39 semester hours of other business courses including at least 6 semester hours of Business Law.

Additional information on CPA exam requirements may be obtained from the Department of Accounting.

For admission to both programs, based on an undergraduate degree from an accredited U.S. institution, we consider the applicant’s undergraduate grade point average, GMAT score (required), and grades in specific accounting courses, the rigor of the undergraduate program, and other factors such as work experience. Admission decisions are made on a competitive basis from the applicant pool.

Students without an undergraduate degree in accounting will be required to take certain prerequisite courses to secure admission. These prerequisites will depend upon the undergraduate major and previous accounting courses taken.

Foreign students must provide evidence of proficiency in English by supplying a TOEFL score.

Additionally, foreign students must have successfully completed two semesters of intermediate accounting, one semester of cost accounting, one semester of auditing, and one semester of tax at a U.S. university accredited by the AACSB before enrolling in graduate accounting courses.

SCHOLARSHIPS

University of Miami School of Business - Alumni Association Endowed Accounting Scholarships are available for students pursuing Graduate Studies in Accounting. Various other scholarships and assistantships may be available. An application may be obtained from the Department.
MASTER OF PROFESSIONAL ACCOUNTING (MPRA)

This program offers the highest degree of concentration in financial and managerial accounting, auditing and systems that are needed by accounting professionals in public accountancy and industry.

Emphasis is placed on the development and ongoing evolution of generally accepted accounting principles and auditing standards, product costing trends and issues and familiarization with the computer as an important tool of the accounting professional.

The MPRA is an ideal program for those who will seek employment with public accounting firms as auditors or with industry or government as accounting and information specialists.

The MPRA is designed for the student who has taken the accounting and related courses required for an undergraduate major in accounting.

These students should be able to complete the MPRA in a year or less provided they enroll as full time students.

The MPRA requires 30 semester hours consisting of the courses listed below, provided the student has an undergraduate major in accounting, which satisfies AACSB accreditation standards.

Students pursuing the MPRA Degree must take the required courses specified and may select additional accounting courses as electives in consultation with the program director.

Students must complete a total of 30 semester hours from the following:

Required Courses (12 Hours):

ACC 602 - Analysis of Financial Statements
ACC 604 - Seminar in Cost Accounting
ACC 610 - Accounting Research and Theory
ACC 622 - Advanced Issues in Auditing

Elective Courses (18 Hours):

In addition to the above required courses, a student must select 18 credit hours in other courses, which may be earned at the 500 or 600 level. Students may take non-accounting courses with the permission of the Department, but at least 6 hours of the 18 hours of electives must be in accounting courses. In preparation for the CPA exam, students may wish to take Business Law 575, Advanced Business Law. Altogether, of the 30 credit hours required to complete the MPRA, no more than 6 credit hours may be earned at the 500 level.

In consultation with the program director, students may select from the following courses:

601 - Trends in Present Day Accounting
603 - Studies in Financial Reporting Issues
606 - Internal Auditing
611 - Auditing Seminar
620 - Accounting Controls in Information Technology
621 - Advanced Cost Accounting
Undergraduate Course Requirements

The courses listed below are undergraduate prerequisites that, unless already completed, must be fulfilled in order to be admitted for graduate study. For certain graduate tax classes the undergraduate equivalent of Corporate and Partnership Income Tax (ACC 404: Advanced Taxation) is required. If a candidate does not have an undergraduate business degree, additional business prerequisites (economics, marketing, management, finance and others) will also be required.

Principles of Financial Accounting (ACC 211)
Managerial Accounting (ACC 212)
Intermediate Financial Accounting I and II (ACC 311 and 312)
Cost/Managerial Accounting (ACC 301)
Fundamentals of Taxation (ACC 403)
Auditing (ACC 402)

MASTER OF SCIENCE IN TAXATION

This program affords the accounting major or equivalent the opportunity to specialize in the area of federal taxation.

Emphasis is placed on a thorough grounding in the principles of tax research, corporate taxation, and taxation of partnerships and partners.

Courses address issues in both tax compliance and tax planning.

Through electives, students are able to expand their areas of expertise, so that they may adequately prepare themselves for careers requiring a high degree of specialized tax knowledge in public accounting, private industry, and government.

The program requires 30 semester hours, taken from the following:

Required Courses (12 Hours):

ACC 640 - Corporations I
ACC 641 - Corporations II
ACC 643 - Tax Research
ACC 645 - Partnerships
Elective Tax Courses (6 to 12 Hours) from the following:

ACC 647 - Estates and Gift Taxes
ACC 649 - Issues in Tax Policy
ACC 662 - Taxation of Multinational Corporations
ACC 623 - International Accounting and Taxation

Other electives - 6 to 12 hours.

GRADUATE CERTIFICATE PROGRAMS IN ACCOUNTING AND TAXATION

The Graduate Certificate in Accounting and the Graduate Certificate in Taxation programs are designed for students who have an undergraduate degree in accounting and wish to complete the educational requirements to become a CPA in Florida. The Graduate Certificate in Accounting consists of 12 semester hours in graduate level accounting (or tax) classes (other than ACC 600, ACC 607, ACC 608, ACC 670, ACC 671, ACC 672, and ACC 673 which are for MBA non-accounting students). The Graduate Certificate in Taxation consists of 12 semester hours in graduate level tax or accounting classes of which at least 9 semester hours are in taxation.

Applicants for the Graduate Certificate in Accounting or Certificate in Taxation must have an overall undergraduate GPA of 3.0, a GPA of 3.0 or higher for upper division (300-level and above) accounting courses, and completed all of the requirements for an undergraduate accounting major before beginning to take graduate classes. Students who have taken their undergraduate accounting classes at an accredited school other than the University of Miami will be evaluated on an individual basis (and may need a higher GPA to meet our admission standards).

Students must satisfy all prerequisites for classes they wish to take. Students can choose to take less than four courses under this program; however, they must complete 12 semester hours in graduate accounting or tax classes at UM to receive a certificate. Students wishing to take more than 12 semester hours of graduate accounting or tax classes would have to apply and be admitted to the Master of Professional Accounting or the Master of Science in Taxation program before taking any additional courses. Students with a 3.25 or better GPA in the graduate accounting courses can have these courses count for both the Certificate and the Master's program so that students could move into one of the Master's degree programs with no loss of credits.

Accounting Course Listing
BUSINESS LAW - Dept. Code:  BSL

The Department of Business Law does not offer a graduate degree program.

Business Law Course Listing

COMPUTER INFORMATION SYSTEMS - Dept. Code:  CIS

MASTER OF SCIENCE IN COMPUTER INFORMATION SYSTEMS (CIS)

The CIS department is not admitting students into the Master of Science degree program at this time. Anyone who is interested in the Information Systems / Information Technology area, within the School of Business, could pursue an MBA degree with a concentration in CIS.

Computer Information Systems Course Listing
ECONOMICS - Dept. Code: ECO

DEGREE PROGRAMS

The Department of Economics offers the Master of Arts and Doctor of Philosophy degrees. Applicants for admission to graduate study in Economics should have an extensive background in Economic Theory and Quantitative methods.

I. The Master of Arts program may serve as a terminal degree for students preparing for careers in business, government, international agencies, or teaching, or as the first phase of a prospective doctoral program. The program of study, which consists of thirty credits, is structured as follows:

a. All Master of Arts students must take the following core that consists of the following courses:

i. a 500-level mathematical economics course (ECO 510)
ii. a 500-level econometrics course (ECO 520)
iii. a 500-level macroeconomics course (ECO 521)
iv. a 500-level microeconomics course (ECO 533)
v. a 600-level macroeconomics course (ECO 621)
vi. a 600-level microeconomics course (ECO 633)
vii. a 500 level mathematics course (MTH 512)
viii. 600 level econometrics (ECO 620)

b. Additional requirements are as follows:

i. two courses in an area of specialization in a major economic discipline (e.g., international trade) or two related disciplines (e.g., health economics and labor economics)

ii. comprehensive examinations over the core and area of specialization

c. Furthermore, all applicants must submit their scores on the GRE, hold a baccalaureate degree from an institution of recognized standing, and have demonstrated, by their undergraduate record, capability of completing an M.A. program. In addition, foreign students are required to score 550 on the Test of English as a Foreign Language.

2. The Ph.D. program prepares the recipient for a variety of career opportunities, including university teaching, federal, state, and local government employment, and a host of employment opportunities in the private sector. The Ph.D. program, which consists of a total of sixty credits, is structured as follows:

a. All Doctor of Philosophy students must take the core that consists of the following courses:

i. 500-level mathematical economics courses (ECO 512)
ii. a 500-level macroeconomics course (ECO 521)
iii. a 500-level microeconomics course (ECO 533)
iv. a 500-level econometrics course (ECO 520).
v. two 600-level econometrics courses (ECO 620, 625)
vi. A 500 level mathematics (MTH 533)
vii. three 600-level microeconomics courses (ECO 633, 634, and 635)
viii. two 600-level macroeconomics/monetary theory courses (ECO 621, 603)

b. Two fields of specialization are required. A field is comprised of two courses. These two fields are selected from the following areas of concentration:
i. ECO 603, 604
ii. international trade (ECO 661, 760)
iii. human resource economics (ECO 511, 586, 611)
iv. cognate areas with departmental approval

c. One elective must be taken. Elective courses may be selected from the graduate offerings of the Mathematics, Computer Information Systems, Management Science, and Finance departments.

d. Additional Requirements:
i. comprehensive examinations covering the core and the one field of specialization
ii. a doctoral dissertation for 12 credit hours.

e. To be considered for admission, all applicants must
i. score a minimum of 1100 on the Graduate Record Examination general tests (combined verbal and quantitative scores),
ii. hold a baccalaureate degree from an institution of recognized standing,
iii. submit two copies of their official undergraduate transcript,
iv. have demonstrated, by their undergraduate record, capability of completing a Ph.D. program.
v. In addition, foreign students are required to score a minimum of 550 on the Test of English as a Foreign Language.

Economics Course Listing
EXECUTIVE AND SPECIAL PROGRAMS - Dept. Code: ESP

Executive and Special Programs Course Listing

FINANCE - Dept. Code: FIN

The Department of Finance does not offer a graduate degree program.

Finance Course Listing

MANAGEMENT - Dept. Code: MGT

The Department of Management does not offer a graduate degree program.

Management Course Listing

MANAGEMENT SCIENCE - Dept. Code: MAS

The Management Science Department is not admitting students into the Master of Science degree program at this time. Students interested in Management Science, Operations Research, or Applied Statistics within the School of Business are encouraged to pursue an MBA degree with a concentration in Management Science.

Management Science Course Listing

MARKETING - Dept. Code: MKT

The department of Marketing does not offer a graduate degree program.

Marketing Course Listing
DEPARTMENTS

The School of Communication is a non-departmentalized School with graduate programs in Communication, Communication Studies, Electronic Media, Journalism, Motion Pictures and Public Relations.

ADMISSION REQUIREMENTS

Admission to graduate studies at the Master’s level:

Requirements for admission to graduate status for the Master of Arts or Master of Fine Arts degree in the School of Communication are:

- A baccalaureate degree from an accredited institution
- The School’s official application
- A $50.00 non-refundable application fee
- Official transcripts of all undergraduate and graduate college work
- Three letters of recommendation
- Official Graduate Record Examination (GRE) scores or the requisite portfolio for the M.F.A. in Motion Pictures
- Official TOEFL scores for international students
- A 500-word typed statement of academic and professional goals
- Essays or other writing samples as required by the Journalism and Film Studies programs.

Contact the School’s Graduate Studies Office for further information.

Admission Requirements for Doctoral level studies:

Requirements for admission to graduate status for the Doctor of Philosophy in Communication are:

- A Master’s degree in communication, or in another appropriate field, is required of all applicants. The degree must be in addition to a bachelor’s degree. All degrees must be from accredited institutions.
- The School’s official application
- A $50.00 non-refundable application fee
- Official transcripts of all undergraduate and graduate college work
- Three letters of recommendation
- Official Graduate Record Examination (GRE) scores
- Official TOEFL scores for international students
- Letter of intent – a minimum 500 word typed statement of academic and professional goals
- A copy of the completed Master’s thesis or comparable scholarly work if no Master’s thesis has been completed. If the Master’s thesis is in progress, completed chapters should be submitted.
- Resume
DEGREE PROGRAMS

The School of Communication offers graduate programs leading to the Doctor of Philosophy, Master of Arts and Master of Fine Arts degrees.

COMMUNICATION (Ph.D.)

The Ph.D. program is a highly individualized and innovative program. Students are paired after their first year of study with a faculty member who assists the student in developing the requisite research techniques, teaching, writing, and media skills necessary for an outstanding media, business, industry, or educational career.

Research interests of the School of Communication faculty are diverse. Possible areas of specialization for doctoral work include intercultural communication, health communication, organizational communication, international communication, political communication, interpersonal communication, film studies, public relations, and mass communication.

COMMUNICATION STUDIES (M.A.) is a program designed to provide students with a rigorous educational experience, to develop an advanced understanding of the human communication process, to increase awareness of the interdisciplinary nature of the communication field, and to develop oral, written, critical thinking, and research skills. The 30-credit thesis track program emphasizes the student’s development of research skills. The 36-credit non-thesis track program focuses on a theoretical foundation with emphasis on applied communication.

JOURNALISM (M.A.) is an intensive program of academic study and supervised, hands-on practice designed to develop competitive, high-level newsgathering, reporting, news writing, and news editing skills. Students have the option to concentrate in PRINT JOURNALISM, TELEVISION BROADCAST JOURNALISM, or MULTIMEDIA JOURNALISM. Operating in a converged news bureau setting, the program begins in the fall semester. No prior training or experience in journalism is required.

FILM STUDIES (M.A.) examines the creative, historical, critical and theoretical aspects of motion pictures. The curriculum seeks to develop the student’s research, analytical and writing skills to a high level of professional scholarship and research. Thesis is required.

MOTION PICTURES (M.F.A.) offers programs with emphasis in PRODUCTION, PRODUCING, or SCREENWRITING. Students are required to complete three critical studies courses, three professional development courses, and three production or screenwriting courses. With the approval and supervision of the faculty, each student conceives and executes or produces a major creative project – either a motion picture or a feature-length screenplay. All M.F.A. students must demonstrate competence in a required list of readings or films included in required Film Culture classes. Incoming students without fundamental knowledge or skill in production or screenwriting may be required to take one or more undergraduate courses or complete an intensive production or screenwriting workshop conducted at the beginning of each fall semester.

PUBLIC RELATIONS (M.A.) offers two programs. The 30-credit thesis track program provides an opportunity to supplement a working foundation and knowledge with pertinent theory and research methodologies. A second non-thesis track program builds
from a foundation of public relations and communication courses. A practicum is required in lieu of a thesis for this 36-credit program.

**SPANISH LANGUAGE JOURNALISM (M.A.)** offers a professional news media graduate program taught in Spanish. The various journalism cultures of the Americas are studied and compared. The program serves recent graduates of communication and related programs and mid-career professionals who want to update their skills and advance their knowledge of media theories with information and multimedia technologies, industry and management skills, and ethical and policy knowledge.

Graduate students are encouraged to pursue independent and critical thinking, research and creative work as appropriate to the fulfillment of the requirements of their degree. In addition, the graduate program seeks to support innovative approaches and ideas and to aid in the pursuit of relevant scholarly and creative endeavors.

**DEGREE REQUIREMENTS**

Programs of Study for the Master of Arts and Master of Fine Arts degrees are available with these options:

**MASTER OF ARTS - THESIS TRACK**

For programs including a thesis, the candidate must complete a minimum of 30 credit hours on the graduate level with the approval of a faculty advisor. Of the 30 credit hours, 15 credit hours must be at or above the 600 level. Six credit hours will be earned for thesis work. The thesis may represent an applied research project, original research, or a critical review on a topic approved by a thesis committee. The thesis committee chair must be a member of the Graduate Faculty of the University. A thesis is required in Film Studies, and for thesis-track Communication Studies and Public Relations students.

**MASTER OF ARTS - NON-THESIS TRACK**

Students must complete a minimum of 36 credit hours on the graduate level with the approval of a faculty advisor. Of the 36 credit hours, 18 must be at or above the 600 level.

**MASTER OF FINE ARTS**

The candidate must complete a minimum of 42 credit hours with the approval of a faculty advisor. Of the 42 credit hours, at least 24 must be at or above the 600 level.
GENERAL DEGREE REQUIREMENTS

1. All students in the Master of Arts (M.A.) program will complete the following core courses:

   COM 601 Theories of Communication or CMP 667 Film Culture II

   COM 602 Methods of Communication Research and/or COM 603 Qualitative Research Methodologies

2. All students in the Master of Fine Arts (M.F.A.) program will take 3 courses from Critical Studies, 3 courses from the Professional Development offerings, 3 Production courses, 4 Elective courses, and complete the requisite M.F.A. thesis project.

3. With the approval of a faculty advisor, a student may take from 6 to 15 credits hours in courses outside the School of Communication.

4. Candidates in thesis programs must have their thesis proposals formally approved by their thesis committee following a personal meeting with committee members. Candidates will be given final oral examinations in defense of their thesis.

5. Final (Capstone) Projects or written comprehensive examinations are required in some M.A. programs.

All students should consult the School of Communication Graduate Studies Handbook for additional requirements.

It is the responsibility of the student to apply for graduation either during registration for the final semester or before the date indicated on the Graduate School calendar and the Schedule of Classes. Students who previously applied for a diploma but did not receive the degree must repeat the application procedure. Graduation is based in the following:

a. Students must complete the minimum credits required for their area of study with a minimum GPA of 3.0.

b. Course substitutions will not apply toward graduation without the written approval of the Program Director of the area and the Vice-Dean for Graduate Studies.

c. Students are required to have the approval of the area Program Director and the Vice-Dean for Graduate Studies to take courses at another University.

Communication Studies (M.A.)

The goals of the Master of Arts program in Communication Studies are to provide students with a rigorous educational experience, to develop an advanced understanding of the human communication process, to increase awareness of the interdisciplinary nature of the communication field, and to develop oral, written, critical thinking, and research skills. Students may complete coursework in persuasion, interpersonal, intercultural, organizational, and health communication together with research methods applicable to these areas.
Two programs are offered. The thesis program emphasizes the student’s development of research skills under faculty supervision (30 credits). The non-thesis program focuses on a theoretical foundation with emphasis on applied communication (36 credits). Students will be prepared for leadership positions in public or private organizations at the national or international level, or pursue advanced degrees. Non-thesis students must complete a minimum of 36 credit hours on the graduate level with the approval of a faculty advisor. Of the 36 credits, 18 credit hours must be at or above the 600 level. No more than six hours will be allowed for advanced projects and directed research (599).

**REQUIRED COMMUNICATION CORE:**  
(Thesis/Non-Thesis Programs) 9 CREDITS

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COM 601</td>
<td>Theories of Communication</td>
<td>3</td>
</tr>
<tr>
<td>COM 602</td>
<td>Methods of Communication Research</td>
<td>3</td>
</tr>
<tr>
<td>COM 603</td>
<td>Qualitative Research Methodologies</td>
<td>3</td>
</tr>
</tbody>
</table>

**ELECTIVES:**  
(Thesis Program) 15 CREDITS  
(Non-Thesis Program) 27 CREDITS

Students may select elective courses within the School of Communication or the University; no more than six credits may come from outside the School of Communication.

Recommended electives are:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>COM 615</td>
<td>Social Effects of Mass Communication</td>
<td>3</td>
</tr>
<tr>
<td>COM 672</td>
<td>Seminar in Persuasive Communication</td>
<td>3</td>
</tr>
<tr>
<td>COS 560</td>
<td>The Executive Communicator</td>
<td>3</td>
</tr>
<tr>
<td>COS 591</td>
<td>Special Topics in Communication Studies</td>
<td>3</td>
</tr>
<tr>
<td>COS 599</td>
<td>Advanced Projects and Directed Research</td>
<td>3</td>
</tr>
<tr>
<td>COS 674</td>
<td>Seminar in Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>COS 682</td>
<td>Seminar in Organizational Communication</td>
<td>3</td>
</tr>
<tr>
<td>COS 684</td>
<td>Organizational Communication Audit Procedures</td>
<td>3</td>
</tr>
</tbody>
</table>

**THESIS COM 710**  
Master’s Thesis  
(Thesis Program) 6 CREDITS

**TOTAL CREDITS (Thesis Program)** = 30 CREDITS

**TOTAL CREDITS (Non-Thesis Program)** = 36 CREDITS

**JOURNALISM (M.A.)**

**Print Journalism Track**

School of Communication print journalism graduate students must complete a minimum of 36 credit hours on the graduate level with the approval of the Print Journalism program director. Of the 36 credit hours, 18 must be at or above the 600 level.
REQUIRED COMMUNICATION AND JOURNALISM CORE: 12 CREDITS

COM 601 Theories of Communication (3)
CNJ 612 History of Journalism Seminar (3)
CNJ 614 Media Law and Regulation (3)

Select one of the following courses:
COM 602 Methods of Communication Research (3) or
COM 603 Qualitative Research Methodologies (3)

REQUIRED PRINT JOURNALISM COURSES: 15 CREDITS

CNJ 611 Newswriting and Reporting Seminar (3)
CNJ 619 Advanced Newsgathering and Writing Seminar (3)
CNJ 624 Editing and Layout Seminar (3)
CNJ 626 Specialized Writing and Reporting Seminar (3)
CNJ 654 Writing for Publication (U/Miami News Service) (1)
    Fall, Spring and Summer I semesters

ELECTIVES: 9 CREDITS

With the approval of the program director, students will select courses relevant to desired areas of specialization. No more than six credit hours will be allowed for advanced projects and directed research. Courses may be taken with approval from other Schools and Departments.

CNJ 510 International Mass Communication (3)
CNJ 511 Global Media (3)
CNJ 513 Computer-Assisted Reporting (3)
CNJ 515 Reporting and the Internet (3)
CNJ 523 Sports Reporting (3)
CNJ 544 Feature Writing (3)
CNJ 599 Advanced Projects and Directed Research (3)
CNJ 609 Graduate Internship in Print Journalism (3)
CNJ 617 International Journalism (3)
COM 598 Special Topics in Communication: Web Design (3)

Summer study abroad courses in journalism writing or graphic design may be available. Check the summer schedule for details.

FINAL (CAPSTONE) PROJECT:

Students, in consultation with Program Faculty, will complete a final reporting project that reflects in-depth knowledge and analysis of a subject and professional competence in reporting it for the appropriate medium.

TOTAL CREDITS = 36
Television Broadcast Journalism Track

School of Communication television broadcast journalism graduate students must complete a minimum of 36 credit hours on the graduate level with the approval of the Television Broadcast Journalism program director. Of the 36 credit hours, 18 must be at or above the 600 level.

REQUIRED COMMUNICATION AND JOURNALISM CORE: 12 CREDITS

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COM 601</td>
<td>Theories of Communication (3)</td>
</tr>
<tr>
<td>CNJ 612</td>
<td>History of Journalism Seminar (3)</td>
</tr>
<tr>
<td>CNJ 614</td>
<td>Media Law and Regulation (3)</td>
</tr>
</tbody>
</table>

Select one of the following courses:

- COM 602 Methods of Communication Research (3)
- COM 603 Qualitative Research Methodologies (3)

REQUIRED TELEVISION BROADCAST COURSES: 21 CREDITS

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM 605</td>
<td>News Technologies (3)</td>
</tr>
<tr>
<td>CEM 606</td>
<td>Broadcast Journalism (3)</td>
</tr>
<tr>
<td>CEM 607</td>
<td>Broadcast Journalism II (3)</td>
</tr>
<tr>
<td>CEM 608</td>
<td>Long-Form Public Affairs Programming (3)</td>
</tr>
<tr>
<td>CNJ 611</td>
<td>Newswriting and Reporting Seminar (3)</td>
</tr>
<tr>
<td>CEM 635</td>
<td>The Broadcasting, Cable, and Electronic Media Industry (3)</td>
</tr>
<tr>
<td>CEM 653</td>
<td>Producing TV News (UM News Vision) (1)</td>
</tr>
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</tbody>
</table>

ELECTIVES: 3 CREDITS

With the approval of the program director, students will select a relevant course. No more than three credit hours will be allowed for advanced projects and directed research. Courses may be taken, with approval, from other Schools and Departments.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEM 599</td>
<td>Advanced Projects and Directed Research (3)</td>
</tr>
<tr>
<td>CEM 609</td>
<td>Internship in Electronic Media Journalism (3)</td>
</tr>
<tr>
<td>CEM 630</td>
<td>Topics in Electronic Communication (3)</td>
</tr>
<tr>
<td>CNJ 510</td>
<td>International Mass Communication (3)</td>
</tr>
<tr>
<td>CNJ 513</td>
<td>Computer-Assisted Reporting (3)</td>
</tr>
<tr>
<td>CNJ 523</td>
<td>Sports Reporting (3)</td>
</tr>
<tr>
<td>CNJ 515</td>
<td>Reporting and the Internet (3)</td>
</tr>
<tr>
<td>CNJ 544</td>
<td>Feature Writing (3)</td>
</tr>
<tr>
<td>CVJ 521</td>
<td>Visual Storytelling Seminar (3)</td>
</tr>
</tbody>
</table>
FINAL (CAPSTONE) PROJECT:

Students, in consultation with Program Faculty, will complete a final reporting project that reflects in-depth knowledge and analysis of a subject and professional competence in reporting it for the appropriate medium.

TOTAL CREDITS = 36

**Multimedia Journalism Track**

This one and a half year (including summer) program culminates in a multimedia project class in which the student produces a multimedia project of significance. This capstone will be completed under COM 695.

Multimedia Journalism M.A. students must complete a minimum of 36 credit hours, 33 of which must be at the 500- or 600-level, selected with the approval of the faculty advisor.

**REQUIRED CORE:** 9 CREDITS

- COM 601 Theories of Communication (3)
- COM 603 Qualitative Research Methodologies (3)
- CNJ 614 Media Law and Regulation (3)

**REQUIRED VISUAL JOURNALISM COURSES:** 15 CREDITS

- CVJ 519 Interactive Storytelling (3)
- CVJ 422 Programming for Interactivity (3)
- CVJ 522 Design Portfolio Seminar (Multimedia) (3)
- CVJ 521 Visual Storytelling Seminar (3)
- CNJ 599 Advanced Projects (Team Multimedia Project) (3)

**AREA OF CONCENTRATION:** 6 CREDITS

Students will select an area of concentration: Multimedia Programming or Visual Journalism for Multimedia.

Multimedia Production Programming students must take:

- CNJ 595 Special Topics in Journalism (3-D Infographics) (3)
- CNJ 595 Special Topics in Journalism (Advanced Programming) (3)

Visual Journalist for Multimedia students must take two of the following courses:

- CNJ 595 Special Topics in Journalism (Photographic Storytelling) (3)
- COM 609 Special Topics in COM (Advanced Audio and Video Narratives) (3)
- CNJ 599 Advanced Projects (Documentary Photojournalism) (3)
- CMP 558 Documentary Production (3)

**CAPSTONE:** COM 695 Directed Readings 6 CREDITS

TOTAL CREDITS = 36
Spanish Language Journalism Track

This program is designed to allow students to take advantage of the facilities of the University of Miami through limited residence requirements; small groups of selected students participate in six intensive two-week sessions during a 12-month period. All courses are taught in Spanish by University of Miami faculty members and by noted Latin American and U.S. Hispanic journalists and media specialists.

REQUIRED SPANISH JOURNALISM CORE: 12 CREDITS

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COM 601</td>
<td>Theories of Communication</td>
<td>3</td>
</tr>
<tr>
<td>COM 603</td>
<td>Qualitative Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>CNJ 611</td>
<td>News writing &amp; Reporting Seminar</td>
<td>3</td>
</tr>
<tr>
<td>CNJ 614</td>
<td>Media Law &amp; Regulation</td>
<td>3</td>
</tr>
</tbody>
</table>

REQUIRED SPANISH JOURNALISM COURSES: 24 CREDITS

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNJ 513</td>
<td>Computer-Assisted Reporting</td>
<td>3</td>
</tr>
<tr>
<td>CNJ 612</td>
<td>History of Journalism Seminar</td>
<td>3</td>
</tr>
<tr>
<td>CNJ 617</td>
<td>International Journalism</td>
<td>3</td>
</tr>
<tr>
<td>CNJ 619</td>
<td>Advanced Newsgathering and Writing Seminar</td>
<td>3</td>
</tr>
<tr>
<td>CNJ 620</td>
<td>Online Journalism</td>
<td>3</td>
</tr>
<tr>
<td>CNJ 624</td>
<td>Editing and Layout Seminar</td>
<td>3</td>
</tr>
<tr>
<td>CNJ 626</td>
<td>Specialized Writing and Reporting Seminar</td>
<td>3</td>
</tr>
<tr>
<td>CNJ 655</td>
<td>Media Management and Entrepreneurship</td>
<td>3</td>
</tr>
</tbody>
</table>

COMPREHENSIVE EXAMINATION:

Written Comprehensive Examinations are required for this degree. This exam requires the graduate student to demonstrate an articulate understanding of the primary concepts and issues of their chosen field of specialization within the larger context of communication. Generally, the exam is a total of six (6) hours consisting of 4 separate exams. An oral examination may be required following the written exams.

TOTAL CREDITS = 36

Public Relations (M.A. - Thesis)

This program includes a thesis. Students must complete a minimum of 30 credit hours at the graduate level with the approval of a faculty advisor. Of the 30 credit hours, 15 credit hours must be at or above the 600 level. No more than six hours will be allowed for advanced projects and directed research (599). Six credit hours will be earned for thesis work.

REQUIRED COMMUNICATION AND PUBLIC RELATIONS CORE: 12 CREDITS

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COM 601</td>
<td>Theories of Communication</td>
<td>3</td>
</tr>
<tr>
<td>CPR 620</td>
<td>Public Relations Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>CPR 625</td>
<td>Seminar in Public Relations Administration</td>
<td>3</td>
</tr>
</tbody>
</table>
Select one of the following courses:
COM 602   Methods of Communication Research (3) or
COM 603   Qualitative Research Methodologies (3)

PUBLIC RELATIONS SEQUENCE:   12 CREDITS
CPR 571   Media Relations (3)
CPR 582   International Public Relations (3)
CPR 584   Public Relations Management (3)
CPR 629   Public Relations Seminar: Fundraising in the Not-for-Profit Sector (3)
CPR 632   Seminar in Public Relations and Political Campaigns (3)
CPR 633   Seminar in Public Relations: Lobbying and Pressure Groups (3)
CPR 634   Seminar in Public Relations: Non-profit Groups and Governmental Institutions (3)
CPR 644   Seminar in Public Relations Ethics (3)
COM 615   Social Effects of Mass Communication (3)

No comprehensive examinations are required for this degree.

THESIS:   6 CREDITS
COM 710 Master’s Thesis (6)

TOTAL CREDITS = 30

**Public Relations (M.A. - Non-Thesis)**

School of Communication graduate students who elect a program without a thesis and with
a practicum must complete a minimum of 36 credit hours on the graduate level with the
approval of the faculty advisor. Of the 36 credit hours, 18 must be at or above the 600
level.

REQUIRED COMMUNICATION AND PUBLIC RELATIONS CORE:   12 CREDITS
COM 601   Theories of Communication (3)
CPR 620   Public Relations Fundamentals (3)
CPR 625   Seminar in Public Relations Administration (3)

Select one of the following courses:
COM 602   Methods of Communication Research (3) or
COM 603   Qualitative Research Methodologies (3)

PUBLIC RELATIONS SEQUENCE:   12 CREDITS
CPR 571   Media Relations (3)
CPR 582   International Public Relations (3)
CPR 584   Public Relations Management (3)
CPR 629   Public Relations Seminar: Fundraising in the Not-for-Profit Sector (3)
CPR 632   Seminar in Public Relations and Political Campaigns (3)
CPR 633   Seminar in Public Relations: Lobbying and Pressure Groups (3)
CPR 634   Seminar in Public Relations: Non-profit Groups and Governmental Institutions (3)
CPR 644   Seminar in Public Relations Ethics (3)
COM 615   Social Effects of Mass Communication (3)

ELECTIVES:   9 CREDITS
At least six credits must be taken outside the School of Communication’s Public Relations program.

No written comprehensive examinations are required for this degree.

PRACTICUM: 3 CREDITS
CPR 690 Public Relations Practicum I (3)
COM 725 Continuous Registration – Master's Study (0) (may be required for full time study)

TOTAL CREDITS = 36

Film Studies (M.A.)

This program includes a thesis. Students must complete a minimum of 30 credit hours on the graduate level with the approval of a faculty advisor. Of the 30 credit hours, 15 credit hours must be at or above the 600 level. No more than six hours will be allowed for advanced projects and directed research (599). Six credit hours will be earned for thesis work.

REQUIRED FILM STUDIES COURSES: 9 CREDITS
COM 603 Qualitative Research Methodologies (3)
CMP 666 Film Culture I (3)
CMP 667 Film Culture II (3)

ELECTIVES: 15 CREDITS

With the approval of the faculty advisor, students must select additional credits in courses from inside or outside the School of Communication. These may include study abroad courses and the L.A. Experience. Electives should be carefully planned because they are not offered every semester. Recommended electives are:

CMP 503 Film Directors (3)
CMP 504 Aspects of Contemporary Cinema (3)
CMP 506 American Movie Genres (3)
CMP 507 Film, Society, and Culture (3)
CMP 529 Nonfiction Film (3)
CMP 565 The Structure of Dramatic Art (3)
CMP 594 Special Topics in Motion Pictures (3)
CMP 599 Advanced Projects and Directed Research (3)
CMP 645 Analysis of the Screenplay (3)
COM 598 Special Topics in Communication: Creative Problem Solving (3)

THESIS: 6 CREDITS
COM 710 Master’s Thesis (6)

TOTAL CREDITS = 30
M.F.A. in Motion Pictures – Production

Incoming students without fundamental knowledge in production may be required to take one or more undergraduate courses or complete an intensive production workshop conducted at the beginning of each fall semester.

A minimum of 24 credit hours must be at or above the 600 level. Students in the M.F.A. program Production Track must complete the required number of credits in each of the following distribution areas. Any exceptions must be arranged and approved in writing only by the Director of Motion Pictures.

CRITICAL STUDIES: 9 CREDITS

- CMP 503 Film Directors (3)
- CMP 504 Aspects of Contemporary Cinema (3)
- CMP 506 American Movie Genres (3)
- CMP 507 Film, Society, and Culture (3)
- CMP 529 Nonfiction Film (3)
- CMP 565 The Structure of Dramatic Art (3)
- CMP 645 Analysis of the Screenplay (3)
- CMP 666 Film Culture I (3)
- CMP 667 Film Culture II (3)
- COM 598 Special Topics in Communication: Creative Problem Solving (3)

PROFESSIONAL DEVELOPMENT: 9 CREDITS

- CMP 509 Legal Aspects of Motion Pictures (3)
- CMP 552 Motion Picture Marketing and Distribution (3)
- CMP 553 Advanced Motion Picture Marketing (3)
- CMP 555 Producing the Motion Picture (3)
- CMP 566 Character and Dialogue (3)
- CMP 594 Special Topics in Motion Pictures: Producing the Independent Feature (3)
- CMP 627* Scriptwriting (3)
- CMP 628 Rewriting the Screenplay (3)
- CMP 638 Writing the Short Film (3)
- CMP 639* Writing for Series Television (3)
- CMP 661 Directing the Film (3)

*prerequisite: Permission of instructor

PRODUCTION: 9 CREDITS MINIMUM

- CMP 550 Motion Graphics and Compositing (3)
- CMP 551 Advanced Motion Graphics and Compositing (3)
- CMP 558 Documentary Production (3)
- CMP 605 Production Management (3)
- CMP 637 Motion Picture Workshop I (Production for Screenwriters) (3)
- CMP 651 Cinematography (3)
- CMP 652 Advanced Cinematography (3)
- CMP 656 Motion Picture Post-Production Procedures (3)

ELECTIVES: 9 CREDITS

582
With the approval of a faculty advisor or the program director, students must select additional credits in courses from inside or outside the School of Communication. These may include study abroad courses and the L.A. experience. Check the summer schedule for details. Electives should be carefully planned since they are not offered every semester.

M.F.A. PROJECT: 6 CREDITS
CMP 734 M.F.A. Project – Production (6)

TOTAL CREDITS = 42

M.F.A. in Motion Pictures – Producing

The following is a summary of the courses needed to meet the requirements of the M.F.A. program Producing Track. Any variation of courses must be approved, in writing, by the Motion Pictures program director. The schedule of course offerings may be subject to change. The following is a sample curriculum plan.

First Fall semester: 12 CREDITS
CMP 555 Producing the Motion Picture (3)
CMP 552 Motion Picture Marketing and Distribution (3)
CMP 661 Directing the Film (3)
CMP 666 Film Culture I (3)

First Spring semester: 12 CREDITS
CMP 509 Legal Aspects of Motion Pictures (3)
CMP 594 Special Topics in Motion Pictures: Script Development (3)
CMP 605 Production Management (3)
CMP 667 Film Culture II (3)

Second Fall semester: 9 CREDITS
CMP 594 Special Topics in Motion Pictures: Producing the Independent Feature (3)
CMP 565 The Structure of Dramatic Art (3)
CMP 734 M.F.A. Project – Production (3)

Second Spring semester: 9 CREDITS
CMP 553 Advanced Motion Picture Marketing (3)
CMP 645 Analysis of the Screenplay (3)
CMP 734 M.F.A. Project – Production (3)

TOTAL CREDITS = 42

M.F.A. in Motion Pictures – Screenwriting

Incoming students without fundamental knowledge in screenwriting may be required to take one or more undergraduate courses or complete an intensive screenwriting workshop conducted at the beginning of each fall semester.
A minimum of 24 credit hours must be at or above the 600 level. Students in the M.F.A. program Scriptwriting Track must complete the required number of credits in each of the following distribution areas. Any exceptions must be arranged and approved in writing only by the Director of Motion Pictures.

**CRITICAL STUDIES:** 9 CREDITS MINIMUM

- CMP 503 Film Directors (3)
- CMP 506 American Movie Genres (3)
- CMP 507 Film, Society, and Culture (3)
- CMP 529 Nonfiction Film (3)
- CMP 565 The Structure of Dramatic Art (3)
- CMP 645 Analysis of the Screenplay (3)
- CMP 666 Film Culture I (3)
- CMP 667 Film Culture II (3)
- COM 598 Special Topics in Communication: Creative Problem Solving (3)

**PROFESSIONAL DEVELOPMENT:** 9 CREDITS MINIMUM

- CMP 509 Legal Aspects of Motion Pictures (3)
- CMP 552 Motion Picture Marketing and Distribution (3)
- CMP 553 Advanced Motion Picture Marketing (3)
- CMP 555 Producing the Motion Picture (3)
- CMP 566 Character and Dialogue (3)
- CMP 594 Special Topics in Motion Pictures: Producing the Independent Feature (3)
- CMP 627* Scriptwriting (3)
- CMP 628 Rewriting the Screenplay (3)
- CMP 638 Writing the Short Film (3)
- CMP 639* Writing for Series Television (3)
- CMP 661 Directing the Film (3)
*prerequisite: Permission of instructor

**PRODUCTION:** 6 CREDITS MINIMUM

- CMP 551 Advanced Motion Graphics and Compositing (3)
- CMP 558 Documentary Production (3)
- CMP 605 Production Management (3)
- CMP 637 Motion Picture Workshop I (Production for Screenwriters) (3)
- CMP 651* Cinematography (3)
- CMP 652* Advanced Cinematography (3)
- CMP 656* Motion Picture Post-Production Procedures (3)
*prerequisite: Permission of instructor

**ELECTIVES:** 12 CREDITS

**M.F.A. PROJECT:** 6 CREDITS

- CMP 736 M.F.A. Project – Screenwriting (6)

**TOTAL CREDITS = 42**
DOCTOR OF PHILOSOPHY IN COMMUNICATION

Students will not be admitted to the doctoral program until they have earned a Master’s degree in communication or in another appropriate field.

Students must complete 57 credits of course work beyond the Master’s degree. Twenty-four credits must be in courses at the 600-level. No transfer credits may count toward these 24 credits.

At a minimum, 12 of the 57 credits must be dissertation credits.

REQUIRED CORE COURSES 21 CREDITS

COM 601 - Theories of Communication
COM 602 - Methods of Communication Research
COM 603 - Qualitative Research Methodologies
COM 604 - Advanced Communication Research Methods
COM 613 – History of Communication
COM 698 – Doctoral Seminars (2 3-credit courses)

School of Communication Electives 9-12 CREDITS

Courses outside the School of Communication 12-15 CREDITS

Examinations

All School of Communication Ph.D. students will be given written and oral qualifying examinations following the conclusion of all course work prior to being admitted to candidacy for the Ph.D. degree. A majority of the examination committee must be members of the Graduate Faculty of the University. A failure to pass the qualifying exams will require the student to retake and pass them within one calendar year. Any student who fails to be admitted to candidacy for the degree within this one-year period will be dismissed from the program.

Dissertation

Students must complete a minimum of 12 dissertation credits. Students must proceed with the dissertation after the dissertation committee has been appointed and the dissertation proposal has been approved by the committee and accepted by the Director of Graduate Studies and the Graduate School. The dissertation must be an investigation of a substantial scholarly topic. A final oral defense of the dissertation is required.

Requirements for Candidacy

Admission to Candidacy is based on:

a. GPA of at least 3.0
b. Approval from Program Director
c. Successful completion of qualifying examinations
DEPARTMENTS
- Educational and Psychological Studies (EPS)
- Exercise and Sport Sciences (ESS)
- Teaching and Learning (TAL)

DEGREE PROGRAMS

MASTER OF SCIENCE IN EDUCATION
The requirements for the degree of Master of Science in Education are described in a separate section.

SPECIALIST IN EDUCATION
The requirements for the degree of Specialist in Education are described in a separate section.

DOCTOR OF PHILOSOPHY IN EDUCATION
The Doctor of Philosophy degree with a major in education is designed to develop personnel competent to conduct research in a particular field of education or behavioral sciences.

Concentrations are offered in:
- exercise physiology (ESS),
- counseling psychology (EPS),
- language and literacy learning in multicultural settings (TAL),
- mathematics and science education (TAL),
- special education (TAL), and
- research, measurement, and evaluation (EPS).

DOCTOR OF EDUCATION
The Doctor of Education degree is designed to develop personnel in education competent to utilize the results of research in practical situations.

Concentration is offered in:
- higher education leadership (EPS)
ADMISSION REQUIREMENTS

Admission to Doctor of Philosophy in Education

1. Consideration for admission to the doctoral program will be based on the following factors:
   a. acceptable Graduate Record Exam (GRE) scores taken within the past five years; international applicants whose native language is not English must pass the Test of English for Foreign Languages (TOEFL);
   b. professional experience relevant to degree program;
   c. undergraduate grade point average of 3.0 or better (on a four point scale);
   d. three letters of recommendation that address the applicant’s academic potential;
   e. available student space in program;
   f. admissions interview (optional for TAL);
   g. personal characteristics relevant to the profession;
   h. For TAL: availability of faculty advisor willing to mentor the student.

2. Upon admission to graduate study, a supervisory committee, consisting of three members, will be appointed by the School of Education.
   a. The student will meet with the chairperson of this committee to design a Program of Study/Residency Plan.
   b. The Program of Study/Residency Plan must be approved by the supervisory committee, the department chairperson, and the Associate Dean of Academic Studies in the School of Education.
   c. The Program of Study/Residency Plan must be filed with both the Graduate School and the School of Education by the end of the second semester of enrollment or future registration will not be permitted.

3. All students are required to submit a signed Student Responsibility Checklist and the Graduate Student Honor Code by the end of their first semester of enrollment.

4. The residence requirement is two full-time consecutive semesters at the University of Miami.

5. The minimum total credits required beyond the Bachelor’s is 60, plus a minimum of 12 dissertation credits.

6. Fifteen credit hours of statistics and research methods are required as prescribed by the supervisory committee.

7. Students are required to maintain enrollment of at least one credit hour on a continuous basis during all fall and spring semesters until such time as they fulfill their doctoral degree requirements. Note: Failure to do so may result in additional fees and/or inability to continue the program.

8. Students are required to complete all Ph. D requirements within 8 years of initial enrollment.
In addition to the formal academic requirements, the School of Education requires its students to demonstrate personal qualities that, in the judgment of the faculty, would permit them to function effectively in their professional roles. The School of Education reserves the right to dismiss any student who is academically or personally unwilling or unable to carry out the professional responsibilities of the respective professions for which he/she is being trained. Conduct which may be considered unprofessional may include research or professional misconduct, dishonesty, cheating, plagiarism, sexual harassment, discrimination on the basis of race, ethnicity, religion, or sexual orientation, and inappropriate interpersonal behavior. It is up to all students to fulfill their responsibilities in a timely and professional manner, to represent themselves and the University with honesty, and to treat others with dignity and respect.

Admission to Doctor of Education

1. Consideration for admission to the doctoral program will be based on the following factors:
   a. acceptable Graduate Record Exam (GRE) scores taken within the past five years; international applicants whose native language is not English must pass the Test of English for Foreign Languages (TOEFL);
   b. professional experience relevant to degree program;
   c. undergraduate grade point average of 3.0 or better (on a four point scale):
   d. three letters of recommendation;
   e. available student space in program;
   f. admissions interview
   g. personal characteristics relevant to the profession;

2. Upon admission to graduate study, a supervisory committee, consisting of three members, will be appointed by the School of Education.
   a. The student will meet with the chairperson of this committee to design a Program of Study/Residency Plan.
   b. The Program of Study/Residency Plan must be approved by the supervisory committee, the department chairperson, and the Associate Dean of Academic Studies in the School of Education.
   c. The Program of Study/Residency Plan must be filed with both the Graduate School and the School of Education by the end of the second semester of enrollment or future registration will not be permitted.

3. All students are required to submit a signed Student Responsibility Checklist and the Graduate Student Honor Code by the end of their first semester of enrollment.

4. The minimum total credits required beyond the bachelors is 60, including a minimum of 12 dissertation credits.

5. A supporting area consisting of at least 12 credits is required; the student must be qualified for admission to graduate status in this area, and receive approval for enrollment from the appropriate department and from the School of Education.

6. Fifteen credit hours of statistics and research methods are required as prescribed by the supervisory committee.
7. Students are required to maintain enrollment of at least one credit hour on a continuous basis during all fall and spring semesters until such time as they fulfill their doctoral degree requirements. Note: Failure to do so may result in additional fees and/or inability to continue the program.

8. Students are required to complete all Ed. D requirements within 8 year of initial enrollment.

In addition to the formal academic requirements, the School of Education requires its students to demonstrate personal qualities that, in the judgment of the faculty, would permit them to function effectively in their professional roles. The School of Education reserves the right to dismiss any student who is academically or personally unwilling or unable to carry out the professional responsibilities of the respective professions for which he/she is being trained. Conduct which may be considered unprofessional may include research or professional misconduct, dishonesty, cheating, plagiarism, sexual harassment, discrimination on the basis of race, ethnicity, religion, or sexual orientation, and inappropriate interpersonal behavior. It is up to each student to fulfill their responsibilities in a timely and professional manner, to represent themselves and the University with honesty, and to treat others with dignity and respect.
MASTER OF SCIENCE IN EDUCATION
REQUIREMENTS FOR ADMISSION

1. Admission to the Master of Science in Education is based on the following:
   a. acceptable scores on the Graduate Record Exam (GRE) taken within the past five years. International applicants whose native language is not English must pass the Test of English as a Foreign Language [TOEFL] and the GRE. Teachers with at least three years full-time teaching experience may apply for a GRE waiver. If a GRE waiver is sought, a 3-page essay on an important educational topic is also required.
   b. completion of a bachelor’s degree from an accredited institution;
   c. acceptable undergraduate grade point average;
   d. three letters of recommendation;
   e. an interview (required by some programs);
   f. personal characteristics relevant to the profession;
   g. teachers who apply for a GRE waiver must submit a 3-page essay on an important topic in education.

2. Students must select a major from the areas offered. A School of Education faculty advisor in the student’s major will be appointed to meet with the student to design a Program of Study. The Program of Study must be on file in the Associate Dean’s Office by the end of the first semester of study or future registration will not be permitted.

3. All students are required to submit a signed Student Responsibility Checklist and the Graduate Student Honor Code by the end of their first semester of enrollment.

DEGREE REQUIREMENTS

REQUIREMENTS FOR GRADUATION

1. Students must pass a comprehensive written examination, portfolio (with an oral examination as a possible additional requirement), capstone course, project, thesis, or requirement specified by the program. When a thesis is chosen (in the ESS Dept. or EPS Dept.), a maximum of six credits may be counted toward the total degree requirement, and an oral examination in defense of the thesis will be required.

2. Students must complete a minimum of thirty credits at the graduate level with an average of B and no grade lower than C-. Course substitutions will not apply toward graduation without the written approval of the chairperson of the Department and the Associate Dean. Students are required to have Department and Associate Dean’s approval prior to taking a course at another university.
3. Students enrolled in any Florida Department of Education approved program must fulfill any and all additional requirements (e.g., passing state teacher tests) specified by the program approval.

4. Students are required to complete all master’s degree requirements within 6 years of initial enrollment.

5. Students in counseling must complete the required “Personal Growth Experience” form.

DEGREE PROGRAM REQUIREMENT

In addition to the formal academic requirements, the School of Education requires its students to demonstrate personal qualities that, in the judgment of the faculty, would permit them to function effectively in their professional roles. The School of Education reserves the right to dismiss any student who is academically or personally unwilling or unable to carry out the professional responsibilities of the respective professions for which they are being trained. Conduct which may be considered unprofessional may include research or professional misconduct, dishonesty, cheating, plagiarism, sexual harassment, discrimination on the basis of race, ethnicity, religion, or sexual orientation, and inappropriate interpersonal behavior. It is up to each student to fulfill their responsibilities in a timely and professional manner, to represent themselves and the University with honesty, and to treat others with dignity and respect.

RECENCY OF CREDIT

All work towards the Master’s degree must be completed within six years of initial enrollment.

SPECIALIST IN EDUCATION

The Specialist in Education is a graduate degree requiring a minimum of 30 hours beyond a Master’s degree. It is administered by the School of Education through the Graduate School.

RELATION TO DOCTORAL WORK

The Specialist in Education is a degree independent of the Doctor of Philosophy in Education. Although there is normally some overlap in coursework, admission to a specialist program does not imply admission to a doctoral program.

ADMISSION TO THE SPECIALIST PROGRAM

Admission to this program is based upon the recommendation of the faculty of the School of Education. Among the factors to be considered are the following:

1. Completion of a master’s degree with an outstanding record from an accredited institution;

2. Adequacy of previous study in the field of education;

3. An appropriate period of successful teaching experience;
4. Acceptable scores on the Graduate Record Examination (GRE) or approval of a GRE waiver. If a GRE waiver is sought, a 3-page essay on an important educational topic is also required.

5. Programs may require an interview.

6. Submission of signed Student Responsibility Checklist and the Graduate Student Honor Code. These documents must be submitted to the Office of the Associate Dean by the end of the student’s first semester of enrollment.

Applications for admission to the program are filed directly with the Graduate Admissions Office in the School of Education. Application papers and further information may be secured by addressing the Department Chair of the specific Doctoral Program.

**DEGREE REQUIREMENTS**

**SUPERVISORY COMMITTEE**

A supervisory committee consisting of three faculty members in the student’s area of study will be appointed by the School of Education.

**CREDIT**

A minimum of 60 graduate credits, (or 30 credits after completion of the Master’s program) is required. The program must include at least 30 graduate credits earned at the University of Miami and at least 18 graduate credits earned following admission to the specialist program. The specialist program of study is developed in consultation with the Supervisory Committee that consists of 3 faculty members (a chairperson and 2 other members).

**MAJOR**

Upon admission to the specialist program, a formal program of study is approved by Supervisory Committee that consists of 3 faculty members.

**COMPREHENSIVE EXAMINATION/PROJECT**

A written examination, portfolio, or capstone project will be required. The written comprehensive examination will cover the student’s program of studies. The examination must be taken during or after the final semester in which the student is enrolled for coursework in the program. The project will be directed by the Chairperson of the Specialist Committee.

**RECENCY OF CREDIT**

All work for the degree of Specialist in Education must be completed within six years of initial enrollment.
DEGREE PROGRAM REQUIREMENT

All specialist students must engage in teaching and/or research appropriate to their degree program. In addition to the general academic requirements, the School of Education requires that specialist students demonstrate personal qualities which, in the judgment of the faculty, would permit them to function effectively in their professional capacities. The School of Education reserves the right to dismiss any student who is academically or personally unwilling or unable to carry out the professional responsibilities of the respective professions for which he/she is being trained. Conduct which may be considered unprofessional may include research and professional misconduct, dishonesty, cheating, plagiarism, sexual harassment, discrimination on the basis of race, ethnicity, religion, or sexual orientation, and inappropriate interpersonal behavior. It is up to all students to fulfill their responsibilities in a timely and professional manner, to represent themselves and the University with honesty, and to treat others with dignity and respect.

FINANCIAL ASSISTANCE

This applies to all programs. Note: The School of Education provides many forms of financial assistance for students enrolled in its graduate programs. These include tuition discounts, scholarships (including federally funded scholarships), tuition waivers, training fellowships, and other forms of help. Financial assistance is to be used only for enrollment in courses that define each student’s program. Students who are found to have enrolled in courses outside of their programs of study will be charged full tuition for those courses.

Note: Teacher Tuition Discounts does not apply to PhD programs.
EDUCATIONAL AND PSYCHOLOGICAL STUDIES DEPARTMENT -
Dept. Code: EPS

DEGREE PROGRAMS

MASTER OF SCIENCE IN EDUCATION (M.S.Ed.)

- Counseling (Mental Health or Marriage and Family Therapy)
- Counseling and Research
- Higher Education/Administration (Enrollment Management or Student Life and Development)
- Research, Measurement, and Evaluation

DOCTOR OF PHILOSOPHY (Ph.D.)

- Counseling Psychology
- Research, Measurement, and Evaluation

DOCTOR OF EDUCATION (Ed.D.)

- Higher Education Leadership

CERTIFICATES

- Bilingual and Bicultural Counseling
- Enrollment Management
- Student Life and Development

MASTER’S DEGREE

HIGHER EDUCATION ADMINISTRATION (Enrollment Management/Student Life and Development)

The Higher Education Administration Program, which offers a Master of Science in Education with concentrations in Enrollment Management or Student Life and Development, is designed to produce skilled and versatile higher education administrators who understand all aspects of their professional environment.

Our graduates enter a variety of roles in college and university administration with the ability to consider today’s challenges from a broad-based, highly informed perspective.

Also offered is a Certificate Program for working professionals who already have Master’s degrees and seek career-furthering credentials and skills.
• The Enrollment Management concentration, the product of a unique collaboration between the School of Education and the Division of Enrollments, integrates theory, research, teamwork, and effective communication. It is an interdisciplinary program, with courses also required in the School of Business Administration. Opportunities abound for integrating research and theory in daily practice.

• The Student Life and Development concentration provides knowledge and skills necessary to facilitate undergraduate students’ transition, adjustment and involvement in college, in ways that enhance their academic achievement and lead to persistence and graduation.

Certificate in Enrollment Management or Student Life and Development, Post Master’s Degree (a minimum of 4 courses)

• The Certificate can be integrated into the Master’s Program in Higher Education Administration.
• It can be completed in addition to or after completion of a Master’s Program in Higher Education Administration, or a related field.

DOCTORAL DEGREE

HIGHER EDUCATION LEADERSHIP

The Higher Education Leadership program, which offers a Doctor of Education degree, is committed to preparing high-quality graduates for leadership positions in colleges and universities, state and federal agencies, professional organizations, and other professional leadership roles. The Ed.D program is guided by a practitioner-scholar model that brings together theoretical offerings with training in the application of theory to practical higher education problems. Students can focus on areas of special interest, including choosing dissertation projects that address issues and problems in the higher education work place.

The following programs are offered in Higher Education:

MASTER’S DEGREE
M.S.Ed. in Higher Education

DOCTORAL DEGREE
Ed.D in Higher Education Leadership

CERTIFICATE
Enrollment Management
Student Life and Development
Doctoral, Master’s and Certificate Courses include:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS 531</td>
<td>Organization Development</td>
</tr>
<tr>
<td>EPS 533</td>
<td>Organization and Administration of Higher Education I</td>
</tr>
<tr>
<td>EPS 543</td>
<td>The Community College</td>
</tr>
<tr>
<td>EPS 545</td>
<td>Administration of Student Affairs</td>
</tr>
<tr>
<td>EPS 553</td>
<td>Introductory Statistics</td>
</tr>
<tr>
<td>EPS 570</td>
<td>Basic Skills in Counseling and Interviewing</td>
</tr>
<tr>
<td>EPS 603</td>
<td>Higher Education in the United States: From Harvard to the Present</td>
</tr>
<tr>
<td>EPS 631</td>
<td>Student Diversity in American Higher Education</td>
</tr>
<tr>
<td>EPS 633</td>
<td>Organization and Administration of Higher Education II</td>
</tr>
<tr>
<td>EPS 635</td>
<td>College Student Development: Theory, Research and Practice</td>
</tr>
<tr>
<td>EPS 636</td>
<td>Critical Issues in Student Affairs</td>
</tr>
<tr>
<td>EPS 640</td>
<td>Enrollment Management: Theory and Practice</td>
</tr>
<tr>
<td>EPS 641</td>
<td>Advanced Seminar in Enrollment Management</td>
</tr>
<tr>
<td>EPS 642</td>
<td>Curriculum in Higher Education</td>
</tr>
<tr>
<td>EPS 647</td>
<td>Seminar in Higher Education Administration: Contemporary Issues</td>
</tr>
<tr>
<td>EPS 651</td>
<td>Survey Research Methods</td>
</tr>
<tr>
<td>EPS 654</td>
<td>Program Evaluation</td>
</tr>
<tr>
<td>EPS 688</td>
<td>Practicum: Administration of Higher Education</td>
</tr>
<tr>
<td>EPS 710</td>
<td>Masters Thesis</td>
</tr>
<tr>
<td>EPS 720</td>
<td>Doctoral Dissertation</td>
</tr>
</tbody>
</table>

**COUNSELING PSYCHOLOGY/COUNSELING**

Programs offered in counseling and counseling psychology are characterized by intensive clinical supervision by faculty members in an on-campus clinic, by strengths in the areas of family systems and health psychology, and by the rich multi-ethnic composition of the community, students and clients.

In addition to the formal academic requirements, the School of Education requires its student to demonstrate personal qualities that, in the judgment of the faculty, would permit them to function effectively in their professional roles. The School of Education reserves the right to dismiss any student who is academically or personally unable to carry out the professional responsibilities of the respective professions for which they are being trained. Conduct which may be considered unprofessional may include dishonesty, cheating, plagiarism, sexual harassment, discrimination on the basis of race, ethnicity, religion, or sexual orientation, and inappropriate interpersonal behavior. It is up to all students to fulfill their responsibilities in a timely and professional manner, to represent themselves and the University with honesty, and to treat others with dignity and respect.

**MASTER’S DEGREE**

The M.S.Ed. in counseling is a two year program which includes approximately 60-credits of coursework and a comprehensive examination in one of three areas of specialization:

- **Mental Health Counseling** – This program provides the academic and pre-degree supervision requirements for licensing as a Mental Health Counselor in the State of Florida.
• Marriage and Family Therapy – This program provides the academic and pre-degree supervision requirements for licensing as a Marriage and Family Therapist in the State of Florida and also may lead to qualification for certification by the American Association of Marriage and Family Therapy.

• Counseling and Research – This program prepares students for future doctoral study in counseling psychology and other applied mental health doctoral programs. It provides an advanced level of research training as well as standard training for clinical work. It does not qualify graduates for licensure in Florida.

DOCTORAL DEGREE

• The Ph.D. degree is offered in Counseling Psychology.
• The program is accredited by the American Psychological Association. It follows a scientist-practitioner model.
• The program is characterized by close scholarly relationships between students and faculty.
• Applications for doctoral study are due by January 2. Doctoral applications are reviewed once each year.
• The Ed.D Degree is offered in Higher Education Leadership

THE CERTIFICATE IN BILINGUAL AND BICULTURAL COUNSELING

• This Certificate can be integrated into the Masters Program in Counseling or the Doctoral Program in Counseling Psychology.
• It can be completed in addition to or after completion of a degree program in counseling, psychology or a related field.
• See the Department of Educational and Psychological Studies for a program sheet or www.education.miami.edu. 312 Merrick Building; (305) 284-3001.
Master's and Doctoral Courses include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS 505</td>
<td>Lifespan Human Development</td>
</tr>
<tr>
<td>EPS 510</td>
<td>Professional, Legal and Ethical Issues in Counseling</td>
</tr>
<tr>
<td>EPS 511</td>
<td>Lifestyle and Career Counseling</td>
</tr>
<tr>
<td>EPS 512</td>
<td>Assessment Strategies for Counselors I</td>
</tr>
<tr>
<td>EPS 513</td>
<td>Counseling Process and Practice</td>
</tr>
<tr>
<td>EPS 514</td>
<td>Psychosocial Bases of Social and Cultural Diversity</td>
</tr>
<tr>
<td>EPS 515</td>
<td>Dynamics of Marriage and Family Systems</td>
</tr>
<tr>
<td>EPS 526</td>
<td>Counseling in Community Settings</td>
</tr>
<tr>
<td>EPS 610</td>
<td>Therapeutic Group Procedures</td>
</tr>
<tr>
<td>EPS 611</td>
<td>Assessment Strategies for Counselors II</td>
</tr>
<tr>
<td>EPS 612</td>
<td>Counseling Theories and Practice</td>
</tr>
<tr>
<td>EPS 613</td>
<td>Psychopathology for Counselors</td>
</tr>
<tr>
<td>EPS 614</td>
<td>Counseling and Sexuality</td>
</tr>
<tr>
<td>EPS 615</td>
<td>Family Therapy</td>
</tr>
<tr>
<td>EPS 616</td>
<td>Therapy for Couples</td>
</tr>
<tr>
<td>EPS 618</td>
<td>Practicum in Counseling I</td>
</tr>
<tr>
<td>EPS 619</td>
<td>Practicum Laboratory I</td>
</tr>
<tr>
<td>EPS 620</td>
<td>Counseling Psychology: Theory, Research and Practice</td>
</tr>
<tr>
<td>EPS 621</td>
<td>Psychological Appraisal I</td>
</tr>
<tr>
<td>EPS 622</td>
<td>Psychological Appraisal II</td>
</tr>
<tr>
<td>EPS 623</td>
<td>Substance Abuse: Theories and Counseling</td>
</tr>
<tr>
<td>EPS 624</td>
<td>Assessment and Therapy with Children and Adolescents</td>
</tr>
<tr>
<td>EPS 625</td>
<td>Research and Program Evaluation in Counseling</td>
</tr>
<tr>
<td>EPS 628</td>
<td>Doctoral Practicum I</td>
</tr>
<tr>
<td>EPS 629</td>
<td>Doctoral Practicum II</td>
</tr>
<tr>
<td>EPS 630</td>
<td>Advanced Practicum in Counseling Psychology</td>
</tr>
<tr>
<td>EPS 634</td>
<td>Supervision in Counseling Psychology</td>
</tr>
<tr>
<td>EPS 663</td>
<td>Professional Psychological Spanish</td>
</tr>
<tr>
<td>EPS 665</td>
<td>Psychological Interventions with Hispanic and Latino Populations</td>
</tr>
<tr>
<td>EPS 679</td>
<td>Research Practicum</td>
</tr>
<tr>
<td>EPS 680</td>
<td>Cultural Diversity and Mental Health</td>
</tr>
<tr>
<td>EPS 703</td>
<td>Internship in Counseling Psychology</td>
</tr>
<tr>
<td>EPS 730</td>
<td>Doctor of Philosophy Dissertation</td>
</tr>
</tbody>
</table>

**RESEARCH, MEASUREMENT AND EVALUATION**

The graduate programs and courses listed below are designed to prepare students in the broad fields of behavioral research, measurement statistics and evaluation. While primarily oriented to education, they are equally suitable to such allied professions as mental health, exercise physiology, and community agency programs. Both quantitative and qualitative aspects of research are offered.

Exercise Physiology, a specialization within the research doctoral program, prepares students to conduct research in this area, and places an emphasis on the application of scientific research for the practitioner.

**DEGREE PROGRAMS**

Two degree programs are offered:

- **MASTERS DEGREE**: M.S.Ed. in Research and Evaluation.
- **DOCTORAL DEGREE**: Ph.D. in Research, Measurement and Evaluation
Courses include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS 550</td>
<td>Educational Measurement and Evaluation</td>
</tr>
<tr>
<td>EPS 553</td>
<td>Introductory Statistics</td>
</tr>
<tr>
<td>EPS 554</td>
<td>Essentials of Research in Social and Behavioral Sciences</td>
</tr>
<tr>
<td>EPS 568</td>
<td>Computer Applications in Educational and Behavioral Science Research</td>
</tr>
<tr>
<td>EPS 607, 608</td>
<td>Advanced Individual Study</td>
</tr>
<tr>
<td>EPS 651</td>
<td>Survey Research Methods</td>
</tr>
<tr>
<td>EPS 652</td>
<td>Nonparametric Methods for Quantitative Analysis</td>
</tr>
<tr>
<td>EPS 654</td>
<td>Program Evaluation</td>
</tr>
<tr>
<td>EPS 659</td>
<td>Field Experience in Educational Research</td>
</tr>
<tr>
<td>EPS 661</td>
<td>Measurement and Psychometric Theory</td>
</tr>
<tr>
<td>EPS 667</td>
<td>Seminar in Educational Research</td>
</tr>
<tr>
<td>EPS 670</td>
<td>Introduction to Research Methods</td>
</tr>
<tr>
<td>EPS 671</td>
<td>Group Comparative Research Designs and ANOVA Methods</td>
</tr>
<tr>
<td>EPS 672</td>
<td>Regression Methods</td>
</tr>
<tr>
<td>EPS 673</td>
<td>An Introduction to Structural Equation Modeling for Multivariate Models</td>
</tr>
<tr>
<td>EPS 674</td>
<td>An Introduction to Multilevel Modeling</td>
</tr>
<tr>
<td>EPS 675</td>
<td>Qualitative Methods I</td>
</tr>
<tr>
<td>EPS 676</td>
<td>Qualitative Methods II: Case Studies and Grounded Theory</td>
</tr>
<tr>
<td>EPS 677</td>
<td>Qualitative Methods III: Interviews and Content Analysis</td>
</tr>
<tr>
<td>EPS 685</td>
<td>Dissertation Seminar</td>
</tr>
<tr>
<td>EPS 710</td>
<td>Masters Thesis</td>
</tr>
<tr>
<td>EPS 730</td>
<td>Doctor of Philosophy Dissertation</td>
</tr>
</tbody>
</table>

Applications for doctoral study are due by January 2. Doctoral applications are reviewed once each year.

[Educational and Psychological Studies Course Listing]
EXERCISE AND SPORT SCIENCES - Dept. Code: ESS

DEGREE PROGRAMS

MASTER OF SCIENCE IN EDUCATION (M.S.Ed.)

- Exercise Physiology
- 5 Year Master’s Degree program: BS & MS Ed. Combined program in Exercise Physiology
- Sport Administration

DOCTOR OF PHILOSOPHY (Ph.D.)

- Exercise Physiology

CERTIFICATE

- Women’s Health

M.S. Ed. in Exercise Physiology courses include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESS520</td>
<td>Cellular Exercise Physiology</td>
</tr>
<tr>
<td>ESS521</td>
<td>Systemic Exercise Physiology</td>
</tr>
<tr>
<td>ESS530</td>
<td>Laboratory: Techniques in Functional Evaluation of Skeletal Muscle</td>
</tr>
<tr>
<td>ESS541</td>
<td>Neurophysiology in Exercise Science</td>
</tr>
<tr>
<td>ESS577</td>
<td>Advanced Nutrition for Sports and Fitness</td>
</tr>
<tr>
<td>ESS579</td>
<td>Principles of Exercise Prescription: Cardiovascular</td>
</tr>
<tr>
<td>ESS586</td>
<td>Exercise Prescription Assessment Laboratory</td>
</tr>
<tr>
<td>ESS646</td>
<td>Research Methods in Exercise &amp; Sport Sciences</td>
</tr>
<tr>
<td>EPS671</td>
<td>Group Comparative Research Designs and ANOVA Methods</td>
</tr>
<tr>
<td>ESS699</td>
<td>Special Project in Exercise and Sport Sciences</td>
</tr>
<tr>
<td>ESSXXX</td>
<td>Restricted Elective</td>
</tr>
</tbody>
</table>
5 – Year Program in Exercise Physiology – A Program for undergraduate students interested in pursuing a graduate degree in Exercise Physiology. Courses include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESS155</td>
<td>Biological and Health Related Bases of Exercise</td>
</tr>
<tr>
<td>ESS184</td>
<td>Athletic and Sport Injuries</td>
</tr>
<tr>
<td>ESS202</td>
<td>Applied Nutrition for Health and Performance (recommended elective)</td>
</tr>
<tr>
<td>ESS221</td>
<td>Introduction to Exercise: Bioenergetics and Skeletal Muscle Physiology</td>
</tr>
<tr>
<td>ESS222</td>
<td>Exercise Physiology Laboratory: Neuromuscular</td>
</tr>
<tr>
<td>ESS245</td>
<td>Kinesiology</td>
</tr>
<tr>
<td>ESS246</td>
<td>Gross Anatomy</td>
</tr>
<tr>
<td>ESS310</td>
<td>Elements of Sport Psychology</td>
</tr>
<tr>
<td>ESS321</td>
<td>Introduction to Systemic Exercise Physiology</td>
</tr>
<tr>
<td>ESS322</td>
<td>Exercise Physiology Laboratory: Cardiorespiratory</td>
</tr>
<tr>
<td>ESS365</td>
<td>Principles of Exercise Prescription</td>
</tr>
<tr>
<td>ESS366</td>
<td>Exercise Physiology Laboratory: Assessment</td>
</tr>
<tr>
<td>ESS421</td>
<td>Systemic Exercise Physiology</td>
</tr>
<tr>
<td>ESS457</td>
<td>Clinical Internship in Exercise and Sport Sciences</td>
</tr>
<tr>
<td>ESS466</td>
<td>Principles of Exercise Prescription: Neuromuscular</td>
</tr>
<tr>
<td>ESS477</td>
<td>Advanced Nutrition for Sport and Fitness</td>
</tr>
<tr>
<td>ESS520</td>
<td>Cellular Exercise Physiology</td>
</tr>
<tr>
<td>ESS530</td>
<td>Laboratory: Techniques in Functional Evaluation of Skeletal Muscle</td>
</tr>
<tr>
<td>ESS541</td>
<td>Neurophysiology</td>
</tr>
<tr>
<td>ESS646</td>
<td>Research Methods in Exercise &amp; Sport Sciences</td>
</tr>
<tr>
<td>ESS79</td>
<td>Prescription/Assessment Cardiovascular</td>
</tr>
<tr>
<td>ESS586</td>
<td>Exercise Prescription Assessment Lab</td>
</tr>
<tr>
<td>EPS671</td>
<td>Research Design ANOVA Method</td>
</tr>
<tr>
<td>ESS699</td>
<td>Special Project ESS</td>
</tr>
<tr>
<td>ESSXXX</td>
<td>Elective</td>
</tr>
<tr>
<td>ESSXXX</td>
<td>Elective</td>
</tr>
</tbody>
</table>
**Sport Administration** - A program for persons interested in athletic sport administration or recreation and leisure sports administration. Courses include (*indicates required courses):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESS562</td>
<td>Fiscal Management in Sport Administration*</td>
</tr>
<tr>
<td>ESS563</td>
<td>Facilities &amp; Event Management*</td>
</tr>
<tr>
<td>ESS564</td>
<td>Sport Marketing*</td>
</tr>
<tr>
<td>ESS565</td>
<td>Legal Aspects of Sports and Exercise Science*</td>
</tr>
<tr>
<td>ESS566</td>
<td>Organization &amp; Administration of Sport Programs</td>
</tr>
<tr>
<td>ESS567</td>
<td>Elements of Sport Psychology</td>
</tr>
<tr>
<td>ESS573</td>
<td>Sport Governance</td>
</tr>
<tr>
<td>ESS574</td>
<td>Ethical Decision Making in Sport and the Professions*</td>
</tr>
<tr>
<td>ESS575</td>
<td>Essential Leadership Skills in Sport and the Professions*</td>
</tr>
<tr>
<td>ESS590</td>
<td>Special Topics in Exercise &amp; Sport Sciences</td>
</tr>
<tr>
<td>ESS603</td>
<td>Contemporary Issues in Exercise and Sport Sciences</td>
</tr>
<tr>
<td>ESS646</td>
<td>Research Methods*</td>
</tr>
<tr>
<td>ESS696/697/698</td>
<td>Graduate/Clinical Field Experiences in Exercise and Sport Sciences</td>
</tr>
<tr>
<td>ESS699</td>
<td>Special Project in Exercise and Sport Sciences*</td>
</tr>
<tr>
<td>ESS710</td>
<td>Master's Thesis</td>
</tr>
<tr>
<td>ESSXXX</td>
<td>Restricted Electives</td>
</tr>
</tbody>
</table>
Sports Medicine with a concentration in Exercise Physiology - A program for persons interested in the medical aspects of sports injuries including prevention, treatment, and rehabilitation. Courses include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESS521</td>
<td>Systemic Exercise Physiology</td>
</tr>
<tr>
<td>ESS525</td>
<td>Advanced Kinesiology</td>
</tr>
<tr>
<td>ESS588</td>
<td>Gross Anatomy for Exercise &amp; Sport Sciences</td>
</tr>
<tr>
<td>Option I Choose from the following:</td>
<td></td>
</tr>
<tr>
<td>ESS577</td>
<td>Advanced Nutrition for Sports and Fitness</td>
</tr>
<tr>
<td>ESS579</td>
<td>Principles of Exercise Prescription/Assessment: Cardiovascular</td>
</tr>
<tr>
<td>ESS580</td>
<td>Principals of Exercise Prescription: Neuromuscular</td>
</tr>
<tr>
<td>ESS586</td>
<td>Exercise Prescription Assessment Laboratory</td>
</tr>
<tr>
<td>Option II Choose from the following:</td>
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<tr>
<td>ESS583</td>
<td>Sports Medicine for the Female Athlete</td>
</tr>
<tr>
<td>ESS584</td>
<td>Energetics of Obesity</td>
</tr>
<tr>
<td>ESS641</td>
<td>Aging: Physiological Changes and Their Implications of Training</td>
</tr>
<tr>
<td>ESS645</td>
<td>Special Sport Populations</td>
</tr>
<tr>
<td>Professional Preparation: Choose 1-2 from the following:</td>
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<tr>
<td>ESS523</td>
<td>Advanced Techniques in Athletic Training I</td>
</tr>
<tr>
<td>ESS524</td>
<td>Advanced Techniques in Athletic Training II</td>
</tr>
<tr>
<td>ESS532</td>
<td>Sports Injuries Prevention &amp; Treatment</td>
</tr>
<tr>
<td>ESS575</td>
<td>Essential Leadership Skills in Sport and the Professions</td>
</tr>
<tr>
<td>ESS696/697</td>
<td>Graduate Clinical Field Experience in ESS</td>
</tr>
<tr>
<td>Thesis Track: 12 Credits</td>
<td></td>
</tr>
<tr>
<td>EPS671</td>
<td>Group Comparative Research Design &amp; ANOVA Methods</td>
</tr>
<tr>
<td>ESS646</td>
<td>Research Methods in Exercise &amp; Sport Science</td>
</tr>
<tr>
<td>ESS710</td>
<td>Master’s Thesis (6 credit hours)</td>
</tr>
<tr>
<td>Project Track: 9 Credits</td>
<td></td>
</tr>
<tr>
<td>EPS671</td>
<td>Group Comparative Research Design &amp; ANOVA Methods</td>
</tr>
<tr>
<td>ESS646</td>
<td>Research Methods in Exercise &amp; Sport Science</td>
</tr>
<tr>
<td>ESS699</td>
<td>Special Project in Exercise and Sport Sciences*</td>
</tr>
</tbody>
</table>

DOCTORAL PROGRAMS
The Department of Exercise and Sport Sciences also offers a doctoral program in Exercise Physiology. Coursework specialization is available in this program for persons interested in clinical and research orientation in the area of exercise physiology. Courses include:
ESS520 Cellular Exercise Physiology
ESS521 Systemic Exercise Physiology
ESS530 Laboratory: Techniques in Functional Evaluation of Skeletal Muscle
ESS541 Neurophysiology in Exercise Science
ESS555 Exercise Biochemistry
ESS577 Advanced Nutrition for Sports and Fitness
ESS578 Pharmacology for Allied Health Professionals
ESS579 Principles of Exercise Prescription/Assessment: Cardiovascular
ESS580 Principles of Exercise Prescription: Neuromuscular
ESS586 Laboratory: Exercise Prescription/Assessment
ESS589 Readings in Exercise & Sport Sciences
ESS612 Psychophysiology
ESS641 Aging: Physiological Changes and Their Implications of Training
ESS642 Cardiac Rehabilitation: Phases I - IV
ESS644 Interpretation of the ECG
ESS646 Research Methods in Exercise & Sport Sciences
ESS681 Issues Specific to Women's Health
ESS682 Psychosocial Issues in Women's Health
ESS683 Sports Medicine for the Female Athlete
ESS684 Energetics of Obesity
EPS730 Doctor of Philosophy Dissertation

Courses in Research Competencies (15 credits) and outside supporting field (12 credits) are also required.

Certificate in Women’s Health - A certificate in women’s health is available for those wishing to specialize in research issues, trends, and physiological concerns of women across the female lifespan. These courses may be considered as part of their outside supporting field in the doctoral program and include:

ESS681 Issues Specific to Women's Health
ESS682 Psychosocial Issues in Women's Health
ESS683 Sports Medicine for the Female Athlete
ESS684 Energetics of Obesity

Note: The Women’s Health Certificate consists of 12 credits with a grade of "B" or higher in this specialty. Students will receive a certificate of completion upon completing all coursework in this specialty area.

Exercise and Sport Sciences Course Listing
TEACHING AND LEARNING - Dept. Code: TAL

DEGREE PROGRAMS

MASTER OF SCIENCE IN EDUCATION (M.S.Ed.)
- Early Childhood Special Education
- Resource Teacher in Secondary Mathematics, or in Secondary Science or in Elementary Math-Science-Technology

SPECIALIST IN EDUCATION
- Early Childhood Special Education
- Resource Teacher in Secondary Mathematics, or in Secondary Science or in Elementary Math-Science-Technology

DOCTOR OF PHILOSOPHY (Ph.D.)
- Teaching and Learning with specializations in:
  Language and Literacy Learning in Multilingual Settings,
  Mathematics and Science Education, or
  Special Education

CERTIFICATE
- Professional Training Option (PTO)

MASTER OF SCIENCE IN EDUCATION
The Department of Teaching and Learning offers programs leading to a Master of Science in Education degree for individuals who are currently certified. Note: Students in these programs must meet FLDOE requirements.

Periodically, the School of Education offers various Resource Teacher Education and Advanced Professional Studies programs to specific groups of teachers (cohorts). The purpose of these programs is to prepare teachers to assume leadership roles in various disciplines and to enhance the teachers’ current knowledge of “best practices” in education. Each cohort’s curriculum is designed to meet that cohort’s primary mission. Successful completion of these programs leads to conferral of the Master’s of Education (M.S.Ed.) or Specialist in Education (Ed.S.) degree.

Applications are being accepted only for admission to the Master of Science in Education in Early Childhood Special Education. Applicants must meet the admission requirements of the School of Education. (See requirements for admission under Admission Requirements or www.education.miami.edu)

SPECIALIST IN EDUCATION
The Ed.S. degree is available for teachers who wish to increase their proficiency in their chosen field.

Specializations for the degree are:
Early Childhood Special Education and

The program requires 30 additional credits beyond the Masters Degree (minimum) and is individually designed after admission. Some programs for cohorts of teachers feature lock-step curricula. These programs typically combine students pursuing M.S.Ed. degrees with those pursuing Ed.S. degrees. While all students in these programs follow the same curriculum, students pursuing Ed.S. degrees may receive additional or different assignments. Applicants for the Ed.S. must meet the requirements of the School of Education. Additional information about the Specialist in Education is provided in a separate section.

Applications are being accepted only for admission to the Early Childhood Special Education program. Applicants must meet the admission requirements of the School of Education. (See requirements for admission under Admission Requirements or www.education.miami.edu)

DOCTOR OF PHILOSOPHY

The University of Miami Department of Teaching and Learning offers a Doctor of Philosophy Degree (Ph.D.) in the following areas of study:

- Language and Literacy Learning in Multicultural Settings,
- Special Education,
- Mathematics and Science Education

An individual program of study is planned for each doctoral candidate based upon the student’s past academic and experiential background. This program of study is required to be completed by the end of the second semester of enrollment and submitted to the Office of the Associate Dean. The overall goal of the doctoral program is to provide professional development for individuals interested in careers in teacher education and research in institutions of higher education. Applicants for admission to the doctoral program must meet the requirements of the School of Education. Additional information about the Doctor of Philosophy is provided in a separate section.

Applications to all programs must be submitted electronically, through the Graduate School website.

Professional Training Option Certificate

The Professional Training Option (PTO) is a Florida Department of Education approved pathway for non-education majors to complete the Professional Education component, one of the requirements to become a certified teacher in the State of Florida.

The Post Baccalaureate PTO consists of 18 credits and has been designed for those persons who hold a baccalaureate or higher degree in fields other than education and wish to enter the teaching profession. In order to complete the program students must take and pass the Florida Teacher Certification Exam (FTCE).
Courses will be held at the University of Miami, Coral Gables campus. Courses will be offered in the evenings to accommodate working professionals.

Upon completion of the program participants will receive a Certificate of Completion. UM transcripts will indicate that the student has completed a Florida State approved PTO program. Program completers will be eligible for a Temporary Teaching Certificate.

For further information about programs of study (including possible course sequences) in the Department of Teaching and Learning, please contact the Department.

Teaching and Learning Course Listing
DEGREE PROGRAMS

The College of Engineering offers courses of graduate study leading to the degrees of
Master of Science,
Master of Science in Architectural Engineering,
Master of Science in Biomedical Engineering,
Master of Science in Civil Engineering,
Master of Science in Electrical and Computer Engineering,
Master of Science in Industrial Engineering, and
Master of Science in Mechanical Engineering.

Ph.D. degrees are offered in the areas of
1. Biomedical Engineering,
2. Civil Engineering,
3. Electrical and Computer Engineering,
4. Ergonomics and Human Factors
5. Industrial Engineering, and

ADMISSION REQUIREMENTS

Students with an appropriate B.S. degree may seek direct entry to either the M.S. track or Ph.D. track. Admission guidelines for the various tracks are as follows. Please refer to program specific sections of the bulletin for more information with respect to admission and degree requirements.

- B.S. to M.S.: Minimum criteria for admission into the M.S. track from the B.S. (GPA of 3.0 on a 4.0 scale and a GRE of 1,000 – verbal plus quantitative) is consistent with the general requirements of the University.
- B.S. to Ph.D.: Direct admission to the Ph.D. track by students holding B.S. degrees is limited to students with exceptional credentials. These credentials typically include a minimum GPA of 3.5 on a 4.0 scale and a minimum GRE of 1,200 (verbal plus quantitative). After completion of the Departmental M.S. requirements, students enrolled in the direct B.S. to Ph.D. track may apply for an M.S. degree.
- M.S. to Ph.D.: Criteria for admission into the Ph.D. program for students with an appropriate M.S. degree include a minimum GPA of 3.5 on a 4.0 scale within their M.S. degree program and a minimum GRE of 1,100 (verbal plus quantitative).

The College offers graduate programs leading to degrees in both traditional and interdisciplinary areas of study. The primary focus of the College lies in those areas and problems that cross traditional lines. Given the interdisciplinary nature of programs, flexibility is provided in course selection which allows each student to pursue a program especially tailored to the goals of the individual. Given the strengths of the University, graduate programs are offered in conjunction with other schools or units. These programs include:
• Biomedical Engineering in conjunction with the School of Medicine
• Engineering Management
  Dual M.S. in Industrial Engineering and M.B.A. in conjunction with the School of Business Administration
• M.S. program in Management of Technology in conjunction with the School of Business Administration
• M.S. in Environmental Health and Safety in conjunction with the School of Medicine.

The M.S. and Ph.D. programs in Interdepartmental Graduate Studies permit, with approval of the Graduate Council, highly qualified students to pursue a privileged individualized program which cuts across disciplinary lines.

Further details on the various College of Engineering areas of specialization are given under the Departmental and Program headings that follow this section.

Students applying for graduate admission to the College should submit three letters of recommendation from individuals familiar with the applicant’s abilities and background.

Students who hold a bachelors degree in a field other than their proposed major may be admitted to the graduate program and to candidacy upon completion of appropriate undergraduate deficiency courses, in addition to the regular requirements for the graduate degree.

A student’s overall program is planned by the student and the student’s advisory committee. Requirements for the M.S. thesis and non-thesis options (not available in all areas of specialization) are shown below.

DEGREE REQUIREMENTS

Requirements for the Master of Science Degree (thesis option):

• An approved integrated program with a minimum of 30 semester credits with an average grade of B or better and no grade below C.
• At least six (6) course credits must be at the 600-level.
• Six credits of the required 30 must be earned in thesis work.
• An oral examination in defense of the thesis.

Requirements for the Master of Science Degree (non-thesis option):

• An approved integrated program with a minimum of 30 semester credits with an average grade of B or better and no grade below C.
• At least twelve (12) of the course credits must be at the 600 level.
• In most departments a 3-credit graduating project is required.

The programs leading to the degree of Doctor of Philosophy comply in full with the regulations of the Graduate School concerning admission, residence requirements, qualifying and final examinations and dissertation.
Applicants for admission to the Ph.D. program will be expected to have superior records in their M.S. and B.S. degree programs, well above average scores on the Graduate Record Examination, and strong letters of recommendation.

At least 18 credits in courses must be taken beyond the requirements for the M.S. degree of which 6 credits must be at the 600 level.

All candidates for the doctorate are expected to complete an appropriate integrated program of studies in preparation for the comprehensive Qualifying Examination.

Students are expected to take their qualifying exams during the first year of enrollment. Admission to candidacy across College of Engineering Departments includes passing the qualifying exam and successful defense of a proposal for research.

Minimum of one year beyond admission to candidacy is usually necessary for the completion of an acceptable dissertation (12 credits or more), whereupon the student is then expected to defend their Ph.D. thesis during the Final Oral Examination.

Departments may have requirements in addition to the above general requirements for their own graduate programs.

Financial assistance is available in the form of fellowships, partial tuition scholarships, teaching and research assistantships, and graduate cooperative assistantships combining study and work assignments with private engineering and architectural firms and government agencies. Financial support is provided predominantly to students pursuing Ph.D. degrees. A minimum graduate GPA of 3.3 must be maintained in order to maintain satisfactory progress.

For further information, write to the Dean of the College of Engineering.

POSTGRADUATE CERTIFICATE PROGRAM

A Postgraduate Certificate Program is available requiring the completion of a minimum of 15 semester hours of individually planned advanced course work in an area of engineering specialization, or interdisciplinary study.

Course sequences culminate at an advanced level, but may begin at a basic level if a new area of specialization is to be undertaken.

The Program must be completed with a grade average of at least C, within a period of five calendar years from the date of enrollment.

No transfer credits will be accepted. International students requiring a student visa must be in a degree program, and cannot obtain a student visa for the Certificate Program; but international students with certain other types of visas may enroll in the Program.

Basic admission requirement for the Program is a bachelor's degree in a recognized field of engineering or registration as a Professional Engineer by examination.

Students demonstrating marked ability in the Program may be encouraged to apply for admission to study for the Masters Degree, and may apply up to six credits toward the M.S. degree.
BIOMEDICAL ENGINEERING - Dept. Code: BME

DEGREE PROGRAMS

I. The Department of Biomedical Engineering offers graduate programs leading to the degrees of Master of Science (thesis or non-thesis option) and Doctor of Philosophy in Biomedical Engineering.

A. The specialty areas of study in Biomedical Engineering include the following:
   1. Biomedical instrumentation and devices
   2. Applications of computers to diagnostic and therapeutic systems
   3. Biomechanics, biofluid dynamics, hemodynamics
   4. Biomaterials, Tissue and cellular engineering
   5. Biomedical signal and image processing
   6. Rehabilitation and neural engineering
   7. Biomedical optics and lasers

II. ADMISSION REQUIREMENTS

A. All students applying to the graduate program are required to submit GRE scores and three letters of recommendation.

B. Students who hold a Bachelors degree in a field other than their proposed major may be admitted to the graduate program and to candidacy upon completion of appropriate undergraduate courses, in addition to the regular requirements for the graduate degree.

III. MASTER OF SCIENCE

A. The Master of Science degree offers the graduate student an opportunity to obtain advanced training in selected areas of biomedical engineering and to begin independent research.

B. General requirements for the M.S. degree are listed in this Bulletin under Engineering and under Masters Degree-General.

C. Both a 30-credit thesis option and a 30 credit non-thesis option are available.

D. There is also a 5-year BS/MS option available for qualified undergraduate students enrolled within the Department.

E. The department admits four types of students to its MS program:
   1. Students with BS degrees in Biomedical Engineering or similar engineering fields
   2. Students with BS degrees in Electrical, Computer, Mechanical, Chemical, or similar engineering fields
   3. Students with BS degrees in Physics, Mathematics, Computer Science, Chemistry, Biology or similar fields
   4. Students with MD or similar degrees

F. Students in the last two groups are generally given conditional admission and required to take additional undergraduate courses in engineering, mathematics and science depending on their previous course work as decided by the graduate program director and the designated advisor.

G. There are three paths to earn a Master of Science degree in Biomedical Engineering:
1. The Thesis Option requires a minimum of 30 credits beyond the BS degree. These must include a minimum of 6 thesis credits and the completion of at least two appropriate courses at the 600 level.

2. The Non-Thesis Option requires a minimum of 30 credits beyond the BS degree. These must include at least 3 credits for an independent design or research project for which the student enrolls in BME625. In addition, at least three appropriate courses at the 600 level must be completed.

3. The BS/MS Dual degree Program (see separate section below).

H. The student’s overall graduate program is planned by the student, advisor, graduate program director and the thesis committee (for the thesis option).

   1. The thesis committee consists of a minimum of 3 members.

   a) 2. Two members, including the chair of the committee, shall be faculty members from the BME Department (primary or secondary), and one member must be from outside the Department.

   b) 3. Outside members of the thesis committee can include part-time faculty that teach within the Department.

   c) 4. One of the committee members must be a member of the Graduate Faculty.

I. The three courses of the Unified Medical Sciences sequence (BME 501, 502 and 503) were designed to apprise the engineer of the basic knowledge in the life sciences necessary to work in the broad field of biomedical engineering.

   1. Students coming from traditional engineering field with no biology/medicine backgrounds are required to complete all of the three Unified Medical Sciences courses.

   a) 2. Other students are required to take at least two of the three courses unless the student holds a degree in medicine (MD, DO or equivalent) or an advanced degree (or its equivalent) in the life sciences.

   b) 3. Each such exception requires the approval of the department’s faculty/the instructor for the course of concern.

J. A specific requirement for all M.S. students is the completion of a zero-credit course in Biomedical Engineering Seminar (BME 680).

IV. BS/MS 5-YEAR PROGRAM

   A. This program is available only to qualified undergraduate students enrolled within the Department and described in the Undergraduate Bulletin.

   1. This unique program permits students to receive a baccalaureate degree (BSBE) and a Master of Science (MS) degree in five years.

   2. The two degrees are awarded simultaneously when the combined requirements have been met for both degrees.

   3. Qualified students who want to be enrolled in this program must apply before the end of their junior year and meet all pertinent graduate school and College of Engineering requirements.

   4. In lieu of the 6-credit thesis requirement, the participants complete either one significant design project or two shorter duration projects while registering for BME 605 and 606.

   5. The design project(s) is (are) monitored by at least two mentors, one of the mentors must be a member of the primary faculty in the department.
6. The project(s) is (are) completed by the acceptance of a verbal presentation and a written report by the student’s mentors.

V. DOCTOR OF PHILOSOPHY

A. The Doctor of Philosophy degree offers the graduate student an opportunity to do advanced research.

B. The general requirements for award of the Doctor of Philosophy degree include:

1. Completion of a minimum of 60 credits beyond the Bachelor of Science degree.

2. Satisfactory completion of a qualifying examination.

3. The submission, oral defense, and approval of a dissertation proposal.

4. The submission and oral defense and approval of a dissertation.

5. There are no foreign language competency requirements for the PhD in biomedical engineering.

C. The requirements for admission to the PhD program in biomedical engineering usually include:

1. In general, the department admits three types of students to its PhD program:
   a) Students with MS degrees in Biomedical Engineering or related science and engineering fields.
   b) Students with MD degrees with undergraduate degrees in sciences or engineering.
   c) Highly qualified students with BS degrees in engineering or sciences.

2. The general requirements for admission of BS students to the doctoral degree program are consistent with the admission requirements of the College of Engineering.

3. M.S. thesis candidates who wish to pursue a doctoral degree can transfer to the doctoral degree program without completing a thesis under the following general requirements:
   a) Submission of a manuscript in a peer-reviewed scientific journal in lieu of the thesis.
   b) A letter of support by a faculty member who agrees to serve as the student’s Ph.D. dissertation advisor.
   c) Approval of a change in status application by the Department’s Graduate Admissions Committee.
4. Regulations concerning admission, course requirements, residence requirements, qualifying and final examinations, and dissertation are listed in this Bulletin under Engineering and Doctor of Philosophy.

D. The doctoral program in biomedical engineering requires each student to pass a departmental qualifying screening examination.

1. The screening examination consists of three written examinations on each of the following broad subjects:
   a) basic engineering;
   b) applied mathematics and computer science; and
   c) applied physiology and medical science.

2. These examinations are usually offered once or twice each year.

3. The examination must be taken the first time it is scheduled after completion of the first two semesters.

4. A student may repeat once any or all parts of the examination where the results were found unsatisfactory.

5. Students admitted to the doctoral program with a BS degree that do not pass the qualifying examination may complete the MS degree.

F. Following the successful completion of the departmental qualifying screening examination, the student, with concurrence from the faculty and the Graduate School, establishes a Dissertation Committee (see Doctor of Philosophy section in this Bulletin) and selects a dissertation topic.

1. The dissertation committee is composed of a minimum of 5 members.

2. Three members, including the chair, shall be members of the Graduate Faculty, and one member shall be from outside the Department.

3. A minimum of two members, including the chair of the committee, must be full-time members from the BME Department.

4. A written dissertation proposal is submitted along with an oral presentation to that committee.

5. Acceptance of a dissertation proposal in combination with other examinations as determined by the committee to assure the qualifications of the student for the doctorate leads to candidacy for the Ph.D.

6. Successful defense of the dissertation leads to the award of the PhD degree.
G. All students in the BME Doctor or Philosophy program are required to complete the following course or credit requirements:

1. At least two of the following three courses: BME 501, BME502, BME503.
   
a. Students, who have completed these courses or similar coursework in their previous MS programs, may substitute technical electives for this requirement.
   
b. This requirement can only be waived for students holding MD degrees.

2. A zero-credit Biomedical Engineering Seminar course (BME 680). This requirement is not waived, even if the student has taken this course in his/her MS program.

3. A minimum of 6 course credits at the 600 level beyond the MS degree.

4. Students admitted to the PhD program with a BS degree must complete a minimum of 18 course credits at the 600 level.

5. A minimum of 12 dissertation credits (BME 730 or BME 740)

• 500 level courses are open to advanced undergraduates and to graduate students; 600 level courses are open only to graduate students and seniors with graduate standing.

Biomedical Engineering Course Listing
CIVIL, ARCHITECTURAL, AND ENVIRONMENTAL ENGINEERING -  
Dept. Code:  CAE

DEGREE PROGRAMS

The Department of Civil, Architectural, and Environmental Engineering offers graduate programs leading to the degrees of
- Master of Science in Architectural Engineering
- Master of Science in Civil Engineering
- Doctor of Philosophy in Civil Engineering

The specialty areas of study in Civil Engineering include
- structural engineering and structural materials
- environmental engineering
- water-resources engineering

The specialty areas of study in Architectural Engineering include:
- integrated building systems
- environmental systems

In all fields of specialization, up to one-half of the required course work for the selected degree may be taken outside of the Department.

ADMISSION REQUIREMENTS

All students applying to the graduate program are required to submit GRE scores and three letters of recommendation (recommendations not required from University of Miami graduates). Admission criteria are described under Colleges of Engineering – Graduate Admission Requirements.

1. International students should consult the section on admissions.
2. Students who hold a bachelors degree in a field other than their proposed major may be admitted to the graduate program and to candidacy upon completion of appropriate undergraduate deficiency courses, in addition to the regular requirements for the graduate degree.

MASTER OF SCIENCE

A. Requirements for the M.S. degree are listed in this Bulletin under Engineering and under Master’s Degree General.
B. Both a thesis option and a non-thesis option are available.
C. There is also a 5-year B.S./M.S. option available for qualified undergraduate students enrolled within the Department.
D. The student and an advisory committee plan the students overall program.
   1. The advisory committee consists of a minimum of 3 members.
   2. The chair of the committee shall be a full-time faculty member from the CAE Department, one member must be from outside the Department, and one member other than the chair must be either a full-time or part-time member of the Department.
   3. One of the committee members must be a member of the Graduate Faculty.
DOCTOR OF PHILOSOPHY

A. Regulations concerning admission, course requirements, residence requirements, qualifying and final examinations, and dissertation are listed in this Bulletin under Engineering and Doctor of Philosophy.

B. The student and a supervisory committee plan the student's overall program.

C. A separate dissertation committee may be formed to oversee the progress of the dissertation but, in most instances, the student's supervisory committee also serves as the dissertation committee.

D. The supervisory/dissertation committee shall be composed of a minimum of 4 members.
   1. Three members, including the chair, shall be members of the Graduate Faculty, and one member shall be from outside the Department.
   2. A minimum of two members, including the chair of the committee, must be full-time members from the CAE Department.

RESEARCH OPPORTUNITIES - CIVIL/ARCHITECTURAL ENGINEERING

- Current research activities in the Department include properties of concrete materials, such as cellular concrete, composite structural systems, fiber-reinforced concrete, modeling and simulation of engineering materials, multi-scale modeling of materials, fracture mechanics, structural steel behavior, structural health monitoring, structural repair and rehabilitation, energy, indoor air quality, heating, ventilating and air conditioning (HVAC), building material emissions and sorption, air cleaning using photocatalytic or other oxidizing technologies.

RESEARCH OPPORTUNITIES - ENVIRONMENTAL ENGINEERING

- Current research activities in the Department include water quality studies, groundwater, surface-water, and contaminant-transport processes, hydrologic processes, water resources planning and management, water policy, development of new physicochemical water and wastewater treatment processes, potable wastewater reuse, solid and hazardous waste management, health and environmental risk analysis, environmental/economic planning for sustainable development, and hazardous waste remediation.

Civil, Architectural and Environmental Engineering Course Listing
ELECTRICAL AND COMPUTER ENGINEERING - Dept. Code: EEN

Current research interests of the faculty include

<table>
<thead>
<tr>
<th>Advanced Microprocessors</th>
<th>Artificial Intelligence</th>
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<tbody>
<tr>
<td>Computer Architecture</td>
<td>Computer Vision</td>
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<td>Image Processing</td>
<td>VLSI Architecture</td>
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<td>Logic Design</td>
<td>Communications</td>
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<td>Microwave Electronics</td>
<td>Multimedia</td>
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<td>Robotics and Control</td>
<td>Operating Systems</td>
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<tr>
<td>Expert Systems</td>
<td>Fault-Tolerant</td>
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<tr>
<td>Architecture</td>
<td>Object-Oriented Systems</td>
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<tr>
<td>Signal Processing and Filtering</td>
<td>Solid-State Electronics</td>
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<tr>
<td>Speech Processing</td>
<td>Programming Languages</td>
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DEGREE PROGRAMS

I. MASTER OF SCIENCE IN ELECTRICAL AND COMPUTER ENGINEERING
   A. The Electrical and Computer Engineering Department offers the Degree of Master of Science in Electrical and Computer Engineering with 24 course credits and 6 thesis credits or 30 course credits and no thesis.

II. THE FIVE-YEAR B.S.E.E. - M.S.E.C.E DUAL DEGREE PROGRAM
   A. This is a structured and integrated program with a minimum of 158 approved credits including two required courses EEN 615 & 616 as well as 12 Elective courses defined as follows:
      1. At least one Analysis elective courses;
      2. At least two Computer Engineering elective courses;
      3. At least six EEN Elective Courses;
      4. An additional three EEN or Technical Elective courses;
         Elective courses are to be selected in consultation with the advisor.

III. THE FIVE-YEAR B.S.CP.E. - M.S.E.C.E DUAL DEGREE PROGRAM:
   A. This Dual Degree Program requires ten additional courses and replaces three technical elective courses as well as one senior design course currently required under the B.S.Cp.E. Degree.
      These fourteen courses are specified as follows:
      1. Three required courses EEN 368, 615, 616
      2. select two hardware courses from: EEN 532, 542, 614
      3. select two software courses from: EEN 511, 512, 513, 537, 572
      4. select four courses from the following:
         -EEN 336, 436, 519, 534, 536, 538, 540, 548, 553, 568, 570, 571, (573-578), 634, 638, 653, 671, CSC 529, 544
         a) select three additional technical electives in consultation with the academic advisor.
IV. THE FIVE-YEAR B.S.I.T.S.E. - M.S.E.C.E DUAL DEGREE PROGRAM:
   A. This is a structured and integrated program with a minimum of 159 approved credits. These include:
      1. Thirty credits of required courses as follows:
         EEN 307, 315, 316, 336, 404, 454/455, 521, 562, 563, 568, 615, 616;
      2. Fifteen credits selected from the following elective courses:
         a) Six credits of EEN elective courses selected from the following list: EEN 511, 512, 513, 514, 532, 536, 538, 540, 542, 553, 562, 563, 564, 565, 614, 638, 671
         b) Nine credits of Technical Electives selected in consultation with the academic advisor

V. DOCTOR OF PHILOSOPHY
   A. The program leading to the degree of Doctor of Philosophy complies in full with the requirements of the Graduate School concerning admission, residence requirements, qualifying examinations and the dissertation.
   B. Course requirements for the Ph.D. are described under the College of Engineering section.
   C. There is no foreign language requirement.
   D. The Ph.D. program in the Department will concentrate on a variety of emphasis areas for study and research.

500-level courses are open to advanced undergraduates and to graduate students; 600 level courses are open only to graduate students.

Electrical and Computer Engineering Course Listing
INDUSTRIAL ENGINEERING - Dept. Code: IEN

DEGREE PROGRAMS

I. Department Mission Statement
The Department of Industrial Engineering mission is to provide contemporary and relevant industrial and systems engineering education and research; impart knowledge and skills necessary to design and to improve a variety of manufacturing and service processes; promote life-long learning; and contribute to emerging societal needs.

II. MASTER OF SCIENCE
A. The Master of Science degree in Industrial Engineering includes the following areas of concentration:
   1. Engineering Management,
   2. Ergonomics and Human Factors,
   3. Health Care Systems,
   4. Management of Technology,
   5. Manufacturing Engineering,
   6. Occupational Health and Safety,
   7. Operations Research,
   8. Productivity Engineering,

B. Students (other than University of Miami graduates) applying for graduate admission to the College should submit three letters of recommendation from individuals familiar with the applicant’s abilities and background. Students who hold a bachelor’s degree in a field other than Industrial Engineering may be admitted to the graduate program and to candidacy upon completion of appropriate undergraduate deficiency courses, in addition to the regular requirements for the graduate degree. A student’s overall program is planned by the student and the Graduate Advisor.

C. Requirements for the M.S. thesis and non-thesis options are shown below:
   Requirements for the Master of Science Degree (both thesis and non-thesis option):
   1. An approved integrated program with a minimum of 30 semester credits with an average grade of “B” or better and no grade below “C.”
   2. At least twelve (12) course credits must be on the 600 level.

THESIS OPTION (30 Credits)
5 Common Core Courses 15 Credits
3 Elective Courses 9 Credits
Master's Thesis (IEN 710) 6 Credits
TOTAL 30 Credits
NON-THESIS OPTION (30 Credits)

5 Common Core Courses  15 Credits
4 Elective Courses  12 Credits
Master's Project (IEN 694)  3 Credits
TOTAL 30 Credits
(Note: All courses are 3 credit hours unless otherwise indicated)

COMMON CORE COURSES

IEN 612 Design of Experiments
IEN 642 Linear Programming and Extensions (or advanced level Operations Research course)
IEN 657 Ergonomics and Occupational Biomechanics (or advanced level Human Factors course)
IEN 664 Supply Chain Management or IEN 572 Management of Technology (or advanced level Management Course)
IEN 665 Advanced Production Systems

Notes:

i. In addition to the above required courses, the student will have to take other graduate level elective courses to fulfill the degree requirements. A list of approved electives is maintained by the Graduate Advisor in the Department of Industrial Engineering. Substitution of courses is allowed, but must be approved by the Graduate Advisor and the Department Chairman.

ii. 500-level courses are open to advanced undergraduates and to graduate students; 600-level courses are open only to graduate students.

iii. 500-level and 600-level courses are also open to qualified graduate students majoring in other disciplines.

D. An interdisciplinary M.S. degree program in Environmental Health and Safety and an M.S. degree program in Occupational Ergonomics and Safety are offered through the Department of Industrial Engineering in collaboration with the School of Medicine. These programs of study are individually structured to fit the student’s interests and career objectives.

E. The Department of Industrial Engineering offers a Five-Year Bachelor of Science in Industrial Engineering and Master of Science in Industrial Engineering Program (BSIE/MSIE Program).

1. This program is specifically designed for those students who want to pursue their graduate study as soon as they complete their undergraduate study in Industrial Engineering.

2. The special conditions for this Five-Year BSIE/MSIE Program are as follows:

   a) The student must declare his/her intent to participate before the end of the Junior year by submitting an official application to the department graduate committee for admission into the MSIE portion of the program. Exceptions to this rule must be approved by the department faculty.
b) A student wishing to withdraw from the Five-Year Program without the MSIE degree must complete all the requirements for the BSIE program, including the IEN 494 Senior Project in order to get his/her BSIE degree.

c) To qualify for the MSIE degree, the student must meet all the pertinent Graduate School requirements, including an acceptable score on the GRE (Graduate Record Examination) and a minimum of 3.0 GPA.

d) The student is awarded both the BSIE and MSIE degrees at the end of the fifth year when all requirements are satisfied.

F. The Department of Industrial Engineering, in cooperation with the School of Business Administration, offers three programs:

1. a dual MSIE/MBA weekend executive program,
2. an M.S. in Management of Technology,
3. an M.S. in Quality Management.

For more details on these programs, contact the Department of Industrial Engineering.

III. DOCTOR OF PHILOSOPHY

A. The Department offers a Ph.D. in Industrial Engineering for students with a background in engineering and a Ph.D. in Ergonomics and Human Factors for students with a background in engineering and/or related sciences.

B. General requirements for award of the Doctor of Philosophy degree include:

1. Sixty credits beyond the baccalaureate degree are the minimum requirement for the Ph.D.
2. At least 24 must have been taken in residence at the University of Miami. A minimum of 12 dissertation credits must be taken.

C. Course work requirements depend on the student's background, and are established by the Graduate Advisor and the Department Chairman.

D. To maintain status as a graduate student, registration in each fall and spring semester is required. Otherwise, admission lapses and permission to re-enter must be granted.

E. Once a student has completed all course and required research credits, he or she must enroll in “Research in Residence” status until the degree has been granted. “Research in Residence” status is considered full time enrollment. Time restrictions on obtaining degrees will be strictly enforced and can be waived only by the Dean of the Graduate School.

F. A written qualifying examination is to be taken by each doctoral degree candidate during the first year of graduate work. The department may specify that the student must take an oral examination as well. In those cases, normally, the student shall pass the written examination before the oral examination is conducted. Upon completion of the examination process, the Graduate Advisor notifies the Department Chairman that the student has passed or failed the examination. A student who fails the examination may be permitted to retake it, with the permission of the Graduate Advisor and the Chairman. Qualifying examinations normally will not be given during the summer months. The applicant must hold a 3.0 average on all credits attempted with no single grade below "C" at the University of Miami while a graduate student.
G. Each student in the Ph.D. program in Industrial Engineering has to take and pass 5 qualifying exams in the following areas: Management of Technology, Ergonomics & Biomechanics, Operations Research, Manufacturing Engineering, and Statistics & Regression analysis.

H. Each student in Ph.D. program in Ergonomics and Human Factors has to take and pass 5 qualifying exams in the following areas: Ergonomics and Human Factors, Industrial Hygiene, Safety Engineering, Biomechanics, and Statistics & Regression analysis.

I. Upon completing the course requirements, passing the qualifying exams, and successfully defending the Ph.D. proposal, the student is eligible for admission to the Ph.D. candidacy.

J. There are no foreign language requirements for the Ph.D. degree.

K. Upon passing the qualifying exams, the student in consultation with his/her selected Ph.D. Dissertation committee chair will decide on the dissertation committee members. The Dissertation committee will consist not less than four members, three from the Department’s graduate faculty, one from outside the Department. The chairman has to be a member of the graduate faculty. The duties of the Dissertation Committee are:

1. To consult with and to advise students on their research.
2. To meet, at intervals, to review progress and expected results.
3. To read and comment upon the draft dissertation.
4. To meet, when the dissertation is completed, to conduct the final oral examination and to satisfy itself that the dissertation is a contribution to knowledge and that it is written in lucid and correct English and submitted in approved form.
5. The candidate is well advised to have a final acceptable typescript of the dissertation in the hands of each member of his/her committee at a time reasonably in advance of the final defense of the work.
MECHANICAL AND AEROSPACE ENGINEERING - Dept. Code: MAE

DEGREE PROGRAMS

I. The Department of Mechanical and Aerospace Engineering offers courses and provides facilities for two programs of graduate study and research in Mechanical Engineering, leading to the degrees of
- Master of Science
- Doctor of Philosophy

A. The program of study must reflect the importance of underlying principles of the physical sciences and mathematical analysis to all phases of modern mechanical engineering.

B. Within the department, specializations are available in

<table>
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<tr>
<th>Specialization</th>
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<td>Fluid Mechanics</td>
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<td>Environmental Engineering</td>
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<td>Composite Materials</td>
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<td>Optimization and Reliability</td>
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<td>Nano Mechanics</td>
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<td>Heat Transfer</td>
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<td>Hydrogen Energy</td>
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<td>Materials Science,</td>
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<td>Internal Combustion Engines</td>
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<td>Controls and Design</td>
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<tr>
<td>Aerodynamics and CFD</td>
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<tr>
<td>Nano-Bio-Systems</td>
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<tr>
<td>Fuel Cells</td>
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</table>

C. It is expected that each graduate student will indicate early in his/her graduate work (within the first year), the particular area in which he/she intends to concentrate his/her efforts as well as the faculty advisor for dissertation.

II. MASTER OF SCIENCE

A. One academic year, or equivalent, spent in full time graduate study will be the minimum time necessary for a student to fulfill the requirements for the degree of Master of Science in Mechanical Engineering.

B. General requirements for the M.S. degree are listed under the Engineering heading of this section and in the general information of this Bulletin.

C. Students applying for acceptance to degree status must comply with the general requirements of the Graduate School.

D. Both a 30 credit hour thesis option and a 30 credit hour non-thesis option are available.

1. The student taking the Thesis Option must take an oral examination in defense of the thesis.

2. The student taking the Non-Thesis Option must complete a 3-credit Graduation Project at the end of the course program.

3. The Master of Science Degree in Mechanical Engineering (Management Option) can only be taken under the Non-Thesis Option.

   a) This degree specialization combines 15 credits selected from graduate business courses with 15 credits in a graduate engineering area of concentration.

   b) An undergraduate degree in engineering is required.
III. DOCTOR OF PHILOSOPHY

A. The program in the Department of Mechanical and Aerospace Engineering leading to the degree of Doctor of Philosophy complies in full with the regulations of the Graduate School concerning admission, residence requirements, qualifying and final examinations and the dissertation.

B. There is no foreign language requirement.

C. All candidates for the Ph.D. degree are expected to complete an integrated program of studies in mechanical engineering, mathematics, physics and/or chemistry in preparation for the Qualifying Examination.

D. A qualifying examination is to be taken by each doctoral degree student within the first year. In the qualifying examination, the student is expected to demonstrate his/her competence in certain basic courses appropriate to modern mechanical engineering to the satisfaction of the department. A Ph.D. student will be admitted to candidacy after passing the qualifying examination as well as the defense of dissertation proposal.

E. One or two years beyond admittance to candidacy will usually be found necessary for the completion of an acceptable dissertation, whereupon the student will be required to pass the Final Oral Defense of the Dissertation.

F. The candidate may, if he/she so desires, pursue for his/her dissertation an investigation in connection with any of the research projects in progress in the Mechanical and Aerospace Engineering Department or, in the case of interdisciplinary programs, in other Colleges/Schools such as the School of Marine and Atmospheric Science or the Medical School.

500 level courses are open to advanced undergraduates and to graduate students; 600 level courses are open only to graduate students.

IV. CLEAN ENERGY RESEARCH INSTITUTE

A. The Clean Energy Research Institute in the Department of Mechanical and Aerospace Engineering acts as the focal point of energy and environment related activities in the College of Engineering.

B. Its goals are: to conduct research and to generate research proposals to investigate energy and environmental problems; to organize seminars, workshops and conferences using researchers within and without the University; to assemble, compile, publish and disseminate information on every aspect of energy and environmental problems; and to cooperate with other organs of the University, other academic institutions, government and private organizations in connection with the above listed activities.

C. The current activities of the Institute include research into hydrogen as a clean, inexhaustible synthetic fuel, environmental damage caused by fossil fuels, global warming and its remediation, instabilities in boiling systems, solar cooling and heating, hybrid solar collectors, remote sensing applied to energy related problems and solar energy, and organization of national and international conferences and symposia on energy and environmental problems.
V. FLUIDS AND THERMAL SCIENCES LABORATORY
A. The Fluids and Thermal Science Laboratory provides such equipment as a wind tunnel producing wind velocities of 150mph allowing opportunity to study the principles of aerodynamics, the effects of a hurricane, and air pollution modeling. Pressure and velocity measurements, renewable energy by wind power are simulated in this laboratory.
B. Research includes an open water channel that allows basic work on oil booms and boom arrangements to be done.
C. Additionally, air pollution research is conducted through sampling trains and equipment for stack sampling.
D. This laboratory provides research opportunities for both undergraduate and graduate students.

VI. INTERNAL COMBUSTION ENGINES LABORATORY
A. Funded continuously since the 1970s, the Internal Combustion Engines Laboratory is a well-established research laboratory internationally known for its work in designing and testing engines for use with conventional and alternative fuels.
B. Graduate and undergraduate students alike have worked with faculty on numerous projects.
C. The laboratory focuses on issues of performance, energy conservation (fuel economy) and environmental impact (exhaust emissions).
D. Faculty research has received international recognition, and students’ research have been presented in numerous publications and at conferences sponsored by industry, government and academic venues.

VII. HVAC&R AND TWO-PHASE FLOW LABORATORY
A. Due to the significance of HVAC&R in the South Florida region, the HVAC&R and Two-Phase Flow Laboratories have extensive facilities for both undergraduate and graduate education as well as graduate research.
B. This research includes frost formation, boiling and condensation heat transfer, two-phase flow instabilities and alternative HVAC&R technologies using hydrogen hydrides.
C. Due to the significance of HVAC&R in the South Florida region, the HVAC&R and Two-Phase Flow Laboratories have facilities for both undergraduate and graduate education as well as graduate research.
D. This research includes frost formation, boiling and condensation heat transfer and two-phase flow instabilities.

VIII. DORGAN SOLAR ENERGY LABORATORY
A. The Dorgan Solar Energy Laboratory is equipped with a photovoltaic system, a solar air-conditioning system, a solar domestic hot water system, a solar-assisted heat pump system, and a meteorological data gathering station.
B. Both graduate and undergraduate students have worked with faculty on various research projects.
C. In addition to solar energy related projects, current research activities also include research on Hydrogen-Oxygen fuel cells and other energy and environment-related topics.

IX. COMPUTATIONAL FLUID DYNAMICS LABORATORY

A. The CFD lab is equipped with a Beowulf PC cluster parallel computing system with 16 Pentium 4 Xeon 1.7G processors.

B. Current interests are mainly in the area of aerospace propulsion systems including turbomachinery unsteady aerodynamics, fluid-structure interaction, turbulence simulation, design optimization, rocket engine turbopump flow, CFD algorithm/code development, etc.
OCEAN ENGINEERING/APPLIED MARINE PHYSICS

I. Ocean Engineering concentrates on problems associated with the interaction of the ocean and the works of man.
   A. The ocean engineer combines competence as an engineer with both a practical experience in and theoretical understanding of the ocean.
   B. The Ocean Engineering program, offered jointly with the Rosenstiel School of Marine and Atmospheric Science, is intended to lay the foundation of this competence, experience and understanding.
   C. The areas of faculty specialization in this program include coastal engineering, off-shore engineering, underwater acoustics, ocean measurements, marine geotechnics, and naval hydrodynamics.

II. The Master of Science degree in ocean engineering is offered jointly with the Rosenstiel School of Marine and Atmospheric Science.
   A. In addition, Master of Science and Doctor of Philosophy degrees in applied marine physics are offered by the Rosenstiel School of Marine and Atmospheric Science.
   B. See APPLIED MARINE PHYSICS/OCEAN ENGINEERING under RSMAS elsewhere in this Bulletin for information on the applied marine physics.

III. An approved interdisciplinary program is required for the M.S. degree in ocean engineering which consists of a minimum of 30 credits at the graduate level with an average grade of B or better and no grade below C.
   A. The 30 credits are divided among 24 credits in courses and six credits for thesis research.
   B. At least nine of the required credits must be 600 level courses.  
   500 level courses are open to advanced undergraduates and to graduate students; 600 level courses are open only to graduate students.
INTRODUCTION

The Rosenstiel School of Marine and Atmospheric Science was established in 1943 as the Marine Laboratory of the University of Miami. It has grown from its modest beginnings in a boathouse to be one of the nation’s leading institutions for oceanographic and atmospheric research and education.

Originally a tropical marine biological facility, the Marine Laboratory initiated a program of studies leading to the Master of Science degree in 1949. In 1953, laboratory and classroom buildings were constructed on the School’s present campus on Virginia Key, and in the late fifties, the Marine Laboratory expanded its staff and developed its oceanographic capabilities in response to the increased interest in scientific research in the United States. It became the Institute of Marine Science in 1961. Ocean-going research vessels were acquired, and additional buildings were constructed to accommodate new wide-ranging projects. In 1969 the Institute, now a School, was named for Dorothy H. and Lewis Rosenstiel in recognition of a major contribution made through the Rosenstiel Foundation to encourage progress in the marine and atmospheric sciences at the University of Miami. In 1977, the School and College of Arts and Sciences joined together to establish an undergraduate Marine and Atmospheric Science program based on the Coral Gables campus. The degree granting authority for this program was formally transferred to the Rosenstiel School in 2008.

Today the Rosenstiel School has a faculty of 100 scientists who conduct sponsored research while offering graduate studies leading to the Master of Arts, Master of Science and Doctor of Philosophy degrees. The School offers curricula in applied marine physics, marine and atmospheric chemistry, marine affairs and policy, marine biology and fisheries, marine geology and geophysics, and meteorology and physical oceanography. The School also offers undergraduate programs leading to the Bachelor of Science in Marine and Atmospheric Science degree and the Bachelor of Arts in Marine Affairs.

Government agencies and private organizations support basic and applied research at the Rosenstiel School. Graduate students are an integral part of the research effort, and research programs, many multidisciplinary in nature, provide the environment within which professors and students interact.

The Rosenstiel School has modern laboratory facilities and a state-of-the art catamaran, unrivaled worldwide for both shallow and deep water research. The vessel, named the F. G. WALTON SMITH, in honor of the founder of the Rosenstiel School, signals a new era in scientific research. The Smith was built in 1999 and placed in service in February, 2000.

The 96-foot-long catamaran is capable of reaching speeds of over 12 knots and has a draft of only 5 feet, which enables it to explore heretofore inaccessible areas such as reefs, mangroves, grassbeds, and other shallow environments. The vessel accommodates 20 people in its ten two-person staterooms and encompasses 800 square feet of laboratory space, as well as an additional 800 square feet of multi-use space astern. Constructed by Eastern Shipbuilding Group in Panama City, Florida, the catamaran boasts twin Cummins engines at 760 hp each, Servogear variable pitch propellers, a 3,000-gallon tank of fresh water plus a reverse osmosis water maker, and 10,000 gallons of fuel storage.
DEPARTMENTS

The Rosenstiel School is made up of six academic divisions through which graduate degree programs are offered. These are:

- Applied Marine Physics
- Marine and Atmospheric Chemistry
- Marine Affairs and Policy
- Marine Biology and Fisheries
- Marine Geology and Geophysics
- Meteorology and Physical Oceanography

DEGREE PROGRAMS

The Rosenstiel School of Marine and Atmospheric Science offers graduate degree programs leading to the Master of Science, Master of Arts, and Doctor of Philosophy degrees in applied marine physics, marine and atmospheric chemistry, marine biology and fisheries, marine geology and geophysics, and meteorology and physical oceanography. The division of Marine Affairs and Policy offers interdisciplinary Master of Arts and Master of Science degrees only.

In conjunction with the University of Miami School of Law, the Division of Marine Affairs and Policy at the Rosenstiel School also offers a joint degree program in Law and Marine Affairs. Upon completion of this program, a student earns a Juris Doctor degree from the School of Law and the M.A. in Marine Affairs and Policy from Rosenstiel.

The Rosenstiel School admits graduate students in the following categories. Regular admission is for students who wish to pursue a graduate degree. Non-degree admission provides an opportunity for graduate study to qualified applicants who do not wish to work toward an advanced degree but who have special objectives for professional study, or who already hold an advanced degree and desire additional coursework in the field. No more than twelve (12) credit hours may be taken while in non-degree status. A Certificate Program is available in all areas of study. This program provides professional training for any student who requires training in a specific research area but does not require an advanced degree. This program consists of one year full-time study with a minimum of eighteen (18) credit hours. Transient status is a type of non-degree admission available to students enrolled in a graduate program elsewhere but desiring to earn credit at the University of Miami for the purpose of transferring it to the home institution. All graduate students are required to demonstrate the ability to prepare and teach scientific material.

ADMISSION REQUIREMENTS

An application for admission to the Rosenstiel School of Marine and Atmospheric Science consists of the application form, application fee, transcripts, results of the Graduate Record Examination, results of the TOEFL or IELTS exam (for international students), and three letters of recommendation from persons knowing the applicant’s academic abilities. The application must be filed by January 1st in order to be considered for admission the following Fall semester. Students are normally admitted only in the Fall semester; however, applicants who have received a Master’s degree may be considered for Spring admission to the Ph.D. program.
Because of resource limitations, only a small percentage of those applying for graduate study in marine and atmospheric science can be accepted. Undergraduate scholastic performance, the reputation of the school involved, Graduate Record Examination scores, and the letters of recommendation are all considered in evaluating an application.

A complete description of the Rosenstiel School, its faculty, educational and research facilities, curriculum and degree requirements is contained in the Bulletin of the Rosenstiel School of Marine and Atmospheric Science. The current Bulletin and additional information can be found on the Rosenstiel School website located at www.rsmas.miami.edu/grad-studies/.

UNDERGRADUATE PREPARATION

Students interested in pursuing marine or atmospheric science on the graduate level should elect an undergraduate major in one of the basic scientific disciplines. The undergraduate college should be selected on the basis of curriculum, staff strength, and research interests in that major. The student should be careful to satisfy the graduation requirements of his/her own college or university and should consult undergraduate departmental advisors for assistance on individual programs.

The undergraduate course requirements for students applying for graduate study at the Rosenstiel School are detailed below. The courses that are required or strongly recommended are printed in roman type. The courses which should be taken if the student’s program can include them are printed in italic type.
### Applied Marine Physics/Ocean Engineering

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<tr>
<th>Physics</th>
<th>Chemistry</th>
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<tr>
<td>General physics</td>
<td>General chemistry</td>
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<td>Mechanics</td>
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<td>Thermodynamics</td>
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<td>Electromagnetism</td>
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<th>Mathematics</th>
<th>Engineering</th>
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<td>Calculus</td>
<td>Fluid mechanics</td>
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<td>Differential equations</td>
<td>Solid mechanics</td>
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<td>Advanced calculus</td>
<td>Electronics</td>
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<td>Complex variables</td>
<td>Signal processing</td>
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<td>Linear algebra</td>
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<td>Numerical methods</td>
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<td>Probability and statistics</td>
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### Marine and Atmospheric Chemistry

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<th>Mathematics</th>
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<td>Inorganic chemistry</td>
<td>Linear algebra</td>
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<tr>
<td>Physical chemistry</td>
<td>Calculus</td>
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<td>Organic chemistry</td>
<td>Differential equations</td>
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<td>Qualitative analysis</td>
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<td>Quantitative analysis</td>
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<td>Biochemistry</td>
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<td>Geochemistry</td>
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<tr>
<td>General physics</td>
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### Marine Biology and Fisheries

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<tr>
<th>General Requirements</th>
<th>Biological Science (all courses recommended only)</th>
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<tr>
<td>General Biology (one year)</td>
<td>Genetics/Molecular biology</td>
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<tr>
<td>Chemistry</td>
<td>General physiology/cell biology</td>
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<tr>
<td>Inorganic (one year)</td>
<td>Ecology/Population Biology/Evolutionary Biology</td>
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<tr>
<td>Organic (one semester)</td>
<td>Organismic biology</td>
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<tr>
<td>Physics (one year)</td>
<td>Vertebrate or invertebrate</td>
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<tr>
<td>Calculus (one year)</td>
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<tr>
<td>Language (none)</td>
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### Marine Affairs and Policy

There are no specific requirements for the Division of Marine Affairs and Policy. Please contact the Department for information on academic requirements.

### Marine Geology and Geophysics

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<th>Geology</th>
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<td>Field geology</td>
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<td>Stratigraphy</td>
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<td>Geochemistry</td>
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<td>Geophysics</td>
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<th>Physics</th>
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DEGREE REQUIREMENTS

THE M.S. PROGRAM
The Master of Science degree is offered in the disciplines of applied marine physics, marine biology and fisheries, marine and atmospheric chemistry, marine geology and geophysics, or meteorology and physical oceanography. It is expected that the normal time for completion of degree requirements for the Masters of Science degree will be two years of full-time study.

Credit Requirements
Twenty-four graduate course credits are required for the Master of Science degree. In addition, the student must enroll for a total of six credit hours of thesis research (710). All students are required to take at least one course outside the division of residence.

Comprehensive Examination
An oral comprehensive examination is required of all students. Some divisions may also require a written component in addition to the oral exam. Each division determines the content and form of the examination and establishes a test date for its students according to general School guidelines. In the event of a failure, a student may be reexamined once, upon the advice of the student’s committee and at the discretion of the faculty of the Division. If granted, the reexamination must be given before the end of the following semester. Students who fail the re-examination are subject to dismissal from the School.

Thesis
A thesis is normally required for the Master of Science degree in marine and atmospheric science. Under certain conditions, the requirement of a thesis may be waived. A paper accepted for publication can be substituted for the thesis (only where the student is the sole author), or the M.S. degree can be bypassed. Both of these exceptions must be approved by the student’s committee, the faculty of the pertinent division, and the School Graduate
Academic Committee. If a thesis is required, a public oral defense of the thesis must take place. The thesis committee must consist of at least three members, one of whom is a regular member of the Graduate Faculty of the University; one member must be from outside the division.

THE M.A./M.S. PROGRAM IN MARINE AFFAIRS

The Rosenstiel School of Marine and Atmospheric Science offers a Master of Arts and Master of Science Program in Marine Affairs and Policy. The M.A. program is designed for students who wish to obtain a Masters degree in a fixed period of time (one year plus a summer). The Master of Arts degree offers an advanced training program in marine science applicable to topics such as the coastal zone and the development of marine resources. Applicants must have a baccalaureate degree from an accredited college or University. This program is for students with interests in the areas of administration, management and the conservation of marine resources. The program will also be useful to high school science teachers who want to upgrade their credentials and bring marine science to the classroom. The M.A. degree is primarily for those students who do not intend to obtain a Ph.D. in science.

The Master of Science degree in Marine Affairs and Policy is an integrated track in marine science and policy and gives students with a strong science background opportunities to build careers in marine resource management. The M.S. offers an academic curriculum for students interested in the application of science and technology to management issues. The M.S. may be completed in two and one half years in an intensive program of five semesters. The M.S. applicant must select and be accepted by one of the five RSMAS physical science divisions in addition to their acceptance into Marine Affairs and Policy. The student’s committee must consist of a chairperson from the Division of Marine Affairs and Policy and a co-chair from the physical science division.

Credit Requirements
Twenty-seven graduate course credits and a three credit internship paper, researched and written on a topic approved by the faculty advisor, are required for the Master of Arts degree in Marine Affairs and Policy. The advisory committee shall consist of at least three members, one of whom is a regular member of the Graduate Faculty of the University; one member must be from outside the division. The Master of Science requires the completion of 30 course credits and six master's thesis credits. A committee of three is required – two co-advisors (one MAF and one from the science division) and one other faculty member from Marine Affairs and Policy. A thesis is required for the M.S. degree and a public oral defense of the thesis must take place. A grade point average of 3.0 or better must be maintained. All students are required to take at least one course outside the division of residence.

Comprehensive Examination
An oral and written comprehensive examination is required of all students in Marine Affairs and Policy. In the event of a failure, a student may be reexamined once, upon the advice of the students committee and at the discretion of the faculty of the Division. If granted, the reexamination must be given before the end of the following semester. Students who fail the re-examination are subject to dismissal from the School.

THE PH.D. PROGRAM
The Doctor of Philosophy degree is offered in applied marine physics, marine biology and fisheries, marine and atmospheric chemistry, marine geology and geophysics, and meteorology and physical oceanography. It is expected that the total time to complete the requirements for the Ph.D. degree will normally be four years of full-time study from the
date of receipt of the M.S. degree or, if the M.S. is bypassed, five years of full-time study from the date of admission with a bachelor’s degree.

**Credit Requirements**
A total of sixty credits are required for the Ph.D. and not less than half of the total credits must be in work open only to graduate students (i.e. 600 level or above). At least twenty-four of the sixty credits must be course credits taken in residence at the University of Miami, and may include those course credits taken as part of the Masters of Science degree. A minimum of 12 dissertation research credits must be taken; however, the course credit and research credit requirements needed are determined by the individual division. Students transferring into the school with a Master’s of Science degree are normally given credit for twenty-four course credits. However, individual divisions may require additional course credits to remove deficiencies. All students entering the Ph.D. program without a master’s degree are required to take at least one course outside the division of residence.

**Dissertation Committee**
The dissertation committee must consist of at least four members; this includes the committee chair, who shall be a member of the division as well as a regular member of the Graduate Faculty. Of the remaining members, two shall be from the Graduate Faculty, and one member of each Ph.D. committee must have their primary affiliation outside of RSMAS and that member must also have a Ph.D. degree. (Adjunct and secondary appointments are considered outside if their primary affiliation is not RSMAS).

**Comprehensive Examination**
An oral comprehensive examination is required of all RSMAS students. Some divisions may also require a written component in addition to the oral exam. In the event of a failure, a student may be re-examined once, upon the advice of the student's committee and at the discretion of the faculty of the division. Students who fail the re-examination are subject to dismissal from the School.

**Qualifying Examination**
A written qualifying examination is required of all students admitted to the doctoral program. The student’s committee will normally prepare and administer the examination within the guidelines established by the faculty of the School and of each division. In the event of a failure, a student may be reexamined once, upon the recommendation of the student’s committee and at the discretion of the faculty of the division. If granted, the reexamination must be given before the end of the following semester. Language and other research tools requirements, if applicable, must be completed prior to taking the qualifying examination. Students who fail the re-examination are subject to dismissal from the School.

**Dissertation Proposal**
An outline of the dissertation containing the following must be approved by the student’s committee and submitted to the RSMAS Graduate Studies Office with a copy to the division academic committee:
(a) tentative title
(b) statement of the problem and objectives
(c) methods of attacking the problem, including equipment and facilities required
(d) timetable
A “Proposal Approval” form must accompany the proposal and be signed by the members of the student’s committee.
Admission to Candidacy
Upon completion of the following requirements, the student is admitted to candidacy:
(a) have an approved committee on file in Graduate Studies
(b) successfully pass the comprehensive examination
(c) successfully pass the qualifying examination
(d) complete the language requirement, if any
(e) submit the dissertation proposal
(f) have a 3.0 average in all credits earned (≥ 12 credits)
(g) remove all “I” or deficiencies
An application for Admission to Candidacy must be completed. All doctoral students must be admitted to candidacy at least one semester prior to the one they intend to graduate.

Dissertation
A dissertation is required of all doctoral students at the Rosenstiel School. A public oral defense of the dissertation is required. A student must be admitted to candidacy prior to the defense and registered in the semester that he/she defends. Each dissertation must be accompanied by three originals of the Certificate of Approval. This form must be signed by all members of the student's committee and the RSMAS Associate Dean for Academic Affairs.

No student gains the right to be recommended for the degree simply by fulfilling requirements. This right is reserved for the student’s Committee. Any student who fails to meet the cumulative grade point average requirement and other academic progress standards established by the University and the School is subject to dismissal from the graduate program.
APPLIED MARINE PHYSICS
Dept. Code: AMP

DEGREE PROGRAMS

Master of Science and Doctor of Philosophy degrees in applied marine physics are offered by the Applied Marine Physics Division of the Rosenstiel School of Marine and Atmospheric Science. An approved interdisciplinary program is required for the M.S. degree in applied marine physics which consists of a minimum of 30 semester credits at the graduate level with an average grade of "B" or better and no grade below "C." The 30 credits are divided among 24 credits in courses and six credits for thesis research. At least six of the required course credits must be at the 600 level. For the Ph.D. degree, 60 graduate semester credits are required. These are divided among a minimum of 36 credits in courses (18 of which must be at the 600 level) and a minimum of 12 credits in dissertation research.

Applied Marine Physics Course Listing
MARINE AFFAIRS AND POLICY - Dept. Code: MAF

DEGREE PROGRAMS

The Division of Marine Affairs accepts highly qualified students who wish to pursue an academic degree program that combines a basic curriculum in marine science with a complementary program in a non-marine science discipline. Student programs are individually designed and lead to an M.A. degree or an M.S. degree. The M.A. curriculum requires participation in the intern program in lieu of a thesis. The M.S. curriculum requires a thesis. The program is intended to provide the student with a broadened perspective of marine issues and problem-solving abilities. MAF offers a specialization in aquaculture management. This track focuses on technological, environmental, and economic feasibility of sustainable aquaculture operations.

Current Division research and teaching focus on integrated coastal zone management, marine resource economics, political and environmental ecology, coastal and ocean law and policy, fisheries and aquaculture management, environmental planning and environmental impact assessment, underwater marine cultural resource management and marine geographic information systems.

Marine Affairs and Policy, in cooperation with the Undergraduate Marine and Atmospheric Science Program, also offers a five-year BA/MA Program in Marine Affairs. This program enables qualified students to earn a B.A. in Marine Affairs in four years with the opportunity to earn an M.A. with only one additional year. Conditional acceptance to the M.A. program is based on the student’s GPA at the end of their sophomore year. Students must then take GRE exams and apply for acceptance to the graduate program at Rosenstiel during their junior year.

The Division of Marine Affairs and Policy at the Rosenstiel School and the University of Miami School of Law offer a Joint degree program in Law and Marine Affairs. Upon completion of this program, a student earns a Juris Doctor degree from the School of Law and the M.A. in Marine Affairs from Rosenstiel. A student may complete requirements for both degrees within three and one-half years in an intensive program of six semesters and two full summers. This program is geared toward students who want a career in the field of law with a specialization in marine and environmental issues.

Marine Affairs and Policy Course Listing
MARINE AND ATMOSPHERIC CHEMISTRY - Dept. Code: MAC

DEGREE PROGRAMS

The program covers the chemistry of the atmosphere and oceans, including geochemical, photochemical and biochemical processes. Undergraduate training should be in chemistry, physics, biology and mathematics; also useful may be courses in geology, biochemistry, oceanography and meteorology.

New students are evaluated for their knowledge of chemistry; deficiencies are corrected by directed study and/or course work and must be remedied within one year. New students can be admitted to the M.A. or the M.S. program, or directly into the PhD program, even without a prior M.S. degree.

Students are assigned a faculty advisor when they are accepted into MAC, and during their first year they form a supervisory committee. The advisor and committee plan a course of study and research for the student. Students without an MS degree take a written comprehensive examination towards the end of the first year. The comprehensive exam tests the basic knowledge of marine and atmospheric science, and is based on core course material. The research proposal usually includes an abstract, background material, hypothesis and/or list of objectives, methods, preliminary data, and bibliography. Ph.D. students also take a written qualifying exam. The qualifying examination is set by the advisor and supervisory committee and is taken after their approval of the dissertation proposal. An oral examination may be required after the written examination. Students who twice fail the qualifying examination will receive an MS if they present and successfully defend a written thesis. For all students, the seminar (MAC 670) is taken twice for credit. However, each student must give one seminar per year and they must attend seminars regularly.

The MA is a non-research degree that occupies 1 year: two semesters of 12 course credits each, and a summer session of experimental work and a written project (6 credits).

[Marine and Atmospheric Chemistry Course Listing]
MARINE BIOLOGY AND FISHERIES - Dept. Code: MBF

DEGREE PROGRAMS

Students admitted to the program in the Division of Marine Biology and Fisheries are required to have a strong undergraduate preparation in the life sciences, with additional coursework in mathematics (calculus), physics, and chemistry (through organic). The program offers a series of study-options leading to the M.A., M.S. or Ph.D. degrees. These are intended to guide the student in a comprehensive study of marine organisms and the marine environment, and to develop areas of specialization within the marine biological sciences. Students are strongly encouraged to contact the faculty member whose area of research is of interest to them.

Areas of faculty interest include biological oceanography, biochemistry and molecular biology, ecology, fisheries, microbiology, physiology, toxicology, systematics, behavior and ecosystem and fisheries management. Students are not restricted to studies in any one study-option, and may (in consultation with their faculty advisor and/or committee) tailor their academic programs to suit individual interests in more than one area of faculty expertise. Within the Division of Marine Biology and Fisheries there are four major academic tracks, each of which has one or more sub-specializations. These are (1) Biological Oceanography, which has an emphasis on nearshore and pelagic marine life; (2) Fisheries Sciences, which focuses on fisheries stock assessment, population modeling, and fisheries management; (3) Marine Biomedical Sciences, which has subspecialities in Marine Molecular Biology and Genetics, Marine Diseases, and Marine Physiology and Biochemistry/Toxicology; and (4) Ecological Sciences and Coastal Marine Biology. This latter academic track offers specialization in Marine Biology, Coral Reef and Coastal-Marine Ecology, and Ecological Systems and Environmental Management. Individual curricula may blend coursework from one or more tracks depending on the specific interests of the student.

Marine Biology and Fisheries Course Listing
MARINE GEOLOGY AND GEOPHYSICS - Dept. Code: MGG

DEGREE PROGRAMS

The undergraduate student wishing to prepare for graduate work in marine geology and geophysics must be well trained in the basic sciences. According to the special interests of the individual, the undergraduate major and minor should be in geology, physics, chemistry, and/or mathematics.

The Division of Marine Geology and Geophysics offers M.S. and Ph.D. programs in the following broad areas:

- Environmental Geology and Geochemistry
- Sedimentary Systems and Marine Geology
- Paleoclimatology and Global Change
- Igneous Petrology and Geochemistry
- Geophysics
- Geodesy

Within each discipline, students have considerable flexibility in choice of courses, and “cross-track” courses are possible for students with special interests. Interactions with other divisions are particularly encouraged.

[Marine Geology and Geophysics Course Listing](#)
METEOROLOGY AND PHYSICAL OCEANOGRAPHY - Dept. Code: MPO

DEGREE PROGRAMS

The Division of Meteorology and Physical Oceanography (MPO) of the Rosenstiel School of Marine and Atmospheric Science (RSMAS) is engaged in research and graduate instruction in the physical processes governing the motion and composition of the ocean and atmosphere. The program ranges from direct observation to theoretical and numerical modeling of the earth-atmosphere system.

Three types of degrees are awarded by the Division: Master of Science, which requires 30 credits, including 24 credits in courses and 6 research credits; Doctor of Philosophy, which requires 60 credits, including a minimum of 36 course credits and a minimum of 12 research credits; the Division also awards Master of Arts degrees, requiring 24 course credits and six credits of directed research leading to a research paper.

Students applying for admission to graduate study in the Division of Meteorology and Physical Oceanography should have a solid background in mathematics and physics or engineering. Once admitted, students in this Division will take courses in both Meteorology and Physical Oceanography in order to develop an understanding of the ocean and the atmosphere as closely related dynamical systems.

In the first year, students will take 6 courses, followed by a comprehensive exam at the end of the spring semester. Based on the results of this exam, students may be given the option to enter the Ph.D. program directly, to enter the M.S. program (leading to subsequent entrance into the Ph.D. program), or they may be required to re-take the comprehensive exam. Typical times for completion are 2-3 years for M.S. degrees and 4-6 years for Ph.D. degrees.

[Meteorology and Physical Oceanography Course Listing]
LIFE SCIENCES-SCHOOL OF MEDICINE

PROGRAM IN BIOMEDICAL SCIENCES – DEPT CODE: PIBS
www.biomed.miami.edu

The Program in Biomedical Sciences (PIBS) provides an entry point for first year doctoral students interested in obtaining a Ph.D. from the Leonard M. Miller School of Medicine. PIBS students experience a common first-year curriculum to build a solid foundation in biomedical science.

In the fall, students enroll in PIBS 601, which is a 9 credit course covering fundamentals of molecular and cellular biology, important model organ systems, and technical approaches in modern biomedical science. The course meets 4 days/week, 2 hours/day. The first hour is a lecture/discussion, and the second hour varies from professional development activities (reading papers, writing papers, choosing a lab and a project, time management, etc) to discussions of particular relevant techniques, to critical reading of relevant literature.

In the spring semester, students elect from a menu of individual modular courses offered by the 8 graduate programs. Each modular course covers 6-7 weeks, and students will elect 1-2 of these per half semester. These courses will cover topics of more specific relevance to graduate programs or research themes.

Students will perform at least 3 laboratory rotations of 9 weeks each during the first year, and will generally choose a dissertation laboratory (and graduate program) during the latter half of the spring semester. If necessary a fourth rotation is possible, and in this case laboratory choice may be deferred until June.

In addition, students will meet several times per semester in small groups (6-7/group) with a mentor. Mentors are chosen for their experience and commitment to student training. In these group sessions, students will discuss a variety of issues relevant to challenges and opportunities in biomedical research, preparing for success in graduate school, and building a successful research career.

Ph.D. Program Choices:
- Biochemistry & Molecular Biology
- Cancer Biology
- Human Genetics & Genomics
- Microbiology & Immunology
- Molecular Cell & Developmental Biology
- Molecular & Cellular Pharmacology
- Neuroscience
- Physiology & Biophysics.

ADMISSION REQUIREMENTS

Applicants should have a bachelor's degree in a biological or related discipline (e.g., psychology, chemistry, engineering, physics). Although there are no absolute prerequisites, courses in general biology, cell/molecular biology, calculus, general physics, organic chemistry, physical chemistry, and biochemistry are encouraged.
Strong candidates will have research experience in a laboratory setting (including publications of abstracts and/or papers), an excellent academic record and GRE scores, excellent letters of recommendation from scientists who know the candidate well, and the motivation to pursue state-of-the-art biomedical research. The PIBS Admissions Committee will review and make decisions on applications after December 15th.

- Students should apply online at: www.biomed.miami.edu

Inquiries should be directed to:

Program in Biomedical Sciences  
University of Miami  
Miller School of Medicine  
Office of Graduate Studies  
POB 016189  
Miami, Florida 33101-6189  
Office: 305.243.5867  
Email: biomedgrad@miami.edu  
Website: www.biomed.miami.edu

PIBS Course Listing (under development – will appear in 2010-2011 listing)

M.D./Ph.D. PROGRAM

ADMISSION REQUIREMENTS

Admission to the MD/PhD Program is highly competitive, and interested applicants are advised to apply early in the fall. AMCAS applications must be received by the Medical Admissions Office no later than December 15. Competitive applicants usually have a cumulative undergraduate science G.P.A. of at least 3.4 and a composite score of at least 32 on the MCAT exam. Preference will be given to candidates who can provide tangible evidence of a commitment to biomedical research, substantial laboratory or other relevant research experience and scientific talent. Applications from under-represented groups, including minorities and women, are encouraged.

The completed application should contain a research narrative and two letters of recommendation from scientists who specifically address their potential as a physician scientist. One of these must come from a scientist with whom the student performed research. Composite evaluations from a premedical advisory committee cannot be substituted for either of these letters. The Graduate Record Examination (GRE) is not required for matriculation into the MD/PhD Program.

All MD/PhD applicants are reviewed by both the MD Program Admissions Committee and the MD/Ph.D Program Admissions Committee. These evaluations proceed independently and a student will still be considered for the MD program, even after an unfavorable review by the MD/PhD Program. A successful applicant is granted admission to both the MD Program and the MD/PhD Program.
DEGREE PROGRAMS

The Basic Science Graduate Programs

The following doctoral programs, described elsewhere in this bulletin, participate in the MD/PhD Program. The MD/PhD Program office can provide you with further information about these programs and the research interests of their faculty.

- Biochemistry and Molecular Biology
- Sheila and David Fuente Cancer Biology Program
- Epidemiology and Public Health
- Human Genetics & Genomics
- Microbiology and Immunology
- Molecular Cell and Developmental Biology
- Molecular and Cellular Pharmacology
- Neuroscience
- Physiology and Biophysics

Program Sequence

Students complete the first two years of medical school, which is followed by their PhD training and then the final two years of clinical clerkships. Students are advised to begin the program in June to enable an early start on their research rotations as the MD program courses begin in mid-August. Some students choose to continue their research during the first two years of medical school. It is recommended that students select and apply to a graduate program by February of their second year in the program and identify a research mentor no later than the beginning of the third year. The summers before the second and third year are usually spent in research rotations. The third year is spent both in class to fulfill the final graduate course requirements and in the mentor’s laboratory. Students should plan to take their Ph.D. qualifying exam by the end of the third year. The following two or more years are spent carrying out original research for their dissertation. All Ph.D. requirements must be completed before entry into the third year of medical school.

Combined degree programs are long and challenging. To relieve pressure produced by the demands of the medical and graduate curricula, the University of Miami Miller School of Medicine provides a stimulating and supportive environment in which all combined degree students have frequent opportunities to exchange their ideas, energy and concerns.

The on-going program activities

- provide opportunities for integration of clinical problems with basic science advances
- Enhance the clinical curriculum with in-depth case reviews.
- Foster discussion of the students’ own research results in an interdisciplinary, rigorous, but informal setting.

Also, special events are scheduled to bring the program’s students together for in-depth discussion with international leaders in research.
SHEILA AND DAVID FUENTE GRADUATE PROGRAM IN CANCER BIOLOGY- DEPT CODE: CAB
www.biomed.miami.edu/cab

THE PROGRAM

The Sheila and David Fuente Graduate Program in Cancer Biology is a University-wide interdisciplinary training program that involves faculty from the basic science and clinical departments of the University of Miami. The objective of this program is to provide a unique multidisciplinary training environment for highly qualified individuals that will prepare them for independent research and teaching careers. The overall philosophy of the program is to integrate basic and clinical research. The scientific focus is on the biology of cancer and the development of novel diagnostic and therapeutic approaches.

The program emphasizes a multidisciplinary approach which incorporates concepts and state-of-the-art techniques from molecular biology, biochemistry, cell biology, biostatistics, genetics, genomics, immunology, proteomics, structural biology, clinical oncology, and translational research programs at the Sylvester Comprehensive Cancer Center. An important goal of the program is to provide students with a strong background in basic biomedical research coupled with an understanding of clinical aspects of cancer including diagnostic, prognostic, and therapeutic intervention. To achieve this goal the program utilizes a unique program of study that includes lectures from both basic and clinical researchers. In addition, the program has a two-tier mentoring system in which students receive guidance from both a research mentor and a physician mentor. The research mentor is the dissertation advisor, while the physician mentor will provide the student with a clinical perspective in oncology. Through this dual mentorship students conduct their doctoral research and obtain clinical knowledge in their area of study. The program aims to instill in students the ability to design multidisciplinary research programs in which scientific research is driven by unmet clinical challenges.

The curriculum includes core courses in Tumor Biology, Clinical Oncology, Scientific Reasoning and Logic in Cancer Biology: Bench-to-Bedside, Colloquia in Translational Cancer Research, and Approaches to Understanding Cancer. Students can also choose electives in cancer epidemiology, cellular and molecular biology, immunology, pharmacology, and microbiology. During the first year, students attend a series of lectures in which oncologists discuss clinical aspects of cancer including epidemiology, detection and treatment. Rotations through faculty laboratories provide students with hands-on experience in various research areas. The rotations also provide the student the background necessary to select their dissertation advisor and research area. During the second year of study, students formulate a dissertation proposal and take a qualifying exam. Their subsequent research is guided by an individually tailored dissertation committee, including the research advisor and physician mentor.

ADMISSION REQUIREMENTS

All students are admitted through the Program in Biomedical Sciences (PIBS) for the PhD programs in Biochemistry & Molecular Biology, Cancer Biology, Human Genetics & Genomics, Microbiology & Immunology, Molecular Cell & Developmental Biology, Molecular & Cellular Pharmacology, Neuroscience, and Physiology & Biophysics. The
PIBS Admissions Committee will review and make decisions on applications after December 15th.

Applicants should have a bachelor’s degree in a biological or related discipline (e.g., psychology, chemistry, engineering, physics). Although there are no absolute prerequisites, courses in general biology, cell/molecular biology, calculus, general physics, organic chemistry, physical chemistry, and biochemistry are encouraged.

Strong candidates will have research experience in a laboratory setting (including publications of abstracts and/or papers), an excellent academic record and GRE scores, excellent letters of recommendation from scientists who know the candidate well, and the motivation to pursue state-of-the-art biomedical research.

In the first year all students take a common curriculum to build a solid foundation in biomedical science. The core coursework in the fall ranges from molecules to cells to systems of human physiology. Lectures are balanced by breakout sessions, in which faculty members discuss the primary literature with students in small groups. The core curriculum also offers critical learning opportunities in biostatistics and in using genomic and other databases, as well as education in ethics. Students also meet several times in small groups with experienced faculty mentors to discuss important issues of faculty development. Specific coursework relating to the individual graduate programs is done largely in the second and third semesters of study.

- Students should apply online at: [www.biomed.miami.edu](http://www.biomed.miami.edu)

**CONTACT INFORMATION**

Sheila and David Fuente Graduate Program in Cancer Biology
Sylvester Comprehensive Cancer Center
Miller School of Medicine
P.O Box 019132 (M-877)
Miami, Florida 33101
Phone: 305-243-8533
Fax: 305-243-5555
Directors: Kerry L. Burnstein, Ph.D and Sean Scully, M.D., Ph.D.

[Cancer Biology Course Listing](#)
BIOCHEMISTRY AND MOLECULAR BIOLOGY
Dept. Code: BMB
http://chroma.med.miami.edu/bmb/index.html

The aim of graduate education in this department is to prepare students for careers in biochemistry and molecular biology. This training provides the student with a broad knowledge in the various aspects of modern biochemistry and molecular biology. Independent laboratory research is emphasized at all stages of the student's career.

Some of the Biochemistry faculty is affiliated with other departments in the University, with the VA hospital, the Sylvester Comprehensive Cancer Research Center, the Brahman Breast Cancer Institute. Thus, research facilities for a large variety of specialties are available to our students. Some of the graduate students participate in the combined M.D.-Ph.D. Program.

ADMISSION REQUIREMENTS

All students are admitted through the Program in Biomedical Sciences (PIBS) for the PhD programs in Biochemistry & Molecular Biology, Cancer Biology, Human Genetics & Genomics, Microbiology & Immunology, Molecular Cell & Developmental Biology, Molecular & Cellular Pharmacology, Neuroscience, and Physiology & Biophysics. The PIBS Admissions Committee will review and make decisions on applications after December 15th.

Applicants should have a bachelor’s degree in a biological or related discipline (e.g., psychology, chemistry, engineering, physics). Although there are no absolute prerequisites, courses in general biology, cell/molecular biology, calculus, general physics, organic chemistry, physical chemistry, and biochemistry are encouraged.

Strong candidates will have research experience in a laboratory setting (including publications of abstracts and/or papers), an excellent academic record and GRE scores, excellent letters of recommendation from scientists who know the candidate well, and the motivation to pursue state-of-the-art biomedical research.

In the first year all students take a common curriculum to build a solid foundation in biomedical science. The core coursework in the fall ranges from molecules to cells to systems of human physiology. Lectures are balanced by breakout sessions, in which faculty members discuss the primary literature with students in small groups. The core curriculum also offers critical learning opportunities in biostatistics and in using genomic and other databases, as well as education in ethics. Students also meet several times in small groups with experienced faculty mentors to discuss important issues of faculty development. Specific coursework relating to the individual graduate programs is done largely in the second and third semesters of study.

The first year is also focused on choosing a program and a dissertation mentor. All students are initially mentored by a senior student and a faculty member to facilitate this process. In the 1st year, students rotate through at least 3 laboratories chosen from any of the biomedical sciences graduate faculty. At the end of the 1st year
students choose mentors and formally enter individual graduate programs.

- Students should apply online at: www.biomed.miami.edu

**DEGREE PROGRAMS**

All incoming students will be advised by the operating committee. This committee will assist and mentor students prior to their selection of a thesis advisor. In addition students will be provided guidance concerning choices of courses and research programs.

The student should choose a thesis mentor from the program faculty by the beginning of the second year of graduate study.

The program operating Committee, in consultation with the mentor, will appoint a thesis committee and set up a tentative schedule for the remainder of the student’s graduate studies.

**DEGREE REQUIREMENTS**

Completion of the Ph.D. degree requires the completion of 36 credits of coursework at the graduate level (including specific required courses), 24 credits of thesis research, passing a qualifying exam, and submitting and successfully defending a dissertation showing results obtained on a research problem. The degree earned will be Doctor of Philosophy in Biochemistry and Molecular Biology.

Inquiries should be directed to
Dr. T. K. Harris, Director
Graduate Program in Biochemistry and Molecular Biology
University of Miami, Miller School of Medicine
Department of Biochemistry and Molecular Biology
P. O. Box 016129
Miami, FL 33101
e-mail: tkharris@miami.edu
Tel. 305/243-3358

**COMBINED M.D.-PH.D. DEGREE.**
- The Department participates in the School of Medicine’s M.D.-Ph.D. Program in which students may obtain both degrees.
- The curriculum will be tailored to the needs of the individual student.

**Biochemistry and Molecular Biology Course Listing**
The Department of Epidemiology and Public Health offers graduate programs leading to the degrees of

- Master of Public Health (MPH),
- Master of Science in Public Health (MSPH), and
- Doctor of Philosophy (PhD) in Epidemiology.

The mission of the Graduate Programs in Epidemiology and Public Health is to provide up-to-date educational programs to practicing health professionals and students newly entering the field; to conduct, stimulate, and guide research activities relevant to local, state-wide, and national health needs; and to provide assistance to health agencies for the continued improvement of disease prevention and health promotion, environmental safety and monitoring, and the planning, analysis, and management of health delivery services.

The MPH degree is a 45 semester-hour program that is accredited by the Council on Education for Public Health and provides fundamental skills in core areas of public health to persons involved in the implementation of community health programs and to those seeking a broader base of knowledge to improve environmental and personal health services for the community.

- The core courses for the MPH include biostatistics, epidemiology, environmental health, public health administration, health education and behavior, and a capstone practicum.

The MSPH degree is a 45 semester-hour academic research degree designed for students who wish to prepare for further study at the doctoral level, or to prepare for research or technical positions in government, industry, academia, or private institutions.

- Studies for the MSPH degree include many of the core disciplines included in the MPH degree with an additional emphasis on advanced research methods and quantitative analysis skills.
- All MSPH students will complete an original public health research thesis as their culminating experience.

Full-time students can expect to complete the MPH or MSPH degree requirements within 2 years.

A nine-credit waiver is available for students who enter the MPH or MSPH degree programs with an earned advanced degree (e.g., MD, DDS, DVM).

Joint degree programs are also offered in conjunction with the School of Medicine (MD/MPH, MD/PhD), School of Law (JD/MPH), College of Arts and Sciences (MPA/MPH), and the Division of Continuing Studies and International Programs (MAIA/MPH).

The PhD program in Epidemiology is an intensive research training program for students with prior training in epidemiology or related disciplines.
All PhD students in the program have extensive contact with faculty members, in part because the program is explicitly designed to be small and interactive. The program takes advantage of South Florida’s unique opportunities for epidemiologic research, including our ever-changing mix of races, ethnicities, and cultures. In fact, many of our research programs could not be conducted elsewhere. Furthermore, since the program is located within the Miller School of Medicine, interactions with basic scientists and clinicians provide opportunities for epidemiologists to develop translational and interdisciplinary research. The program is designed primarily for students who have completed an MPH or MSPH degree. However, students possessing a master’s or professional degree in a related discipline, as well as selected post-baccalaureate students may be eligible for admission.

ADMISSION REQUIREMENTS

MASTER’S DEGREES
All prospective Master’s students must make an application for admission, whether or not they wish to become candidates for the degree. Applications for the MPH and MSPH degrees are accepted for the fall and spring semesters. The applicant’s completed file must contain the following information:
1. Completed and signed application form
2. Official transcripts of all college work
3. A recommended minimum cumulative Grade Point Average (GPA) of 3.0
4. Official report of the Graduate Record Examination (GRE) taken within the last 5 years with a recommended minimum combined verbal and quantitative score of 1100. The MCAT can serve as a substitute for the GRE for medical school graduates only.
5. Three letters of recommendation
6. A 400 word letter of intent
7. Current resume
8. International students are required to submit a score report for the Test of English as a Foreign Language (TOEFL) examination
9. A non-refundable application fee

PHD DEGREE IN EPIDEMIOLOGY
Applications for the PhD program should be submitted as early as possible, but no later than January 31st, to receive maximum consideration for admission. Applications are only accepted for the fall semesters. A completed application file consists of the following information:
1. Completed and signed application form
2. Non-refundable application fee
3. Official transcripts of all college work
4. A recommended minimum Grade Point Average (GPA) of 3.0
5. Official score report of the Graduate Record Examination (GRE) taken within the last 5 years with a recommended minimum combined verbal and quantitative score of 1100 on the GRE General Test (at least 550 on each section).

6. Three written letters of recommendation

7. A 1000 word written personal statement

8. Current Curriculum Vitae

9. Prerequisite coursework in the following areas: one graduate level course in epidemiology and two graduate level courses in biostatistics

10. Highly qualified candidates for admission will be contacted to schedule an interview with the PhD Program Director and additional faculty members from the Department of Epidemiology and Public Health

11. International applicants whose native language is not English must submit results of the Test for English as a Foreign Language (TOEFL)

DEGREE REQUIREMENTS

CURRICULUM REQUIREMENTS FOR THE MPH DEGREE
   A. Completion of 27 credits of core courses
   B. Completion of 12 credits of approved elective courses
   C. A 6 credit capstone practicum
   D. An oral presentation of the practicum experience
   E. Other requirements as stated in the Graduate Bulletin under “The Master’s Degree-General”.

CURRICULUM REQUIREMENTS FOR THE MSPH DEGREE
   A. Completion of 24 credits of core courses
   B. Completion of 15 credits of approved elective courses
   C. An original public health research project and thesis (6 credits)
   D. An oral presentation of the public health project
   E. Other requirements as stated in the Graduate Bulletin under “The Master’s Degree-General”.

CURRICULUM REQUIREMENTS FOR THE PHD DEGREE
   A. Completion of 27 credits of core courses
   B. Completion of 9 credits of approved elective courses
   C. Presentation and oral defense of an acceptable dissertation (>24 credits)
   D. Other requirements as stated in the Graduate Bulletin under “Doctor of Philosophy”.
Epidemiology and Public Health Course Listing
HUMAN GENETICS AND GENOMICS: HGG
http://chroma.med.miami.edu/genetics/program.html

THE PROGRAM

The graduate program in Human Genetics and Genomics is part of the University-wide interdisciplinary training program that involves faculty from the basic science and clinical departments of the University of Miami. This program aims to train scientists broadly in areas of human genetics and genomics relevant to human health and disease. Modern medicine is increasingly dependent on “genomic literacy” among practitioners and patients, and training the scientists who will work in genomics is an important mission of our program. Individuals earning PhD degrees in human genetics will have various career options, including clinical laboratory (after fellowship training and board certification, for which existing programs are available at the University of Miami), research laboratory, or computational research in academia, healthcare, and the biotechnology industry.

During the first year PIBS curriculum, students will have the opportunity to take two introductory short courses: Fundamentals of Human Molecular Genetics and Fundamentals of Genetic Epidemiology. Rotations through faculty laboratories provide students with hands-on experience in various research areas. The rotations also provide the student the background necessary to select their dissertation advisor and area research.

During the second year the curriculum focuses on core coursework in molecular and computational genetics, biostatistics, and seminars and journal clubs. During the second and third years of study, students formulate and defend a dissertation proposal.

During the third year, students choose to pursue one of two tracks within the program: molecular genetics or computational genetics. Course requirements differ slightly between these two paths: students in the molecular genetics track will take Molecular Genetics while the Computational Genetics track students take Fundamentals of Epidemiology and Advanced Genetics Data Analysis. All students participate in a one-credit clinical rotation during their third or fourth years, and complete a teaching practicum.

APPLYING TO THE PROGRAM

ADMISSION REQUIREMENTS

All students are admitted through the Program in Biomedical Sciences (PIBS) for the PhD programs in Biochemistry & Molecular Biology, Cancer Biology, Human Genetics & Genomics, Microbiology & Immunology, Molecular Cell & Developmental Biology, Molecular & Cellular Pharmacology, Neuroscience, and Physiology & Biophysics. The PIBS Admissions Committee will review and make decisions on applications after December 15th.
Applicants should have a bachelor’s degree in a biological or related discipline (e.g., psychology, chemistry, engineering, physics). Although there are no absolute prerequisites, courses in general biology, cell/molecular biology, calculus, general physics, organic chemistry, physical chemistry, and biochemistry are encouraged. Strong candidates will have research experience in a laboratory setting (including publications of abstracts and/or papers), an excellent academic record and GRE scores, excellent letters of recommendation from scientists who know the candidate well, and the motivation to pursue state-of-the-art biomedical research.

In the first year all students take a common curriculum to build a solid foundation in biomedical science. The core coursework in the fall ranges from molecules to cells to systems of human physiology. Lectures are balanced by breakout sessions, in which faculty members discuss the primary literature with students in small groups. The core curriculum also offers critical learning opportunities in biostatistics and in using genomic and other databases, as well as education in ethics. Students also meet several times in small groups with experienced faculty mentors to discuss important issues of faculty development.

Specific coursework relating to the individual graduate programs is done largely in the second and third semesters of study.

- Students should apply online at: [www.biomed.miami.edu](http://www.biomed.miami.edu)

**CONTACT INFORMATION**

Interdepartmental PhD Program in Human Genetics and Genomics
Miller School of Medicine

**William K. Scott, Ph.D.**
Program Director
Professor, The Dr. John. T. Macdonald Foundation Department of Human Genetics
University of Miami Miller School of Medicine
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Miami, FL 33136
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**Lourdes Acosta, MBA**
Education Coordinator
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Objective

The objective is to provide multi-faceted training opportunities for students to become highly competitive for various postgraduate careers upon acquisition of their Ph.D. from the Microbiology and Immunology (MIC) Graduate Program.

The program trains students to rigorously investigate central topics and applications based on a broad comprehension of interdisciplinary science provided by the Program in Interdisciplinary Biomedical Sciences (PIBS) in year 1. Thereafter, the MIC Graduate Program offers students a specialty curriculum that is interactive and discussion based.

Furthermore, students are in charge of a research project in either viral or bacterial pathogenesis or in molecular immunology, autoimmunity, tumor immunity or transplantation. Finally, the MIC program offers outstanding training opportunities in translational research in the respective diseases or in therapeutical settings.

Goals

The goals of the MIC Graduate Program are five-fold:

1) Train up critical and creative scientific minds built on solid interdisciplinary knowledge of Microbiology or Immunology
2) Train technical laboratory skills necessary to perform experiments in the area of specialization
3) Continue PIBS training of skills necessary to present scientific findings orally and in writing, including independent research plans as well as competitive manuscripts and grant proposals
4) Prepare students to become the teachers of tomorrow by involving them in the active teaching process of a laboratory class for undergraduate students (Microbiology 301)
5) Nourish the next generation of a networked community of scientists that is well prepared for challenging postgraduate careers.

ADMISSION REQUIREMENTS

All students for the Microbiology & Immunology doctoral graduate program are admitted through PIBS along with students interested in other Ph.D. programs at UMMSM (Biochemistry & Molecular Biology, Cancer Biology, Human Genetics & Genomics, Molecular Cell & Developmental Biology, Molecular & Cellular Pharmacology, Neuroscience, and Physiology & Biophysics). The PIBS Admissions Committee will review and make decisions on complete applications after December 15th.

Applicants should have a bachelor’s degree in a biological or related discipline (e.g., psychology, chemistry, engineering, physics). Although there are no absolute prerequisites, courses in general biology, cell/molecular biology, calculus, general physics, organic chemistry, physical chemistry, and biochemistry are encouraged.
Strong candidates will have research experience in a laboratory setting, an excellent academic record and GRE scores, excellent letters of recommendation from scientists who know the candidate well, and the motivation to pursue state-of-the-art biomedical research. Applicants should apply online at: www.biomed.miami.edu

**First year of Graduate Study in Microbiology and Immunology**

In the first-year PIBS training phase, students of all graduate programs at UMMSM participate in a common curriculum to build a solid foundation in biomedical science. The core coursework in the fall ranges from molecules to cells to systems of human physiology. Lectures are balanced by breakout sessions, in which faculty members discuss the primary literature with students in small groups. The core curriculum also offers critical learning opportunities in biostatistics and in using genomic and other databases, as well as education in ethics. Students meet several times in small groups with experienced faculty mentors to discuss important issues of faculty development. Specific coursework relating to Microbiology and Immunology is largely being offered in the second PIBS semester.

**Graduation**

To be eligible for graduation, students must present and defend an acceptable Ph.D. dissertation embodying original investigative findings suitable for publication. The doctoral degree in Microbiology and Immunology normally requires five to six years beyond the baccalaureate.

**Financial Support**

All students accepted are awarded a stipend of $25,500 per annum (as of June 1, 2009) and receive a full tuition scholarship. In addition, if students choose the University of Miami graduate student health insurance program, 80% of the individual insurance premium will be covered.

[Microbiology and Immunology Course Listing](#)
Scientists in the Molecular and Cellular Pharmacology Program make use of the knowledge and techniques of biology, chemistry and physics to study the action of drugs, hormones and neurotransmitters on living systems and, more generally, the mechanisms through which signals are recognized and transduced by cells. The goals of the research in this department are: 1) to develop, and study agents that may be beneficial in the treatment of disease; 2) to use drugs as tools in the study of basic biological signaling processes; and 3) to identify new targets and pathways for development of pharmaceuticals.

A variety of technical approaches is used, including genetics, molecular biology, protein biochemistry and biophysics, fluorescence microscopy, immunology, computer modeling, cell culture, imaging, gene expression profiling, proteomics and whole animal studies including transgenic and genetically engineered mouse models. The faculty is a mixture of senior scientists who are recognized leaders in their respective fields and more junior faculty with recent training in state-of-the-art research techniques applied to important biomedical problems.

The Department’s more than 40 graduate students and postdoctoral fellows contribute to the creative and stimulating scientific atmosphere.

Research interests of the faculty include:

**Cardiovascular Pharmacology/Muscle Contraction:**
Investigators in this area study transcriptional regulation of gene expression and intracellular signals associated with the growth and function of the heart, heart valves, cardiac muscle contraction and the effect of disease causing mutations on heart function. They also study ion channels, membrane events, blood vessels, etc.

Current research areas includes, for example, structure/function relationships in the proteins of the thin (troponin complex) and thick (myosin) filaments, the role of specific ion channels in ventricular hypertrophy and its alleviation, excitation-contraction coupling in skeletal and cardiac muscle, proto-oncogene regulation of cardiac-specific genes, signaling in cardiac myocytes including the characterization of multimolecular enzyme complexes, the molecular mechanisms of heart valve development and disease, apoptosis during myocardial ischemia, and the potential of stem cell based therapy for cardiac disease. A new study has been launched to investigate the effect of bone marrow stem cells in cardiac repair. Research in this area is supported by a National Heart Lung and Blood Institute Cardiovascular Pharmacology Training Grant. The students will have the opportunity to receive training in specific cardiovascular techniques utilized in the Program as well as attend cardiovascular journal club to learn about new findings in the cardiovascular field.

**Neuropharmacology/Neuroscience:**
Investigators in this area study the development, function, pharmacology, and diseases of the nervous system.
Current research interests include neuronal signaling through G-proteins, Ca2+, and cyclic nucleotides, growth and guidance of axons during development and regeneration after injury, molecular control of dendrite development, involvement of muscarinic acetylcholine receptors in Alzheimer’s, Parkinson’s, and other diseases, excitation-secretion coupling and structure-function relationships in nicotinic acetylcholine receptors; molecular mechanisms and cell biology of phototransduction; the genetic and cellular basis of neural development and degeneration using the fruit fly *Drosophila melanogaster* as a model system.

**Cell Biology/Cancer:**
Investigators in this area study cell cycle control and cancer, gene expression, mechanisms of hormone action, signal transduction, cytoskeleton, membrane transport, stem cells, and novel therapeutics.

Current research interests include steroid hormone regulation of gene expression and cell proliferation; cell cycle checkpoints during DNA replication; protein trafficking including endocytosis and exocytosis; control of cell polarity and morphogenesis; cilia in pulmonary function; molecular basis of human lymphoma; endocrine-related cancers including prostate and breast; stem cell maintenance and therapy; and physicochemical and metabolic aspects of drug design.

**Model Systems:**
Many investigators are using model organisms for their studies. These include Xenopus, Drosophila and yeast models. Yeast and Drosophila are important models because of the powerful molecular and genetic approaches and tools available. Xenopus provides a unique system for studying development and for protein expression and analysis. These systems are being used to study fundamental processes such as apoptosis, cell cycle, signal transduction, membrane dynamics, cytoskeleton, cell polarity, olfaction, development of the cardiovascular system, neurogenesis and neuronal degeneration. All of these processes are conserved in humans, so these systems serve as important models for human diseases. Investigators are also using these systems to screen for therapeutic agents and to identify targets of toxins and other natural, synthetic or pharmacologically relevant compounds.

**Training Program:**
In the first year, students receive a solid foundation in biomedical science. The core coursework ranges from molecules to cells to systems of human physiology. Lectures are balanced by breakout sessions, in which faculty members discuss the primary literature with students in small groups. The core curriculum also offers critical learning opportunities in biostatistics and in using genomic and other databases, as well as education in ethics. Students also meet several times in small groups with experienced faculty mentors to discuss important issues of student development. In subsequent semesters, students take core courses encompassing mechanisms of drug action, neuropharmacology, cardiovascular pharmacology and intracellular signal transduction. A variety of elective courses are offered by this department and others.
Students begin their dissertation research at the end of the first year and complete their course requirements in the second year. In subsequent years, students devote their efforts to original thesis research. The department sponsors the visits of internationally-known scientists, who discuss their research in formal seminars and meet with students and faculty. Weekly intradepartmental seminars keep students abreast of new developments within the School of Medicine.

**ADMISSION REQUIREMENTS**

All students are admitted through the Program in Biomedical Sciences (PIBS) for the PhD programs in Biochemistry & Molecular Biology, Cancer Biology, Human Genetics & Genomics, Microbiology & Immunology, Molecular Cell & Developmental Biology, Molecular & Cellular Pharmacology, Neuroscience, and Physiology & Biophysics. The PIBS Admissions Committee will review and make decisions on applications after December 15th.

Applicants should have a bachelor’s degree in a biological or related discipline (e.g., psychology, chemistry, engineering, physics). Although there are no absolute prerequisites, courses in general biology, cell/molecular biology, calculus, general physics, organic chemistry, physical chemistry, and biochemistry are encouraged.

Strong candidates will have research experience in a laboratory setting (including publications of abstracts and/or papers), an excellent academic record and GRE scores, excellent letters of recommendation from scientists who know the candidate well, and the motivation to pursue state-of-the-art biomedical research.

The first year is also focused on choosing a program and a dissertation mentor. All students are initially mentored by a senior student and a faculty member to facilitate this process. In the 1st year, students rotate through at least 3 laboratories chosen from any of the biomedical sciences graduate faculty. At the end of the 1st year students choose mentors and formally enter individual graduate programs.

- Students should apply online at: [www.biomed.miami.edu](http://www.biomed.miami.edu)

For admissions information, contact

**Director of Graduate Studies**
Department of Molecular and Cellular Pharmacology
University of Miami School of Medicine
P.O. Box 016189 R-189
Miami, Florida 33101
Phone: (305) 243-3419
Fax: (305) 243-3420
E-mail: mcp@med.miami.edu
[www.biomed.miami.edu/pharm](http://www.biomed.miami.edu/pharm)
THE REQUIREMENTS FOR THE PH.D. DEGREE IN MOLECULAR AND CELLULAR PHARMACOLOGY

These consist of 36 credit hours of graduate courses and seminars and 24 credits of Thesis Research. Students are required to pass a qualifying examination at the completion of their second year before undertaking Thesis Research at an intensive level.

The recruitment and training of applicants from underrepresented minority groups is an important goal of the Program.

Pharmacology Students supported by the National Institutes of Health training program must be United States citizens or permanent residents.

Other sources of support may be available on a limited basis for foreign applicants.

Molecular and Cellular Pharmacology Course Listing
The graduate program in Molecular Cell and Developmental Biology is an interdisciplinary program, providing a wide range of research opportunities, comprised of faculty members from the Departments of Cell Biology and Anatomy, Ophthalmology, Surgery, Medicine, Neurology, Neurosurgery, Molecular and Cellular Pharmacology, Urology, Microbiology and Immunology, and Biochemistry and Molecular Biology.

Students have the opportunity to do research in the many areas of modern cell and molecular biology and developmental biology. Research topics including the cytoskeleton, cell surface molecular biology, stem cells, lens, corneal and retinal biology, protein processing and sorting, signal transduction, airway biology, regulation of gene expression in development, podocyte biology, cancer, neuromuscular development, malignant transformation, growth factors, epithelial cell biology, organogenesis and tissue repair, pattern formation in early development, RNA localization, mitochondrial molecular biology and cancer therapeutics.

The primary objective of this interdisciplinary graduate program is to prepare students for careers as independent, Ph.D. level researchers and teachers in both academic institutions and in the biotechnology industry and other venues.

Applicants are accepted only for the Ph.D. or combined M.D./Ph.D. degrees.

**DEGREE REQUIREMENTS**

Minimum credit requirements for the Ph.D. degree are set by the University at 36 course credits (including specific required courses) and 24 credit hours of research. The course credits must be earned in graduate level (500 and above) courses. Elective courses may be taken from the graduate courses offered by this program, or from a large variety of advanced courses offered by other departments at the University of Miami.

Typical coursework includes: Interdisciplinary Biomedical Studies, Methods/Techniques, Seminar, Journal Club, Biological Macromolecules, Professional Skills and Ethics, Tumor Biology, Molecular Genetics, Developmental Biology, Advanced Molecular Cell Biology, Biostatistics Workshop and Histology. The interdisciplinary biomedical studies course covers fundamental topics of cellular and molecular biology, biochemistry, cellular physiology, neurobiology, and immunology. Other requirements include participation in a departmental seminar series, a journal club, and three semesters of advanced topics courses.

**ADMISSION REQUIREMENTS**

All students are admitted through the Program in Biomedical Sciences (PIBS) for the PhD programs in Biochemistry & Molecular Biology, Cancer Biology, Human Genetics & Genomics, Microbiology & Immunology, Molecular Cell & Developmental Biology,
Molecular & Cellular Pharmacology, Neuroscience, and Physiology & Biophysics. The PIBS Admissions Committee will review and make decisions on applications after December 15th.

Applicants should have a bachelor’s degree in a biological or related discipline (e.g., psychology, chemistry, engineering, physics). Although there are no absolute prerequisites, courses in general biology, cell/molecular biology, calculus, general physics, organic chemistry, physical chemistry, and biochemistry are encouraged.

Strong candidates will have research experience in a laboratory setting (including publications of abstracts and/or papers), an excellent academic record and GRE scores, excellent letters of recommendation from scientists who know the candidate well, and the motivation to pursue state-of-the-art biomedical research.

The first year is also focused on choosing a program and a dissertation mentor. All students are initially mentored by a senior student and a faculty member to facilitate this process. In the 1st year, students rotate through at least 3 laboratories chosen from any of the biomedical sciences graduate faculty. At the end of the 1st year students choose mentors and formally enter individual graduate programs.

- Students should apply online at: www.biomed.miami.edu

Molecular Cell and Developmental Biology Program Core Curriculum:
MDB601 Seminar/Journal Club
MDB617 Advanced Techniques in Molecular Biology (Methods)
MDB645 Research Problems in Cell and Molecular biology (Rotations)
MDB651 Advanced Molecular Cell Biology
MDB652 Advanced Developmental Biology
MDB665 Tumor Biology
MDB680 Research Ethics
IBS683 Professional Skills and Ethics I
IBS620 Scientific Writing I
NEU641 Biostatistics Workshop
MDB730 Doctoral Dissertation
MDB750 Research in Residence

Inquiries should be directed to
Maria Penton
Graduate Studies Committee
Department of Cell Biology and Anatomy
University of Miami Miller School of Medicine
P.O. Box 016960
(R-124)
Miami, FL 33101
305/243-6691
e-mail to mpenton@med.miami.edu
or visit www.biomed.miami.edu/cellbio
COMBINED M.D.-PH.D. DEGREE.
The Department participates in the Miller School of Medicine’s combined M.D.-Ph.D. Program.
The curriculum will be tailored to the needs of the individual student.

Molecular Cell and Developmental Biology Course Listing
The Neuroscience Program is an interdisciplinary program established in 1988 leading to the Ph.D. in Neuroscience.

The program aims to train highly-qualified individuals for independent research and teaching careers in the Neurosciences.

More than 85 participating faculty are located in several departments and schools; Cell Biology and Anatomy, The Dr. John T. Macdonald Foundation Department of Human Genetics, Molecular and Cellular Pharmacology, Physiology and Biophysics, the Biology and Psychology Departments, the Rosenstiel School of Marine and Atmospheric Sciences, as well as several clinical departments including Neurological Surgery, Neurology, Ophthalmology, Otolaryngology, and Psychiatry.

Neuroscience Program faculty pursue a wide variety of research interests including cellular and molecular mechanisms involved in signal transduction, gene expression in electrically excitable cells, synapse formation, neuronal growth and survival, integrative neuroscience, neuroimmunology, stroke, neuronal regeneration, autonomic control, brain metabolism and cerebral blood flow, degenerative changes within specific neural pathways in Parkinson's and Alzheimer's diseases and genetic analysis of neurological disorders.

ADMISSION REQUIREMENTS

All students are admitted through the Program in Biomedical Sciences (PIBS) for the PhD programs in Biochemistry & Molecular Biology, Cancer Biology, Human Genetics & Genomics, Microbiology & Immunology, Molecular Cell & Developmental Biology, Molecular & Cellular Pharmacology, Neuroscience, and Physiology & Biophysics. The PIBS Admissions Committee will review and make decisions on applications after December 15th.

Applicants should have a bachelor's degree in a biological or related discipline (e.g., psychology, chemistry, engineering, physics). Although there are no absolute prerequisites, courses in general biology, cell/molecular biology, calculus, general physics, organic chemistry, physical chemistry, and biochemistry are encouraged.

Strong candidates will have research experience in a laboratory setting (including publications of abstracts and/or papers), an excellent academic record and GRE scores, excellent letters of recommendation from scientists who know the candidate well, and the motivation to pursue state-of-the-art biomedical research.

In the first year all students take a common curriculum to build a solid foundation in biomedical science. The core coursework in the fall ranges from molecules to cells to systems of human physiology. Lectures are balanced by breakout sessions, in which faculty members discuss the primary literature with students in small groups. The core curriculum also offers critical learning opportunities in biostatistics and in using genomic and other databases, as well as education in ethics. Students also meet several times in small groups with experienced faculty mentors to discuss important
issues of faculty development. Specific coursework relating to the individual graduate programs is done largely in the second and third semesters of study. The first year is also focused on choosing a program and a dissertation mentor. All students are initially mentored by a senior student and a faculty member to facilitate this process. In the 1st year, students rotate through at least 3 laboratories chosen from any of the biomedical sciences graduate faculty. At the end of the 1st year students choose mentors and formally enter individual graduate programs.

- Students should apply online at: www.biomed.miami.edu

THE NEUROSCIENCE PROGRAM

Graduate training is the major goal of the program, with emphasis on cellular, molecular and genetic approaches to Neuroscience.

A single core curriculum provides the didactic scaffold of the program. This curriculum consists of courses in Molecular Biology, Cell Biology, Membrane Biophysics, Statistics, Introductory Neuroscience, and Neuroanatomy. The core courses are supplemented with elective courses such as Neuropharmacology, Developmental Neurobiology and a wide variety of Special Topics Short Courses. Students also attend research seminars and a scientific journal club.

The Neuroscience Steering Committee guides the students, overseeing their coursework, until they have passed their qualifying exams. From then on their progress is supervised by individually-tailored dissertation committees.

The Neuroscience Program also participates in the School of Medicine’s MD/PhD combined degree program www.biomed.miami.edu/mdphd

REQUIREMENTS FOR A PH.D. DEGREE IN NEUROSCIENCE

Students are required to complete 36 credit hours of graduate courses and seminars, including at least 18 credit hours in Neuroscience, and 24 credits of Dissertation Research.

Students are required to pass a qualifying examination during their second year, before undertaking Dissertation Research at an intensive level.

Inquiries should be directed to:

University of Miami Miller School of Medicine
Locator R-50
PO BOX 011351
Miami, Florida 33101
Tel: 305-243-3368
FAX (305) 243-2970
E-mail: neurosci@med.miami.edu
Web: www.biomed.miami.edu/neuro
RESEARCH AREAS:

1. BEHAVIORAL NEUROBIOLOGY
2. DEVELOPMENTAL NEUROBIOLOGY
3. CELL/MOLECULAR NEUROBIOLOGY
4. CNS INJURY AND REPAIR
5. GENETIC ANALYSIS OF NEUROLOGICAL DISORDERS
6. NEUROLOGICAL DISORDERS
7. PSYCHIATRIC DISORDERS
8. SENSORY NEUROBIOLOGY
9. SYNAPSES
10. TRANSMITTERS AND RECEPTORS

Neuroscience Course Listing
The Department of Physical Therapy is committed to providing quality educational experiences that enable its graduates to effectively carry out the expanding responsibilities of physical therapists as autonomous health care providers practicing in preventive, evaluative, maintenance, acute care and rehabilitation settings, and in educational and research environments.

The individual and collective efforts of the members of the Physical Therapy faculty are directed toward attaining specific goals and objectives as expressed in the philosophic statement of the American Physical Therapy Association.

The Mission of the Department of Physical Therapy (revised in December, 2000; re-affirmed in 2006) in accordance with the Mission of the Miller School of Medicine is to provide excellence in physical therapist education, to expand evidence-based practice of physical therapy through research, to provide high quality care to all who need it, and to be a community partner.

ADMISSION REQUIREMENTS

DOCTOR OF PHYSICAL THERAPY (entry level D.P.T.)

Applicants should have a baccalaureate degree in a related field and 3.0, or "B" average or better in the following courses:

- **English Composition/ Writing intensive course** (3 semester or 5 quarter hours); **Introduction to Statistics** (3 semester or 5 quarter hours);
- **Psychology** (3 semester or 5 quarter hours); **General Biology** (3 semester or 5 quarter hours); **General Chemistry with Lab** (8 semester or 12 quarter hours);
- **General Physics with Lab** (8 semester or 12 quarter hours);
- **Human Anatomy** (3 semester or 5 quarter hours); **Human Physiology** (3 semester or 5 quarter hours) or **Combined Anatomy and Physiology** (6 semester or 9 quarter hours).

I. APPLICATION PROCEDURE

Beginning July 1, 2009 we are now accepting applications only thru Physical Therapist Centralized Application Service (PTCAS), go to [www.ptcas.org](http://www.ptcas.org) to apply.

A. Application deadline is December 1; We encourage you to apply early. Applications completed by November 1 will be reviewed for early consideration. Classes begin in May. Application requirements consist of the following:

1. Submission of all application materials to PTCAS. Completion of prerequisites, with a minimum GPA of 3.0 on a 4.0 scale.
2. Demonstration of knowledge concerning the physical therapy profession by submitting:
   a) Questions 1, 2, and 3 on the PTCAS documentation of a minimum of 100 hours of first-hand observation and/or work experience related to the practice of physical therapy.
   b) This experience must be substantiated in writing by a registered/licensed physical therapist.
3. Submission of three (3) letters of recommendation addressing both the applicant's moral character and potential as a physical therapist.
   a) At least one letter must be written by a registered/licensed physical therapist, and one or more from faculty.
4. An interview with at least one member of the Physical Therapy Review Committee.
   - Graduate Record Exam must be taken no later than November 30. Applicants must score a minimum of 500 on verbal and quantitative sections of the GRE, and a 4.5 on the analytical section

For more information contact:
Admissions Office
Department of Physical Therapy
5915 Ponce de Leon Blvd., 5th Floor
Coral Gables, FL 33146
phone 305-284-4535
email: physicaltherapy@miami.edu

DOCTOR OF PHILOSOPHY IN PHYSICAL THERAPY (Ph.D.)

Application requirements: Applicants to the Physical Therapy PhD Studies Program must have a clinical degree in physical therapy from an accredited physical therapy program and be eligible for licensure to practice physical therapy in the United States. Students enrolled in the PhD in Physical Therapy program at the University of Miami work closely with a faculty mentor from their first days in the program. As a first step in the application process, the applicant must identify a track of interest and contact a faculty mentor in the selected track. Students are admitted to the program upon endorsement of a faculty mentor and completion of all admission requirements, with final selection made by the PhD Studies Committee. Stipend and tuition support is potentially available for qualified applicants.

- **Motor Control:** Contact Edelle Field-Fote PhD, PT edee@miami.edu
- **Musculoskeletal Anatomical Sciences:** Contact Philip Waggoner, PhD, PT waggoner@miami.edu
- **Musculoskeletal Prosthetics and Amputee Rehabilitation:** Contact Robert Gailey, PhD, PT rgailey@miami.edu
- **Outcomes Research:** Contact Kathryn Roach PhD, PT keroach@miami.edu OR Neva Kirk-Sanchez, PhD, PT nkirksanchez@miami.edu

The applicant must meet all the general admissions requirements of the University of Miami Graduate School. Additionally, stipulations include:

- Direct entry into the PhD program is dependent upon having any of the degrees below:
  - An entry-level Masters Degree in Physical Therapy
  - An advanced Masters Degree with a Bachelors Degree in Physical Therapy
  - A Bachelors Degree in Physical Therapy.
- An applicant with a Bachelors Degree in Physical Therapy, though able to commence course work in the PHD Program, will be required to complete the credits to equal
that of Advanced Masters Degree in Physical Therapy before final admission to the PhD Program.

- Official Transcripts of all college work.
- Three completed recommendation forms with at least one form completed by a physical therapist.
- A letter indicating career goals and objectives.
- Licensure or eligibility for licensure, as a physical therapist in the State of Florida (must be licensed within 1 year of admission).
- GRE, The University of Miami requires a minimum of 1000 on the verbal and quantitative section. In addition you are required to take the analytical section.

Foreign applicants, who complete college and university work in a foreign country, must have all transcripts evaluated by the University of Miami’s Office of International Admissions.

The research areas of the faculty are diverse, reflecting the clinical and scientific emphasizes areas of the faculty. Please refer to the Faculty Section for specifics.

For more information contact:

Dr. Edelle Field-Fote, Assistant-Chair, PhD Studies
Department of Physical Therapy
5915 Ponce de Leon Blvd., 5th Floor
Coral Gables, FL 33146
phone 305-284-4535
e-mail: physicaltherapy@miami.edu

DEGREE PROGRAMS

DOCTOR OF PHYSICAL THERAPY (entry level D.P.T.)

The Department offers the clinical Doctor of Physical Therapy (DPT). The DPT program recognizes the importance of in-depth basic and applied science knowledge and the humanities. As such, the curriculum is carefully sequenced to allow students to develop skills in both classroom and clinical settings.

Faculty also understand the importance of presenting problem-solving skills in conjunction with fundamental physical therapy concepts so that students will develop the professional attitudes and insights required for sustained and continued growth throughout their careers.

The entry-level doctoral program (DPT) is offered under the auspices of the Department of Physical Therapy, University of Miami Miller School of Medicine.

DOCTOR OF PHILOSOPHY IN PHYSICAL THERAPY (Ph.D.)

The University of Miami Doctor of Philosophy in Physical Therapy program develops physical therapist students for leadership positions in academic and research settings. Along with guiding students in the development of requisite knowledge and skills, the program promotes professional socialization into the role of academic faculty. We believe preparation to teach and undertake research in a physical therapy curriculum at the university level requires excellence in three dimensions: 1) Expertise in a specified content area; 2) Advanced knowledge and skill in research
methods, design, and implementation of analysis and communication of results; and 3) Proficiency in instructional design, teaching methods, and evaluation. The successful integration of these three dimensions, each complex in its own right, provides the means for the student to develop expertise in testing, analyzing, researching, and teaching about disorders that interfere with function. Unifying these three core areas is the process of socialization to the role of a faculty member, including an awareness of academic responsibilities and sensitivity to the needs of the adult learner.

In keeping with this philosophy, students develop breadth of knowledge through completion of coursework from three basic core areas: Concentration Core, Research Core, and Education Core. They develop depth by completing elective courses with the intent to build expertise in their respective areas of concentration. The successful graduate of this program will have the requisite knowledge and skills to integrate research findings and scientific theory with clinical observations. On this basis, the graduate will be prepared to perform original research aimed at developing new knowledge to enhance the scientific basis of clinical practice and theoretical principles that will advance the profession of physical therapy. The program offers opportunities for the student to gain skill in communicating theories, concepts and research findings and to experience the roles and responsibilities of an academic faculty member. Students complete a dissertation project in which they develop and conduct a unique and significant research investigation with the guidance of a Physical Therapy faculty member as research advisor.

**DEGREE REQUIREMENTS**

**DOCTOR OF PHYSICAL THERAPY (D.P.T.)**

Completion of the degree requirement for the DPT degree in Physical Therapy entails didactic studies, a completed research project, and clinical internships totaling 105 credits.

The University of Miami, Department of Physical Therapy has affiliations with 350 clinical sites locally and throughout the country. Distant internships may incur additional expenses for the student.

**DOCTOR OF PHILOSOPHY IN PHYSICAL THERAPY (Ph.D.)**

The curriculum, for all three core content areas (Musculoskeletal, Motor Control, and Outcomes Research) consist of:

- 19 - 21 credits in a core concentration area (i.e., Motor Control, Musculoskeletal, or Outcomes Research) 12 credits in core education courses,
- 12 credits in core research courses,
- 6 - 21 credits in electives in area of concentration and
- 12 credits of Doctoral dissertation for a total of 60-75 credits.
- Credits may vary depending on educational background of applicants.

[Physical Therapy Course Listing](#)
PHYSIOLOGY AND BIOPHYSICS - Dept. Code: PHS
www.biomed.miami.edu/physiol

The Department offers training leading to the Ph.D. degree in Physiology and Biophysics.
Inquiries are also invited from those wishing to pursue a dual, M.D./Ph.D., degree program.
The M.S. degree is normally bypassed in the Department.
Physiology and Biophysics studies the molecular basis for fundamental processes related to life such as:

- How does the brain work?
- How do we remember?
- How does the heart beat?
- How do we breathe?
- How do we see?
- How do we move?

Research facilities and guidance for graduate and postdoctoral work are available in development of neurobiology, sensory receptor mechanisms, axonal electrophysiology, ionic mechanism of the nerve impulse, electrophysiological and molecular aspects of synaptic and neuromuscular transmission, ion channels in nerve and muscle cell membranes, metabolic aspects of nervous function, molecular neuroscience, neuroimmunology, protein structure-function studies, molecular recognition, ligand-receptor interactions, neuropeptides, axonal growth, neurotrophic factors, cytokines, gene targeting, transgenic mice, neuronal apoptosis, nerve regeneration, molecular adhesion, and regulation of muscle contraction.

As described below, entrance into all graduate programs at the Miller School of Medicine is now through the Program in Biomedical Sciences (PIBS).

After entry into the Physiology and Biophysics program students take courses PHS 510, 511, 512, 641, and 642 unless they have mastered the equivalent of these. In planning their programs, students should take advantage not only of courses given by this Department but also of pertinent course offerings of other departments. Once the student has a sponsor, who, in consultation with a supervisory committee appointed when the dissertation project is chosen, provides guidance.

Since the Department aims to prepare its graduates for careers in research and teaching, all students in the Department are expected to participate in some teaching. Fellowships are general awarded to accepted students. Traineeships are also available under an NIH supported Training Grant.

ADMISSION REQUIREMENTS

All students are admitted through the Program in Biomedical Sciences (PIBS) for the PhD programs in Biochemistry & Molecular Biology, Cancer Biology, Human Genetics & Genomics, Microbiology & Immunology, Molecular Cell & Developmental Biology, Molecular & Cellular Pharmacology, Neuroscience, and Physiology & Biophysics. The PIBS Admissions Committee will review and make decisions on applications after December 15th.
Applicants should have a bachelor’s degree in a biological or related discipline (e.g., psychology, chemistry, engineering, physics). Although there are no absolute prerequisites, courses in general biology, cell/molecular biology, calculus, general physics, organic chemistry, physical chemistry, and biochemistry are encouraged.

Strong candidates will have research experience in a laboratory setting (including publications of abstracts and/or papers), an excellent academic record and GRE scores, excellent letters of recommendation from scientists who know the candidate well, and the motivation to pursue state-of-the-art biomedical research.

In the first year all students take a common curriculum to build a solid foundation in biomedical science. The core coursework in the fall ranges from molecules to cells to systems of human physiology. Lectures are balanced by breakout sessions, in which faculty members discuss the primary literature with students in small groups. The core curriculum also offers critical learning opportunities in biostatistics and in using genomic and other databases, as well as education in ethics. Students also meet several times in small groups with experienced faculty mentors to discuss important issues of faculty development. Specific coursework relating to the individual graduate programs is done largely in the second and third semesters of study.

- Students should apply online at: www.biomed.miami.edu

The first year is also focused on choosing a program and a dissertation mentor. All students are initially mentored by a senior student and a faculty member to facilitate this process. In the 1st year, students rotate through at least 3 laboratories chosen from any of the biomedical sciences graduate faculty. At the end of the 1st year students choose mentors and formally enter individual graduate programs.

**REQUIREMENTS FOR THE PH.D. DEGREE INCLUDE:**

36 graduate credits in courses and seminars and an additional 24 credits in dissertation research.

Satisfactory performance on both written and oral parts of a qualifying examination that will require demonstrating mastery of relevant physiological principles and methods. The examination must be passed not later than 24 months after enrollment in the Department. Up to 12 transfer credits earned elsewhere may be acceptable toward Ph.D. requirements.

The Ph.D. dissertation research must be original work of a quality acceptable for publication in a first-rate scientific journal.

For further details on requirements, the general information sections of this Bulletin should be consulted.

Prospective applicants are urged to write early to the Department for further information on the Department’s activities, training resources, requirements, and financial aids. Address inquiries to:

Dr. D. Landowne, Chair
Graduate Studies Committee
Department of Physiology and Biophysics
P. O. Box 016430
Miami, FL 33101
305/243-6821
305/243-5931 (fax)
email to dl@miami.edu or visit http://chroma.med.miami.edu/physiol
M.D./PH.D. PROGRAMS
Students interested in pursuing careers in academic medicine or, more generally, in medically-related research may wish to enter a dual (M.D./Ph.D.) degree program. Details about this program and application procedures are obtainable from the Graduate Studies Committee Chairman at the address given above.

Physiology and Biophysics Course Listing
DEPARTMENTS
DEPARTMENT OF INSTRUMENTAL PERFORMANCE - Dept. Code: MIP
DEPARTMENT OF KEYBOARD PERFORMANCE - Dept. Code: MKP
DEPARTMENT OF MUSIC EDUCATION AND MUSIC THERAPY - Dept. Code: MED
DEPARTMENT OF MUSIC MEDIA AND INDUSTRY - Dept. Code: MMI
DEPARTMENT OF MUSIC THEORY-COMPOSITION - Dept. Code: MTC
DEPARTMENT OF MUSICOLOGY - Dept. Code: MCY
DEPARTMENT OF STUDIO MUSIC AND JAZZ - Dept. Code: MSJ
DEPARTMENT OF VOCAL PERFORMANCE - Dept. Code: MVP

ADMISSION REQUIREMENTS
I. Students wishing to enroll for graduate credit in the Frost School of Music, whether or not they plan to become candidates for a degree, must fulfill the requirements for admission to the Graduate School listed elsewhere in the Bulletin.

II. In addition to these general requirements, the student must meet the following requirements of the Frost School of Music:
A. The Graduate Record Examination. (G.R.E. not required for Master of Music in Performance and Jazz Performance).
B. An on-campus audition is required of all D.M.A. applicants in Performance; M.M. applicants in Performance may audition in person or by recording. Prospective students for any major are encouraged to seek an interview with members of the University of Miami staff when they are serving as guest conductors and clinicians in various parts of the country.
C. An interview either on or off campus is required of all prospective Ph.D. students and D.M.A. students in composition and jazz composition.
D. Prospective Composition majors, Media Writing and Production majors, and Studio Jazz Writing majors are required to submit a portfolio of original compositions.
E. A writing sample of a major paper or thesis is required of applicants in Choral Conducting, Music Theory, Music Therapy, Musicology, Vocal Pedagogy, and Vocal Performance.
F. Prospective Ph.D. students in Music Education are required to show evidence of successful teaching experience and provide a writing sample of a major paper or thesis.
G. Placement Examination: During the orientation prior to registration, new masters and doctoral students are required to take placement tests for entrance to graduate courses. Placement auditions are also required in performance before assignment to ensembles. Courses to remedy deficiencies indicated by these examinations must be taken at the earliest opportunity. (A student is presumed deficient in any area in which he/she does not take the entrance examinations.)
DEGREE PROGRAMS

Doctor of Philosophy – Deg. Code: PHD
  Music Education – Conc. Code: MED

Doctor of Musical Arts – Deg. Code: DMA
  Accompanying and Chamber Music – Conc. Code: MKPA
  Choral Conducting – Conc. Code: MCDC
  Composition – Conc. Code: MTC
  Instrumental Conducting – Conc. Code: MCDI
  Instrumental Performance – Conc. Code: MIP
  Jazz Composition – Conc. Code: MSJC
  Jazz Performance (Instrumental – Conc. Code: MSJI or Vocal – Conc. Code: MSJV)
  Multiple Woodwinds – Conc. Code: MIPW
  Piano Performance – Conc. Code: MKP
  Vocal Pedagogy – Conc. Code: VPED
  Vocal Performance – Conc. Code: MVP

Specialist degree in Music Education – Deg. Code: SPME
  Music Education – Conc. Code: MED

Master of Music – Deg. Code: MM
  Accompanying and Chamber Music – Conc. Code: MKPA
  Arts Presenting – Conc. Code: MPR
  Choral Conducting – Conc. Code: MCDC
  Composition – Conc. Code: MTC
  Electronic Music – Conc. Code: MTCE
  Instrumental Conducting – Conc. Code: MCDI
  Instrumental Performance – Conc. Code: MIP
  Jazz Pedagogy – Conc. Code: JPED
  Jazz Performance (Instrumental – Conc. Code: MSJI or Vocal – Conc. Code: MSJV)
  Media Writing and Production – Conc. Code: MWP
  Multiple Woodwinds – Conc. Code: MIPW
  Music Business and Entertainment Industries – Conc. Code: MBEI
  Music Education – Conc. Code: MED
  Music Therapy – Conc. Code: MTY
  Musicology – Conc. Code: MCY
  Piano Performance – Conc. Code: MKP
  Studio Jazz Writing – Conc. Code: SJW
  Vocal Performance – Conc. Code: MVP
Master of Science – Deg. Code: MSMET
Music Engineering – Conc. Code: MUE
Artist Diploma in Performance – Deg. Code: AD
Instrumental Performance – Conc. Code: MIP
Piano Performance – Conc. Code: MKP
Vocal Performance – Conc. Code: MVP

DEGREE REQUIREMENTS

DOCTOR OF MUSICAL ARTS (DMA)

The purpose of the Doctor of Musical Arts is to train the most promising musicians at the highest musical and intellectual level for prominent careers in their field. The degree stresses excellence in performance, composition, scholarship, and teaching. By its nature, the Doctor of Musical Arts provides opportunities for students with proven accomplishment to prepare themselves for the professorship.

For the Doctor of Musical Arts in Performance, Keyboard Performance and Pedagogy, Composition, Jazz Composition, Jazz Performance, and Conducting, the candidate must meet all the general requirements for the Ph.D. degree with respect to residence, research tool requirements, total minimum hours, and written and oral examinations. The major differences between the D.M.A. and the Ph.D. are the creative efforts and performance that replace the dissertation requirements in the D.M.A. degree program. There will also be some variation in the research tool requirements in order that they apply in a more practical way to the needs of students.

ENTRANCE REQUIREMENTS

Selection of student based on:

1. Graduate Record Examination (Aptitude portion)
2. Academic record
3. Recommendations
4. Personal audition (Performance Majors); preliminary video tape required for instrumental conducting
5. Samples of musical composition (Composition Majors)
6. Writing Sample (major paper or thesis; Choral Conducting and Vocal Performance Majors)

PLACEMENT EXAMINATIONS

During the three days before registration, all new doctoral students are required to take examinations in music theory, and music history and literature, which will serve as placement tests or prerequisites for entrance to graduate courses. Courses to remedy deficiencies indicated by these examinations must be taken at the earliest opportunity.
DOCTORAL COMMITTEE

The committee is appointed when the student is formally admitted to a doctoral program. It will consist of a minimum of four members, three from the area of concentration and a minimum of one from the areas of Music Theory, Musicology, or Music Education (an approved member from a department outside of the Frost School of Music is possible). A committee may be expanded beyond the minimum number of members based on the needs of the student to a maximum of six. Of these, three (including the committee chairman) shall be regular members of the Graduate Faculty.

Responsibilities of the committee shall include the following:

1. Overseeing all of the students work prior to admission to candidacy, including academic program planning and advising as to recital repertoire.

2. Advising the student regarding relevant research competencies (tools) and ensuring that the student demonstrates these competencies prior to admission to candidacy.

3. Adjudging the quality of the student’s recitals, pedagogy presentations or compositions.

4. Overseeing the doctoral essay or lecture recital, including approval of the topic and proposal, supervision of the writing of the essay or lecture recital, assessment of the quality of the final essay or lecture recital, and the quality of the final essay defense. (In cases where special faculty expertise is needed for a particular essay topic, changes in membership of the doctoral committee may be made. Membership of the essay committee is recommended by the department or program concerned, and approved and appointed by the Dean of the Graduate School.)

RESEARCH TOOL REQUIREMENTS

The candidate will be required to show competency in the research tools recommended by the student’s doctoral committee, which is responsible for ensuring that the tools are relevant to the student and that procedures for demonstration of the competencies are appropriate. Research tools must be demonstrated and documented prior to admission to candidacy.

COURSE WORK (Extent of course work is determined by Placement Examinations, however, candidate must complete a minimum of 42 credit hours)

COGNATES

Doctor of Musical Arts students may select an additional formal area of study through the cognate option. The Departments in which the cognate resides administers the cognate. Students must apply to the cognate Department for admission. The admission process may include an audition, interview, portfolio, or testing as determined by the cognate Department. Students must complete all requirements specified for a cognate to be recognized as having completed the cognate. Otherwise, the credits will be considered electives. No credits required in the DMA program can apply to the cognate. Any overlap will require approved course substitutions within either the DMA program or the cognate as determined to be most appropriate by the Dean of Graduate Studies.
Procedures for Entering a Cognate
1. Review the cognates offered on the Graduate Studies web site.
2. Select the cognate you would like to pursue.
3. Contact the Department in which the cognate resides and obtain written approval of your entrance. A simple e-mail by the faculty member in charge of the cognate to the Graduate Studies Office would suffice.
4. Visit the Graduate Studies Office to formally sign-up for the cognate and to obtain a copy of the Academic Program Record (APR) for the cognate.

ACCOMPANYING/CHAMBER MUSIC (12 credits)

Studio/Ensemble Accompanying (MKP691) 5 credits
String/Keyboard Ensemble (MIP645) 1 credit
Accompanying/Chamber Music Seminar 2 credits
Any one of the following courses: 1 credit
   String/Keyboard Ensemble (MIP645, 1 cr.)
   Accompanying/Chamber Music Seminar (1 cr.)
   Harpsichord, Organ, or Jazz Piano (1 cr.)
Any one of the following courses: 3 credits
   History of Chamber Music (MCY532, 3 cr.)
   Art Song Literature (MVP525, 3 cr.)
   Operatic Literature (MVP522, 3 cr.)
   American Musical Theater (MCY583, 3 cr.)

CONDUCTING: Choral (12 credits)

Applied Conducting Instruction 1 credit
Choral Conducting Workshop (MVP67X) 3 credits
Choral Score Study (MVP508) 2 credits
Choral Literature I (MCY535) 2 credits
Choral Literature II (MCY536) 2 credits
Choral Methods (MED632) 2 credits

CONDUCTING: Instrumental (12 credits)

MIP610 Conducting Seminar 4 credits
Approved electives in conducting and/or ensembles 3 credits
Approved electives related to the art of conducting 5 credits

HIGHER EDUCATION (12 credits)

Technology in Music Education (MED570) 3 credits
Teaching Music in College (MED690) 1 credit
Any combination of the following two courses types: 5 credits
   Special Projects: Higher Ed. in Music (MED693, 1-2 cr.)
   Pedagogy Course(s) in Music (2-3 cr.)
Elective selected from one of the following: 3 credits
   Organiz. & Admin. in Higher Ed. (EPS533, 3 cr.)
   Higher Ed. in the U. S. (EPS603, 3 cr.)
   Music Learning & Curriculum (MED560, 3 cr.)

INSTRUMENTAL PERFORMANCE (12 credits)

Applied Performance Instruction 6 credits
Approved Performance Ensembles 6 credits
JAZZ PERFORMANCE (12 credits)
- Applied Performance Instruction 6 credits
- Select one course from below: 3 credits
  - Jazz Pedagogy (MSJ544, 3 cr.)
  - Analysis of Jazz Styles (MSJ620, 3 cr.)
- Electives in Jazz Theory / Improv. / Ensembles 3 credits

KEYBOARD PEDAGOGY (12 credits)
- Keyboard Pedagogy (MKP547) 2 credits
- Keyboard Pedagogy (MKP593 or 693) 2 credits
- Seminar in Keyboard Pedagogy (MKP647) 2 credits
- Keyboard Pedagogy Workshop (MKP650) 4 credits
- Keyboard Pedagogy Internship (MKP680) 2 credits

MUSIC BUSINESS (12 credits)
- Copyright/Publication (MMI573) 3 credits
- Recorded Music Operations (MMI537) 3 credits
- Entrepreneurship for Musicians (MMI530) 3 credits
- Analysis of Music Industry Agreements (MMI650) 3 credits

MUSIC EDUCATION (12 credits)
- Music Learning & Curriculum (MED560) 3 credits
- Psychology of Music (MED562) 3 credits
- Seminar in Music Teacher Education (MED670) 1 credit
- Doctoral Seminar (MED680) 1 credit
- Teaching Music in College (MED690) 1 credit
- Course selected from one of the following: 3 credits
  - Music Assessment (MED664, 3 cr.)
  - Technology in Music Education (MED570, 3 cr.)
  - International Music Education (MED620, 3 cr.)
  - History & Philosophy of Music Education (MED660, 3 cr.)

MUSIC TECHNOLOGY (12 credits)
- Select courses from those below: 12 credits
  - Electronic Music Studio (MTC505, 2 cr.)
  - MIDI and Control Processing (MTC506, 2 cr.)
  - Digital Sound Synthesis and Processing (MTC507, 2 cr.)
  - Multimedia for Musicians (MTC521, 3 cr.)
  - Film Scoring I (MTC511, 3 cr.)
  - Film Scoring II (MTC512, 3 cr.)
  - Electronic and Computer Music Seminar (MTC667) 1-3 credits
  - Intro To MIDI Seq. & Digital Workstations (MSJ522, 2 cr.)
  - Audio Technology for Musicians (MMI520, 2 cr.)
  - Digital Audio I (MMI502, 3 cr.)
  - Technology in Music Education (MED570, 3 cr.)
  - Computer Applications in Music Education (MED571, 2 cr.)

MUSIC THEORY (12 credits)
- Enrollment in this cognate waives any other MTC requirements for the degree.
- Select courses from those below: 12 credits
  - The Aesthetics of Music (MTC501, 3 cr.)
  - Sixteenth-Century Counterpoint (MTC513, 3 cr.)
Advanced Counterpoint (MTC518, 3 cr.)
Theory Pedagogy (MTC611, 3 cr.)
Advanced Comprehensive Theory (MTC612, 3 cr.)
Twentieth Century Idioms (MTC613, 3 cr.)
Analytical Techniques (MTC617, 3 cr.)

MUSICOLOGY (12 credits)
Bibliography (MCY528) 3 credits
Approved Musicology Courses 9 credits

VOCAL PEDAGOGY (12 credits)
Approved courses in pedagogy, vocal diction, or related courses.

VOCAL PERFORMANCE (12 credits)
Private Voice MVP VOM-P 4 credits
Vocal Pedagogy (MVP538) 2 credits
Vocal Pedagogy (MVP638) 2 credits
Language Diction for Singers (MVP65X) 4 credits

VOCAL ACCOMPANYING (12 credits)
Private Voice Lessons 2 credits
Language Diction for Singers (MVP65X) 2 credits
Vocal Accompanying (MKP687) 2 credits
Vocal Literature (Select one from below): 3 credits
  Art Song Literature (MCY525, 3 cr.)
  Operatic Literature (MCY522, 3 cr.)
Select courses from any below: 3 credits
  American Musical Theater (MCY583, 3 cr.)
  Graduate Courses in Vocal Performance

QUALIFYING EXAMINATION
To be taken upon completion of approximately 18 credit hours of work. Exams in the areas of

1. Musicology;
2. Music Theory-Composition; and
3. Music Education (If required by the program).

Performance and jazz performance majors must present a qualifying recital during the first semester in residence.

COMPREHENSIVE EXAMINATION
To be taken in major area (except performance) after completion of approximately 36 credit hours. Examination may be oral or written.
ADMISSION TO CANDIDACY

Doctoral students are admitted to candidacy after completing research tool requirements, qualifying and comprehensive examinations. No student may receive the degree in the same semester or summer session in which he or she is admitted to candidacy.

PERFORMANCE AND CREATIVE REQUIREMENTS

D.M.A. students in performance, jazz performance, or keyboard performance and pedagogy may present one recital before the qualifying written examination (provided they have passed their qualifying recital). Before the second or third, depending upon program, recital they must have passed the Qualifying Examinations and removed all reservations for the written examinations in music theory, musicology, and music education, as well as having presented a proposal for the doctoral essay to their committee. Before the final recital the student must be admitted to candidacy (this requirement includes the completion of both the qualifying examination and research tool subjects). All recitals are to be presented during either Fall or Spring semesters.

Performance Majors
Students accepted in the program must present three full-length solo recitals. In addition, instrumentalists are expected to perform a concerto with orchestra or a chamber music recital. Vocalists are expected to execute one or more substantial roles in a large scale work, e.g., opera or oratorio in addition to the solo recitals. Students majoring in accompanying and chamber music will present one solo recital, one chamber music recital, and three accompanying recitals. For Keyboard Performance and Pedagogy, an approved combination of recitals and pedagogy presentations is required.

Jazz Performance Majors
Students must present three full-length recitals

Conducting Majors (Choral)
No less than two approved full recitals shall be presented by each candidate.

Conducting Majors (Instrumental)
Three approved public recitals (or the equivalent) with suitable performing groups must be given during the period of residency and prior to the oral examination.

Composition Majors
1. The candidate will be required to compose a piece of major proportions for large ensemble. In addition, no less than three works for any instrumental or vocal group combination will be required during the period of residency.

2. A formal written analysis of the major work will be required. This will serve as the Doctoral Essay for composition majors.

3. Some form of a recital or public performance of the candidate’s compositions will be required. This requirement could be fulfilled with a recital that would include representative works composed during the student’s residence.
By means of a written doctoral essay or a lecture recital all D.M.A. candidates will be expected to give evidence of their ability to make an original scholarly investigation and present its results in an articulate manner.

Final Oral Examination (administered during Fall and Spring semesters only): defense of the creative or recreative work, and the written essay or lecture recital.

LECTURE RECITAL

The lecture recital is a major presentation whose content must pertain to musical performance, musical analysis, performance practice, comparative editions, interpretation, musical style, or other issues that directly relate to a central theme of music performance. A written document of the lecture recital must be submitted to the Graduate School following procedures similar to those of the Doctoral Essay.

MASTER’S DEGREES

I. Programs. The Master of Music Degree is offered with majors in the areas shown above.

II. Ensemble Requirements. The curricula for Master of Music degrees in performance and conducting include participation in one ensemble during each semester that a student is registered for seven credits or more.

III. General Admission Requirements. Those seeking admission in Performance should have an undergraduate major or its equivalent in the performance field chosen. Those applying for admission in Music Education should have an undergraduate background substantially equivalent to certification requirements and teaching experience. Students entering all graduate degree programs must take placement tests at the beginning of the first Fall or Spring Semester in residence. Those seeking admission in Composition, Studio Jazz Writing, or Media Writing and Production must submit with the application a portfolio of compositions as evidence of creative ability.

IV. Credits. A minimum of thirty credits of graduate level courses with an average of B and no grade below C. All students must complete the required courses of their major.

V. Oral Examinations. An oral examination in defense of the thesis, project, or recital is required. Final oral exams are administered during Fall and Spring semesters only.

VI. SPECIFIC REQUIREMENTS FOR PERFORMANCE MAJORS

A. Prior to admission to candidacy for a degree in performance, the student must demonstrate, by examination, skills and capacities in the following areas:

1. Harmony - written, aural, and keyboard
2. Proficiency in sight-singing and in melodic, harmonic, and rhythmic dictation
3. Elementary counterpoint
4. The history and literature of music and the study of musical form, analytic or applied
Conducting Recital Guidelines

**Master’s Recital (1 Credit)**
A compilation on DVD of conducting single or multiple works of live performances of major ensembles spread across the Masters’ experience. These performances are arranged in consultation with the major professor who assists in the preparation of the performances.

**Master’s Advanced Recital (2 Credits)**
A full-length conducting recital is prepared and presented. The ensemble(s) and repertoire will be selected in close consultation with the major professor who will assist in the preparation process. All aspects of performance preparation including scheduling, venue arrangements, program notes, and the like will be carried out by the student under the guidance of the major professor.

Performance Recital Guidelines

**Master’s Recital (1 Credit)**
A full-length recital performed publicly by the student that may include chamber music in which the student’s instrument plays a prominent role. Selection of repertoire is determined in consultation with the major professor who assists in the preparation of the performances.

**Master’s Advanced Recital (2 Credits)**
A full-length recital in which all music performed features the recitalist as a soloist. The recitalist will prepare extended program notes on the repertoire performed. Portions of the extended program notes are to be included with the recital program distributed to the audience. The performance is to be recorded in both audio and video so that the recitalist presents a DVD as evidence of the recital to the Dean of Graduate Studies prior to the end of the semester in which the recital was given. Repertoire will be selected in consultation with the major professor, who will assist in the preparation process. The student under the guidance of the major professor will carry out all aspects of performance preparation including scheduling, venue arrangements, program notes, and the like.
Department of Instrumental Performance (MIP)

DEGREE PROGRAMS

DMA-INSTRUMENTAL CONDUCTING (MCDI)

Performance Courses (35% of total, 21 credits)
- 12 credits Applied Conducting
- 6 credits Ensembles (6 large ensemble)
- 3 credits MCY 520 History of Wind Band Literature (wind conductors) or approved elective (string conductors)

Creative Activities (20% of total, 12 credits)
- 1 credit MED602 DMA-Essay/Lecture Recital Proposal
- 5 credits DMA-Essay/Lecture Recital
- 6 credits DMA-Recitals (2 credits for each of 3 recitals)

Allied Music Courses (25% of total, 15 credits)
- 3 credits Musicology
- 3 credits MTC617 Analytical Techniques or other MTC course
- 3 credits Performance Seminars
- 5 credits Approved Electives
- 1 credit MED690 Teaching Music in College

Cognate/Electives (20% of total, 12 credits)

DMA-INSTRUMENTAL PERFORMANCE (MIP)

Performance Courses (40% of total, 24 credits)
- 12 credits Applied Lessons
- 12 credits Ensembles (6 large ensemble, 6 small ensemble)

Creative Activities (20% of total, 12 credits)
- 1 credit MED602 DMA-Essay/Lecture Recital Proposal
- 5 credits DMA-Essay/Lecture Recital
- 6 credits DMA-Recitals (2 credits for each of 3 recitals)

Allied Music Courses (20% of total, 12 credits)
- 3 credits Musicology
- 3 credits MTC617 Analytical Techniques or other MTC course
- 3 credits Performance Seminars
- 2 credits Electives
- 1 credit MED690 Teaching Music in College

Cognate/Electives (20% of total, 12 credits)
DMA-MULTIPLE WOODWINDS (MIPW)

Performance Courses (40% of total, 24 credits)
- 12 credits: Applied Lessons in Flute, Oboe, Clarinet, Bassoon, and Saxophone
- 12 credits: Ensembles (6 large ensemble, 6 small ensemble)

Creative Activities (20% of total, 12 credits)
- 1 credit: MED602 DMA-Essay/Lecture Recital Proposal
- 5 credits: DMA-Essay/Lecture Recital
- 6 credits: DMA-Recitals (2 credits for each of 3 recitals)

Allied Music Courses (20% of total, 12 credits)
- 3 credits: Musicology
- 3 credits: MTC617 Analytical Techniques or other MTC course
- 3 credits: Performance Seminars
- 2 credits: Electives
- 1 credit: MED690 Teaching Music in College

Cognate/Electives (20% of total, 12 credits)

MM–Instrumental Conducting (MCDI)
Candidates must possess and demonstrate an unquestioned gift of musical leadership based upon broad experience with instrumental ensembles. Advanced orchestration must be included in the program. Admission requirements include a baccalaureate degree in conducting or performance, accumulated practical experience with instrumental ensembles, and experience equivalent to an undergraduate requirement in orchestration. Enrollment in this major is only by special permission.

Major Area
- 8 credits: MIPCDI-L Private Lessons
- 7 credits: MIP6XX Instrumental Ensembles
- 1 credit: Any one of the three options listed here to match the culminating project
  - MIP601 Program Notes Preparation
  - MIP602 Lecture Recital Preparation
  - MED601 Recital Paper Preparation
- 1 credit: MIP712 Master’s Recital
- 2 credits: Any one of the three options listed here as a culminating project
  - MIP711 Master’s Recital Paper
  - MIP714 Master’s Lecture Recital
  - MIP713 Master’s Advanced Recital

Other Studies in Music
- 3 credits: MCY528 Music Bibliography
- 3 credits: MTC617 Analytical Techniques

Electives
- 3 credits: MXXXXX Musicology or Approved Elective
- 3 credits: MXXXXX Music Education/Pedagogy or Approved Elective
- 3 credits: MXXXXX Approved Electives
MM–Instrumental Performance (MIP)

Violin: The candidate must show an adequate technical grounding in scales, arpeggios, bowing and phrasing, demonstrate adequate ability in sight reading on the instrument, and be able to read at sight simple piano accompaniments.

Harp: The candidate must have a mastery of scales and arpeggios in all octaves in both slow and rapid tempo, and in various rhythms, should have had orchestral and other ensemble experience, should be able to read orchestral parts at sight, and should have developed the ability to transcribe music written for keyboard (or other) instruments for use in orchestra or ensemble or accompanying.

Multiple Woodwinds: The applicant must demonstrate, by audition, proficiency in at least three of the following families of instruments: clarinet, saxophone, flute, and double reed. Applied instruction will include a minimum of six credits from the above groups as determined by the supervisory committee. The curriculum further includes two credits in MIP 547 and one credit in MED 541. The recital (whose content and evaluation are the responsibility of the student’s committee) will consist of performance on the candidate’s major instrument, and on instruments from at least two other woodwinds. The student is expected to supply his/her own professional quality instruments.

Other Orchestral Instruments: The candidate must demonstrate a well grounded technique and an able control of his/her instrument, be able to perform as a soloist with orchestra in a concerto or concert piece for the instrument, and should have acquired a sufficiently thorough orchestral routine to play in a professional orchestra. The candidate should also be able to read at sight simple piano music, and must have completed sufficient experience in band, orchestra and chamber music playing.

Major Area
- 8 credits MIPXXI-L Private Lessons
- 4 credits MIP6XX Instrumental Ensembles
- 1 credit Any one of the two options listed here to match the culminating project
  - MIP601 Program Notes Preparation
  - MED601 Recital Paper Preparation
- 1 credit MIP712 Master’s Recital
- 2 credits Any one of the two options listed here as a culminating project
  - MIP711 Master’s Recital Paper
  - MIP713 Master’s Advanced Recital

Other Studies in Music
- 3 credits MTC617 Analytical Techniques

Electives
- 3 credits MXXXXX Musicology or Approved Elective
- 3 credits MXXXXX Music Education /Pedagogy or Approved Elective
- 3 credits MXXXXX Approved Electives

MM–Multiple Woodwinds (MIPW)

Major Area
- 8 credits MIPXXI-L Private Lesson
- 4 credits MIP6XX Instrumental Ensembles
- 1 credit Any one of the two options listed here to match the culminating project
MIP601 Program Notes Preparation
MED601 Recital Paper Preparation

1 credit MIP712 Master’s Recital
2 credits Any one of the two options listed here as a culminating project
MIP711 Master’s Recital Paper
MIP713 Master’s Advanced Recital

Other Studies in Music
3 credits MCY528 Music Bibliography
3 credits MTC617 Analytical Techniques

Electives
3 credits MXXXXX Musicology or Approved Elective
3 credits MXXXXX Music Education /Pedagogy or Approved Elective

ARTIST DIPLOMA IN PERFORMANCE

The Artist Diploma in Performance is a program of advanced study designed for the outstanding performance career-oriented performer. The curriculum will focus on preparation for major competitions, auditions, apprenticeships, and the development of a performance career. Entrance to the program is limited to those individuals who have demonstrated exceptional performance skills by audition. A fully enrolled student can complete the eighteen-hour program in one year.

Requirements
8 credits Applied Lessons
2 credits Performance Ensembles
2 credits Recital
6 credits Approved Studies in Music

Instrumental Performance Course Listing
Department of Keyboard Performance (MKP)

DMA-ACCOMPANYING/CHAMBER MUSIC (MKPA)

Accompanying Courses - (30% of total, 18 credits)
6 credits Accompanying
4 credits Accompanying Seminar
8 credits Applied Piano

Creative Activities (20% of total, 12 credits)
6 credits DMA-Accompanied/Chamber Recitals
   (2 credits for each of 3 recitals)
2 credits DMA-Recital
1 credit MED602 DMA-Essay/Lecture Recital Proposal
3 credits DMA-Essay/Lecture Recital

Allied Music Courses (30% of total, 18 credits)
3 credits Music Theory (MTC617, 611, 613, or 671)
3 credits Music Bibliography or (MCY532 or MCY525)
4 credits String-Keyboard Chamber Music
1 credit MED690 Music Teaching in College
7 credits Electives
   (Up to 4 credits of foreign language electives may be taken by those
    students who select the Vocal Accompanying cognate or foreign
    language as a tool subject.)

Cognate (20% of total, 12 credits)

DMA-KEYBOARD PERFORMANCE AND PEDAGOGY (KPED)

Keyboard Pedagogy (17% of total, 10 credits)
2 credits MKP547 Keyboard Pedagogy
2 credits MKP647 Seminar in Keyboard Pedagogy
4 credits MKP650 Keyboard Pedagogy Workshop
2 credits MKP680 Keyboard Pedagogy Internship

Creative Activities (20% of total, 12 credits)
12 credits MKP731 DMA-Recitals/Projects

Keyboard Performance (18% of total, 11 credits)
8 credits Piano Performance
3 credits MKP689 Accompanying (1 credit each)

Allied Music Courses (25% of total, 15 credits)
2 credits MCY526 Keyboard Literature
3 credits MCY528 Music Bibliography
3 credits MTC617 Analytical Techniques
3 credits MED562 Psychology of Music
4 credits Elective courses

Cognate/Electives (20% of total, 12 credits)
DMA-PIANO PERFORMANCE (MKP)

Performance Courses (32% of total, 19 credits)
- 12 credits Applied Piano
- 4 credits Performance Seminars
- 3 credits Accompanying

Creative Activities (20% of total, 12 credits)
- 6 credits DMA-Recitals (2 credits for each of 3 recitals)
- 2 credits DMA-Concerto or Chamber Music Recital
- 1 credit MED602 DMA-Essay/Lecture Recital Proposal
- 3 credits DMA-Essay/Lecture Recital

Allied Music Courses (28% of total, 17 credits)
- 6 credits Music Theory
- 6 credits Performance Courses (20% of total, 12 credits)
- 1 credit String-Keyboard Chamber Music
- 3 credits Music Bibliography or Elective
- 1 credit MED690 Music Teaching in College

Cognate (20% of total, 12 credits)

MM-Accompanying and Chamber Music (MKPA)

The candidate must have had an undergraduate background in accompanying, either as an accompanying major or as a piano major with extensive experience as an accompanist. Candidates for this program should at the time of entrance manifest a pronounced ability in reading at sight. The ability to transpose and improvise is also desirable, as is a pronunciation knowledge of French, German, and Italian.

Major Area
- 6 credits MKPPII-L Private Lessons
- 2 credits MIP645 String-Keyboard Chamber Music
- 3 credits MKP688 Seminar in Accompanying
- 4 credits MKP691 Accompanying
- 2 credits MKP711 Recital Paper
- 1 credit MKP712 Recital

Other Studies in Music
- 3 credits MCY5XX Musicology
- 2 credits MKP547 Keyboard Pedagogy
- 1 credit MED601 Recital Paper Preparation
- 3 credits MTC617 Analytical Techniques

Electives
- 3 credits MXXXXX Electives

MM-Keyboard Performance and Pedagogy (KPED)

The candidate must complete prescribed courses in keyboard pedagogy and a workshop project (3 credits) with a supporting paper.

Major Area
- 6 credits MKPPII-L Private Lessons
- 2 credits MKP6XX Accompanying
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2 credits MKP547 Keyboard Pedagogy
2 credits MKP647 Seminar in Keyboard Pedagogy
3 credits MKP650 Keyboard Pedagogy Workshop
2 credits MKP680 Keyboard Pedagogy Internship
3 credits MKP713 Recital/Project

Other Studies in Music
3 credits MCY527 Keyboard Literature
3 credits MTC617 Analytical Techniques

Electives
3 credits MCYXXX Musicology Elective
3 credits MXXXXX Electives

MM-Piano Performance (MKP)

The candidate must have acquired the principles of tone production and velocity and their application to scales, arpeggios, chords, octaves, and double notes, and must have a balanced repertoire comprising the principal baroque, classic, romantic, and modern compositions which should include compositions by representative American and foreign composers. Candidates must have had experience in ensemble playing and should be capable sight-readers.

Major Area
8 credits MKPPII-L Private Lessons
3 credits MKP6XX Accompanying
2 credits MKP711 Recital Paper
1 credit MKP712 Recital

Other Studies in Music
3 credits MCY526 Keyboard Literature I
3 credits MCY527 Keyboard Literature II
2 credits MEDXXX Music Education/Pedagogy Elective
1 credit MED601 Recital Paper Preparation
3 credits MTC617 Analytical Techniques

Electives
4 credits MXXXXX Electives

ARTIST DIPLOMA IN PERFORMANCE

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Requirements
8 credits Applied Lessons
2 credits Performance Ensembles
2 credits Recital
6 credits Approved Studies in Music

Keyboard Performance Course Listing
Department of Music Education and Music Therapy (MED)

DEGREE PROGRAMS

DOCTOR OF PHILOSOPHY (PHD)

The Doctor of Philosophy program is offered in Music Education. Requirements for the degree will conform to those for the general Doctor of Philosophy degree, listed elsewhere in this Bulletin. The Ph.D. is a research degree requiring 60 credit hours beyond the Master's degree or 90 credit hours beyond a Bachelor’s degree. Enrollment for the Ph.D. degree is limited. Acceptance into the program will be based on academic record, Graduate Record Examination Scores, personal suitability, recommendations, experience, and demonstrated teaching competency.

Students are admitted to candidacy after successful completion of course work, qualifying examinations in musicology, music theory, and music education, and research tool requirements. Research tools are selected in consultation with the student's advisor, and are related to the student’s proposed dissertation research. Comprehensive examinations are given after all academic work is completed to meet the candidacy requirement. The student’s dissertation research topic must be presented to and approved by the student’s committee. No student gains the right to be recommended for the degree simply by completing course requirements. Final oral examinations are administered during Fall & Spring Semesters only.

Requirements

Major Area
- 3 credits  MED562  Psychology of Music
- 0 credits  MED615  Graduate Forum
- 3 credits  MED660  History & Philosophy of Music Education
- 3 credits  MED663  Music Research Methods
- 1 credit  MED670  Seminar in Music Teacher Education
- 2 credits  MED680  Doctoral Seminar in Music Education
- 1 credit  MED695  Doctoral Research Project
- 12 credits  MED730  Dissertation in Music Education

Other Studies in Music
- 6 credits  MCYXXX  Musicology
- 3 credits  MTCXXX  Music Theory
- 2 credits  MXXXXX  Performance Ensembles/Applied Music

Electives
- 8 credits  MEDXXX  Music Education Electives
- 9 credits  EPSXXX  Research Tools & Professional Education
- 7 credits  MXXXXX  Approved Electives
SPECIALIST IN MUSIC EDUCATION

The Specialist in Music Education is a terminal degree requiring 33 credit hours beyond the Master’s degree. The program emphasizes course work rather than research, and is designed for music teachers who desire post-master’s work that results in recognized professional credentials. The culminating project for the degree is a curriculum project that deals with some aspect of preschool, elementary, or secondary music education. The Specialist in Music Education degree is independent of the Doctor of Philosophy degree in Music Education, and admission to the program does not imply admission in the Doctor of Philosophy program.

Admission Requirements

1. Certification as a music teacher.
2. Completion of the master’s degree with an outstanding record from an accredited institution.
3. A minimum of three years of successful teaching experience.
4. Acceptable performance on the Graduate Record Examination.
5. Teaching videotape.
6. Admission interview.

Requirements

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<tr>
<th>Credits</th>
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<tr>
<td>9</td>
<td>EPS553 Introductory Statistics (3 credits)</td>
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<td>EPS605 Psychological Bases of Education (3 credits)</td>
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MM-Music Education (MED)

Major Area

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<tr>
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<tr>
<td>3</td>
<td>MED662 Music Learning &amp; Curriculum</td>
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<td>MED663 Research Methods in Music</td>
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<td>MED664 Music Assessment</td>
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<td>2</td>
<td>MED665 Seminar in Music Education</td>
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<td>MED7XX Thesis/Recital/Project</td>
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Other Studies in Music

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Electives

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Thesis Track

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<td>7</td>
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Recital Track

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<th>Credits</th>
<th>Course</th>
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<tbody>
<tr>
<td>2</td>
<td>MXXXXX Ensembles</td>
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7 credits MXXXXX Private Lessons
4 credits MXXXXX Approved Electives

**Project Track**
3 credits MXXXXX Musicology, Music Theory, Lesson/Ensemble Electives
7 credits MXXXXX Approved Electives

**String Pedagogy Track**
2 credits MXXXXX Ensembles
4 credits MXXXXX Private Lessons
3 credits MIP549 String Repertoire & Pedagogy
2 credits MED647 Seminar in Instrumental Music Education
2 credits MXXXXX Approved Electives

**MM-Music Education with Teaching Certification**

A student holding a B.M. degree in music may work toward certification in Music Education concurrently with the M.M. degree in Music Education. The B.M. degree must have included at least 14 hours of music performance, 12 of music theory, 3 of conducting, 6 of music history, and credit in performance ensembles. This is a Florida Department of Education-approved program leading to initial certification as a music teacher, K-12.

**Major Area**

3 credits MED662 Music Learning & Curriculum
3 credits MED664 Music Assessment
0-4 credits MED64X Performance Techniques Classes if needed
2 credits MED665 Seminar in Music Education
6 credits MED77X Associate Teaching
1 credit MED433 Senior Seminar in Music Education
3 credits TAL506 Issues & Strategies in ESOL
3 credits TAL603 Teacher in American Society
3 credits TAL632 Classroom and Behavior Management

**Other Studies in Music**

3 credits MXXXXX Applied Music/Ensemble
3 credits MTC617 Analytical Techniques
6 credits MCYXXX Musicology

**Music Education Electives**
(Must include 3 credits of Elementary Methods & 3 credits of Secondary Methods)

**Elementary Methods Courses (3 credits required)**

3 credits MED542 Teaching Elementary General Music
3 credits MED555 Elementary Music Workshop
2 credits MED673 Music in Early Childhood

**Secondary Methods Courses (3 credits required)**

2 credits MED430 Teaching Jazz/Popular Music in Secondary Schools
2 credits MED544 Teaching Secondary General Music
3 credits MED549 Teaching Secondary Choral Music
3 credits MED556 Secondary General Music Workshop
3 credits MED543 Teaching Elementary & Secondary Instrumental Music

**Other Music Education Electives**

2 credits MED647 Seminar in Instrumental Music Education
2 credits MED674 Seminar in General Music
University of Miami Bulletin, 2009-2010
Graduate, Frost School of Music

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<td>MED548</td>
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<td>MED570</td>
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<td>Technology in Music Education</td>
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<td>MED571</td>
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<td>Computer Applications in Music Education I</td>
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<td>MED572</td>
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**MM-Music Therapy (MTY)**

**Major Area**

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<td>Music Research Methods</td>
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<td>Music Therapy Forum</td>
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<tr>
<td>MED629</td>
<td>3</td>
<td>Advanced Music Therapy Practice I</td>
</tr>
<tr>
<td>MED630</td>
<td>3</td>
<td>Advanced Music Therapy Practice II</td>
</tr>
<tr>
<td>MED659</td>
<td>2</td>
<td>Graduate Practicum</td>
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<tr>
<td>MED710</td>
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<td>Master’s Thesis</td>
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**Other Studies in Music**

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<td>MXXXXX</td>
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**Electives**

One course in research design and statistics from:

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<td>Introductory Statistics</td>
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<td>PSY630</td>
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<td>Advanced Psychological Methods</td>
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<td>PSY631</td>
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One course in an area of clinical or research interest from:

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<td>EPS506</td>
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<td>Foundations of Mental Health Counseling</td>
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<td>EPS612</td>
<td>3</td>
<td>Counseling Theories and Practice</td>
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<td>MED600</td>
<td>3</td>
<td>Psychoacoustical Foundations of Music</td>
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<td>PSY605</td>
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<tr>
<td>PSY620</td>
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**MM-Music Therapy with Undergraduate Equivalency**

**Major Area**

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<td>MED663</td>
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<td>MED701</td>
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**Other Studies in Music**

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<tr>
<td>MXXXXX</td>
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<td>Approved Graduate Level Courses in Music</td>
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**Electives**

3 credits One course in research design and statistics from:

- EPS553 Introductory Statistics (3 credits)
- PSY630 Advanced Psychological Methods (3 credits)
- PSY631 Advanced Psychological Statistics I (3 credits)

3 credits One course in an area of clinical or research interest from:

- EPS506 Foundations of Mental Health Counseling (3 credits)
- EPS612 Counseling Theories and Practice (3 credits)
- MED600 Psychoacoustical Foundations of Music (3 credits)
- PSY605 Cognitive Neuroscience (3 credits)
- PSY620 Developmental Psychology (3 credits)
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Department of Music Media and Industry (MMI)

DEGREE PROGRAMS

MM-Arts Presenting (MAP)

**Major Area**
- 3 credits MMI622 Entertainment and Event Production Industry
- 3 credits MMI626 Performing Arts Centers Management
- 3 credits MMI630 Marketing and Promoting Arts Presenting Programs and Organizations
- 3 credits MMI634 Event Sponsorship and Community Outreach Programs
- 3 credits MMI636 Financial and Risk Aspects of the Arts Presenting Industry
- 2 credits MMI638 Legal Aspects of the Arts Presenting Industry
- 2 credits MMI640 Arts Presenting Project
- 2 credits MMI642 Grant Proposal Writing
- 3 credits MMI682 Industry Internship

**Electives in Business**
- 6 credits Industry Related Business Courses

MM-Music Business and Entertainment Industries (MBEI)

**Major Area**
- 3 credits MMI537 Recorded Music Operations
- 2 credits MMI573 International Music Publishing
- 3 credits MMI650 Analysis of Music Industry Agreements
- 3 credits MMI652 International Music Licensing
- 3 credits MMI656 Entertainment Industry Practices
- 3 credits MMI674 Music Copyright Law
- 1 credit MMI678 Publishing and Record Industry Royalties
- 3 credits MMI702 Internship in Music Industry
- 9 credits Nine credits of approved Graduate Course electives

Cumulative Exit Exam

MS-Music Engineering Technology (MUE)

**Major Area**
- 3 credits MMI601 Advanced Digital Audio Electronics
- 3 credits MMI606 Windows Audio Plug-In Programming
- 3 credits MED562 Psychology of Music I
- 2 credits MED600 Psychoacoustical Foundations of Music
- 3 credits MTC667 Advanced Projects in Electronic Music
- 4 credits MMI6XX Audio Workshop (MMI653, 670, 671, 672)
- 3 credits MMI713 Research Project

**Electives**
- 12 credits Select one of the following emphases

  **Hardware Emphasis:**
  - EEN536 Digital Signal Processing (3 credits)
  - EEN538 Introduction to Digital Image Processing (3 credits)
  - EEN542 Digital Integrated Circuits (3 credits)
  - EEN636 Advanced Digital Filter Design (3 credits)
**Software Emphasis:**
CSC529  Introduction to Computer Graphics (3 credits)
CSC555  Multimedia Systems (3 credits)
CSC609  Cryptography and Data Security (3 credits)
CSC655  Advanced Multimedia Systems (3 credits)

[Music Media and Industry Course Listing](#)
Department of Music Theory-Composition (MTC)

DEGREE PROGRAMS

DMA-COMPOSITION (MTC)

Composition Courses (20% of total, 12 credits)
- 8 credits MTC615, MTC616 Composition Seminar
- 4 credits MTC682 Composition Workshop

Creative Activities (20% of total, 12 credits)
- 12 credits MTC731 DMA-Essay Research

Theory/Composition Courses (25% of total, 15 credits)
- 3 credits MTC611 Theory Pedagogy
- 12 credits Music Theory courses

Musicology Courses (15% of total, 9 credits)
- 9 credits Musicology courses

Cognate/Electives (20% of total, 12 credits)

MM-Music Composition (MTC)

Major Area
- 2 credits MTC615 Composition Seminar I
- 2 credits MTC616 Composition Seminar II
- 6 credits MTC710 Thesis Composition
- 6 credits Two courses selected from the following
  - MTC611 Theory Pedagogy (3 credits)
  - MTC613 Twentieth Century Idioms (3 credits)
  - MTC617 Analytical Techniques (3 credits)

Other Studies in Music
- 3 credits MCY524 Contemporary Music
- 3 credits MCYXXX Music History Electives
- 2 credits MXXXXX Private Lessons
- 2 credits MXXXXX Approved Ensembles

Electives
- 3 credits MTCXXX Approved Elective in MTC
- 3 credits MXXXXX Graduate Level Electives

MM-Electronic Music (MTCE)

Major Area
- 2 credits MTC506 MIDI and Control Processing
- 2 credits MTC507 Digital Sound Synthesis and Processing
- 3 credits MTC521 Multimedia for Musicians
- 6 credits MTC667 Advanced Electronic and Computer Music Seminar
- 6 credits MTC710 Thesis Project
Other Studies in Music
4 credits  MTC648  Electronic Music Ensemble

Electives
4 credits  MTCXXX  Approved Elective in MTC
3 credits  MMIXXX  Approved Elective in Music Engineering
3 credits  MXXXXX  Graduate Level Electives

MM-Media Writing and Production (MWP)

Major Area
3 credits  MMI520  Audio Technology for Musicians
2 credits  MTC511  Film Scoring I
2 credits  MTC512  Film Scoring II
1 credit  MTC553  Film Scoring III (new course)
3 credits  MTC646  Studio Production Seminar
3 credits  MTC696  Studio Production Ensemble
3 credits  MTC713  Masters Media Writing Project

Other Studies in Music
3 credits  MMI530  Entrepreneurship for Musicians
3 credits  MSJ614  Advanced Orchestration
1 credit  MSJ615  Jazz Composition Seminar I

Electives
6 credits  MXXXXX  Electives (3 credits must be 600 level or above)
Department of Musicology (MCY)

DEGREE PROGRAMS

MM-Musicology (MCY)

**Major Area**
- 3 credits   MCY528  Music Bibliography
- 12 credits  MCYXXX  Musicology Courses
- 6 credits   MCY710  Thesis

**Other Studies in Music**
- 3 credits   MEDXXX  Music Education Elective
- 3 credits   MTC617  Analytical Techniques

**Electives**
- 3 credits   MCYXXX  Electives

Musicology students are expected to demonstrate proficiency in a language other than English, normally German, French, or Spanish. Proficiency examinations will be administered by the Musicology Department and will consist of 1-2 passages from representative scholarly readings. Alternatively, enrolling in GER 625, FRE 625, or an equivalent course at the graduate level may fulfill the requirement. This requirement should be completed by the beginning of the second year to facilitate research on the master’s thesis.

[Musicology Course Listing](#)
Department of Studio Music and Jazz (MSJ)

DEGREE PROGRAMS

DMA-JAZZ COMPOSITION (MSJC)

Performance Courses (20% of total, 12 credits)
10 credits Jazz Composition
2 credits Ensembles

Creative Activities (20% of total, 12 credits)
1 credit MED602 DMA-Essay/Lecture Recital Proposal
11 credits DMA-Essay/Lecture Recital

Jazz Courses (20% of total, 12 credits)
3 credits MSJ620 Analysis of Jazz Styles
3 credits MSJ544 Jazz Pedagogy and Administration/Special Project
3 credits Jazz Performance Ensembles
1 credit MED690 Teaching Music in College
2 credits Electives in Jazz

Allied Music Courses (20% of total, 12 credits)
3 credits MCY528 Music Bibliography
3 credits MTC617 Analytical Techniques or other MTC course
3 credits MED562 Psychology of Music
3 credits Musicology/Music Theory Electives

Cognate/Electives (20% of total, 12 credits)

DMA-JAZZ PERFORMANCE (MSJI or MSJV)

Performance Courses (20% of total, 12 credits)
10 credits Applied Lessons
2 credits Ensembles

Creative Activities (20% of total, 12 credits)
1 credit MED602 DMA-Essay/Lecture Recital Proposal
11 credits DMA-Essay/Lecture Recital

Jazz Courses (20% of total, 12 credits)
3 credits MSJ620 Analysis of Jazz Styles
3 credits MSJ544 Jazz Pedagogy and Administration/Special Project
3 credits Jazz Performance Ensembles
1 credit MED690 Teaching Music in College
2 credits Electives in Jazz

Allied Music Courses (20% of total, 12 credits)
3 credits MCY528 Music Bibliography
3 credits MTC617 Analytical Techniques or other MTC course
3 credits MED520 Psychology of Music
3 credits Musicology/Music Theory Electives
Cognate/Electives (20% of total, 12 credits)

**MM-Jazz Performance, Instrumental (MSJI)**

**Major Area**
- 4 credits MSJXXI-L Private Lessons
- 3 credits MSJ6XX Jazz Ensembles
- 6 credits MSJ66X Jazz Improvisation
- 2 credits MSJ509 Jazz Composition I
- 2 credits MSJ510 Jazz Composition II
- 1 credit MSJ712 Master’s Recital
- 2 credits MSJ711 Master’s Recital Paper

**Other Studies in Music**
- 3 credits MSJ620 Analysis of Jazz Styles
- 3 credits MSJ544 Jazz Pedagogy and Administration
- 1 credit MED601 Recital Paper Preparation

**Electives**
- 4 credits MXXXXX Approved Electives

**MM-Jazz Performance, Vocal (MSJV)**

**Major Area**
- 4 credits MSJVOI-L Private Lessons
- 3 credits MSJ6XX Jazz Ensembles
- 6 credits MSJ56X Jazz Improvisation
- 2 credits MSJ509 Jazz Composition I
- 2 credits MSJ510 Jazz Composition II
- 1 credit MSJ712 Master’s Recital
- 2 credits MSJ711 Master’s Recital Paper

**Other Studies in Music**
- 3 credits MSJ620 Analysis of Jazz Styles
- 3 credits MSJ544 Jazz Pedagogy and Administration
- 1 credit MED601 Recital Paper Preparation

**Electives**
- 4 credits MXXXXX Approved Electives

**MM-Jazz Pedagogy (JPED)**

**Major Area**
- 4 credits MSJXXI-L Private Lessons
- 2 credits MSJ6XX Jazz Ensembles
- 3 credits MSJ56X Jazz Improvisation
- 3 credits MSJ544 Jazz Pedagogy and Administration
- 3 credits MED562 Psychology of Music
- 2 credits MED640 Seminar in Music Education
- 1 credit MEDXXX Music Education Elective

**Other Studies in Music**
- 2 credits MSJ509 Jazz Composition I
- 3 credits MSJ520 Advanced Modern Arranging II
- 3 credits MSJ620 Analysis of Jazz Styles

704
### Electives

6 credits MXXXXX  Approved Electives

### MM-Studio Jazz Writing (SJW)

#### Major Area

- 2 credits MSJ615  Jazz Composition Seminar I
- 3 credits MSJ521  Advanced Modern Arranging III
- 3 credits MSJ614  Advanced Orchestration
- 2 credit MSJ522  Digital Sequencing and Notation
- 4 credits MSJ675  Jazz Writing Ensemble
- 3 credits MSJ713  Master's Jazz Writing Project

#### Other Studies in Music

- 2 credits MMI520  Audio Production
- 3 credits MMI530  Entrepreneurship for Musicians
- 2 credits MTC511  Film Scoring I
- 2 credits MTC512  Film Scoring II
- 2 credits MTC615  Composition Seminar

#### Electives

- 2 credits MXX5XX  Other Elective

[Studio Music and Jazz Course Listing](#)
Department of Vocal Performance (MVP)

DMA-CHORAL CONDUCTING (MCDC)

Conducting Courses (40% of total, 24 credits)
- 3 credits Choral Conducting Workshop MVP670, 672, 673 (@ 1 credit)
- 4 credits Private Conducting MVPCDM-P (@ 1 credit)
- 4 credits Ensembles MVP600 level (@ 1 credit)
- 2 credits MVP508 Choral Score Study
- 2 credits MED632 Choral Methods
- 3 credits MTC515 Choral Arranging
- 2 credits MCY535 Choral Literature I
- 2 credits MCY536 Choral Literature II
- 1 credit Electives
- 1 credit MED690 Teaching Music in College

Creative Activities (20% of total, 12 credits)
- 1 credit MED602 DMA-Essay Proposal
- 8 credits DMA-Essay
- 3 credits DMA-Recitals

Allied Music Courses (20% of total, 12 credits)
- 3 credits MTC617 Analytical Techniques or other MTC course
- 3 credits Graduate Music Seminars
- 2 credits MVP538 Vocal Pedagogy
- 4 credits Applied Voice Lessons (@ 1 credit each)

Cognate/Electives (20% of total, 12 credits)

DMA-VOCAL PEDAGOGY (VPED)

Performance Courses (20% of total, 12 credits)
- 8 credits Applied Lessons in voice performance
- 2 credits MVP688 Ensembles
- 2 credits MVP552 Coaching—vocal performance

Creative Activities (20% of total, 12 credits)
- 1 credit MVP732 DMA-Recital
- 1 credit MVP712 DMA-Lecture/Recital/Workshop
- 9 credits MVP731 Doctoral Essay Research
- 1 credit MED602 Doctoral Essay Proposal

Vocal Pedagogy (30% of total, 18 credits)
- 4 credits Vocal Literature for Teaching:
  MVP610 English
  MVP611 Italian
  MVP612 German
  MVP613 French
  MVP614 Musical Theatre
- 4 credits MVP630 Studio Teaching Techniques
- 3 credits MVP638 Advanced Vocal Pedagogy
- 1 credit MVP639 Vocal Pedagogy Internship

706
2 credits   MED680 Doctoral Seminar
1 credit    MED690 Teaching Music in College
2 credits   MVP636 Voice Disorders

Allied Music Courses (10% of total, 6 credits)
3 credits   MED562 Psychology of Music
3 credits   MTC617 Analytical Techniques

Cognate/Electives (20% of total, 12 credits)

**DMA–VOCAL PERFORMANCE (MVP)**

Performance Courses (35% of total, 21 credits)
12 credits  Applied Voice
6 credits   Vocal Performance Preparation
3 credits   Opera Theatre

Creative Activities (20% of total, 12 credits)
1 credit    MED602 DMA-Essay Proposal
5 credits   DMA-Essay
6 credits   DMA-Recitals (2 credits for each of 3 recitals)

Allied Music Courses (25% of total, 15 credits)
6 credits   Musicology (6 credits Art Song Literature and Opera Literature or other MCY courses)
3 credits   MTC617 Analytical Techniques or other MTC course
3 credits   Performance Seminars
2 credits   Advanced Vocal Pedagogy
1 credit    MED690 Teaching Music in College

Cognate/Electives (20% of total, 12 credits)

**MM–Choral Conducting (MCDC)**

Candidates must possess and demonstrate an unquestioned gift of musical leadership based upon broad experience with choral ensembles. MVP538 (Vocal Pedagogy) and 2-3 credits of private vocal instruction must be included in the program. Admission requirements include a baccalaureate degree in music, practical experience in choral conducting through church, school, or community ensembles. Enrollment in this major is only by special permission. For detailed information, please consult the Graduate Choral Conducting Student Handbook, available from the Choral Office.

**Major Area**
1 credit   MVPCDI Private Conducting Lessons
2 credits  MVP508 Score Study
2 credits  MVP538 Vocal Pedagogy
3 credits  MVP6XX Performance Ensembles
4 credits  MVP670 1, 2, 3 Conducting Sequence
1 credit   MVP712 Master’s Recital
2 credits  MVP711 Master’s Recital Paper

**Other Studies in Music**
3 credits  MTC617 Analytical Techniques
2 credits  MCY535 Choral Literature I
Electives
4 credits Approved electives in Voice Lessons or Diction
MVPVOI-L Voice
MVP650-1 Language Diction for Singers I, II
1 credit MXXXXX Approved Electives

MM-Vocal Performance (MVP)
The candidate must demonstrate the ability to sing in English, French, German, and Italian; be knowledgeable of the more difficult arias of opera and oratorio and of recitative in both the free and measured forms; have a thorough acquaintance with the general song literature; and be able to present a creditable recital. Each student who enters the Master of Music Degree Program in Voice must show undergraduate credit equivalent, or enroll for the following courses before graduation: MCY522 Operatic Literature; MCY525 Art Song Literature; MVP538 Vocal Pedagogy; MVP638 Advanced Vocal Pedagogy; two semesters of college-level Italian; two semesters of college-level French, two semesters of college-level German (or demonstrate by departmental examination, acceptable proficiency in these languages).

Major Area
4 credits MVPVOI-L Private Lessons
4 credits MVP552 Vocal Performance Preparation
4 credits MVP6XX Performance Ensembles
2 credits MVP638 Advanced Vocal Pedagogy
1 credit MIP712 Master’s Recital
2 credits MIP711 Master’s Recital Paper

Other Studies in Music
3 credits MTC617 Analytical Techniques
3 credits MCYXXX Approved Musicology Course
1 credit MED601 Recital Paper Preparation

Electives
6 credits MXXXXX Approved Electives

ARTIST DIPLOMA IN PERFORMANCE
The Artist Diploma in Performance is a program of advanced study designed for the outstanding performance career-oriented performer. The curriculum will focus on preparation for major competitions, auditions, apprenticeships, and the development of a performance career. Entrance to the program is limited to those individuals who have demonstrated exceptional performance skills by audition. A fully enrolled student can complete the eighteen-hour program in one year.

Requirements
8 credits Applied Lessons
2 credits Performance Ensembles
2 credits Recital
6 credits Approved Studies in Music

Vocal Performance Course Listing
The School of Nursing and Health Studies offers three graduate degrees: the Master of Science in Nursing (MSN), the Doctor of Nursing Practice (DNP), and the Doctor of Philosophy (PhD) with a major in Nursing.

**MSN ADMISSION REQUIREMENTS**

Admission to graduate programs in the School is subject to the rules, regulations, and procedures as determined by each graduate nursing program and/or set out in the Graduate Bulletin of the University of Miami. It is the responsibility of each student to understand these requirements and to be sure that they are met.

All of those wishing to take courses for graduate credit, whether or not they wish to become candidates for the Master of Science in Nursing degree (M.S.N.), must complete an application for admission well in advance of registration. Professional nurses holding a Bachelor of Science degree with a major in nursing are eligible to apply for admission to the Master of Science program. Admission to the masters program requires:

1. The completed application form.
2. Official transcripts of all previous coursework, both undergraduate and graduate (with undergraduate G.P.A. of 3.0 on a 4.0 scale).
3. A satisfactory score on the quantitative and verbal portions of the Graduate Record Examination (GRE) General Test. A waiver of the GRE for the MSN in Nurse Education is permitted on a case by case basis.
4. A satisfactory score on the Test of English as a Foreign Language (TOEFL) by those international applicants whose native language is not English.
5. Three written references from persons qualified to comment upon the applicants’ academic abilities and probable success in graduate study; references will be acceptable from a major professor, supervisor/employer, and other professional persons, preferably professional nursing personnel.
6. A current Florida license is required for clinical courses.
7. A statement of professional goals and objectives for graduate study.
8. An interview with one or more faculty.
9. Advanced Cardiac Life Support (ACLS) certification for the Acute Care and Nurse Anesthesia specialties.

**MASTER OF SCIENCE IN NURSING**

The Master of Science in Nursing degree focuses upon selected areas of advanced practice nursing consisting of 30 to 44 semester hours credits. The degree requirements may be completed in three to seven semesters of full-time study depending on the specialty. Part-time study is also available for the Acute Care, Nurse Education, and Family Nurse Practitioner tracks. MSN programs are lock-step and students must successfully complete a semester to progress to the next semester. Further information about each program can be obtained from the Office of Student Services, School of Nursing and Health Studies, University of Miami, P.O. Box 248153, Coral Gables, FL 33124-3850; ph (305) 284-3666.
The MSN Program is accredited by the Commission of Collegiate Nursing Education (CCNE), One DuPont Circle NW, Suite 530, Washington, DC 20036, (202) 887-6791. Additional national accreditations are from the American College of Nurse Midwives Division of Accreditation, 8430 Colesville Road, Suite 1550, Silver Spring, MD 20910, (204) 485-1845, and the Council on Accreditation of Nurse Anesthesia Education Programs (COA), 222 South Prospect Avenue, Park Ridge, Illinois, 60068-4001, (847) 692-7050 (ext. 1154).

**MSN SPECIALTY TRACKS: ACUTE CARE NURSE PRACTITIONER, NURSE ANESTHESIA, FAMILY NURSE PRACTITIONER**

The curriculum leading to the Master of Science in Nursing degree prepares students for advanced practice nursing in Acute Care, Nurse Anesthesia, and Family Nursing.

### Family Nurse Practitioner Plans of Study – 37 Credits

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<th>Fall I</th>
<th>Family Nurse Practitioner 1-Year Plan</th>
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|----------| | | | |
| NUR 608 | Concepts | 3 | 3 | 0 |
| NUR 623 | Infant Child | 3 | 2 | 1 | 56 |
| NUR 627 | Pre-Natal | 2 | 1 | 1 | 56 |
| NUR 631 | Adult II | 4 | 2 | 2 | 112 |
| **Total** | | **12** | **8** | **4** | **224** |

| Summer I | | | | |
|----------| | | | |
| NUR 609 | Professionalism in Advanced Practice Nursing | 2 | 2 | 0 |
| NUR 647 | Advance Practice Nursing Integration | 7 | 2 | 5 | 280 |
| NUR 630 | Research and Evidence-Based Advanced Practice Nursing | 3 | 3 | 0 |
| **Total** | | **12** | **7** | **5** | **280** |

| Total Program | | | | |
|---------------| | | | |
| **37** | **25** | **12** | **616** |

### Fall I | Family Nurse Practitioner 2-Year Plan | Total Credits | Class Credits | Clinical Credits | Clinical Hours |
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### Acute Care Nurse Practitioner Plans of Study – 44 credits

#### Fall I

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<th>Acute Care 1-Year &amp; 1 Semester Plan</th>
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<tr>
<td>NUR 622</td>
<td>Acute Care Nursing for Adults</td>
<td>4 1 3 168</td>
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<tr>
<td>NUR 630</td>
<td>Research and Evidence-Based Advanced Practice Nursing</td>
<td>3 3 0</td>
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<table>
<thead>
<tr>
<th>Fall II</th>
<th>Diagnostics &amp; Therapeutic Interventions</th>
<th>2 2 0</th>
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<tbody>
<tr>
<td>NUR 639</td>
<td>Acute Care Nursing of Adults II</td>
<td>7 2 5 280</td>
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**Fall I**

<table>
<thead>
<tr>
<th>Acute Care 2-Year &amp; 1 Semester Plan</th>
<th>Total Credits</th>
<th>Class Credits</th>
<th>Clinical Credits</th>
<th>Clinical Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 601 Advanced Pharmacology</td>
<td>3 3 0 0</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>NUR 612 Advanced Pathophysiology</td>
<td>3 3 0 0</td>
<td></td>
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</tbody>
</table>

**Spring I**

| Concepts                          | 3 3 0 0       |               |                  |                |
| Research and Evidence-Based Advanced Practice Nursing | 3 3 0 0 |

**Summer I**

| Professionalism in Advanced Practice Nursing | 2 2 0 |

**Fall II**

<table>
<thead>
<tr>
<th>Advanced Health Assessment &amp; Diagnostic Reasoning Adult I</th>
<th>3 2 1 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 613</td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>Adult II</th>
<th>4 2 2 112</th>
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</thead>
<tbody>
<tr>
<td>NUR 628</td>
<td></td>
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</table>

**Spring II**

<table>
<thead>
<tr>
<th>Pharmacology for Acute Care Adult II</th>
<th>3 3 0</th>
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</thead>
<tbody>
<tr>
<td>NUR 616</td>
<td></td>
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<table>
<thead>
<tr>
<th>7 4 3 112</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 631</td>
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</table>

**Total Program**

| 44 28 16 840 |
### Nurse Anesthesia – Plan of Study 43 credits (Full-time only)

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Title</th>
<th>Credits</th>
<th>Clinical Hours</th>
<th>Simulation Hours</th>
<th>Semester Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall Semester 1</strong></td>
<td>NUR 570 Psychobiology, NUR613 Advanced Health Assessment and Diagnostic Reasoning (3), NUR601 Advanced Pharmacology (3), NUR612 Advanced Physiology/Pathophysiology for Advanced Practice Nursing (3)</td>
<td>12</td>
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<tr>
<td><strong>Spring Semester 1</strong></td>
<td>NUR608 Concepts of Advanced Practice Nursing (3), NUR630 Research and Evidence-Based Advanced Practice Nursing (3), NUR614 Basic Concepts in Anesthesia Nursing (3), NUR617 Pharmacology for Anesthesia Nursing (3)</td>
<td>12</td>
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<tr>
<td><strong>Summer Semester 1</strong></td>
<td>NUR609 Professionalism in Advanced Practice Nursing (2), NUR619 Advanced Concepts in Anesthesia Nursing I (3)</td>
<td>5</td>
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<tr>
<td><strong>Fall Semester 2</strong></td>
<td>NUR615 Professional Aspects of Anesthesia Nursing (2), NUR620 Advanced Concepts in Anesthesia Nursing II (3)</td>
<td>5</td>
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<tr>
<td><strong>Spring Semester 2</strong></td>
<td>NUR645 Interdisciplinary Anesthesia Nursing Internship I (3)</td>
<td>3</td>
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<tr>
<td><strong>Summer Semester 2</strong></td>
<td>NUR646 Interdisciplinary Anesthesia Nursing Internship II (3)</td>
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<td><strong>Fall Semester 3</strong></td>
<td>NUR650 Interdisciplinary Anesthesia Nursing Internship III (3)</td>
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### Nurse Education – Plan of Study 30 credits (Part-time only)

<table>
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<tr>
<th>Course</th>
<th>Total Credits</th>
<th>Class Credits</th>
<th>Clinical Credits</th>
<th>Clinical Hours</th>
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<tbody>
<tr>
<td><strong>NUR 608</strong>: Concepts for Advanced Practice</td>
<td>3</td>
<td>3</td>
<td>0</td>
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<tr>
<td><strong>NUR 612</strong>: Physiology/Pathophysiology for Advanced Practice Nursing</td>
<td>3</td>
<td>3</td>
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<tr>
<td><strong>NUR 613</strong>: Advanced Health Assessment</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>28</td>
</tr>
<tr>
<td><strong>NUR 630</strong>: Research Methods &amp; Evidence-based Practice</td>
<td>3</td>
<td>3</td>
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</tr>
<tr>
<td><strong>NUR 640 (MSN) or NUR 551 (certificate)</strong>: Teaching and Learning Theory in Clinical Nursing Education</td>
<td>3</td>
<td>3</td>
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<tr>
<td><strong>NUR 641 (MSN) or NUR 553 (certificate)</strong>: Methods for Clinical Nursing Education</td>
<td>3</td>
<td>3</td>
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<tr>
<td><strong>NUR 642 (MSN) or NUR 555 (certificate)</strong>: Evaluation in Clinical Nursing Education</td>
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<td>3</td>
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<td>0</td>
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<tr>
<td><strong>NUR 643 (MSN) or NUR 558 (certificate)</strong>: Practicum in Nursing Education</td>
<td>6</td>
<td>3</td>
<td>3</td>
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<tr>
<td><strong>NUR 644 (MSN)</strong>: Leadership and Professional Development in Nursing</td>
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<td>3</td>
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<td>0</td>
</tr>
<tr>
<td><strong>Total Program</strong></td>
<td>30</td>
<td>26</td>
<td>4</td>
<td>196</td>
</tr>
</tbody>
</table>
MSN DEGREE REQUIREMENTS

GRADUATE STUDENT RESPONSIBILITIES

Students in the School of Nursing and Health Studies are responsible for meeting the degree requirements. It is the student’s responsibility to understand fully, and comply with all the provisions of the Bulletin and written changes to their program of study. Students are provided assistance by advisors and faculty members. Requests for deviation from the program of study or school requirements are granted only by written approval from the Dean. Students who are in violation of the provisions of this Bulletin may be withdrawn unilaterally by appropriate School officials from classes, deleted as Nursing and Health Studies students or have a stop placed upon their future enrollment. The school reserves the right to change academic requirements to include course offerings to ensure that students are receiving the latest knowledge. Changes are transmitted by written notice in the current year of the School of Nursing and Health Studies Master’s Handbook located at www.miami.edu/sonhs or by the Dean.

PROGRESSION POLICY

In order for MSN students to progress through their programs to completion, the academic policy is as follows:

1. Any graduate student who receives a “C” in a nursing course will be dismissed from his or her program.
2. A grade of “B-” or “C+” for a course is below graduate standards, and the student must repeat that course. However, a student may only repeat one course, one time.
3. A passing grade in all clinical experiences is required to pass a course having a clinical component (generally listed as a “lab section” by UM). Students will be counseled during their mid-term evaluations as to their status or progress. Students who are not making satisfactory progress may also receive an academic alert at mid-semester or mid-course.
4. All grades are included in the computation of the UM overall grade point average including those that are failed or repeated.

DOCTOR OF NURSING PRACTICE

The Doctorate in Nursing Practice (DNP) requires 38 credits of coursework beyond the master’s degree. The DNP degree is a practice-focused doctorate designed for nurses seeking a terminal degree in nursing practice. The outcome objectives for graduates of the DNP program are to:

- Integrate knowledge, theories, and concepts from the biophysical, psychosocial, analytical, and organization sciences to develop ethical health care systems and new frontiers for nursing practice that addresses health care disparities.
- Evaluate research methods and findings to create an evidence base for nursing practice and health care delivery systems that reflect best practices and alleviate health care disparities.
- Synthesize knowledge gained from traditional and innovative learning methods to lead quality, cost-effective health care collaborations addressing health care disparities.
Demonstrate expert clinical judgment and knowledge of health care systems to design, deliver and evaluate evidence-based care interventions to reduce health care disparities.

Model expert nursing practice and serve as mentors to nursing colleagues in their efforts to improve nursing practice and health care systems.

Employ knowledge of health care policy and economics to develop and evaluate programs to address health care disparities.

**DNP ADMISSION REQUIREMENTS**

- Applicants to the program must submit an online application form located at [www.miami.edu/grad](http://www.miami.edu/grad) and the required application fee.
- A Baccalaureate degree and a Master’s degree in nursing (MSN), and an RN license are required. Applicants with Master’s degrees in other areas will be considered for admission on a case by case basis.
- Official transcripts from undergraduate and graduate institutions if the applicant is not a graduate of the University of Miami
- The Graduate Record Examination (GRE) is not required.
- Three strong letters of recommendation are required preferably from individuals with doctorates in nursing. At least one recommendation should be from an academic source.
- Statement of professional goals for graduate study
- Current résumé
- Applicants for whom English is not the native language must take the Test of English as a Foreign Language
- All applicants will be scheduled for an interview.

**DEGREE REQUIREMENTS**

To receive the Doctor of Nursing Practice degree, the candidate must:

1. Complete all coursework as required with an overall GPA of 3.0 or better.
2. Complete the clinical hours required.
3. Successfully complete the capstone project.
4. Successfully pass a comprehensive examination. The exam is an integrative experience to demonstrate students’ mastery of the outcome objectives of the program.

**GRADUATE STUDENT RESPONSIBILITIES**

Students in the School of Nursing and Health Studies are responsible for meeting the degree requirements. It is the student’s responsibility to understand fully, and comply with all the provisions of the Bulletin and written changes to their program of study. Students are provided assistance by advisors and faculty members. Requests for deviation from the program of study or school requirements are granted only by written approval from the Dean. Students who are in violation of the provisions of this Bulletin may be withdrawn unilaterally by appropriate School officials from classes, deleted as Nursing and Health Studies students or have a stop placed upon their future enrollment. The school reserves the right to change academic requirements to include course offerings to ensure that students are receiving the latest knowledge. Changes are transmitted by written notice in the current year of the School of Nursing and Health Studies DNP Handbook located at [www.miami.edu/sonhs](http://www.miami.edu/sonhs) or by the Dean.
PROGRAM OF STUDY

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 654</td>
<td>Evolution of Nursing Practice and Application of Theory in Nursing Practice</td>
<td>3</td>
</tr>
<tr>
<td>NUR 655</td>
<td>Health Care Management, Economics, Financing, and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>NUR 656</td>
<td>International Health</td>
<td>2</td>
</tr>
<tr>
<td>NUR 657</td>
<td>Population based Health and Health Care Disparities</td>
<td>3</td>
</tr>
<tr>
<td>NUR 658</td>
<td>Structure and Processes in Health Care Organizations and Health Care Policy</td>
<td>3</td>
</tr>
<tr>
<td>NUR 659</td>
<td>Technology in Health Care (2 lecture credits, 56 clinical hours)</td>
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</tr>
<tr>
<td>NUR 663</td>
<td>Research I: Evaluating the Evidence for Practice</td>
<td>3</td>
</tr>
<tr>
<td>NUR 664</td>
<td>Research II: Biostatistical Applications for Nursing Practice</td>
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</tr>
<tr>
<td>NUR 672</td>
<td>Capstone I (1 lecture credit, 112 clinical hours)</td>
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</tr>
<tr>
<td>NUR 673</td>
<td>Capstone II (1 lecture credit, 112 clinical hours)</td>
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<tr>
<td>NUR 676</td>
<td>Practice Immersion (1 lecture credit, 280 clinical hours)</td>
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<td>**</td>
<td>Specialty cognate</td>
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<tr>
<td>Totals</td>
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<td>38</td>
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</table>

DOCTOR OF PHILOSOPHY

The Ph.D. with a major in Nursing Science requires a minimum of 40 credits of coursework beyond the master’s degree or 61 credits of coursework beyond the bachelor’s degree. The principal goal of the Ph.D. with a major in Nursing Science is to prepare scholars and researchers who will contribute to the growth of science in nursing through recognized methods of scholarly inquiry. Admission to the doctoral program is competitive.

PHD ADMISSION REQUIREMENTS

I. Entrance Requirements
   A. Admission. The regular admission procedures include:
      1. The completed application form
      2. The official transcripts of all college work previously taken, including both undergraduate and graduate
      3. The official report of the appropriate entrance examination, taken within five years of the application. Applicants must submit the scores from the Graduate Record Examination; International applicants whose native language is not English must also take and pass the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS).

   B. Selection of students. Factors considered for admission include:
      1. Completion of the masters degree with an outstanding record from an accredited institution
      2. Adequacy of previous study in advanced clinical nursing
      3. Relevant experience as evidenced in curriculum vitae
      4. Recommendations
      5. Written evaluations by key professors
      6. Statement of professional goals and interests in doctoral study
7. Admissions interview
8. Portfolio of scholarly work related to some aspect of nursing for evaluation by the doctoral admissions committee for evidence of scholarly potential

DEGREE REQUIREMENTS

To receive the Doctor of Philosophy degree the candidate must meet all the general requirements for the Ph.D. degree with respect to residency, and written and oral examinations. 12 credits of dissertation seminar and approval of the dissertation prospectus are required.

Students in the School of Nursing and Health Studies are responsible for meeting the degree requirements. It is the student’s responsibility to understand fully, and comply with all the provisions of the Bulletin and written changes to their program of study. Students are provided assistance by advisors and faculty members. Requests for deviation from the program of study or school requirements are granted only by written approval from the Dean. Students who are in violation of the provisions of this Bulletin may be withdrawn unilaterally by appropriate School officials from classes, deleted as Nursing and Health Studies students or have a stop placed upon their future enrollment. The school reserves the right to change academic requirements to include course offerings to ensure that students are receiving the latest knowledge. Changes are transmitted by written notice in the current year of the School of Nursing and Health Studies PhD Handbook located at www.miami.edu/sonhs or by the Dean.

MSN to PhD Program Curriculum

Year 1 - Fall semester
NUR 662 Nursing Epistemology (4 cr)
NUR 665 Quantitative Research Methods (3 cr)
   Co-requisite NUR 662
EPS 671 ANOVA (3 cr)

Year 1 - Spring semester
NUR 670 Qualitative (3 cr)
   Pre-requisite NUR 662
EPS 672 Regression (3 cr)
Elective (3 cr)

Year 2 - Fall semester
NUR 667 Research Practicum (1 cr)
   Pre-requisites NUR662, NUR 665, EPS 671
NUR 671 Scientific Writing (2 cr)
   Pre-requisites NUR662, NUR 665, EPS 672
EPS 673 (SEM) or EPS 674 Multilevel Modeling (3 cr)
Elective (3 cr)

Qualifying Exam at end of Fall semester

Year 2 - Spring Semester
NUR 730 Dissertation (4 cr)

Defend proposal by end of spring semester
Year 2 - Summer semester
NUR 730 Dissertation (4 cr)

Year 3 - Fall semester
NUR 730 Dissertation (4 cr)

Length = 6 full time semesters of study

Total course credits = 28
Total dissertation credits = 12
Total credits = 40 (post masters)

BSN to PhD Program Curriculum

Year 1 - Summer semester 1
NUR 652 Intro to Clinical Inquiry I (3 cr)

Year 1 - Summer semester 2
EPS 553 Intro Statistics (3 cr)

Year 1 - Fall semester
NUR 662 Nursing Epistemology (4 cr)
NUR 665 Quantitative Research Methods (3 cr)
  Co-requisite NUR 662
EPS 671 ANOVA (3 cr)

Year 1 - Spring semester
NUR 670 Qualitative (3 cr)
  Pre-requisite NUR 662
EPS 672 Regression (3 cr)
Elective (3 cr)

Year 2 - Summer semester 1
NUR 653 Intro to Clinical Inquiry II (6 cr)

Year 2 - Fall semester
NUR 667 Research Practicum (1 cr)
  Pre-requisite NUR 662, NUR 665, EPS 671
NUR 671 Scientific Writing (2 cr)
  Pre-requisite NUR 662, NUR 665, EPS 671
EPS 673 (SEM) or EPS 674 Multilevel Modeling (3 cr)
Elective (3 cr)

Year 2 - Spring semester
Cognates/Electives (9 cr)

Qualifying Exam at end of Spring semester

Year 3 - Summer semester
NUR 730 Dissertation (4 cr)

Defend proposal at end of summer semester
Year 3 - Fall semester
NUR 730 Dissertation (4 cr)

Year 3 - Spring semester
NUR 730 Dissertation (4 cr)

Length = 9 full time semesters
Total course credits = 49
Total dissertation credits = 12
Total credits = 61 (post baccalaureate)

FINANCIAL ASSISTANCE

The School of Nursing and Health Studies provides the following sources of financial assistance for full time graduate students who are not employed full time by other agencies:

1. Tuition Scholarships. These awards vary in amount and are intended to assist the recipient in pursuit of study and research as required by the degree. These scholarships are awarded on a competitive basis.

2. Graduate Stipends. These cash awards, paid monthly, are intended as part of an educational assistance program for Doctoral degree students. The stipends require service in the form of teaching, research assistance, or other appropriate educational activities that may be designated by the supervisor of the recipient.

For further information, contact: Office of Student Services, School of Nursing and Health Studies, University of Miami, P.O. Box 248153, Coral Gables, FL 33124-3850, ph (305) 284-3666.

Nursing Course Listing

Health Sciences Course Listing
INTENSIVE LANGUAGE INSTITUTE

The Intensive Language Institute offers comprehensive language instruction for academic, professional, and personal purposes. The Intensive English Program, a full-time course of study for international students who wish to pursue university studies in the United States, provides instruction in English language and academic study skills. The ILI also offers certificate programs, part-time language courses and customized language programs.

Intensive English Program

The Intensive English Program is designed to prepare students to participate successfully in the academic environment. Students are given a placement test upon arrival to determine the most appropriate level of study. Courses are offered at five levels of instruction. The skills-based curriculum integrates reading and writing, listening and speaking into one complete program of study. The focus is on English language acquisition and application in an academic setting. Specialized classes vary by level; focusing on the needs of the language learners. In Levels 1-3 students concentrate on reading skills and conversation. In Levels 4 and 5, courses on selected topics allow students to use their improving English to investigate areas of interest. Satisfactory completion of the highest level meets the English language requirement for acceptance to undergraduate programs at the University.

For more information contact: Intensive English Program, PO Box 248005, Coral Gables, FL 33124-1610, (305) 284-2752. E-mail: iep@miami.edu. Visit our website at www.miami.edu/iep.

Intensive Language Programs

The certificate in English for Law School Studies is a 6-week summer program for international students to prepare for the English language and academic study skills needed for law school. The certificate in Business Communication consists of five courses focusing on oral and written communication skills necessary for the workplace. Communicative language classes are offered in the evenings and on weekends in Spanish, Portuguese, Italian, Mandarin Chinese and ESL throughout the year. These courses focus on meaningful communication in the chosen language. Advanced level classes focus on Accent Reduction, Presentation Skills, and/or Business Writing. A short-term immersion-style program in Spanish is also offered. The Intensive Language Institute develops and conducts customized language courses on or off campus for individuals, businesses, and organizations with specialized language training needs. For further information, or to register for classes, please call us at (305) 284-4000 or visit us on the web at: www.educationmiami.com/ili. Email: alc.cstudies@miami.edu.
INTERNATIONAL EXCHANGE and LANGUAGE PROGRAMS

INTERNATIONAL EDUCATION AND EXCHANGE PROGRAMS - Dept. Code: SAP

To help you meet the challenges of today and tomorrow, as well as to broaden your educational experience, the University of Miami’s Office of the International Education and Exchange Programs offers an extensive array of overseas programs in over thirty-three countries. Many of our programs offer coursework taught in English.

As you choose among programs, consider some of your options ... Study marine biology on the edge of Australia’s Great Barrier Reef at James Cook University; be at the nerve center of a unified Europe and study economics or politics at the University of Leipzig in Germany; immerse yourself in Japanese culture and business practices at Sophia University, Tokyo; do an internship at Tecnológico de Monterrey in Mexico; explore Europe’s rich heritage at the University of Edinburgh in Scotland; become acquainted with the changing panorama of international relations at Uppsala University in Sweden.

These opportunities for exchange - and many more - are available through the International Education and Exchange Programs office. In addition to programs at overseas universities, the International Education and Exchange Programs office offers UM faculty-led programs abroad. These are UM courses taught by UM faculty who travel abroad with the students during Intersession, Spring Break, and Summer terms. Undergraduate and graduate credits are offered.

Many departments at the University of Miami encourage study abroad options to enhance their basic curriculum. With the assistance of the International Education and Exchange Programs staff and the guidance of your academic advisor, you can select a study abroad program to fit almost any major. Studying abroad is open to Sophomores, Juniors, and Seniors for a semester, a full academic year, or during the intersession and summer terms. Full university credit is awarded for approved courses to participants on UM study abroad programs so that you proceed normally toward graduation. Most financial aid applies.

For further information contact: UM International Education and Exchange Programs, P. O. Box 248263, Coral Gables, FL 33124-1610, (305) 284-3434. E-mail: ieep@miami.edu. Visit our website at www.miami.edu/studyabroad.
The Miami Semester
www.miami.edu/miamisemester

The Miami Semester provides the opportunity for degree-seeking students attending other colleges to spend a semester or summer in Miami living, studying and doing research at the University of Miami. Domestic or international students can take advantage of these unique discipline or topic focused programs. Each Miami Semester is designed to highlight the programs unique to the University, taking advantage of our geographical location, nationally known faculty, and unique environmental features.

The Miami Semester is limited to degree-seeking undergraduates in good standing attending other universities and colleges.

Spring Programs

American Studies

This program allows students to select one to two courses from among the American Studies (AMS) Program's core courses, and classes from other departments based on availability and interests. It is an interdisciplinary approach for students to reflect on the interrelated nature of subjects like, but not limited to, Sociology, Geography, History, and Anthropology, and topics that are relevant to today's society such as cultural diversity, the global economy, regional and geographical norms, and popular culture. The goal of this program is to assist in students’ understanding of the world around them by analyzing events, policies, societal norms and cultures, and historical events. Students may take any combination of courses that equal at least 12 credit hours.

Core Courses:

Students must enroll in at least one (1) of the following:
Introduction to American Studies AMS 101
The U.S., Transnationalism, and Globalism AMS 310
History and Culture of South Florida AMS 350

Additional Courses

Race and Healthcare in America AMS 401

Architecture: New Urbanism

The program allows for students currently majoring in Architecture at other colleges and universities to gain perspective of the field in South Florida. Students enroll in six credits of Architectural Design and six to nine credits of related electives or courses in Urban Studies. Students will also have opportunities to participate in study abroad programs in London, Venice, and/or Spain during intersession and spring breaks as an additional enrollment option (additional tuition and program fees apply). Students are required to maintain a standard full-load of credits for the spring semester of 12-15 UM credits.

Core Courses: (students must submit a design portfolio prior to enrolling in courses)

Students enroll in one (1) of the following:
Architectural Design VII ARC 407
Architectural Design VIII ARC 408
Architectural Design IX ARC 509
Architectural Design X ARC 510
Additional Courses

- Site Study of Selected Architecture and Urbanism (Intersession/Study Abroad)
- ARC323 Management of Professional Practice ARC 452
- Advanced Visual Analysis ARC 512
- General Physics for Architectural Majors PHY 103
- Cities in Time and Space URB 301
- Other Architecture elective course offerings (Interior Design, Landscape, and Historic Preservation)

Audio Engineering

Audio Engineering allows for students currently majoring in Electrical Engineering to study areas such as circuit theory, electronics, signal processing and multimedia with audio studies in acoustics, digital audio, recording and postproduction. Students must enroll in a minimum of two Electrical Engineering courses from the core courses. Students may also opt to add courses in other areas based on availability and interests.

Core Courses:

- Introduction to Digital Signal Processing EEN 436
- Real-time Digital Signal Processing Laboratory EEN 437
- Engineering Acoustics EEN 502
- Digital Speech and Audio EEN 540

Additional Courses:

- Advanced Digital Compositing for Film and Video EEN 595
- Advanced Computer Modeling and 3D Animation EEN 596
- Advanced Audio Editing for Film and Video EEN xxx

Courses available through the Frost School of Music:

- Audio Workshop MMI 141
- Transducer Theory MMI 501

Ecosystem Science and Policy

The Certificate in Ecosystem Science and Policy provides an opportunity for students from other universities to explore the South Florida environment, ecology and culture via interdisciplinary courses and experiential learning.

Students must take at least two core courses in Ecosystem Science and Policy. Miami Semester students will complete their schedules with courses chosen from among the interdisciplinary ECS courses and from other departments based on availability and interests.

Core Courses for sophomores:

- Problems in Ecosystem Science and Policy ECS 112
- Contemporary Environmental Issues ECS 202

Core Courses for juniors and seniors:

- Contemporary Environmental Issues ECS 202
- Perspectives on Environmental Decisions ECS 302
- Interdisciplinary Approaches to Complex Human-Environmental Problems ECS 403
International Finance and Marketing

The Certificate in International Finance and Marketing is designed for business students from other universities who want to add an international dimension to their studies. This program allows students to select from a limited set of courses offered by the School of Business. The program focuses on the international aspects of business. The program is open to students with at least a junior standing who have met the course prerequisites. Students must take at least two courses below, but may take all four.

Core Courses:
- International Finance FIN 330
- International Marketing MKT 360
- International Monetary Economics ECO 442
- International Business Law BSL 412

Marine Science

The Certificate in Marine Science is a hands-on study opportunity for those interested in marine science, oceanography, geology and marine physics. Students must enroll in a minimum of three Marine Science courses. In addition, highly qualified students may be eligible for an independent study research project. Students may also opt to add courses in other areas based on availability and interests.

Sport Administration

Sport Administration is an opportunity for students who are interested in the ethics, leadership, and business of managing athletic organizations. Students will have the opportunity to participate in an internship that fits their interest area as well taking hands-on courses in the Department of Exercise & Sport Sciences. Internships may take place within the UM Athletic Department or local professional sport franchises. Students make take any combination of courses that equal at least 12 credit hours.

Core Courses:
- Sport Facilities and Event Management ESS 206
- Sport Marketing ESS 302
- Essential Leadership in Sports and the Professions ESS 306
- Ethics Ethical Decision Making in Sport and the Professions ESS 308
- Legal Aspects of Sport ESS 401
- Sport Information Management ESS 403
- Finance and Budget in Sport Administration ESS 405
- Seminar in Sport Administration (internship) ESS 498
Summer Program

Cuban Studies (summer only)

Miami is home to a large number of Cuban exiles, who brought their professional backgrounds, culture, music, politics, and diversity. For the last 40+ years they have contributed to the growth and prosperity of Miami. This academic program focuses the possible scenarios that may occur with the transition of power and lessons learned from governments in transition.

Core Course:
   History of Cuba: Cuba After Fidel Castro HIS 353

Additional Course:
   Directed Study (US-Cuba Relations) HIS 451

Students will be able to:
   ▪ Conduct research using the one-of-a-kind Cuban Heritage Collection
   ▪ Participate in special program activities throughout Miami and neighborhoods like Little Havana
   ▪ Become involved in a variety of cultural and educational activities hosted by Casa Bacardi
UNDERGRADUATE COURSES*
* 500 level courses appear in both the undergraduate and graduate course listing and may be considered undergraduate or graduate at the discretion of the department. Prerequisites, co-requisites and other course requirements are subject to change.

### Architecture

[727]

### Arts & Sciences

[743]

Aerospace Studies
Africana Studies
American Studies
Anthropology
Arabic
Art
Art History
Biochemistry & Molecular Biology
Biology
Chemistry
Chinese
Classics
Computer Science
Ecosystem Science and Policy
English
French
Geography
Geological Sciences
German
Greek
Hebrew
History
International Studies
Italian
Japanese
Judaic Studies
Latin
Latin American Studies
Mathematics
Microbiology & Immunology
Military Science
Modern Languages & Literatures
Neuroscience
Philosophy
Physical Science
Physics
Political Science
Portuguese
Psychology
Religious Studies
Sociology
Spanish
Theatre Arts
Urban Studies
### Women’s and Gender Studies

### Business 957
- Accounting
- Business Law
- Computer Information Systems
- Economics
- Finance
- Management
- Management Science
- Marketing

### Communication 986
- Advertising
- Communication
- Communication Studies
- Electronic Media
- Journalism
- Motion Pictures
- Public Relations
- Visual Journalism

### Education 1010
- Educational & Psychological Studies
- Exercise & Sport Sciences
- Teaching & Learning

### Engineering 1043
- Biomedical Engineering
- Civil, Architectural & Environmental Engineering
- Electrical and Computer Engineering
- Industrial Engineering
- Mechanical and Aerospace Engineering

### Marine & Atmospheric Science 1092
- Applied Marine Physics
- Marine Affairs and Policy
- Marine and Atmospheric Chemistry
- Marine Biology and Fisheries
- Marine Geology and Geophysics
- Marine and Physical Oceanography
- Marine Science
- RSMAS – General

### Music 1119
- Dance
- Instrumental Performance
- Keyboard Performance
- Music Education and Therapy
- Music Media and Industry
- Music Theory and Composition
- Musicology
- Studio Music and Jazz
Vocal Performance

**Nursing and Health Studies**

Health Studies
Healthcare Sciences
Nursing

**Honors and Special Programs**

Freshman Seminars in Arts
Freshman Seminars in Literature
Freshman Seminars in Natural Science
Freshman Seminars in Philosophy/Religion
Freshman Seminars in Social Sciences
Honors Program
University of Miami Experience
University Internship

**International Exchange and Language Programs**

Study Abroad Program
ARC101 Architecture Design I
6 credits Fall Semester
The study of architecture as an intellectual and aesthetic discipline. Topics include concept, site, form and technique. Corequisite: ARC 111, 121.
PREREQUISITE: COREQUISITE: ARC 111, 121.

ARC102 Architecture Design II
6 credits Spring Semester
Architectural response to shelter, space and setting requirements. Topics include programming, program analysis and design, anthropometrics, and architecture psychology. Corequisite: ARC 112, 122.

ARC110 Introduction to Architectural Design
3 credits First & Second Summer Session
Introduction to the design process and the role of the architect in society. Building design, landscape architecture, urban planning, historic preservation, architectural theory and graphics are taught through drawing and model making in a studio setting. Open to non-architecture majors in college and high school students entering 10th, 11th and 12th grades interested in exploring the field of architecture.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ARC111 Drawing I
3 credits Fall Semester
Exploration and expression of ideas through increased awareness and acquisition of visual and graphic vocabulary, stressing orthographic, oblique and conical projections; light shade and shadow; freehand sketching. Corequisite: ARC 101, 121.
PREREQUISITE: COREQUISITE: ARC 101, 121.

ARC112 Drawing II
3 credits Spring Semester
Conical projection and freehand exploration of graphic expression and representation, studies in principles of composition, perspective, form, color, materials. Corequisite: ARC 102, 122.
PREREQUISITE: ARC 101, 111. COREQUISITE: ARC 102, 122.

ARC121 Architecture and Culture
3 credits Fall Semester
Architectural design as an intellectual and aesthetic discipline. Focus on design theory, language, typology, image, form, context, and case studies. Corequisite: ARC 101, 111.
PREREQUISITE: COREQUISITE: ARC 101, 111.

ARC122 Architecture and Behavior
3 credits Spring Semester
Those aspects of environmental psychology which affect architectural design. Studies in human behavior and the design process, application of psychological factors to the design of buildings and their environment. Corequisite: ARC 102, 112.
PREREQUISITE: ARC 101, 121. COREQUISITE: ARC 102, 112.
ARC141 On-Site Survey of European Architecture and Urbanism
3-6 credits  Spring Semester & First & Second Summer Session
On site introduction to architecture and the city with a historical review of most European periods from classical to contemporary. Survey of European architectural and urbanistic precedents in important selected locations. Elective course open to all majors; lecture and seminar format.

ARC171 Architecture: The Natural and the Manmade
3 credits  Offered By Announcement Only
A review of the relationship between mankind, the landscape, and architecture from American pre-history to the twentieth century.

ARC191 Architecture Drawing
3 credits  Offered By Announcement Only
Methods of graphic simulation for non-architecture majors, stressing orthographic, oblique and conical projections, and architectural graphic conventions: plan, elevation, section, perspective.

ARC203 Architecture Design III
6 credits  Fall Semester
Architectural response to natural environment and site requirements. Focus on site analysis and design, climate, access and circulation, landscape, relation to larger context. Corequisite: ARC 223.
PREREQUISITE: ARC 102, COREQUISITE: ARC 223.

ARC204 Architecture Design IV
6 credits  Spring Semester
Building materials and structure as active constituents of architecture design. Focus on orientation, enclosure, low-energy responses, selection and assembly of construction materials, short and intermediate span structural systems. Corequisite: ARC 231.
PREREQUISITE: ARC 203, 261. COREQUISITE: ARC 231.

ARC213 Computing I
3 credits  Fall & Spring Semester
An introduction to new electronic design tools and technology available to architects today. Lectures on the history and future of computing in the profession.
PREREQUISITE: ARC 102, 111, 112 OR PERMISSION OF INSTRUCTOR.

ARC223 Architecture and the Environment
3 credits  Fall Semester
Architectural response to natural environmental requirements. Focus on climate, control, natural energy use, ecosystems, energy flow, environmental intervention, case studies of indigenous buildings.
PREREQUISITE: ARC 102, 122.

ARC231 Building Structures
3 credits  Spring Semester
The structural behavior and tectonic form of the basic elements of buildings. Topics include loads, stability, equilibrium, strength, and dimensions of structural form.
Corequisite: ARC 204.
PREREQUISITE: PHY 103. COREQUISITE: ARC 204.
University of Miami Bulletin, 2009-2010
Undergraduate Course Listing
SCHOOL OF ARCHITECTURE
ARCHITECTURE

ARC261 Building Construction
3 credits  Fall Semester
Material characteristics of enclosure and structural systems, case studies in traditional and modern building construction. Topics include properties of building materials; wood, masonry, concrete, steel and glass construction techniques; on-site and off-site processes; interior and exterior finishes; assemblies, detailing and building codes. Corequisite: ARC 203.
PREREQUISITE: ARC 102. COREQUISITE: ARC 203.

ARC267 History of Architecture I: Ancient, Medieval and Renaissance
3 credits  Fall Semester
Studies of the history of architecture and urban design. Focus on religious and secular monuments and their settings, domestic architecture and infrastructure, regional constructional and compositional traditions from prehistory to the end of the sixteenth century. Corequisite: ARC 203.
PREREQUISITE: COREQUISITE: ARC 203.

ARC268 History of Architecture II: Baroque through Contemporary
3 credits  Spring Semester
Studies of the history of architecture and urban design. Focus on religious and secular monuments and their settings, domestic architecture and infrastructure, regional constructional and compositional traditions from the end of the sixteenth century through to the present. Corequisite: ARC 204.
PREREQUISITE: COREQUISITE: ARC 204.

ARC292 Introduction to Architecture Design I
3 credits  Spring Semester
Survey of the architecture profession and introduction to architecture design for non-architecture majors. Role, opportunities, vocabulary, visual awareness, techniques and procedures of design.
PREREQUISITE: ARC 191.

ARC293 Introduction to Architecture Design II
3 credits  Fall Semester
Continuation of ARC 292 and an introduction to the interactions between architecture and the engineering disciplines for non-architecture majors. Theories of building and site design, technology as an integral component of design, program, site, climate and methodology.
PREREQUISITE: ARC 191, 292.

ARC294 Introduction to the Development of Architecture
3 credits  Fall Semester
Introduction to architecture for non-architecture majors. Vocabulary, themes, principles and processes of design, cultural, social, economic and technological influences demonstrated through historic examples.
PREREQUISITE: SOPHOMORE STANDING OR PERMISSION OF INSTRUCTOR.

ARC301 Architecture Design
6 credits  First & Second Summer Session
Comprehensive building and site design for students transferring into the architecture program at third year level. Topics include human, environmental, cultural and technological factors.
PREREQUISITE: SOPHOMORE STANDING.
ARC302 Theory of Classical Architecture and Urbanism
3 credits  Fall Semester
Theoretical basis of western classical architecture and urbanism from Greek and Roman times to today. Studies of classical theories of siting and urbanism, anthologies of classical works, and vernacular interpretations and main contemporary theories and works.
PREREQUISITE: PERMISSION OF INSTRUCTOR, OR ARC 204.

ARC305 Architecture Design V
6 credits  Fall Semester
Environmental systems and structure as active constituents of architectural design. Topics include the integration of enclosure, structure, environmental and mechanical systems in intermediate and long span structures. Corequisite: ARC 362, CAE 213.
PREREQUISITE: ARC 204. COREQUISITE: ARC 362, CAE 213.

ARC306 Architecture Design VI
6 credits  Spring Semester
Government and finance as active constituents of architecture design. Topics include zoning regulations, building codes, principles of public health, safety and welfare, market and feasibility studies. Corequisite: ARC 351, CAE 313.
PREREQUISITE: ARC 305. CAE 313.

ARC323 On Site Study of Selected Architecture and Urbanism
3-6 credits  Spring Semester & First & Second Summer Session
On site study of specific architectural and/or urbanistic precedents at selected locations. Focus on specific period(s) and/or architect(s). Elective course open to all majors.

ARC324 On Site Graphic Analysis of Selected Architecture and Urbanism
3 credits  Spring Semester & First & Second Summer Session
On site analysis and illustration of specific architectural and/or urbanistic precedents at selected locations. Diagrams, sketches, and drawings recording, analyzing and evaluating buildings and places. Focus on specific period(s) and/or architect(s). Elective course open to all majors.

ARC362 Building Systems I
3 credits  Fall Semester
Environmental and Safety Systems. Topics include mechanical - HVAC and conveyors; plumbing - fixtures and pipes; safety systems - fire safety and emergency and signal systems. Corequisite: ARC 305.
PREREQUISITE: ARC 261, PHY 103. COREQUISITE: ARC 305.

ARC363 Building Systems II
3 credits  Spring Semester
Principles and applications of light and acoustics. Topics include natural and artificial light - planning for sunlight, problems and solutions for interior and exterior illumination; sound - properties, problems and solutions in new and existing spaces. Principles and applications of electrical equipment and wiring design. Corequisite: ARC 306.
PREREQUISITE: ARC 362, PHY 103. COREQUISITE: ARC 306.
ARC371 Ancient Architecture
3 credits  Fall Semester
History of architecture and human settlements. Western European prehistory, Egypt, Mesopotamia, Persia, Aegean and Mediterranean, Greece, Rome.
PREREQUISITE: HIS 131 AND 132, ARC 204 OR PERMISSION OF INSTRUCTOR.

ARC372 Selected Topics in World Architecture
3 credits  Fall Semester
History of architecture and human settlements. Islamic Near East, Spain, North Africa, Hindu and Buddhist India, Nepal, S. E. Asia, China, Japan, Pre-Columbian America.
PREREQUISITE: HIS 131 AND 132, ARC 204 OR PERMISSION OF INSTRUCTOR.

ARC373 Early Christian, Byzantine, and Medieval Architecture
3 credits  Fall Semester
History of architecture and human settlements. Early Christian and Byzantine architecture in Italy, the Near East, Greece, North Africa, Eastern Europe, Medieval architecture in Western Europe.
PREREQUISITE: HIS 131 AND 132, ARC 204 OR PERMISSION OF INSTRUCTOR.

ARC374 Renaissance Architecture
3 credits  Fall Semester
History of architecture and human settlements. Renaissance and Baroque architecture in Italy, France, Spain and Portugal, Great Britain, Austria, Germany, and neighboring countries.
PREREQUISITE: HIS 131 AND 132, ARC 204 OR PERMISSION OF INSTRUCTOR.

ARC382 Architecture and Culture in Italy
3 credits  Spring Semester
A cultural and historical framework in preparation for participation in the Rome program. A range of topics, including architecture, art, history, cinema, literature and politics presented by University faculty from a variety of disciplines. Required for participation in the Rome Program.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ARC390 History of Cities
3 credits  Fall Semester
Historical overview of the origin of cities and the development of cities in the East, West, and New World. Focus on the nature of the industrial revolution and the development of the industrial city and contemporary urban settlements.
PREREQUISITE: ARC 204.

ARC407 Architecture Design VII
6 credits  Fall & Spring Semester & First & Second Summer Session
Elective component: student and faculty select areas of in-depth study. Topics include building types, environment, energy, community design.

ARC408 Architecture Design VIII
6 credits  Fall & Spring Semester & First & Second Summer Session
Elective component: student and faculty select areas of in-depth study. Topics include building types, environment, energy, community design, etc.
PREREQUISITE: ARC 407.
ARC452 Management of Professional Practice  
3 credits  
Fall & Spring Semester  
Overview of the practice and the profession, legal and ethical concerns, business 
types and management practices, traditional and non-traditional practices and services, 
contracts and contractual relationships. 
PREREQUISITE: ARC 306.

ARC475 Colonial Architecture  
3 credits  
Fall Semester  
History of architecture and human settlements. Colonial Architecture from the 16th 
through the 19th centuries in North and South America, the Caribbean, India and 
Africa. 
PREREQUISITE: ARC 204.

ARC476 19th and 20th Century Architecture  
3 credits  
Fall Semester  
History of architecture and human settlements. America and Europe during the 19th 
and 20th centuries; cultural, technological and theoretical development. 
PREREQUISITE: ARC 204 OR 292, 294 OR 371 OR 372 OR 373 OR PERMISSION OF THE INSTRUCTOR.

ARC481 Special Problems  
1-3 credits  
Fall & Spring Semester & First & Second Summer Session  
Group or individual investigations of significant architectural issues, offered 
by special arrangement only. 
PREREQUISITE: PERMISSION OF PROGRAM DIRECTOR.

ARC482 Special Problems  
1-3 credits  
Fall & Spring Semester & First & Second Summer Session  
Group or individual investigations of significant architectural issues, offered 
by special arrangement only. 
PREREQUISITE: PERMISSION OF PROGRAM DIRECTOR.

ARC483 Special Problems  
1-3 credits  
Fall & Spring Semester & First & Second Summer Session  
Group or individual investigations of significant architectural issues, offered 
by special arrangement only. 
PREREQUISITE: PERMISSION OF PROGRAM DIRECTOR.

ARC501 Architecture Design and Theory I  
6 credits  
Fall Semester  
Cultural, human and environment component and architectural responses to these: 
Social and aesthetic concepts, architectural psychology, climatic principles, 
programming analysis and design. 
PREREQUISITE: GRADUATE STANDING.

ARC502 Architecture Design and Theory II  
6 credits  
Spring Semester  
Technology component; materials, structure, and environmental control systems as 
a framework for architectural design. Construction materials and methods, structural 
systems, mechanical systems. 
PREREQUISITE: ARC 501.
ARC503 Architectural Design and Theory III
6 credits
Fall Semester
Legal and economic component; government and finances as active constituents of
architecture design. Zoning regulations, building codes, principles of public
health, safety and welfare, market and feasibility studies.
PREREQUISITE: ARC 502.

ARC507 Architecture Design
6 credits
Fall & Spring Semester & First & Second Summer Session
 Elective component: student and faculty select areas of in-depth study. Topics
include building types, environment, energy, community design, etc.
PREREQUISITE: ARC503

ARC509 Architecture Design IX
6 credits
Fall & Spring Semester & First & Second Summer Session
Elective component: student and faculty select areas of in-depth study. Topics
include building types, environment, energy, community design, etc.
PREREQUISITE: ARC 408.

ARC510 Architecture Design X
6 credits
Fall & Spring Semester & First & Second Summer Session
Elective component: student and faculty select areas of in-depth study. Topics
include building types, environment, energy, community design, etc.
PREREQUISITE: ARC 509.

ARC511 Drawing
3 credits
Fall Semester
Graphic representation and exploration of visual ideas through increased awareness
of visual and graphic vocabulary, stressing projections, light, shade and shadow,
perspective, and freehand sketching.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF INSTRUCTOR.

ARC512 Advanced Visual Analysis
3 credits
Offered By Announcement Only
Drawing as a means of analyzing and recording visual experience. Composition, form,
light, color and drawing as a primary device in the mental registration of visual
experience.
PREREQUISITE: ARC 204, 112.

ARC513 Computing
3 credits
Spring Semester
An introduction to new electronic design tools and technology available to architects
today. Lectures on the history and future of computing in the profession.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF INSTRUCTOR.

ARC514 Michelangelo
3 credits
Fall Semester
Drawing as a form of research across mediums to understand historical research
and interpretation of Michelangelo's work.
PREREQUISITE: ARC 306, 112, 213 OR PERMISSION OF THE INSTRUCTOR.
ARC515 Computer Modeling
3 credits Fall & Spring Semester
Three-dimensional, computer modeling, and rendering. Lecture, problem solving exercises and laboratory.
PREREQUISITE: ARC 213, 513 OR PERMISSION OF THE INSTRUCTOR.

ARC516 Architectural Watercolor Renderings
3 credits Fall Semester
This course will use freehand drawing and watercolor painting as a vehicle to study and record the urban and architectural conditions of Coral Gables and other South Florida sites. Particular emphasis will be placed on the analytical potential of sketches (recording space, light, surfaces and color).
PREREQUISITE: ARC 306 OR PERMISSION OF THE INSTRUCTOR.

ARC517 Construction Documents
3 credits Fall Semester
Working drawings and specifications. Form, content and role of constituent parts of working drawings and specifications by using case studies.
PREREQUISITE: ARC 204 AND 261.

ARC518 Documentation of Historic Architecture
3 credits First & Second Summer Session
Principles of preservation and restoration, research methods, measured drawings, surveying methods, case studies.
PREREQUISITE: ARC 204.

ARC519 Architecture and Color
3 credits First & Second Summer Session
This course focuses on the theory and practice of color and its application to architectural design. Topics include color history from Newton through Alber, the relationship between color practice in science versus art, and the discipline of color in architecture from the Neoclassical movement through the Modern Movement.
PREREQUISITE: ARC 306 OR PERMISSION OF THE INSTRUCTOR.

ARC520 Computer Modeling II
3 credits Spring Semester
Advanced three-dimensional computer modeling and rendering. Lecture, problem solving exercises and laboratory.
PREREQUISITE: ARC 213 OR 513 AND 515 OR PERMISSION OF THE INSTRUCTOR.

ARC521 The Architecture of American Cities
3 credits Fall Semester
Study of theories on relationships between architectural objects and urban space based on works which include Sitte, Rossi, and Norberg-Schulz. Application of selected theoretical principles to the contemporary American cities.
PREREQUISITE: ARC 374.
ARC522 Architecture Psychology
3 credits Offered By Announcement Only
Environmental behavior concepts and their application to an architecture focused on designing for people. Fundamental principles covered include proxemics, privacy, personalization, territoriality, defensible space, social interaction, aesthetics, symbolism, and spatial perception, reasons for individual and cultural differences in spatial actions are outlined. Psychological and social concepts are applied to the process of design and to residential environments, neighborhoods, and public spaces.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ARC523 Interior Architecture Design
3 credits Fall Semester
Principles and technical components of interior design. Topics include activity, analysis, finishes, furniture, fixture, lighting, and acoustics.
PREREQUISITE: ARC 204 OR PERMISSION OF THE INSTRUCTOR.

ARC524 Selected Topics in Interior Architecture Design
3 credits Spring Semester
Principles and technical components of interior design. Topics include interior volumetrics, finishes, furnishings and lighting.
PREREQUISITE: ARC 204 OR PERMISSION OF THE INSTRUCTOR.

ARC525 Landscape Arch Design I
3 credits Fall & Spring Semester
Analysis and design of landscape spaces. Studies in historical precedent, gardens, parks, plazas, squares and response to architectural context.
PREREQUISITE: ARC 204 OR PERMISSION OF THE INSTRUCTOR.

ARC526 Landscape Arch Design II
3 credits Offered By Announcement Only
Analysis and design of landscape spaces. Topics include ecological principles, landforms and plant materials.
PREREQUISITE: ARC 204 OR PERMISSION OF THE INSTRUCTOR.

ARC527 Architecture Photography
3 credits Offered By Announcement Only
Photography with emphasis on architectural subjects. Introduction to visual principles, photographic equipment, materials, and techniques.
PREREQUISITE: ARC 204.

ARC528 Historic Preservation
3 credits Spring Semester
Basic design principles for the rehabilitation of historic buildings. Evaluating character-defining details; significance analysis; context of setting issues within historic districts; applying the Secretary of the Interior's Standards for rehabilitation.
PREREQUISITE: ARC 204.

ARC529 Research in Design-Methods and Procedures
3 credits Fall & Spring Semester
Application of research methods and procedures to design issues. Historical, descriptive, analytic, experimental research methods; tools for data manipulation and communication.
PREREQUISITE: PERMISSION OF PROGRAM DIRECTOR.
ARCHITECTURE

ARC530 Architectural Principles of Harmony
3 credits  Fall & Spring Semester
The study of the essential elements of architectural design including form, proportion, light, color, ornamentation and intention. Referring to historic precedents, students will investigate the relationship between these elements through the spectrum of harmonic ratios. Emphasis on understanding Greek and Roman principles of design through analytical drawing.
PREREQUISITE: ARC 382.

ARC531 Building Structures I
3 credits  Spring Semester
The structural behavior and tectonic form of the elements of buildings. Topics include loads, stability, equilibrium, strength, and the dimensions of structural form.
PREREQUISITE: PHY 103, GRADUATE STANDING OR PERMISSION OF INSTRUCTOR.

ARC532 Building Structures II
3 credits  Spring Semester & First Summer Session
The structural behavior of simple frame structures. Topics include techniques to determine basic system layout and preliminary dimensioning of key subsystems and members.
PREREQUISITE: ARC 531.

ARC533 Building Structures III
3 credits  Fall Semester & Second Summer Session
The structural behavior of complex structures. Topics include prestressed systems, waffle and space trusses, curved structures and longspan buildings.
PREREQUISITE: ARC 532.

ARC534 The Palazzo in Italian Architecture
3 credits  Fall & Spring Semester
Study of the development of the Renaissance and Baroque palazzo in Rome and other important centers of art and culture. Emphasis on the socio-political context.
PREREQUISITE: ARC 382.

ARC535 Historic Italian Urbanism
3 credits  Fall & Spring Semester
Study of Italian cities and towns from medieval to contemporary times, including a comparative analysis of history and form.
PREREQUISITE: ARC 382.

ARC536 Italian Gardens
3 credits  Fall & Spring Semester
Study of Italian garden design during the Renaissance, Baroque and Mannerist periods. Emphasis on historical and political context.
PREREQUISITE: ARC 382.

ARC537 Research in Rome
3 credits  Fall & Spring Semester
An exploration of Roman history, architecture and urban form through lectures, on site study and drawing assignments. Emphasis on chronological and spatial sequence of development.
PREREQUISITE: ARC 382.
ARC541 Seminar on Town Design
3 credits 
Fall Semester
Introduction to the lexicon of urbanism; analytical presentations of the concepts of: region, town, neighborhood, corridor, district, and building type; interdisciplinary presentations, review, and criticism of current town and urban design projects.

ARC542 Seminar on Housing
3 credits 
Offered By Announcement Only
Introduction to domestic building typology; exploration of the concepts of low, medium, and high density housing with attention to social, environmental, and economic issues; presentations of current case studies.
PREREQUISITE: ARC 306 OR PERMISSION OF INSTRUCTOR.

ARC543 Seminar on Retrofit of Suburbia
3 credits 
Offered By Announcement Only
Introduction to the critical reconstitution of the city; theory and history of the concepts of revitalization and redevelopment; presentations, review, and criticism of current case studies.
PREREQUISITE: ARC 306 OR PERMISSION OF INSTRUCTOR.

ARC544 The Architecture of Palladio
3 credits 
Fall Semester
On site study of the architecture and urbanism of Andrea Palladio. Emphasis on the artistic precedents of the Veneto Region.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

ARC545 Urban Composition
3 credits 
Offered By Announcement Only
Survey and analytical review of urban rooms as the vessel of human activity in urban culture. Study of proportional and compositional aspects of urban rooms together with economic, social, and cultural factors. Readings and discussion format.
PREREQUISITE: ARC 306, 502, OR PERMISSION OF INSTRUCTOR.

ARC546 Studies of Havana
3 credits 
Spring Semester
Analysis of the physical structure of a major city and its environments including an exploration of its history and iconographic themes, mapping and building studies.

ARC547 Architecture and Urban Identity
3 credits 
Offered By Announcement Only
Study of the relationship between architecture and urbanism focusing on the ways by which architecture provides urban identity and image of place. Case studies relating monuments, fabric and urban plans to their culture, time and place. Lecture and seminar format.
PREREQUISITE: ARC 306 OR PERMISSION OF INSTRUCTOR.

ARC548 Seminar in Community Development
3 credits 
Offered By Announcement Only
Study of the contemporary context for the development of the physical environment. Examination of public, private and third sector implementation of building and community design. Format: guest speakers, readings, discussions, and seminar.
PREREQUISITE: ARC 305, 502, OR PERMISSION OF INSTRUCTOR.
ARC550 Professional Lecture Series
3 credits
Fall & Spring Semester
Exposure to the various professional disciplines in South Florida that make contributions to the design process. Case study analysis and evaluation of current building project, from time of initial formulation through completion, including research, diagrammatic studies, site visits and lectures.

ARC551 Contemporary Theories of Architecture
3 credits
Offered By Announcement Only
Theoretical basis of modern architecture and different present currents and movements. Agrarianism, technism, orthodoxy, brutalism, scientism, revivalism, consumerism, rationalism, classicism.
PREREQUISITE: ARC 204 OR PERMISSION OF INSTRUCTOR.

ARC553 Structural Design Theory
3 credits
Offered By Announcement Only
Relationship of structural systems to architectural design. Case studies in theories of structure, form and construction.
PREREQUISITE: ARC 306 AND CAE 313.

ARC554 Architecture of South Florida
3 credits
Offered By Announcement Only
History of architecture and human settlements. Studies of significant architectural landmarks and urban design of the South Florida Region, chronological growth of Miami, Miami Beach, Coral Gables, Key West and Palm Beach.
PREREQUISITE: ARC 204 OR PERMISSION OF THE INSTRUCTOR.

ARC555 Design and Fabrication Techniques in Wood: The Lamp
3 credits
Spring Semester
Design, construction and detailing of wood as applied to furnishings and interiors. Focus: lamps and illumination. Workshop based course including research, exercises, measuring, documentation and a final project.

ARC556 Design and Fabrication Techniques in Wood - The Clock
3 credits
Fall Semester
Design, construction and detailing of wood as applied to furnishings and interiors. Focus: Traditional Clock and Case Design. Workshop based course including research, exercises, measuring, documentation and a final project.

ARC557 Design and Fabrication Techniques: Carved Panels
3 credits
First & Second Summer Session
Design, construction and detailing of wood as applied to furnishings and interiors. Focus: low and high relief carved wood panels. Workshop based course including research, exercises, measuring, documentation and a final project.

ARC558 Theories of Landscape Architecture
3 credits
Fall Semester
Leading theories of landscape architecture which have influenced current considerations of nature, landscape and design.
PREREQUISITE: ARC 204 OR PERMISSION OF INSTRUCTOR.
ARC559 Computer Aided Presentation Graphics
3 credits
Offered By Announcement Only
Introduction to computer aided presentation graphics from the perspective of the design professional. Topics include: desktop publishing, image processing, and desktop presentations.
PREREQUISITE: ARC 213 OR PERMISSION OF INSTRUCTOR.

ARC561 Building Construction
3 credits
Fall Semester
Material characteristics of enclosure and structural systems, case studies in traditional and modern building construction. Topics include: properties of building materials; wood, masonry, concrete, steel and glass construction techniques; on-site and off-site processes; interior and exterior finishes; assemblies, detailing and building codes.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR.

ARC562 Building Systems I
3 credits
Fall Semester
Environmental and Safety Systems. Topics include mechanical - HVAC and conveyors; plumbing - fixtures and pipes; electrical - equipment and wiring design; safety systems - fire safety and emergency and signal systems.
PREREQUISITE: ARC 561 OR PERMISSION OF INSTRUCTOR.

ARC563 Building Systems II
3 credits
Spring Semester
Principles and applications of light and acoustics. Topics include natural and artificial light - planning for sunlight, problems and solutions for interior and exterior illumination; sound - properties, problems and solutions in new and existing spaces electrical equipment and wiring design.
PREREQUISITE: ARC 562 OR PERMISSION OF INSTRUCTOR.

ARC564 Building Systems III
3 credits
Offered By Announcement Only
Direction, control and coordination of construction project activities. Topics include inspection, reporting, recording, safety standards.
PREREQUISITE: ARC 363 OR 563 OR PERMISSION OF INSTRUCTOR.

ARC567 History of Architecture I: Ancient, Medieval and Renaissance
3 credits
Fall Semester
Studies of the history of architecture and urban design. Focus on religious and secular monuments and their settings, domestic architecture and infrastructure, regional constructional and compositional traditions from prehistory to the end of the sixteenth century. Corequisite: ARC 501.

ARC568 History of Architecture II: Baroque through Contemporary
3 credits
Spring Semester
Studies of the history of architecture and urban design. Focus on religious and secular monuments and their settings, domestic architecture and infrastructure, regional constructional and compositional traditions from the end sixteenth century through to the present. Corequisite: ARC502.
ARC569 Directed Readings
3 credits                    Fall & Spring Semester & First & Second Summer Session
A structured program of readings and essays organized by the student and his/her graduate supervisor constituting a preparation for graduate research in the student's chosen area of interest.
PREREQUISITE: PERMISSION OF PROGRAM DIRECTOR

ARC570 Modern Architecture
3 credits                                                           Spring Semester
History of architecture, landscape, and city design in the modern era.

ARC571 Ancient Architecture
3 credits                                                             Fall Semester
History of architecture and human settlements. Western European prehistory, Egypt, Mesopotamia, Persia, Aegean and Mediterranean, Greece, Rome.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR

ARC572 Selected Topics in World Architecture
3 credits                                                             Fall Semester
History of architecture and human settlements. Islamic Near East, North Africa, Hindu and Buddhist India, Nepal, S. E. Asia, China, Japan, Pre-Columbian America.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR

ARC573 Early Christian, Byzantine, and Medieval Architecture
3 credits                                                             Fall Semester
History of architecture and human settlements. Early Christian and Byzantine architecture in Italy, the Near East, Greece, North Africa, Eastern Europe, Medieval architecture in Western Europe.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR

ARC574 Renaissance Architecture
3 credits                                                             Fall Semester
History of architecture and human settlements. Renaissance and Baroque architecture in Italy, France, Spain and Portugal, Great Britain, Austria, Germany, and neighboring countries.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR

ARC575 Colonial Architecture
3 credits                                                             Fall Semester
History of architecture and human settlements. Iberian and British Colonies from the 16th through the 19th centuries: North and South America, Caribbean, India and Africa.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR

ARC576 19th and 20th Century Architecture
3 credits                                                             Fall Semester
History of architecture and human settlements. America and Europe during the 19th and 20th centuries; cultural, technological and theoretical development.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR

ARC577 The Architecture of Alvar Aalto
3 credits                                                             Fall Semester
An examination of the architecture of Alvar Aalto through the analysis of selected buildings.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR
ARC578 Italian Rationalist Architecture
3 credits
Offered By Announcement Only
History of Italian architecture and urban design between 1914 and 1950: cultural, technological, and theoretical developments; relationship between architecture, politics and propaganda; related survey of the period in other countries (France, German, Soviet Union).
PREREQUISITE: ARC 305 OR PERMISSION OF THE INSTRUCTOR.

ARC579 History of Architecture: The Natural and the Man-Made
3 credits
Offered By Announcement Only
A review of the relationship between man, the landscape, and architecture from pre-history to the twentieth century.
PREREQUISITE: GRADUATE STANDING.

ARC584 Special Problems
1-3 credits
Fall & Spring Semester & First & Second Summer Session
Group or individual investigations of significant architectural issues, offered by special arrangement only.
PREREQUISITE: PERMISSION OF PROGRAM DIRECTOR.

ARC585 Special Problems
1-3 credits
Fall & Spring Semester & First & Second Summer Session
Group or individual investigations of significant architectural issues, offered by special arrangement only.
PREREQUISITE: PERMISSION OF PROGRAM DIRECTOR.

ARC586 Special Problems
1-3 credits
Fall & Spring Semester & First & Second Summer Session
Group or individual investigations of significant architectural issues, offered by special arrangement only.
PREREQUISITE: PERMISSION OF PROGRAM DIRECTOR.

ARC590 History of Cities
3 credits
Fall & Spring Semester
Historical overview of the origin of cities and the development of cities in the East, West, and New World. Focus on the nature of the industrial revolution and the development of the industrial city and contemporary urban settlements.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR.

ARC592 Computing in Design Practice
3 credits
Fall Semester
Introduction to computer applications specific to the design professional practice and management of computing resources in a design firm.
PREREQUISITE: ARC 213 OR 513 OR PERMISSION OF INSTRUCTOR.

ARC593 Computer Animation
3 credits
Spring Semester
Explores the use of computer animation and advanced visualization techniques in architecture with emphasis on texture and lighting, spatial choreography and story-boarding.
PREREQUISITE: ARC 415 OR PERMISSION OF INSTRUCTOR.
ARC594 Geographic Information Systems in Urban Design
3 credits  Spring Semester
Exploration of Geographic Information Systems (GIS) in urban design. Principles of GIS and their application to spatial analysis, data management and visualization.
PREREQUISITE: ARC 213 OR 513 OR PERMISSION OF INSTRUCTOR.

ARC595 Database Management Systems and Programming
3 credits  Fall Semester
Introduction to principles of database management and programming. Instruction of a selected database management program and a programming language.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR.

ARC596 Interactive Multimedia in Design
3 credits  Spring Semester
Integration of text, video, sound, and computer graphics to create an interactive electronic information medium.
PREREQUISITE: ARC 213 OR 513 OR PERMISSION OF INSTRUCTOR.

ARC597 Computer Visualization
3 credits  Spring Semester
Focus: Explores the use of various advanced visualization techniques in design. Topic will change from semester to semester. Format: lecture, laboratory and exercises.
PREREQUISITE: ARC 593 OR 596 OR PERMISSION OF INSTRUCTOR.
AIS101 The Foundations of the United States Air Force I  
1 credit  
Fall Semester  
Survey course designed to introduce students to the United States Air Force and encourage participation in Air Force Reserve Officer Training Corps (AFROTC). Featured topics include: overview of AFROTC, special programs offered through AFROTC, mission and organization of the Air Force, brief history of the Air Force, introduction to leadership, Air Force officer career opportunities, and an introduction to communication skills. Leadership Laboratory is mandatory for AFROTC cadets and complements this course by providing cadets with followership experiences.  
PREREQUISITE: MUST BE TAKEN WITH AIS150 PT LAB

AIS102 The Foundations of the United States Air Force II  
1 credit  
Spring Semester  
Survey and follow-on course to AIS 101 designed to introduce students to the United States Air Force and encourage participation in Air Force Reserve Officer Training Corps (AFROTC). Featured topics include: introduction to leadership, Air Force Core Values, introduction to interpersonal communication and team building, and a continuation of communication skills. Leadership Laboratory is mandatory for AFROTC cadets and complements this course by providing cadets with followership experiences.

AIS150 Leadership Laboratory  
0 credit  
Fall & Spring Semester  
Leadership Laboratory (LLAB) is a dynamic and integrated grouping of leadership developmental activities designed to meet the needs and expectations of prospective Air Force second lieutenants and complement the AFROTC academic program. It is a student planned, organized, and executed practicum conducted under the supervision of the detachment commander and commandant of cadets.

AIS201 The Evolution of USAF Air and Space Power I  
1 credit  
Fall Semester  
Course designed to examine general aspects of air and space power through a historical perspective. Covers time period from first balloons and dirigibles to space-age global positioning systems of the Afghan/Iraqi Wars. Examines several fundamental truths associated with war in the third dimension: e.g. Principles of War and Tenets of Air and Space Power. Leadership Laboratory is mandatory for AFROTC cadets and complements this course by providing cadets with followership experiences.

AIS202 The Evolution of USAF Air and Space Power II  
1 credit  
Spring Semester  
Continuation of AIS 201 which provides students with knowledge level understanding for general element and employment of air and space power. Discusses the importance of Air Force Core Values with use of operational examples and historical Air Force leaders. Continues to develop communication skills. Leadership Laboratory is mandatory for AFROTC cadets and complements this course by providing cadets with followership experiences.

AIS301 Air Force Leadership Studies I  
3 credits  
Fall Semester  
Study of leadership, management fundamentals, professional knowledge, and communication skills required of Air Force junior officers. Case studies are used to examine Air Force leadership and management situations. Mandatory Leadership Laboratory complements this course by providing advanced leadership experiences in officer-type activities.
AIS302 Air Force Leadership Studies II
3 credits
Spring Semester
Continuation of AIS 301 and is a study of Air Force personnel and evaluation systems, leadership ethics, and communication skills required of Air Force junior officers. Case studies are used to examine Air Force leadership and management situations. Mandatory Leadership Laboratory complements this course by providing advanced leadership experiences in officer-type activities.

AIS401 National Security Affairs/Preparation for Active Duty I
3 credits
Fall Semester
Examines national security process, regional studies, and Air Force doctrine. Special topics of interest focus on civilian control of military and current issues affecting military professionalism. Continued emphasis is given to refining communication skills. Mandatory Leadership Laboratory complements this course by providing students advanced leadership experiences.

AIS402 National Security Affairs/Preparation for Active Duty II
3 credits
Spring Semester
Continuation of AIS 401 which examines regional studies and advanced leadership ethics. Special topics of interest focus on the military as a profession, officerhood, military justice, preparation for active duty, and current issues affecting military professionalism. Continued emphasis is given to refining communication skills. Mandatory Leadership Laboratory complements this course by providing students advanced leadership experiences.

AFRICANA STUDIES
AAS150 Introduction to Africana Studies
3 credits
Fall & Spring Semester & First & Second Summer Session
Experiences of African American and other African-descended peoples with emphases on social, cultural, political, etc.
PREREQUISITE: NONE

AAS260 History of Slavery in the Atlantic
3 credits
Fall Semester
The emergence and eventual abolition of the Trans-Atlantic slave trade and its effects on both old and new world
PREREQUISITE: NONE

AAS290 Special Topics
3 credits
Offered By Announcement Only
Content varies by semester.

AAS350 Black Leadership in the U.S.
3 credits
Fall & Spring Semester
Black leaders and leadership organizations. Emphasis on their role in overcoming oppression and barriers to advancement.
PREREQUISITE: THREE CREDITS IN AAS OR PERMISSION OF INSTRUCTOR

AAS390 Special Topics
3 credits
Fall & Spring Semester & First & Second Summer Session
Content varies by semester
PREREQUISITE: 3 CREDITS IN AFRICAN STUDIES OR PERMISSION OF INSTRUCTOR
AAS490 Senior Seminar in African American Studies  
3 credits  
Fall & Spring Semester  
Content varies by semester.  
PREREQUISITE: 6 CREDITS IN AFRICANA STUDIES.

AMERICAN STUDIES  
AMS101 Introduction to American Studies  
3 credits  
Fall & Spring Semester  
An interdisciplinary approach to American Studies with attention to a particular theme or period. (Satisfies Social Science core requirement).

AMS301 Topics in American Studies  
3 credits  
Fall & Spring Semester  
Content varies by semester.  
PREREQUISITE: AMS 101 OR PERMISSION OF INSTRUCTOR.

AMS310 The U.S., Transnationalism, and Globalization  
3 credits  
Spring Semester  
The history of the United States within a global framework.  
PREREQUISITE: AMS 101 OR PERMISSION OF INSTRUCTOR.

AMS350 History and culture of South Florida  
3 credits  
Spring Semester  
The history and culture of South Florida from a multidisciplinary perspective.  
PREREQUISITE: AMS101 OR PERMISSION OF INSTRUCTOR.

AMS399 Independent Study  
1-3 credits  
Offered By Announcement Only  
By arrangement with instructor; content varies.  
PREREQUISITE: AMS 101 AND PERMISSION OF INSTRUCTOR.

AMS401 Seminar in American Studies  
3 credits  
Fall & Spring Semester  
Content varies by semester.  
PREREQUISITE: SIX CREDITS IN AMS COURSES.

AMS415 Labor, migrations, and social movements in the americas  
3 credits  
Spring Semester  
Social, political, economic, and cultural issues related to migrant labor in the Americas while placing Miami at the center of analysis.  
PREREQUISITE: 3 CREDITS IN AMERICAN STUDIES OR LATIN AMERICAN STUDIES.

AMS450 Popular culture in the united states  
3 credits  
Fall Semester  
rise of various forms of popular culture, from print media to music and film, in American history.  
PREREQUISITE: 3 CREDITS IN AMERICAN HISTORY.

AMS499 Senior Thesis  
3 credits  
Offered By Announcement Only  
Thesis to be a documented study of a topic in American culture written under the direction of a member of the American Studies faculty.  
PREREQUISITE: AMS 401, SENIOR STATUS, AND APPROVAL OF PROGRAM DIRECTOR.
AMS501 SENIOR PROJECT
3 credits Spring Semester
ALL MAJORS MUST COMPLETE EITHER AN INDIVIDUAL RESEARCH PROJECT OR AN INTERNSHIP AT A LOCAL CULTURAL OR CIVIC INSTITUTION. EITHER OPTION MUST BE APPROVED BY THE PROGRAM DIRECTOR.
PREREQUISITE: SENIOR STANDING

AMS505 HONORS THESIS
3 credits Spring Semester
AMERICAN STUDIES MAJORS WITH A CUMULATIVE GPA OF AT LEAST 3.5 IN AMS COURSES AND AN OVERALL GPA OF AT LEAST 3.0 MAY EARN DEPARTMENTAL HONORS BY COMPLETING AMS 505: HONORS THESIS. CANDIDATES FOR DEPARTMENTAL HONORS ARE RESPONSIBLE FOR FINDING A FACULTY MEMBER TO SERVE AS THE THESIS ADVISOR. STUDENTS WOULD TAKE AMS 501 IN THE FALL SEMESTER OR THE SENIOR YEAR AND AMS 505 IN THE SPRING TO COMPLETE THE HONORS THESIS.
PREREQUISITE: SENIOR STANDING, MINIMUM GPA 3.5. PERMISSION OF PROGRAM DIRECTOR

ANTHROPOLOGY

APY101 Introduction to Anthropology
3 credits Fall & Spring Semester
A broad overview of archaeology, cultural anthropology, biological anthropology, and linguistics.

APY201 Principles of Archaeology
3 credits Fall & Spring Semester
History, methods, and theory of archaeology with an outline of the main characteristics of the prehistoric record throughout the world.

APY202 Principles of Cultural Anthropology
3 credits Fall & Spring Semester
Cultural anthropology, including such topics as economics, politics, kinship and families, health systems, religion, and personality.

APY203 Principles of Physical Anthropology
3 credits Fall & Spring Semester
The origin and biological development of the human species; human evolution explored by means of the fossil record of prehistoric population; differentiation and adaptation of contemporary populations in various world environments; the comparison of humans and other primates with respect to biological and behavioral variability.

APY204 Principles of Linguistic Anthropology
3 credits Fall Semester
Human linguistic principles of phonology, morphology, and grammar to construct a framework for understanding the operation of language in cultural context. The functions of human language in structuring ideological, economic, and political realms.

APY208 Short-Changed in the City
3 credits Fall Semester
Marginalization plagues sub-populations in almost every large city. An anthropological view of this problem and its origins, presented through readings, discussions, lectures and field trips.
PREREQUISITE: APY 202 OR OTHER SOCIAL/BEHAVIORAL SCIENCE
APY210 Physical Anthropology and Society
3 credits
Offered By Announcement Only
An evolutionary analysis of the human species from a social science perspective. History, methods, major theories, and key findings of Physical Anthropology.

APY230 The Sounds of the World's Languages
3 credits
Fall Semester
The range of sounds produced by the speakers of the world's languages. An introduction to phonetics, with a focus on acoustically-oriented methods used in contemporary phonetics.
PREREQUISITE: APY 204

APY301 World Prehistory
3 credits
Fall Semester
The global prehistoric record, with emphasis on the development of social complexity and ancient states.
PREREQUISITE: APY 201.

APY306 Human Evolution
3 credits
Spring Semester
The macroevolution of humans using the fossil record of vertebrates, including the development of uniquely human behavioral and anatomical adaptations, and of diversity in living populations.
PREREQUISITE: APY 201, OR 203, OR PERMISSION OF THE INSTRUCTOR.

APY307 Human Adaptation
3 credits
Spring Semester
Human biological adaptation to different environments and stress is examined anthropologically within an evolutionary framework. Mechanisms of adaptation to temperature extremes and other climatic variables, high altitude, disease, nutritional stress, urbanization, extraterrestrial conditions, and other environmental challenges are described in relation to biological and behavioral variations among human populations. The limits of human performance and human adaptive potential in the present and future are explored.

APY308 Human Variation: Anthropology of Race
3 credits
Fall Semester
Human biological diversity is viewed historically within a cross-cultural, evolutionary framework. Patterns of variation in human morphological, anatomical, physiological, biochemical, genetic, and behavioral characteristics are investigated in peoples living in different environments throughout the world. Observed differences among human populations are discussed with reference to traditional theories of racial taxonomy and modern perspectives in human classification.

APY309 Evolution of Human Behavior
3 credits
Spring Semester
PREREQUISITE: APY 201 OR 202 OR 203 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.
APY310 Primate Behavior and Adaptation  
3 credits  
Spring Semester  
The taxonomy, distribution, anatomy, social behavior and adaptations to habitats of human and non-human primates as seen from an evolutionary perspective.  
PREREQUISITE: APY 203 AND BIL 150 OR PERMISSION OF INSTRUCTOR.

APY315 Folk and Alternative Medicine  
3 credits  
Spring Semester  
Historical and cultural backgrounds of health therapies, including theoretical bases of traditional ethnomedical, nonwestern, and complementary medical systems.  
PREREQUISITE: ANY 200 LEVEL ANTHROPOLOGY COURSE, OR ANY 300 LEVEL NURSING COURSE, OR PERMISSION OF THE INSTRUCTOR.

APY320 The Evolution of Language  
3 credits  
Fall Semester  
Popular contemporary hypotheses on the origins and development of language.  
PREREQUISITE: APY 204

APY326 Paleolithic Cultures  
3 credits  
Offered By Announcement Only  
The emergence of technology, the process of domestication, and the development of symbolic systems.  
PREREQUISITE: APY 201 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.

APY330 Bronze Age Cultures  
3 credits  
Offered By Announcement Only  
An analysis of the cultural milieu of Bronze Age Greece, the Aegean Islands, and Crete from the introduction of copper and bronze down to the introduction of iron and the ethnic invasions. Archaeological history of the sites, artifact examination and recent developments in decipherment of Linear B script.  
PREREQUISITE: APY 201 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.

APY332 Old World Archaeology  
3 credits  
Offered By Announcement Only  
Pre-Classical Greek cultures following the Bronze Age, emphasizing archaeological excavations, general methodology, artifact analysis, and cultural diffusion route theories.  
PREREQUISITE: APY 201 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.

APY333 Ancient Celtic Society  
3 credits  
Offered By Announcement Only  
Early Celtic culture and technology as reflected in the Iron Age archaeological remains of Europe.  
PREREQUISITE: APY 201 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.

APY340 Marine Archaeology  
3 credits  
Spring Semester  
Location, excavation, and study of submerged sites.  
PREREQUISITE: APY 201 OR PERMISSION OF INSTRUCTOR.

APY345 Ancient Civilizations of Mesoamerica  
3 credits  
Spring Semester  
Major pre-Columbian cultures of Mesoamerica, from Olmec to Aztec periods, with emphasis on ancient Maya.  
PREREQUISITE: APY 201 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.
APY350 Ancient Cultures of the New World
3 credits
Offered By Announcement Only
The prehistoric record of the Americas, emphasizing the belief systems and social
development of ancient chiefdoms and states.
PREREQUISITE: APY 201 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.

APY355 Ancient People of North America
3 credits
Offered By Announcement Only
The archaeological record of North America prior to European contact, exploring
the relationship of art and oral history to material remains.
PREREQUISITE: APY 201 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.

APY356 Florida Archaeology
3 credits
Offered By Announcement Only
Archaeological remains of ancient cultures in the Florida peninsula, from initial
occupation to the Colonial Period.
PREREQUISITE: APY 201 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.

APY360 Anthropology of Food
3 credits
Fall Semester
Evolution of human diet, basic nutrition, food taboos, effects of domestication,
effects of diet on skeletal remains, analysis of your own food habits, and the
impact of certain foods on our biocultural evolution of our species.
PREREQUISITE: ANY 200 LEVEL ANTHROPOLOGY COURSE OR PERMISSION OF INSTRUCTOR.

APY361 Gender and Language
3 credits
Fall & Spring Semester & First & Second Summer Session
the ways in which language is used in the constitution of gender from a cross-cultural
perspective. Course is co-listed with WGS 361
PREREQUISITE: NONE

APY362 The Languages of the World
3 credits
Fall Semester
The world's languages. The primary focus is on major differences and similarities
among the structural properties of languages from diverse regions and linguistic
families. In short, an introduction to linguistic typology.
PREREQUISITE: APY 204

APY376 Economic Anthropology
3 credits
Offered By Announcement Only
The structure and operation of the small-scale economy in the social system is
examined. The interrelationship between social and economic systems, and the formation
of non-market economies.
PREREQUISITE: APY 202 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.

APY377 Anthropology of Political Systems and Discourse
3 credits
Offered By Announcement Only
Political systems and processes in tribal societies, with special emphasis on dispute
settlement, the organization of political control, and the use of oratory. Case
studies from Latin American and African examples.
PREREQUISITE: APY 202 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.
ANTHROPOLOGY

APY385 Caribbean Cultures
3 credits                     Spring Semester
Caribbean societies, including ethnic diversity, production and exchange, domestic organization, and belief systems.
PREREQUISITE: APY 202 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.

APY386 Psychological Anthropology
3 credits                     Fall Semester
The interaction between personality and cultural settings. Topics include cross-cultural child rearing and enculturation, behavioral development and adjustment, "deviance," and ethnopsychiatry.
PREREQUISITE: APY 201 OR PSY 110 AND THREE ADDITIONAL CREDITS IN EITHER ANTHROPOLOGY OR PSYCHOLOGY.

APY387 Cultural Evolution
3 credits                     Spring Semester
Evolution of social systems and technologies, from hunting and gathering bands through industrial states.
PREREQUISITE: APY 202 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.

APY390 African Cultures
3 credits                     Offered By Announcement Only
Political and domestic organization, production, exchange, and belief systems of traditional African cultures, and the changes caused by increasing urbanization and modernization.
PREREQUISITE: APY 202 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.

APY391 Gender in Ancient Cultures
3 credits                     Offered By Announcement Only
A cross-cultural examination of the role gender played in ancient complex culture areas, such as Mesoamerica, Mesopotamia, and the Mediterranean, with emphasis on using the archaeological record to reconstruct social roles.
PREREQUISITE: APY 201 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.

APY392 Sex and Culture
3 credits                     Fall Semester
A cross-cultural examination of sex roles and sexuality; gender identity, division of labor, functions of marriage, sexual practices, reproductive control, and political relationships between the sexes.
PREREQUISITE: APY 202 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.

APY393 Drugs and Culture
3 credits                     Offered By Announcement Only
PREREQUISITE: APY 202 AND THREE ADDITIONAL CREDITS IN ANOTHER SOCIAL/BEHAVIORAL SCIENCE.

APY394 Comparative Religion
3 credits                     Fall Semester
A cross-cultural investigation of differing levels of religious belief systems examined from both etic and emic points of view.
APY396 Youth Culture, Identity and Globalization

3 credits
Fall Semester
Youth cultural practices and experiences in various urban contexts in the world. Particular emphasis is placed on marginalization, identity and commodification of violent practices as embedded in the globalization processes.
PREREQUISITE: APY 202 OR ANY SOCIAL AND BEHAVIORAL SCIENCES

APY397 Violence and Ritual

3 credits
Fall Semester
Various theories of ritual and violence with reference to ethnographically-based topics. It will explore the role of symbols, rituals and ideologies in shaping and contesting power within nations and other political communities.
PREREQUISITE: APY 202 OR ANY SOCIAL AND BEHAVIORAL SCIENCES

APY398 Coastal Cultures

3 credits
Fall Semester
Fishermen and their special relations to the environment, from Thailand and Sri Lanka to Alaska and the West Indies. Decision-making processes among fishermen, business concepts, responses to technology and myths of the sea.
PREREQUISITE: APY 202 AND THREE CREDITS IN ANTHROPOLOGY OR PERMISSION OF INSTRUCTOR.

APY399 The Anthropology of Kinship and Family in America

3 credits
Fall Semester
Theories of kinship and the family. It will examine emergence of new patterns of kinship networks and construction of individuals. Ethnographic materials will be drawn from the Americas and the Caribbean, particularly Brazil, Cuba, Haiti, Jamaica and the United States.
PREREQUISITE: 6 CREDITS 200 LEVELS OR ABOVE IN ANTHROPOLOGY

APY401 Archaeology and the Evolution of Culture

3 credits
Fall Semester
A survey of man's cultural evolution from prehistoric times, with emphasis given to his art and artifacts as revealed through archaeology. Focus is primarily on Old World culture of the Mediterranean area, with attention given to diffusion theories regarding culture transmission to the New World.

APY405 Readings in Anthropology

1-3 credits
Fall Semester
Supervised readings on special topics in Anthropology.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

APY406 Readings in Anthropology

1-3 credits
Spring Semester
Supervised readings on special topics in Anthropology.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

APY413 Medical Anthropology

3 credits
Fall Semester
PREREQUISITE: THREE CREDITS IN ANTHROPOLOGY, AND THREE CREDITS FROM BIOLOGY OR NURSING.
COLLEGE OF ARTS AND SCIENCES
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APY414 Forensic Anthropology I: Human Osteology
3 credits Fall Semester
Identification and interpretation of the human skeleton, including age, sex, hard tissue pathology and traumas.
PREREQUISITE: APY 203, OR PERMISSION OF THE INSTRUCTOR.

APY415 Forensic Anthropology II: Fieldwork
3 credits Spring Semester
The investigation, analyses, and legal aspects of human remains recovered from crime scenes and mass disasters.
PREREQUISITE: APY 203 AND 414 OR PERMISSION OF THE INSTRUCTOR.

APY416 Bioarchaeology-Peopling the past
3 credits Offered By Announcement Only
Contextualization of bodies in space, cultural milieu and time are the primary focus of this course. Students will explore bioarchaeology's history, development and major topical concerns.
PREREQUISITE: APY 201 AND APY 203, OR PERMISSION OF THE INSTRUCTOR.

APY418 Seminar in Anthropology
3 credits Fall & Spring Semester
Consideration of special topics in physical anthropology, linguistics, archaeology and ethnology and their interrelationships.

APY420 Archaeology, Architecture, and the City
3 credits Offered By Announcement Only
Ancient architectural remains in the global anthropological perspective, emphasizing the role of architecture in shaping the evolution of social and political interactions.
PREREQUISITE: APY 201 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.

APY422 Pseudoscience in Archaeology
3 credits Fall Semester
Reconstructions of how people lived in the past that claim scientific validity, use the terminology of science, but are unsupported by evidence, can be called pseudoscientific. This course critically evaluates the field of pseudoscientific archaeology by applying the scientific method, logic, and common sense.
PREREQUISITE: APY 201 AND THREE ADDITIONAL APY CREDITS.

APY440 Environmental Archaeology
3 credits Offered By Announcement Only
Theory and methodologies in the reconstruction of Quaternary environments from the archaeological record. Techniques of geoarchaeology, zooarchaeology, and paleoethnobotany.
PREREQUISITE: APY 201 AND THREE CREDITS IN BIOLOGY OR MARINE SCIENCE OR PERMISSION OF INSTRUCTOR.

APY445 Archaeology of the Ancient Maya
3 credits Offered By Announcement Only
Seminar in ancient Maya culture, including examination of archaeological remains, epigraphy, lifeways, and art.
PREREQUISITE: APY 201 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.
APY477 Sacrifice and Ritual
3 credits  Fall Semester
Rituals from both tribal and other societies considered in a framework of a general theory of symbols and practice. Structure and function of sacrifice in the definition of cultural categories, concepts of morality, and the general relationship of humans to the supernatural.
PREREQUISITE: APY 394 OR PERMISSION OF THE INSTRUCTOR.

APY484 Anthropological Theory
3 credits  Spring Semester
Theoretical frameworks directing data collection and research methodology in anthropology.
PREREQUISITE: APY 202 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.

APY485 Archeological Theory and Technique
3 credits  Offered By Announcement Only
Theoretical traditions that shape modern archaeological research design and interpretation.
PREREQUISITE: APY 201 AND THREE ADDITIONAL CREDITS IN ANTHROPOLOGY.

APY501 Methods of Anthropological Research
3-6 credits  Spring Semester
Concentration on research methods for Cultural, Archaeological, Linguistic, and/or Biological Anthropology.
PREREQUISITE: SIX CREDITS IN ANTHROPOLOGY AT 300 LEVEL OR ABOVE.

APY502 Field Studies in Anthropology
3-6 credits  Fall & Spring Semester & First Summer Session
Field research in advanced topics in Cultural, Archaeological, Linguistic and/or Biological Anthropology. Preparation of data for professional presentation and publication is stressed.
PREREQUISITE: SIX CREDITS IN ANTHROPOLOGY AT 300 LEVEL OR ABOVE AND WRITTEN PERMISSION FROM INSTRUCTOR.

APY505 Museum Internship
3 credits  Fall & Spring Semester
Field work and on-site experience in museum studies conducted in conjunction with the major museums in Miami. Training and research in methods and techniques in museology.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

APY506 Workshop in Anthropology
3-6 credits  Fall & Spring Semester
This course is designed for upper level and graduate students to participate in special topics in Anthropology and related fields.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

APY512 Advanced Medical Anthropology
3 credits  Fall & Spring Semester
Applications of theories and methods of medical anthropology to problems in human health and disease.
PREREQUISITE: APY 413, OR THREE CREDITS IN NURSING, OR THREE CREDITS IN EPIDEMIOLOGY AND PUBLIC HEALTH, OR PERMISSION OF THE INSTRUCTOR.
ANTHROPOLOGY

APY518 Advanced Seminar in Anthropology
3 credits
Fall & Spring Semester
Specialized topics in Anthropology to involve students into current research specializations.
PREREQUISITE: SIX CREDITS IN ANTHROPOLOGY AT 300 LEVEL OR ABOVE OR PERMISSION OF INSTRUCTOR.

ARABIC

ARB101 Elementary Arabic I
3 credits
Fall Semester
Fundamental grammatical principles; drill in pronunciation; simple reading and translation. Closed to native speakers.

ARB102 Elementary Arabic II
3 credits
Spring Semester
Reading and translation; oral and written exercises. Closed to native speakers. Closed to native speakers.
PREREQUISITE: ARB 101 OR THE EQUIVALENT. CLOSED TO NATIVE SPEAKERS.

ARB201 Intermediate Arabic
3 credits
Fall Semester
Reading and translation; oral and written exercises. Closed to native speakers. Closed to native speakers.
PREREQUISITE: TWO SEMESTERS OF ARABIC OR THE EQUIVALENT. CLOSED TO NATIVE SPEAKERS.

ARB202 Intermediate Arabic II
3 credits
Spring Semester
Continuation of Arabic 201. Readings designed to integrate listening comprehension, speaking, reading, writing skills. Discussion of Arab society, history and culture. Closed to native speakers.
PREREQUISITE: ARABIC 201 - CLOSED TO NATIVE SPEAKERS.

ART

ART10T Art Appreciation
0 credit
Fall Semester
PREREQUISITE: MDCC TRANSFER COURSE.

ART101 Introduction to Drawing I
3 credits
Fall & Spring Semester & First Summer Session
Contour, cross-contour, perspective, proportion, chiaroscuro, and gesture in pictorial composition.

ART102 Introduction to Drawing II
3 credits
Fall & Spring Semester
Experimentation, chance, exaggeration, movement, texture, and color in pictorial composition.

ART103 Two-Dimensional Design
3 credits
Fall & Spring Semester & First & Second Summer Session
Line, rhythm, shape, pattern, value and color in pictorial composition.

ART104 Three-Dimensional Design
3 credits
Fall & Spring Semester & Second Summer Session
Basic 3D design principles to include: structure, shape, volume, and weight.
ART 105 Figure Drawing
3 credits Fall & Spring Semester
Drawing the human figure: proportion, anatomy, perspective, gesture, and expressive line.
PREREQUISITE: ART 101.

ART 106 Issues in Art Making
3 credits Fall Semester
Survey of theoretical, historical and contemporary approaches.
PREREQUISITE: ART 101; 103 OR 104, OR PERMISSION OF INSTRUCTOR.

ART 107 Introduction to Drawing III
3 credits Fall Semester
Continuation of ART 101 with emphasis on Renaissance perspective and alternative systems of spatial representation. Survey of materials and methods. Introduction of color.
PREREQUISITE: ART 101.

ART 108 Figure in Clay I
3 credits Fall & Spring Semester
Modeling the human figure in clay; proportion, anatomy, volume, gesture and form.
PREREQUISITE: NONE

ART 109 Introduction to Electronic Media
3 credits Fall & Spring Semester
Computer skills for desktop publishing and digital imaging.

ART 180 Studies in Studio Art
1-3 credits Not Offered; Transfer Credit Only
Studio studies taken at other institutions with no direct equivalents.

ART 181 Studies in Studio Art
1-3 credits Not Offered; Transfer Credit Only
Studio studies taken at other institutions with no direct equivalents.

ART 182 Studies in Studio Art
1-3 credits Not Offered; Transfer Credit Only
Studio studies taken at other institutions with no direct equivalents.

ART 183 Studies in Studio Art
1-3 credits Not Offered; Transfer Credit Only
Studio studies taken at other institutions with no direct equivalents.

ART 184 Studies in Studio Art
1-3 credits Not Offered; Transfer Credit Only
Studio studies taken at other institutions with no direct equivalents.

ART 185 Studies in Studio Art
1-3 credits Not Offered; Transfer Credit Only
Studio studies taken at other institutions with no direct equivalents.
ART200 Intro to Concepts and Techniques in Digital Video
3 credits  Fall Semester
An introduction to digital video as a means of artistic expression and its unique
approach to technology. A hands on approach to beginning video art production.
PREREQUISITE: SUMMER SCHOLAR STUDENT ONLY.

ART202 Introduction to Painting
3 credits  Fall & Spring Semester
Materials and techniques of easel painting.
PREREQUISITE: ART 101 AND 103, OR PERMISSION OF INSTRUCTOR.

ART210 Introduction to Photography
3 credits  Fall & Spring Semester & First Summer Session
Camera techniques and darkroom procedures for black and white photography.

ART217 Introduction to Sculpture
3 credits  Fall & Spring Semester
Integrated approach to concept development, craftsmanship and appropriate use of
materials.
PREREQUISITE: ART 101 AND 104 OR PERMISSION OF INSTRUCTOR.

ART251 Intaglio/Relief I
3 credits  Offered By Announcement Only
Drypoint, engraving, etching, aquatint, and softground; relief and intaglio printed
collographs; relief printing from linoleum.
PREREQUISITE: ART 101 AND 103 AND 109, OR PERMISSION OF INSTRUCTOR.

ART252 Lithography I
3 credits  Offered By Announcement Only
Beginning lithography in black and white from stones, aluminum plates, and photo
plates.
PREREQUISITE: ART 101 AND 103 AND 109 OR PERMISSION OF INSTRUCTOR.

ART253 Silkscreen I
3 credits  Offered By Announcement Only
Beginning silkscreen: monotyping with screens, reduction printing, multiple run
silkscreen printing and beginning photo silkscreen.
PREREQUISITE: ART 101 AND 103 AND 109 OR PERMISSION OF INSTRUCTOR.

ART254 Computer Applications for Printmaking
3 credits  Offered By Announcement Only
Software programs used as printmaking manipulation tools to aid in the planning
of prints.
PREREQUISITE: ART 101, 103, AND 109 OR PERMISSION OF INSTRUCTOR.

ART261 Hand-built Ceramics I
3 credits  Fall & Spring Semester
Beginning hand-building techniques: pinching, coiling, slab construction; introduction
to glazing and firing.
PREREQUISITE: NONE.

ART262 Wheel Thrown Ceramics I
3 credits  Fall & Spring Semester
Wheel throwing, glazing and firing.
PREREQUISITE: NONE.
ART263 Introduction to Glass Blowing
3 credits
Fall & Spring Semester
Forming shapes and vessels from molten glass by the use of a blow pipe and glass tools.
PREREQUISITE: ART 104 OR PERMISSION OF INSTRUCTOR

ART280 Studies in Studio Art
1-3 credits
Not Offered; Transfer Credit Only
Studio studies taken at other institutions with no direct equivalents.

ART281 Studies in Studio Art
1-3 credits
Not Offered; Transfer Credit Only
Studio studies taken at other institutions with no direct equivalents.

ART282 Studies in Studio Art
1-3 credits
Not Offered; Transfer Credit Only
Studio studies taken at other institutions with no direct equivalents.

ART283 Studies in Studio Art
1-3 credits
Not Offered; Transfer Credit Only
Studio studies taken at other institutions with no direct equivalents.

ART284 Studies in Studio Art
1-3 credits
Not Offered; Transfer Credit Only
Studio studies taken at other institutions with no direct equivalents.

ART285 Studies in Studio Art
1-3 credits
Not Offered; Transfer Credit Only
Studio studies taken at other institutions with no direct equivalents.

ART291 Graphic Design I
3 credits
Fall & Spring Semester
A comprehensive approach to the study of graphic communications.
PREREQUISITE: ART 101 AND 109, OR PERMISSION OF INSTRUCTOR.

ART292 Multimedia I/Web Design
3 credits
Fall & Spring Semester
Introduction to web design using time-based media.
PREREQUISITE: ART 109, OR EQUIVALENT

ART293 Typography
3 credits
Fall & Spring Semester
Type and image compositions, history, arrangement, style, aesthetics of printed communications, type software and calligraphy.
PREREQUISITE: ART 291 OR PERMISSION OF INSTRUCTOR.

ART294 Multimedia II/Animation
3 credits
Fall & Spring Semester
Introduction to animation using time-based media.
PREREQUISITE: ART 292 OR EQUIVALENT.

ART301 Intermediate Painting I
3 credits
Fall & Spring Semester
Painting in oil and acrylic. Emphasis on experimentation and creative expression.
ART 302 Intermediate Painting II  
3 credits  
Fall & Spring Semester  
Continuation of ART 301.  
PREREQUISITE: ART 301.

ART 305 Intermediate Figure Drawing  
3 credits  
Fall & Spring Semester  
Continuation of ART 105.  
PREREQUISITE: ART 105.

ART 308 Figure in Clay II  
3 credits  
Fall & Spring Semester  
Continuation of ART 108  
PREREQUISITE: ART 108 OR PERMISSION OF INSTRUCTOR.

ART 310 Intermediate Photography I  
3 credits  
Fall & Spring Semester  
Fine art photography in black and white. Continuation of ART 210. Emphasis on experimentation  
and creative expression.  

ART 311 Color Photography  
3 credits  
Fall & Spring Semester  
Fine Art photography in color. Emphasis on craftsmanship and creative expression.  
PREREQUISITE: ART 310.

ART 312 Introduction to Digital Photography  
3 credits  
Fall & Spring Semester  
Introduction to the technology of electronic/computer digitized photography.  
PREREQUISITE: ART 310 AND 311.

ART 317 Intermediate Sculpture I  
3 credits  
Fall & Spring Semester  
Incorporation of symbol and metaphor to achieve meaning, use of additional materials  
and technical processes.  
PREREQUISITE: ART 217.

ART 318 Intermediate Sculpture II  
3 credits  
Fall & Spring Semester  
Continuation of ART 317.  
PREREQUISITE: ART 317.

ART 319 Sculpture in Architecture & Science  
3 credits  
Fall Semester  
The principles of 3-D design and sculpture as applied to architectural and engineering  
uses, both functional and aesthetic.  
PREREQUISITE: ART 104

ART 351 Intaglio/Relief II  
3 credits  
Offered By Announcement Only  
Continuation of ART 251. Additional processes such as mezzotint, relief printing  
from woodblocks, multiple block printing, photographic xerox transfers and photo  
etching.  
PREREQUISITE: ART 251.
ART352 Lithography II
3 credits
Continuation of ART 252. Color printing from stones, aluminum plates and photo litho plates. Combination of lithography with other print media.
PREREQUISITE: ART 252.

ART353 Silkscreen II
3 credits
Continuation of ART 253, including silkscreening on canvas, larger format work, and advanced photo silkscreen techniques.
PREREQUISITE: ART 253.

ART354 Computer Assisted Printmaking: Lithography and Silkscreen
3 credits
The use of inkjet and laser printers to make positives for black and white and process color work in photo lithography; custom color separations for multiple screen printing.
PREREQUISITE: ART 254 OR PERMISSION OF INSTRUCTOR.

ART361 Hand-built Ceramics II
3 credits
Fall & Spring Semester
Continuation of ART 261.
PREREQUISITE: ART 261 OR PERMISSION OF INSTRUCTOR.

ART362 Wheel Thrown Ceramics II
3 credits
Fall & Spring Semester
Continuation of ART 262.
PREREQUISITE: ART 262 OR PERMISSION OF INSTRUCTOR.

ART363 Cast Glass Processes
3 credits
Fall Semester
The art of cast glass including sand casting and lost wax techniques.
PREREQUISITE: ART 104 OR PERMISSION OF INSTRUCTOR.

ART364 Intermediate Glass Blowing
3 credits
Fall Semester
Exploration of glass working techniques.
PREREQUISITE: ART 263.

ART380 Studies in Studio Art
1- 3 credits
Not Offered; Transfer Credit Only
Studio studies taken at other institutions with no direct equivalents.

ART381 Studies in Studio Art
1- 3 credits
Not Offered; Transfer Credit Only
Studio studies taken at other institutions with no direct equivalents.

ART382 Studies in Studio Art
1- 3 credits
Not Offered; Transfer Credit Only
Studio studies taken at other institutions with no direct equivalents.

ART383 Studies in Studio Art
1- 3 credits
Not Offered; Transfer Credit Only
Studio studies taken at other institutions with no direct equivalents.
ART384 Studies in Studio Art
1-3 credits  Not Offered; Transfer Credit Only
Studio studies taken at other institutions with no direct equivalents.

ART385 Studies in Studio Art
1-3 credits  Not Offered; Transfer Credit Only
Studio studies taken at other institutions with no direct equivalents.

ART391 Graphic Design II
3 credits  Fall & Spring Semester
Development of form and concept. Visual rhetorical strategies such as metaphors, puns, irony, and metonymy,
PREREQUISITE: ART 291, 292, AND 293.

ART392 Multimedia III
3 credits  Fall & Spring Semester
Video art, multimedia, installation art and interactive animation.
PREREQUISITE: ART 109

ART401 Advanced Painting I
3 credits  Fall & Spring Semester
Development of a personal style in painting.
PREREQUISITE: ART 302.

ART402 Advanced Painting II
3 credits  Fall & Spring Semester
Continuation of ART 401.
PREREQUISITE: ART 401.

ART405 Advanced Figure Drawing
3 credits  Fall & Spring Semester
Continuation of ART 305.
PREREQUISITE: ART 305.

ART410 Advanced Photography I
3 credits  Fall & Spring Semester
Development of a personal style in black and white, color, and/or digital photography.
PREREQUISITE: ART 311 AND 312.

ART411 Intermediate Digital Photography
3 credits  Offered By Announcement Only
Digital photographic imaging with an emphasis on computer integration of silver based and alternative processes.
PREREQUISITE: ART 312 AND 410.

ART417 Advanced Sculpture I
3 credits  Fall & Spring Semester
Individual and collaborative installation and site-specific art.
PREREQUISITE: ART 318.

ART418 Advanced Sculpture II
3 credits  Fall & Spring Semester
Development of a personal visual vocabulary.
PREREQUISITE: ART 417.
ART451 Intaglio/Relief III
3 credits
Continuation of ART 351.
PREREQUISITE: ART 351.
Offered By Announcement Only

ART452 Lithography III
3 credits
Continuation of ART 352.
PREREQUISITE: ART 352.
Offered By Announcement Only

ART453 Silkscreen III
3 credits
Continuation of ART 353.
PREREQUISITE: ART 353.
Offered By Announcement Only

ART454 Computer Assisted Printmaking: Intaglio and Relief
3 credits
Continuation of ART 354, photo etching and relief processes.
PREREQUISITE: ART 354 OR PERMISSION OF INSTRUCTOR.
Offered By Announcement Only

ART461 Figure in Clay III
3 credits
Fall & Spring Semester
Advanced modeling from the figure. Emphasis on anatomy, line, gesture, volume, proportions and the expressive handling of clay.
PREREQUISITE: ART 361 OR PERMISSION OF INSTRUCTOR.

ART462 Advanced Ceramics
3 credits
Fall & Spring Semester
Development of expressive skills in either handbuilding or wheel throwing techniques.
PREREQUISITE: ART 361 OR 362.

ART463 Advance Topics in Ceramics
3 credits
Fall & Spring Semester
Changing topics/ Advance problems in ceramics processes.
PREREQUISITE: ART 361 OR ART 362 OR PERMISSION OF INSTRUCTOR.

ART491 Graphic Design III
3 credits
Fall & Spring Semester
Advanced page layout coupled with extensive use of typography with applications in page design for advertising and collateral projects.
PREREQUISITE: ART 391.

ART492 Multimedia IV
3 credits
Offered By Announcement Only
Video art and multimedia installations/independent study.
PREREQUISITE: ART 292, 294, 392

ART493 Illustration
3 credits
Offered By Announcement Only
Contemporary illustration for print, new media, portfolio and exhibition.
PREREQUISITE: ART 109 AND THREE ADDITIONAL CREDITS IN ART.
ART494 Critical Issues in Design and Culture
3 credits
Offered By Announcement Only
Analytical and critical approach to graphic design/multimedia practice.
PREREQUISITE: ART 491.

ART499 Honors Thesis
3- 6 credits
Fall & Spring Semester
Formal thesis and project including an exhibition supervised by member of the department faculty.
PREREQUISITE: B.F.A. CANDIDATE, SENIOR STANDING AND ACCEPTANCE IN DEPARTMENTAL HONORS PROGRAM.

ART501 Advanced Painting III
3 credits
Fall & Spring Semester
Course content decided between student and professor.
PREREQUISITE: ART 402.

ART502 Advanced Painting IV
3 credits
Fall & Spring Semester
Continuation of ART 501.
PREREQUISITE: ART 501.

ART503 Independent Study in Painting
1- 6 credits
Fall & Spring Semester
Course content decided between student and professor. An independent study course may be repeated.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ART504 Independent Study in Drawing
1- 6 credits
Offered By Announcement Only
Course content decided between student and professor. An Independent Study course may be repeated.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ART505 Topics in Painting
1- 6 credits
Fall Semester
Current readings and/or technical concerns not covered in the regular curriculum.
Course content will vary each semester.
PREREQUISITE: ANY 400 LEVEL PAINTING CLASS.

ART509 Independent Study in Other Media
1- 6 credits
Fall & Spring Semester
Course content decided between student and professor. Independent Study course may be repeated.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ART510 Advanced Photography III
3 credits
Fall & Spring Semester
Course content decided between student and professor.
PREREQUISITE: ART 411.

ART511 Advanced Photography IV
3 credits
Fall & Spring Semester
Continuation of ART 510.
PREREQUISITE: ART 510.
ART512 Independent Study in Photography
1-6 credits
Fall & Spring Semester
Course content decided between student and professor. An independent study course may be repeated.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ART517 Advanced Sculpture III
3 credits
Fall & Spring Semester
Examination of ongoing work in relationship to historical and contemporary interpretations issues.
PREREQUISITE: ART 418 AND PERMISSION OF INSTRUCTOR.

ART518 Advanced Sculpture IV
3 credits
Fall & Spring Semester
Continuation of ART 517.
PREREQUISITE: ART 517.

ART519 Independent Study in Sculpture
1-6 credits
Fall & Spring Semester
Course content decided between student and professor. An Independent Study course may be repeated.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ART551 Intaglio/Relief IV
3 credits
Offered By Announcement Only
Advanced work in intaglio/relief processes: course requirements decided between student and professor.
PREREQUISITE: ART 451.

ART552 Lithography IV
3 credits
Offered By Announcement Only
Advanced work in lithography: course requirements decided between student and professor.
PREREQUISITE: ART 452.

ART553 Silkscreen IV
3 credits
Offered By Announcement Only
Advanced work in silkscreen.
PREREQUISITE: ART 453.

ART554 Computer Assisted Printmaking
3 credits
Offered By Announcement Only
Advanced work in computer assisted printmaking; course requirements decided between student and professor.
PREREQUISITE: ART 454 OR PERMISSION OF INSTRUCTOR.

ART555 Topics in Printmaking
1-6 credits
Fall Semester
Current readings and/or technical concerns not covered in the regular curriculum.
Course content will vary each semester.
PREREQUISITE: ANY 400 LEVEL PRINTMAKING CLASS.
ART562 Contemporary Ceramic Art  
3 credits  
Fall & Spring Semester  
Development of artistic style and technical abilities in relation to contemporary trends in ceramic art.  
PREREQUISITE: ART 462 OR ART 463 OR PERMISSION OF INSTRUCTOR

ART563 Independent Study in Ceramics/Glass  
1- 6 credits  
Fall & Spring Semester  
Course content decided between student and professor. An Independent Study course may be repeated.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ART564 Directed Research and Projects in Ceramics/Glass  
3 credits  
Fall & Spring Semester  
Ceramic/glass approaches from early history to contemporary period, and the development of technical ability.  
PREREQUISITE: ART 561 OR PERMISSION OF INSTRUCTOR.

ART591 Portfolio/Business of Design  
3 credits  
Offered By Announcement Only  
Individually supervised graphic design portfolio. Professional practices in design.  
PREREQUISITE: ART 491.

ART592 Special Projects/Multimedia  
3 credits  
Offered By Announcement Only  
Video Art and multimedia portfolio includes classroom work.  
PREREQUISITE: ART 392, 491, OR PERMISSION OF INSTRUCTOR.

ART593 Seminar in Professional Practices  
1- 6 credits  
Fall & Spring Semester  
Advanced course with a required placement in a professional design or multimedia setting. Classroom sessions on professional topics and issues. Portfolio required.  
PREREQUISITE: SENIOR STANDING.

ART599 Exhibition Preparation  
3 credits  
Fall Semester  
A seminar class devoted to the preparatory work needed to plan and promote a solo exhibition, including installation/lighting concerns. Preliminary written assignments will also be given in preparation for ART 710 Thesis.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ART HISTORY

ARH107 History of Photography  
3 credits  
Spring Semester  
A study of photography as a visual medium of expression and communication: a chronological examination of its origins, styles and uses.

ARH131 Survey of Western Art I  
3 credits  
Fall & Spring Semester & First & Second Summer Session  
The art of western cultures from pre-history through the Middle Ages.

ARH132 Survey of Western Art II  
3 credits  
Fall & Spring Semester & First & Second Summer Session  
The art of western cultures from the Renaissance through the 20th century.
ARH133 Art of Non-European Cultures
3 credits Offered By Announcement Only
The art of non-European cultures with selections from Africa, Oceania, Asia, and/or the Native Americas.

ARH134 Ancient American Art through the Contact Period
3 credits Fall Semester
Indigenous American arts (Andean South America, Mesoamerica, Native North America) produced in antiquity through the European contact period.

ARH180 Studies in Art History
1-3 credits Not Offered; Transfer Credit Only
Art History studies taken at other institutions with no direct equivalents.

ARH181 Studies in Art History
1-3 credits Not Offered; Transfer Credit Only
Art History studies taken at other institutions with no direct equivalents.

ARH182 Studies in Art History
1-3 credits Not Offered; Transfer Credit Only
Art History studies taken at other institutions with no direct equivalents.

ARH183 Studies in Art History
1-3 credits Not Offered; Transfer Credit Only
Art History studies taken at other institutions with no direct equivalents.

ARH184 Studies in Art History
1-3 credits Not Offered; Transfer Credit Only
Art History studies taken at other institutions with no direct equivalents.

ARH185 Studies in Art History
1-3 credits Not Offered; Transfer Credit Only
Art History studies taken at other institutions with no direct equivalents.

ARH200 Islamic Art
3 credits Fall Semester
Students in this course will study Islam as a religious and political entity and will analyze how the Islamic world defined itself in the realm of cultural production. This course will analyze a variety of Islamic artistic media, including architecture, manuscript illumination, textiles, ceramics, and small-scale luxury objects. Artworks from the 7th to the 17th century, created in a geographic area extending from Spain to India, will be studied in order to provide a general overview of artistic production in diverse Islamic lands.

ARH233 European Visions of the New World
3 credits Offered By Announcement Only
Survey of the European view of the Americas (16th-18th centuries) using prints, paintings, drawings, and illustrations in travel accounts.

ARH280 Studies in Art History
1-3 credits Not Offered; Transfer Credit Only
Art History studies taken at other institutions with no direct equivalents.
ARH281 Studies in Art History
1-3 credits Not Offered; Transfer Credit Only
Art History studies taken at other institutions with no direct equivalents.

ARH282 Studies in Art History
1-3 credits Not Offered; Transfer Credit Only
Art History studies taken at other institutions with no direct equivalents.

ARH283 Studies in Art History
1-3 credits Not Offered; Transfer Credit Only
Art History studies taken at other institutions with no direct equivalents.

ARH284 Studies in Art History
1-3 credits Not Offered; Transfer Credit Only
Art History studies taken at other institutions with no direct equivalents.

ARH285 Studies in Art History
1-3 credits Not Offered; Transfer Credit Only
Art History studies taken at other institutions with no direct equivalents.

ARH300 Spanish Art
3 credits Offered By Announcement Only
This course will study art produced on the Iberian Peninsula from the prehistoric period to the present day. It will proceed chronologically, addressing significant periods in Spanish art history, such as Roman, Islamic, Romanesque, Golden Age, Baroque and early Modern Spain. The aim of the course is to establish the unique characteristics of Spanish art, and how historical events (Islamic presence on the peninsula, American colonies, the regime of Franco) defined Spain as distinct from its European neighbors. The Spanish influence in art and architecture has been far-reaching, particularly in the Americas, and we will explore this influence in the early modern and contemporary periods in a variety of American locations.
PREREQUISITE: NONE

ARH321 Andean Art
3 credits Offered By Announcement Only
South American art from formative times through the Incan empire and the Spanish conquest (A.D. 1521).
PREREQUISITE: ARH 133 OR 134, OR PERMISSION OF INSTRUCTOR

ARH322 Mesoamerican Art
3 credits Offered By Announcement Only
From Olmec Beginnings (ca 1,500 B.C.) through the Teotihuacan, the Mayan and the Aztec cultures to the Spanish Conquest (A.D. 1521).
PREREQUISITE: ARH 133 OR 134, OR PERMISSION OF INSTRUCTOR

ARH323 Native American Art
3 credits Offered By Announcement Only
From the cultures of the Archaic Woodlands and the ancient Southwest (ca. 6,000 B.C.) to the present.
PREREQUISITE: ARH 133 OR 134, OR PERMISSION OF INSTRUCTOR
COLLEGE OF ARTS AND SCIENCES
ART HISTORY

ARH324 Art of West Africa
3 credits Offered By Announcement Only
Traditional Art of Africa south of the Sahara and west of the Nigeria/Cameroon border from earliest forms to the present.
PREREQUISITE: ARH 133.

ARH325 Art of Central Africa
3 credits Offered By Announcement Only
Traditional Art of Central, Eastern, and Southern Africa from earliest forms to the present.
PREREQUISITE: ARH 133.

ARH326 The Art of South Asia
3 credits Fall Semester
The Arts of South Asia with selections from India and Thailand.
PREREQUISITE: ARH 133 OR PERMISSION OF INSTRUCTOR.

ARH327 The Art of East Asia
3 credits Fall Semester
The Art of East Asia with selections from China, Korea, and Japan.
PREREQUISITE: ARH 133 OR PERMISSION OF INSTRUCTOR.

ARH331 Art of Egypt and Mesopotamia
3 credits Fall Semester
A study of the art and civilizations of ancient Egypt and the Tigris-Euphrates Valley.
PREREQUISITE: ARH 131 OR HIS 221.

ARH332 Greek Art
3 credits Offered By Announcement Only
The art of ancient Greek civilization.
PREREQUISITE: ARH 131 OR HIS 221.

ARH333 Roman Art
3 credits Offered By Announcement Only
Roman art from the 1st century B.C. through the 4th century A.D.
PREREQUISITE: ARH 131 OR HIS 221.

ARH335 Early Christian and Byzantine Art
3 credits Offered By Announcement Only
Christian art from the second through the fifteenth centuries in Rome and the Byzantine Empire.
PREREQUISITE: ARH 131 OR HIS 221.

ARH336 Medieval Art
3 credits Offered By Announcement Only
Western European art from the fourth through the twelfth century.
PREREQUISITE: ARH 131 OR HIS 221.

ARH337 Italian Renaissance Art
3 credits Offered By Announcement Only
The painting, sculpture, and architecture of Florence in the fifteenth century.
PREREQUISITE: ARH 132 OR HIS 221.
ARH338 Sixteenth Century Italian Art
3 credits Offered By Announcement Only
The painting, sculpture, and architecture of Italy in the sixteenth century.
PREREQUISITE: ARH 132 OR HIS 221.

ARH339 Northern Renaissance Art
3 credits Offered By Announcement Only
The painting of France and the Netherlands in the fourteenth and fifteenth centuries.
PREREQUISITE: ARH 132 OR HIS 221.

ARH340 Baroque Art
3 credits Offered By Announcement Only
Art and architecture of the seventeenth century, focusing on major cultural centers in Europe and the Americas.
PREREQUISITE: ARH 132 OR HIS 222.

ARH341 Eighteenth-Century European Art
3 credits Offered By Announcement Only
European art from 1700-1820, including Rococo and Neoclassicism, ending with Goya in Spain.
PREREQUISITE: ARH 132 OR HIS 222.

ARH342 Nineteenth-Century European Art
3 credits Offered By Announcement Only
Neo-Classicism, Romanticism, Realism, Impressionism, 1760-1900.
PREREQUISITE: ARH 132 OR HIS 222.

ARH343 Modern Art
3 credits Fall Semester
Cezanne to Surrealism. Primarily European Art c. 1880-1940 in the context of the development of Modernism and its aesthetic theories.
PREREQUISITE: ARH 132, HIS 222 OR THREE CREDITS OF HUMANITIES AT THE 300 LEVEL OR ABOVE.

ARH344 Contemporary Art
3 credits Spring Semester
American and European Art from the Second World War to the present in its social, political, and theoretical contexts.
PREREQUISITE: ARH 132, HIS 222, OR THREE CREDITS OF HUMANITIES AT THE 300 LEVEL OR ABOVE.

ARH345 Art in the United States
3 credits Offered By Announcement Only
Colonial Art through the Armory Show c. 1750-1920.
PREREQUISITE: ARH 132, HIS 222, OR THREE CREDITS OF HUMANITIES AT THE 300 LEVEL OR ABOVE.

ARH346 History of Graphic Design
3 credits Offered By Announcement Only
Evolution of Graphic Design from the invention of writing through the twentieth century concentrating on contemporary themes and technical innovations.
PREREQUISITE: ARH 131, 132 OR PERMISSION OF INSTRUCTOR.
ARH380 Studies in Art History
1-3 credits Not Offered; Transfer Credit Only
Art History studies taken at other institutions with no direct equivalents.

ARH381 Studies in Art History
1-3 credits Not Offered; Transfer Credit Only
Art History studies taken at other institutions with no direct equivalents.

ARH382 Studies in Art History
1-3 credits Not Offered; Transfer Credit Only
Art History studies taken at other institutions with no direct equivalents.

ARH383 Studies in Art History
1-3 credits Not Offered; Transfer Credit Only
Art History studies taken at other institutions with no direct equivalents.

ARH384 Studies in Art History
1-3 credits Not Offered; Transfer Credit Only
Art History studies taken at other institutions with no direct equivalents.

ARH385 Studies in Art History
1-3 credits Not Offered; Transfer Credit Only
Art History studies taken at other institutions with no direct equivalents.

ARH407 Special Topics: Renaissance and Baroque Art
3 credits Offered By Announcement Only
Changing topics in Renaissance and Baroque art.
PREREQUISITE: PERMISSION OF INSTRUCTOR

ARH409 Special Topics in Contemporary Art
3 credits Offered By Announcement Only
Changing topics in contemporary art.
PREREQUISITE: PERMISSION OF INSTRUCTOR

ARH411 Special Topics: Museum Studies
3 credits Offered By Announcement Only
Changing topics in museum studies.
PREREQUISITE: PERMISSION OF INSTRUCTOR

ARH440 Seventeenth-century Dutch Art
3 credits Fall Semester
Art and artists of the 17th Century Dutch Republic, including Rembrandt and Vermeer.
PREREQUISITE: ARH 132.

ARH499 Honors Thesis
3-6 credits Fall & Spring Semester
Directed reading and a substantial and scholarly paper.
PREREQUISITE: SENIOR STANDING AND ACCEPTANCE IN DEPARTMENTAL HONORS PROGRAM.
COLLEGE OF ARTS AND SCIENCES

ART HISTORY

ARH505 Problems in Art History
3 credits                                                    Fall & Spring Semester
A means by which the student of advanced standing may investigate areas of a specialized nature, or those which are not offered as a regular part of the curriculum. Course content will be decided in joint conference between student and instructor.
PREREQUISITE: ANY 300-LEVEL OR 400-LEVEL COURSE IN ART HISTORY AND PERMISSION OF INSTRUCTOR.

ARH506 Problems in Art History
3 credits                                                    Fall & Spring Semester
A means by which the student of advanced standing may investigate areas of a specialized nature, or those which are not offered as a regular part of the curriculum. Course content will be decided in joint conference between student and instructor.
PREREQUISITE: ANY 300-LEVEL OR 400-LEVEL COURSE IN ART HISTORY AND PERMISSION OF INSTRUCTOR.

ARH507 Museum Studies I
3 credits                                                    Fall & Spring Semester
Administrative functions of local art museums; researching selected art works in their permanent collections.
PREREQUISITE: ARH 131, 132, ONE 300/400 LEVEL COURSE IN ART HISTORY, OR PERMISSION OF INSTRUCTOR.

ARH508 Museum Studies II
3 credits                                                    Fall & Spring Semester
Organizing an art museum exhibition, and participating in the installation. Writing and composing the catalogue.

ARH509 Museum Internship
1- 3 credits                                                 Fall & Spring Semester
UM sponsored internship with Miami-area museum.
PREREQUISITE: BY PERMISSION OF HEAD OF ART HISTORY.

ARH510 Arts Administration Internship
1- 3 credits                                                 Fall & Spring Semester
UM sponsored internship with Miami-area arts institution.
PREREQUISITE: BY PERMISSION OF HEAD OF ART HISTORY.

ARH530 Seminar in Art History
3 credits                                              Offered By Announcement Only
Special topics in western and nonwestern art. Semester's topic will be announced.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ARH560 Seminar in Nineteenth and Twentieth Century Art
3 credits                                              Offered By Announcement Only
Special topics including museum practices and theory, women's art and contemporary issues.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ARH570 Seminar in Non-European Art
3 credits                                              Offered By Announcement Only
Special Topics in African, Oriental, Oceanic, Native North or South American art traditions.
PREREQUISITE: ARH 133, 134, OR PERMISSION OF INSTRUCTOR.
ARH598 Seminar in Contemporary American Art
3 credits
Fall Semester
Issues in Art since 1960: Aesthetic theories and ideological issues generated in contemporary art as expressed in the writing of artists and art critics.
PREREQUISITE: ARH 344. UNDERGRADUATES MUST HAVE PERMISSION OF INSTRUCTOR.

BIOCHEMISTRY & MOLECULAR BIOLOGY

BMB151 Freshman Seminar
1 credit
Spring Semester
Biochemistry and Molecular Biology and their impact on society. Basic Biochemistry and Molecular Biology information on these topics. Students write a paper and present a poster.
PREREQUISITE: BIOCHEMISTRY MAJORS ONLY. PREREQUISITE: BIL 150, COREQUISITE: BIL 160, CHM 111.

BMB251 Sophomore Seminar
1 credit
Spring Semester
Biochemistry and Molecular Biology and their impact on society. Basic Biochemistry and Molecular Biology information on these topics is presented. Students write a paper and present a poster.

BMB258 Introduction to Biochemistry and Molecular Biology
3 credits
Spring Semester
The composition and functioning of a typical cell are described in chemical terms, leading to an understanding of how life processes occur and are regulated at the level of individual molecules and reactions.
PREREQUISITE: CHM 112.

BMB401 Biochemistry for the Medical Sciences
3 credits
Fall Semester
Basic areas of biochemistry are discussed including protein structure, enzymology, metabolism, and molecular genetics. Emphasis is placed on central concepts of mammalian biochemistry. This course is recommended for premedical preparation. Lecture, 3 hours.
PREREQUISITE: A GRADE OF C OR BETTER IN CHM 202, BIL 150 AND 160, OR PERMISSION OF INSTRUCTOR. NOT FOR BIOCHEMISTRY MAJORS OR MINORS. NOT OPEN TO STUDENTS WITH CREDIT IN BMB 406 OR 506.

BMB406 Principles of Biochemistry and Molecular Biology
3 credits
Offered By Announcement Only
Protein Structure and function, enzyme mechanism and kinetics, and metabolism, focusing on energy metabolism and central concepts of metabolic regulation and of molecular biology including nucleic acid structure, protein synthesis, and DNA replication. Undergraduate majors. (Not open to students with credit in BMB 401 or 506).
PREREQUISITE: A GRADE OF C OR BETTER IN CHM 202, BIL 150 AND 160, OR PERMISSION OF INSTRUCTOR.

BMB407 Proteins and Enzymes
3 credits
Spring Semester
Course analyzes folding and binding of proteins, kinetics, and mechanisms of enzyme action. Not open to students with credits in BMB 507.
PREREQUISITE: BMB 406 OR 506 OR PERMISSION OF INSTRUCTOR.
BMB501 Senior Seminars
1 credit  Fall & Spring Semester
Students attend seminars by faculty or graduate students on recent research topics in Biochemistry and Molecular Biology. Students write short reports on these seminars and critically evaluate the presentations.
PREREQUISITE: PREREQUISITE OR COREQUISITE: BMB 506.

BMB502 Physical Biochemistry
3 credits  Offered By Announcement Only
Thermodynamics of biochemical reactions including chemical potential and equilibrium constants. Principles of diffusion and viscosity with applications to the ultracentrifuge, electrophoresis and chromatography are included. Topics in spectroscopy including visible, UV, IR absorption, and fluorescence. Biochemical applications of ORD, CD, NMR, and ESR. X-ray crystallography.
PREREQUISITE: BMB 407.

BMB505 Metabolic Processes
2 credits  Offered By Announcement Only
Intermediary metabolic processes. Catabolism of carbohydrates, lipids, and nitrogen compounds. Biosynthetic processes leading to amino acids, lipids, and isoprenoids, sugars, are addressed. Regulation of metabolism and cellular economy by various means, including hormones is also included. Lecture, 2 hours.
PREREQUISITE: BMB 506 OR PERMISSION OF INSTRUCTOR.

BMB506 Principles of Biochemistry and Molecular Biology
3 credits  Fall Semester
Protein structure and function, enzyme mechanism and kinetics, and metabolism, focusing on energy metabolism and central concepts of metabolic regulation and of molecular biology including nucleic acid structure, protein synthesis, and DNA replication. (Not open to students with credit in BMB 401 or 406; for undergraduate honors credit or graduate student not majoring in biochemistry.
PREREQUISITE: A GRADE OF C OR BETTER IN CHM 202, BIL 150 AND 160 OR PERMISSION OF INSTRUCTOR.

BMB507 Proteins and Enzymes
3 credits  Spring Semester
Course analyzes the folding and binding of proteins, kinetics and mechanisms of enzyme action. For honors undergraduates. Not open to students in BMB 407.
PREREQUISITE: BMB 406 OR 506 OR PERMISSION OF INSTRUCTOR; FOR UNDERGRADUATE HONORS CREDIT OR GRADUATE STUDENTS NOT MAJORING IN BIOCHEMISTRY.

BMB508 Biochemistry and Molecular Biology Laboratory
1 credit  Offered By Announcement Only
Experience in a spectrum of biochemical experiments ranging from enzyme chemistry to recombinant DNA. Laboratory, 3 hours.
PREREQUISITE: PRE OR COREQUISITE: BMB 258 OR CHM 202

BMB509 Molecular Biology of the Gene I
3 credits  Fall Semester
Biochemical processes involved in the propagation and expression of genetic information in both prokaryotes and eukaryotes. Basic cellular processes of DNA replication, repair, genetic recombination, RNA transcription and processing, protein synthesis, control of gene expression, cell differentiation, and recombinant DNA technology. Reading includes both textbook assignments and original research papers.
PREREQUISITE: BMB 506 OR PERMISSION OF INSTRUCTOR.
BMB511 Topics in Applied BCH and Molecular Biology
1-3 credits Fall & Spring Semester & First & Second Summer Session
Selected topics from the fields of applied and pure biochemistry and molecular biology taught as a tutorial.
PREREQUISITE: BMB 406 OR 506 AND PERMISSION OF INSTRUCTOR.

BMB545 Research Problems in Biochemistry and Molecular Biology
2-3 credits Fall & Spring Semester & First & Second Summer Session
Laboratory research problems in various fields of biochemistry, including literature search, experiment design, data gathering, and evaluation or results.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIOLOGY
BIL101 Introductory Biological Science
3 credits Fall & Spring Semester & First & Second Summer Session
An integrated presentation of important biological processes and principles. Designed as an introduction to life sciences for the non-major. Students with credit in BIL 150 may NOT take this course to fulfill the natural science requirement. Does not count toward the BIL major or minor.
PREREQUISITE: NOT FOR BIOLOGY MAJORS OR MINORS. STUDENTS WITH CREDIT IN BIL 150 MAY NOT TAKE THIS COURSE TO FULFILL THE NATURAL SCIENCE REQUIREMENT.

BIL102 Elementary Biotechnology
3 credits Fall Semester
Major aspects of the biotechnology field for the non-science major. Food biotechnology, enzymes, environmental biotechnology, transgenic animals and plants, analytical biotechnology and more.

BIL103 Humans and the Environment
3 credits Fall Semester
Survey of the general principles of ecology; the relationships of organisms to both physical and biotic aspects of their environment. Emphasis on human impact on natural communities.
PREREQUISITE: DOES NOT COUNT TOWARDS THE BIL MAJOR OR MINOR.

BIL104 Genetics and Society
3 credits Offered By Announcement Only
The impact of new knowledge in genetics and heredity on society, including a consideration of questions about the inheritance of I.Q. and behavior, racial differences, genetic screening, control of reproduction, genetic engineering, forensic applications.
PREREQUISITE: NOT FOR BIOLOGY MAJORS OR MINORS.

BIL105 Elementary Botany
3 credits Offered By Announcement Only
Survey of the evolution and diversity of the plant kingdom; economic and cultural, importance of plants to humans. Does not count toward the BIL major or minor.
PREREQUISITE: NOT FOR BIOLOGY MAJORS OR MINORS.

BIL106 Elementary Zoology
3 credits Offered By Announcement Only
Survey of the evolution and diversity of the animal kingdom and the relationship between humans and other animals. Does not count toward the BIL major or minor.
PREREQUISITE: NOT FOR BIOLOGY MAJORS OR MINORS.
BIL107 Introduction to Evolution
3 credits
Fall Semester
Hereditary variation and the mechanisms of evolutionary change. Processes of species formation and the origin of adaptations. The development of evolutionary thinking from classical to contemporary time, including social issues (e.g., social Darwinism, creationism). Does not count toward the BIL major or minor.
PREREQUISITE: NOT FOR BIOLOGY MAJORS OR MINORS.

BIL109 Human Biology
3 credits
Fall Semester
A survey of the anatomy and physiology of man and his relationship to some major biological problems. Lectures and demonstrations. Does not count toward the BIL major or minor.
PREREQUISITE: NOT FOR BIOLOGY MAJORS OR MINORS.

BIL113 General Biology Honors Seminar
1 credit
Fall Semester
Special topics in biology correlated with BIL 150.
PREREQUISITE: COREQUISITE: BIL 150.

BIL114 General Biology Honors Seminar
1 credit
Spring Semester
Special topics in biology correlated with BIL 160.
PREREQUISITE: COREQUISITE: BIL 160.

BIL149 First Year Information
1 credit
Fall Semester
First year seminar for incoming Biology majors. Facilitation and encouragement of development of critical thinking skills, proficiency in oral and written expression, and an ability to solve problems by integrating knowledge from different disciplines in Biology.

BIL150 General Biology
4 credits
Fall Semester & First Summer Session
Principles of biology at the cellular, genetic, organismal, population, community and ecosystem levels of organization.

BIL151 General Biology Laboratory
1 credit
Fall Semester & First Summer Session
Laboratory exercises to accompany BIL 150.
PREREQUISITE: COREQUISITE: BIL 150.

BIL160 Evolution and Biodiversity
4 credits
Spring Semester & Second Summer Session
Evolutionary processes from an organismal perspective. Biosystematics, biogeography and a survey of the diversity of life, with emphasis on the morphological, ecological, and behavioral adaptations of selected representatives of the Domains of living organisms.

BIL161 Evolution and Biodiversity Laboratory
1 credit
Spring Semester & Second Summer Session
Laboratory exercises to accompany BIL 160.
PREREQUISITE: COREQUISITE: BIL 160.
BIL190 Studies in Biology  
1-5 credits  
Not Offered; Transfer Credit Only  
Special topics taken at other institutions with no direct equivalents.

BIL191 Studies in Biology  
1-5 credits  
Not Offered; Transfer Credit Only  
Special topics taken at other institutions with no direct equivalents.

BIL192 Studies in Biology  
1-5 credits  
Not Offered; Transfer Credit Only  
Special topics taken at other institutions with no direct equivalents.

BIL193 Studies in Biology  
1-5 credits  
Not Offered; Transfer Credit Only  
Special topics taken at other institutions with no direct equivalents.

BIL194 Studies in Biology  
1-5 credits  
Not Offered; Transfer Credit Only  
Special topics taken at other institutions with no direct equivalents.

BIL195 Studies in Biology  
1-5 credits  
Not Offered; Transfer Credit Only  
Special topics taken at other institutions with no direct equivalents.

BIL210 Human Anatomy  
4 credits  
Fall Semester  
Structural interrelationships of organ systems. Demonstrations, dissections, and discussions.  
PREREQUISITE: ONE YEAR OF BIOLOGY FOR MAJORS WITH LABORATORY.

BIL215 Systemic Human Physiology  
3 credits  
Fall Semester  
Function of major human systems.  
PREREQUISITE: BIL 210 (HSC 210).

BIL216 Systemic Human Physiology Laboratory  
2 credits  
Spring Semester & Second Summer Session  
Experiments illustrating the physiology of human organ systems.  
PREREQUISITE: BIL 210 (HSC 210).

BIL220 Evolution and Disease  
3 credits  
Fall & Spring Semester  
Evolutionary insights on the origins and emergence of diseases, drug resistance, and how diseases have shaped human evolution.  
PREREQUISITE: ONE YEAR OF MAJORS' GENERAL BIOLOGY WITH LABORATORY

BIL221 Biology of Birds  
4 credits  
Offered By Announcement Only  
General biology of birds, field identification, natural history and migrations of southern Florida species. Lecture, 2 hours; laboratory, 3 hours; 4 field trips, 6 hours each. Binoculars needed.  
PREREQUISITE: ONE YEAR OF GENERAL BIOLOGY WITH LABORATORY.
BIL226 General Botany
3 credits
Offered By Announcement Only
Survey of the plant kingdom, including evolution, plant diversity, reproduction, structure, function and ecology.
PREREQUISITE: ONE YEAR OF BIOLOGY WITH LABORATORY OR PERMISSION OF INSTRUCTOR.

BIL227 General Botany Laboratory
1 credit
Offered By Announcement Only
Laboratory exercises to accompany BIL 226.
PREREQUISITE: BIL 226

BIL230 Introduction to Marine Biology
3 credits
Fall Semester
PREREQUISITE: ONE YEAR OF BIOLOGY AND CHEMISTRY WITH LABORATORIES. COREQUISITE: BIL 231.

BIL231 Introduction to Marine Biology Laboratory
1 credit
Fall Semester
Experimental laboratory exploring ecology, physiology and behavior of marine organisms in southern Florida marine habitats. Exercises cover laboratory techniques in behavior, functional morphology, productivity, fisheries research, osmoregulation and community ecology.
PREREQUISITE: ONE YEAR OF BIOLOGY AND CHEMISTRY WITH LABORATORIES. COREQUISITE: BIL 230.

BIL232 Populations, Resources and the Environment
3 credits
Offered By Announcement Only
Populations and their interrelationships with the environment. Human demographics, and natural resource issues including compatible development and landscape changes.
PREREQUISITE: ONE YEAR OF GENERAL BIOLOGY WITH LABORATORY.

BIL233 Conservation Biology
3 credits
Offered By Announcement Only
PREREQUISITE: ONE YEAR OF GENERAL BIOLOGY WITH LABORATORY.

BIL235 Ecology
3 credits
Fall & Spring Semester
An Introduction to study of organisms in relation to their environment. Lecture, 3 hours.

BIL236 Ecology Lab
1 credit
Fall & Spring Semester
Lab and field exercises in ecology. Some Saturday field trips required.
PREREQUISITE: PREREQUISITE OR COREQUISITE: BIL 235.

BIL241 Animal Behavior
3 credits
Fall & Spring Semester
Mechanistic and evolutionary aspects of animal behavior. A survey of systems that illustrate the control, development and function of behavior in a variety of animals.
PREREQUISITE: ONE YEAR OF GENERAL BIOLOGY WITH LABORATORY.
BIL242 Animal Behavior Laboratory
1 credit
A lab/field course in basic behavioral concepts using a variety of organisms, both vertebrate and invertebrate, in aquatic and terrestrial environments.
PREREQUISITE: PREREQUISITE OR COREQUISITE: BIL 241.

BIL250 Genetics
3 credits
Fall & Spring Semester & First Summer Session
The nature, organization, replication, expression, and evolution of the genetic materials.

BIL251 Principles of Genetics Laboratory
1 credit
Fall & Spring Semester
Laboratory exercises in genetics.
PREREQUISITE: PREREQUISITE OR COREQUISITE: BIL 250.

BIL252 HON: Honors Laboratory in Genetics
2 credits
Spring Semester
Laboratory exercises in genetics.
PREREQUISITE: PREREQUISITE OR COREQUISITE: BIL 250.

BIL253 Honors Seminar in Genetics
1 credit
Spring Semester
Special topics in genetics correlated with BIL 250.
PREREQUISITE: BIL 250.

BIL255 Cellular and Molecular Biology
3 credits
Fall & Spring Semester & First & Second Summer Session
Structure, molecules, and functions of cells.
PREREQUISITE: ONE YEAR OF GENERAL BIOLOGY WITH LABORATORY.

BIL256 Cellular and Molecular Biology Laboratory
2 credits
Spring Semester
Laboratory exercises in cellular and organismal physiology; involving current research techniques and applications.
PREREQUISITE: PREREQUISITE OR COREQUISITE: BIL 255.

BIL257 HON: Honors Seminar in Cell Biology
1 credit
Spring Semester
Special topics in cell and molecular biology correlated with BIL 255.
PREREQUISITE: PREREQUISITE OR COREQUISITE: BIL 255.

BIL258 Core Laboratory Techniques
2 credits
Fall Semester
Conceptual and applied "methods" course in modern analytical techniques. It will expose students to the Department of Biology's three best-developed core laboratory facilities for imaging, molecular biology, and element analysis.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL261 Comparative Vertebrate Anatomy
4 credits
Offered By Announcement Only
Anatomy, classification, function, distribution, and evolution of vertebrate animals and their relationships to the environment. Lecture, 2 hours; laboratory, 6 hours.
PREREQUISITE: ONE YEAR OF BIOLOGY WITH LABORATORY.
COLLEGE OF ARTS AND SCIENCES

BIOLOGY

BIL265 Comparative Physiology
3 credits
Fall & Spring Semester
Animal and plant physiological processes such as homeostasis, energy budget, movement, sensation, and reproduction with emphasis on the organismal level.

BIL266 Comparative Physiology Laboratory
1 credit
Fall Semester
Experiments to illustrate basic plant and animal physiological processes.
PREREQUISITE: PREREQUISITE OR COREQUISITE: BIL 265.

BIL268 Neurobiology
3 credits
Offered By Announcement Only
Neurons, organization of the nervous system, electrical properties of neurons, neurotransmitters, receptors, synaptic transmission, sensory and motor system, and complex brain functions.
PREREQUISITE: ONE YEAR OF GENERAL BIOLOGY WITH LABORATORY.

BIL284 Special Laboratory Topics in Biology
1 credit
Fall Semester
Topics relevant to the biological sciences, co-listed with other departments or programs.
PREREQUISITE: ONE YEAR OF BIOLOGY FOR MAJORS WITH LABORATORY

BIL285 Special Topics in Biology
3 credits
Fall Semester
Topics relevant to the biological sciences, co-listed with other departments or programs.
PREREQUISITE: ONE YEAR OF BIOLOGY FOR MAJORS WITH LABORATORY

BIL286 Special Topics in Biology
4 credits
Fall Semester
Topics relevant to the biological sciences, co-listed with other departments or programs.
PREREQUISITE: ONE YEAR OF BIOLOGY FOR MAJORS WITH LABORATORY

BIL290 Studies in Biology
1- 5 credits
Not Offered; Transfer Credit Only
Special topics taken at other institutions with no direct equivalents.

BIL291 Studies in Biology
1- 5 credits
Not Offered; Transfer Credit Only
Special topics taken at other institutions with no direct equivalents.

BIL292 Studies in Biology
1- 5 credits
Not Offered; Transfer Credit Only
Special topics taken at other institutions with no direct equivalents.

BIL293 Studies in Biology
1- 5 credits
Not Offered; Transfer Credit Only
Special topics taken at other institutions with no direct equivalents.

BIL294 Studies in Biology
1- 5 credits
Not Offered; Transfer Credit Only
Special topics taken at other institutions with no direct equivalents.
BIL295 Studies in Biology
1-5 credits  
Not Offered; Transfer Credit Only  
Special topics taken at other institutions with no direct equivalents.

BIL299 Seminar in Research Problems
2 credits  
Fall & Spring Semester  
Discussion of current research of the Biology Faculty.  
PREREQUISITE: MINIMUM SOPHOMORE STANDING.

BIL310 Advanced Human Anatomy
4 credits  
Fall Semester  
An in-depth exploration of the human body requiring extensive laboratory work, lectures, dissections, and field trips.  
PREREQUISITE: BIL 210 (HSC 210) AND PERMISSION OF INSTRUCTOR.

BIL311 Biostatistics
3 credits  
Fall Semester  
Descriptive and inferential univariate and bivariate statistics applied to biological data. Probability, probability distributions, data description and presentation, hypothesis testing, decision making and experimental design. (Not open to students with credit in MTH 224, PSY 204 or equivalent).  
PREREQUISITE: MTH 105 OR 108 OR SCORES OF MATHEMATICS PLACEMENT TEST SUFFICIENT FOR ADMISSION TO A CALCULUS COURSE. 12 CREDITS IN BIOLOGY.

BIL312 Biostatistics Laboratory
1 credit  
Fall Semester  
Computer laboratory exercises to complement Biostatistics.  
PREREQUISITE: ONE YEAR OF BIOLOGY FOR MAJORS WITH LABORATORY.

BIL315 Marine Biota and Biogeochemical Cycles
3 credits  
Spring Semester  
The distribution of dissolved and particulate materials in the sea is not uniform in time and space. This variability reflects the diverse sources, transformations, and sinks of chemical constituents in the sea. This course focuses on the role of marine organisms in marine biogeochemical cycling and the marine carbon cycle and its interaction with the terrestrial biosphere and atmosphere.  
PREREQUISITE: MSC 320

BIL321 Invertebrate Zoology
4 credits  
Offered By Announcement Only  
Biology of invertebrates, with emphasis on tropical and subtropical marine forms. Field work and combined lecture-laboratory sessions.  
PREREQUISITE: ONE YEAR OF BIOLOGY WITH LABORATORY.

BIL323 Biology of Insects
3 credits  
Offered By Announcement Only  
Evolution, structure, physiology, behavior and ecology of major orders of insects. Lecture and demonstration.  
PREREQUISITE: ONE YEAR OF GENERAL BIOLOGY WITH LABORATORY.

BIL324 The Biology of Fishes
3 credits  
Offered By Announcement Only  
Selected topics on the ecology and physiology of fishes. Lectures on reproduction, respiration, osmoregulation, sense systems, hormonal control.  
PREREQUISITE: BIL 255 AND 265, AND PERMISSION OF INSTRUCTOR.
BIL326 Plant Taxonomy  
4 credits  
Offered By Announcement Only  
Application of the principles and techniques of taxonomy to the flora of Southern Florida. Lecture, 2 hours; laboratory, 3 hours, and field trips.  
PREREQUISITE: ONE YEAR OF BIOLOGY WITH LABORATORY.

BIL327 Marine and Fresh Water Algae  
4 credits  
Offered By Announcement Only  
Fundamentals of the biology of marine and fresh water algae. Lecture, 3 hours; laboratory, 3 hours.  
PREREQUISITE: ONE YEAR OF GENERAL BIOLOGY WITH LABORATORY.

BIL328 Parasitology  
3 credits  
Offered By Announcement Only  
Morphology, classification, life history, pathology and control of protozoan helminth and arthropod parasites.  
PREREQUISITE: BIL 150/151, BIL 160/161. JUNIOR OR SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

BIL329 Parasitology Laboratory  
1 credit  
Offered By Announcement Only  
Laboratory exercises in parasitology.  
PREREQUISITE: PREREQUISITE OR COREQUISITE: BIL 328.

BIL331 Vertebrate Ecology  
4 credits  
Offered By Announcement Only  
General basis of vertebrate taxonomy. Behavior, natural history, physiological ecology, adaptive morphology and zoogeography of the vertebrates. Lecture, 3 hours; laboratory, 3 hours; field trips.  
PREREQUISITE: ONE YEAR OF BIOLOGY WITH LABORATORY.

BIL332 Principles of Wildlife Management  
3 credits  
Offered By Announcement Only  
Principles and concepts of wildlife conservation and management.  
PREREQUISITE: BIL 235.

BIL333 Wildlife Management Laboratory  
1 credit  
Offered By Announcement Only  
Field and laboratory exercises illustrating techniques of wildlife management.  
PREREQUISITE: PREREQUISITE OR COREQUISITE: BIL 332.

BIL335 Tropical Field Biology  
3 credits  
Spring Semester  
Intensive field study conducted during semester breaks or recesses with additional pre-trip lectures. Requires payment of trip costs.  
PREREQUISITE: ONE YEAR OF GENERAL BIOLOGY WITH LABORATORY AND PERMISSION OF INSTRUCTOR.

BIL336 Tropical Plant Biology  
3 credits  
Spring Semester  
Structure, diversity, ecology, development and physiology of major plant groups of the tropics. Lecture, 3 hours; field trips.  
PREREQUISITE: ONE YEAR OF GENERAL BIOLOGY WITH LABORATORY.
BIL337 Advanced Ecology Laboratory
2 credits
Offered By Announcement Only
Research methods in physiological, behavioral, population, community, ecosystem and landscape ecology. Original research using current instrumentation in the field, the laboratory and on computer.
PREREQUISITE: BIL 235.

BIL338 Ecology of Southern Florida
4 credits
Offered By Announcement Only
Structure, function and management of major natural communities. Lecture 2 hours; 6 all-day field trips (Saturdays).
PREREQUISITE: BIL 235 AND PERMISSION OF INSTRUCTOR.

BIL341 Behavioral Physiology
3 credits
Offered By Announcement Only
The function and structure of the proximate mechanisms underlying behavior in an evolutionary context. Behavioral substrates, including sensory, central and peripheral aspects of nervous systems, effector organs, and hormonal influences, will be examined and compared across taxa.
PREREQUISITE: BIL 265 OR PERMISSION OF INSTRUCTOR.

BIL345 Behavioral Endocrinology
3 credits
Offered By Announcement Only
The effects of hormones on aggressive behavior, biological rhythms, ingestive behavior, reproductive behavior, and stress response in a variety of vertebrate and invertebrate species.
PREREQUISITE: BIL 365.

BIL350 Survey of Marine Mammals
3 credits
Fall Semester
The evolution and ecology of the cetaceans, pinnipeds, manatees, and allies: Natural history, zoogeography, physiology, husbandry, and biomedical aspects.
PREREQUISITE: BIL 150, MSC 230

BIL351 Human Genetics
3 credits
Offered By Announcement Only
Molecular organization of the human genome, methods of gene mapping, cytogenetics, population and medical genetics, current research. Lecture and discussion.
PREREQUISITE: BIL 250.

BIL352 Techniques in Scanning Electron Microscopy
3 credits
Spring Semester
Tissue preparation, use of the scanning electron microscope, photography, and analysis and manipulation of digital images. Lecture 1 hour; laboratory 5 hours.
PREREQUISITE: TWELVE CREDITS IN BIOLOGY, INCLUDING ONE YEAR OF GENERAL BIOLOGY WITH LABORATORY AND PERMISSION OF INSTRUCTOR.

BIL353 Projects in Scanning Electron Microscopy
2 credits
Fall Semester
Individual research projects in scanning electron microscopy. Six hours of laboratory.
PREREQUISITE: BIL 352 AND PERMISSION OF INSTRUCTOR.
BIL354 Advance Topics in Cell Biology  
3 credits  
Fall Semester  
Study of cell biology through comprehensive survey of relevant topics and in-depth discussion on important recent works.  
PREREQUISITE: BIL 255

BIL355 Developmental Biology  
3 credits  
Offered By Announcement Only  
Principles of differentiation, morphogenesis and development will be studies along with a critical analysis of the methods used to study these problems.  
PREREQUISITE: BIL 250 AND 255.

BIL356 Developmental Biology Laboratory  
1 credit  
Offered By Announcement Only  
Laboratory exercises in developmental biology.  

BIL358 Mathematical Biology  
3 credits  
Offered By Announcement Only  
Biomathematics concerned with shape and form, random processes, dynamic phenomena, and chaos in complex systems.  
PREREQUISITE: ONE YEAR OF GENERAL BIOLOGY WITH LABORATORY; MTH 112 OR 132.

BIL359 Biophysics  
3 credits  
Offered By Announcement Only  
Analysis of problems in Biophysics, with emphasis on the statistical nature of biological processes. Examples from cellular physiology, ecology, genetics and the health sciences.  
PREREQUISITE: ONE YEAR OF GENERAL BIOLOGY WITH LABORATORY AND MTH 112 OR 132, OR PERMISSION OF INSTRUCTOR.

BIL360 Animal Physiology  
3 credits  
Offered By Announcement Only  
Principles of homeostasis and behavioral integration. Physiological and structural adaptations of animals to their environments.  
PREREQUISITE: BIL 265.

BIL361 Cytology and Histology  
3 credits  
Offered By Announcement Only  
Structure and function of cells and cell organelles, including a survey of selected cell and tissue types in the vertebrate body. Lecture, 3 hours.  
PREREQUISITE: ONE YEAR OF GENERAL BIOLOGY WITH LABORATORY.

BIL362 Cytology and Histology Laboratory  
2 credits  
Offered By Announcement Only  
Survey of cells, tissues and organs of the vertebrate body, from prepared microscope slides and atlases of electron microscopy. Demonstrations of microscopic methods in cytology and histology. Four hours per week.  
PREREQUISITE: PRE OR COREQUISITE: BIL 361.

BIL363 Environmental Physiology  
3 credits  
Fall Semester  
Functional and adaptive significance of morphological and physiological traits of organisms in relation to their physical environment.  
PREREQUISITE: BIL 265.
BIL364 Environmental Physiology
3 credits  
Spring Semester
Functional and adaptive significance of morphological and physiological traits of organisms in relation to their physical environment.
PREREQUISITE: BIL 265.

BIL365 Endocrinology
3 credits  
Offered By Announcement Only
The endocrine glands and the chemistry, mechanisms of action, and physiological effects of hormones. Emphasis on vertebrate hormones, including clinical aspects of human endocrinology. Lecture, 3 hours.
PREREQUISITE: ONE YEAR OF BIOLOGY AND CHEMISTRY WITH LABORATORY.

BIL366 Comparative Vertebrate Physiology
3 credits  
Offered By Announcement Only
Homeostasis interactions with the external environment, and special topics in physiology including life without oxygen, behavioral energetics, allometry.
PREREQUISITE: BIL 265 OR PERMISSION OF THE INSTRUCTOR.

BIL367 A Survey of Cancer Biology
3 credits  
Offered By Announcement Only
The biological aspect of human cancers, including their incidence, diagnosis and treatment.
PREREQUISITE: BIL 255.

BIL369 Fundamentals of the Biology of Aging
3 credits  
Offered By Announcement Only
How and why we age. The biology of aging at the molecular, cellular, and organismal levels is presented in a comparative and evolutionary context.
PREREQUISITE: BIL 250, 255 OR 265.

BIL371 Readings in Biology
1 credit  
Spring Semester
Independent readings on selected topics in biology under the supervision of individual faculty.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL372 Readings in Biology
1 credit  
Fall & Spring Semester
Independent readings on selected topics in biology under the supervision of individual faculty.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL374 Seminar in Biology
1 credit  
Fall & Spring Semester
Seminar on selected topics in biology.
PREREQUISITE: ONE YEAR OF BIOLOGY FOR MAJORS WITH LABORATORY.

BIL375 Seminar in Biology
1 credit  
Fall & Spring Semester
Seminar on selected topics in biology.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
BIL381 Workshop Leaders in Biology I
0-1 credits Fall Semester
Students engage in Peer-led Team Teaching of workshops for groups of BIL 150 students. May be taken once only for credit in the BIL major, but may be taken additional times for a general education credit. Students may serve as workshop leaders for a second time for a stipend if they (1) have taken the course once before and (2) are graduating seniors.
PREREQUISITE: A GRADE OF "A" OR "B" IN BIL 150, 151, 160, AND 161, OR EQUIVALENT OR AP OUTPLACING; PERMISSION OF INSTRUCTOR.

BIL382 Workshop Leaders in Biology II
0-1 credits Spring Semester
Students engage in Peer-led Team Teaching of workshops for groups of BIL 150 students. May be taken once only for credit in the BIL major, but may be taken additional times for general education credit. Students may serve as workshop leaders for a second time for a stipend if they (1) have taken the course once before and (2) are graduating seniors.
PREREQUISITE: A GRADE OF "A" OR "B" IN BIL 150, 151, 160, 161 OR EQUIVALENT OR AP OUTPLACING; PERMISSION OF INSTRUCTOR.

BIL384 Special Laboratory Topics in Biology
1-3 credits Fall Semester
Topics relevant to the biological sciences, listed as subtitle. May be co-listed with other departments or programs.
PREREQUISITE: ONE YEAR OF BIOLOGY FOR MAJORS WITH LABORATORY

BIL385 Special Topics in Biology
2-6 credits Fall Semester
Topics relevant to the biological sciences, listed as subtitle. May be co-listed with other departments or programs.
PREREQUISITE: ONE YEAR OF BIOLOGY FOR MAJORS WITH LABORATORY

BIL390 Studies in Biology
1-5 credits Not Offered; Transfer Credit Only
Special topics taken at other institutions with no direct equivalents.

BIL391 Studies in Biology
1-5 credits Not Offered; Transfer Credit Only
Special topics taken at other institutions with no direct equivalents.

BIL392 Studies in Biology
1-5 credits Not Offered; Transfer Credit Only
Special topics taken at other institutions with no direct equivalents.

BIL393 Studies in Biology
1-5 credits Not Offered; Transfer Credit Only
Special topics taken at other institutions with no direct equivalents.

BIL394 Studies in Biology
1-5 credits Not Offered; Transfer Credit Only
Special topics taken at other institutions with no direct equivalents.

BIL395 Studies in Biology
1-5 credits Not Offered; Transfer Credit Only
Special topics taken at other institutions with no direct equivalents.
BIL403 Neuroscience Laboratory
4 credits Spring Semester
Research methods and laboratory experiments in contemporary neuroscience from individual cells to behavior. Scientific report writing and computer applications in experimental design and analysis. Lecture/Lab.
PREREQUISITE: PSY 316 WITH PSY 402 OR BIL 268 AS PRE- OR COREQUISITE.

BIL410 Marine Conservation Science
3 credits Fall Semester
Marine populations and ecosystems; threats to marine biological diversity; place-based management of marine ecosystems; human dimensions of marine conservation. 
PREREQUISITE: BIL 150 AND 160 OR EQUIVALENT.

BIL415 Coral Reef Science and Management
3 credits Fall Semester
Coral reefs as biophysical and socioeconomic systems. Coral reef typology, geomorphology; biotic and abiotic components of coral reef ecosystems.
PREREQUISITE: BIL 150 AND 160 OR EQUIVALENT.

BIL424 Reef Fish Identification and Survey Techniques
2 credits Offered By Announcement Only
Basic ecology of reef fishes, field identification of tropical Atlantic coral reef fishes, analyses of fish survey data, and use of statistics software packages to detect differences in fish assemblages.
PREREQUISITE: ONE YEAR OF BIOLOGY FOR MAJORS WITH LABORATORY; MTH 111/112; MSC 230; AND STATISTICS (PSY 204, BIL 311, OR EQUIVALENT).

BIL431 Global Environmental Issues
3 credits Offered By Announcement Only
Environment and global policy issues; environmental problems in the international arena and the impact of global change based on monitoring initiatives and long-term data.
PREREQUISITE: JUNIOR STANDING IN INTERNATIONAL STUDIES, ENVIRONMENTAL SCIENCES/STUDIES OR BIOLOGY.

BIL432 Ecotoxicology
3 credits Offered By Announcement Only
Ecological effects of contamination on populations, communities, and ecosystems and strategies for prevention and/or control measures.

BIL481 Undergraduate Teaching Assistant in Biology
1-3 credits Fall Semester
Teaching assistance for undergraduate workshops or laboratories, under the direct supervision of faculty. Specific topic is indicated by course subtitle. This course may be taken no more than twice for credit in the Biology major or minor, and if taken twice, teaching assistance must be for two different BIL courses. May be taken multiple times for general elective credit only. PREREQUISITE: MINIMUM GRADE OF "B" IN THE COURSE IN WHICH STUDENT IS TO ASSIST. PREMISSION OF INSTRUCTOR.
BIL484 Special Laboratory Topics in Biology
1 credit
Fall Semester
Topics relevant to the biological sciences, co-listed with other departments or programs.
PREREQUISITE: ONE YEAR OF BIOLOGY FOR MAJORS WITH LABORATORY

BIL485 Special Topics in Biology
2-6 credits
Fall & Spring Semester
Topics relevant to the biological sciences, listed as subtitle. May be co-listed with other departments or programs.
PREREQUISITE: PERMISSION OF INSTRUCTOR

BIL491 Departmental Seminar in Biology
1 credit
Fall Semester
Research seminars by distinguished biologists.
PREREQUISITE: 24 CREDITS IN BIOLOGY.

BIL492 Departmental Seminar in Biology
1 credit
Spring Semester
Research seminars by distinguished biologists.
PREREQUISITE: 24 CREDITS IN BIOLOGY.

BIL495 Projects in Biology
2 credits
Fall & Spring Semester
Individual, original laboratory or field research supervised by a member of the department faculty and concluded by a formal written report.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL496 Projects in Biology
2 credits
Fall & Spring Semester
Individual, original laboratory or field research supervised by a member of the department faculty and concluded by a formal written report.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL497 Projects in Biology
2 credits
Fall & Spring Semester
Individual, original laboratory or field research supervised by a member of the department faculty and concluded by a formal written report.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL498 Senior Thesis
2 credits
Fall & Spring Semester
Formal thesis preparation supervised by a member of the departmental faculty including a public oral defense and submission of the written document to the department.
PREREQUISITE: PREREQUISITE OR COREQUISITE: FOUR (4) CREDITS OF "PROJECTS IN BIOLOGY" OR EQUIVALENT.

BIL499 Research Colloquium
1 credit
Fall & Spring Semester
Discussion of current research of Biology undergraduate students.
PREREQUISITE: BIL 495, JUNIOR OR SENIOR STANDING, AND PERMISSION OF THE DEPARTMENTAL HONORS DIRECTOR. COREQUISITE: BIL 496 OR 497.
BIL511 Biometry
3 credits
Offered By Announcement Only
Descriptive and analytical statistics as used in biology. Emphasizes sampling, presentation of quantitative data, probability theory applications, distributions, parametric and non-parametric test procedures.
PREREQUISITE: ONE SEMESTER OF STATISTICS AND ONE YEAR OF CALCULUS.

BIL512 PERL programming lab for Biologists
1 credit
Fall Semester
PREREQUISITE: PERMISSION FROM INSTRUCTOR.

BIL520 Evolution
3 credits
Offered By Announcement Only
Evolutionary mechanisms and pathways: sources of hereditary variation, evolutionary forces, origins of adaptations, speciation, macroevolution, origin of life and humankind.
PREREQUISITE: BIL 250.

BIL521 Systematics
3 credits
Offered By Announcement Only
Concepts and methods in phylogenetic systematics. Lectures, discussions, and computer labs, 3 hours.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL522 Plant Evolution
3 credits
Offered By Announcement Only
Role of genetic variation, local adaptation, speciation, hybridization and polyploidy, and life histories in plant evolution.
PREREQUISITE: BIL 250 OR PERMISSION OF INSTRUCTION.

BIL523 Advanced Biology of Marine Invertebrates
4 credits
Offered By Announcement Only
Detailed study of major phyla of marine invertebrates. Special emphasis on taxa found in waters off southern Florida. Field course. Lectures, laboratory, special projects, and seminars.
PREREQUISITE: BIL 235 AND 321.

BIL525 Herpetology
3 credits
Offered By Announcement Only
Systematics, biogeography, and evolutionary biology of amphibians and reptiles, with emphasis on modern families. Lecture, 2 hours; laboratory, 3 hours.
PREREQUISITE: BIL 235.

BIL526 Studies in the Biology of Mycorrhizae
2 credits
Offered By Announcement Only
Readings, discussions and laboratory exercises concerning the biology of mutualistic root-inhabiting fungi and their plant hosts. Topics will vary by semester, may be repeated for credit.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL527 Biology of Fungi
4 credits
Offered By Announcement Only
Physiology and ecology of the major groups of fungi, especially those of importance as pathogens or mutualists. Combined lecture and laboratory.
PREREQUISITE: ONE YEAR OF GENERAL BIOLOGY WITH LABORATORY.
BIL529 Higher Vascular Plants
4 credits Offered By Announcement Only
Anatomy and morphology of higher vascular plants; emphasis on form as related to function and ecology. Lecture plus laboratory, 6 hours.
PREREQUISITE: BIL 235.

BIL530 Population Genetics
3 credits Offered By Announcement Only
Theories of genes in populations, including an analysis of the genetic basis of microevolution; current examples from natural and experimental populations. Lecture and discussion, 3 hours.
PREREQUISITE: BIL 251 AND A YEAR OF CALCULUS OR THEIR EQUIVALENTS.

BIL531 Advanced Field Ecology
5 credits Offered By Announcement Only
Principles of and practical experience in quantitative sampling of community structure, plant and animal populations, and animal activities. Emphasis on individual projects. Lecture, 3 hours; laboratory and field, 10 hours alternate Saturdays plus projects.
PREREQUISITE: ONE SEMESTER OF ECOLOGY AND BIL 511 OR ANOTHER STATISTICS COURSE.

BIL535 Molecular Ecology
3 credits Fall Semester
Molecular markers and analyses, and their applications to different problems in biology. Appropriate sampling, methods for assessing genetic diversity and differentiation. Approaches to studying gene flow, tools for behavioral ecology, remote sampling, tracking individuals, and paternity analysis, hybridization and speciation, DNA barcodes, and gene expression from a population biological perspective.
PREREQUISITE: BIL 250

BIL536 Molecular Ecology Laboratory
1 credit Offered By Announcement Only
Laboratory techniques, molecular tools, applications, and analysis methods commonly used by researchers in the areas of molecular ecology and population genetics.
PREREQUISITE: BIL 535

BIL537 Ecosystem Ecology
3 credits Offered By Announcement Only
Concepts and models of energy and nutrient flow, food webs, successional processes, human influences and effects of spatial heterogeneity.
PREREQUISITE: BIL 235 OR PERMISSION OF INSTRUCTOR

BIL539 Wildlife Resource Philosophy and Policy
3 credits Offered By Announcement Only
Attitudes, philosophy, and policies that govern management of wildlife resources worldwide. Methods to influence public support for implementation of sound wildlife resource management.
PREREQUISITE: BIL 332.

BIL540 Ethology and Behavioral Ecology
3 credits Offered By Announcement Only
Evolutionary and comparative approach to concepts in animal behavior emphasizing function and mechanism. Topics include genetics of behavior, orientation, foraging, communication, and social behavior.
PREREQUISITE: BIL 235 AND EITHER BIL 241 OR 341 OR PERMISSION OF INSTRUCTOR
BIL541 Laboratory and Field Ethology
3 credits
Offered By Announcement Only
Laboratory and field exercises introduce the quantitative techniques currently employed in ethological research. Both principles and practice will be covered and a term project is required.
PREREQUISITE: BIL 236.

BIL550 Cell Metabolism: Structure and Function
3 credits
Offered By Announcement Only
Interactions of cell organelles within the dynamic context of intracellular microarchitecture, enzyme kinetics and bioenergetics.
PREREQUISITE: BIL 255.

BIL551 Current Topics in Genetics
1-2 credits
Offered By Announcement Only
Research literature in cytogenetics, molecular, human and population genetics. Subjects vary from year to year. This course may be repeated for credit.
PREREQUISITE: BIL 250 AND PERMISSION OF INSTRUCTOR.

BIL552 Bioinformatics Tools
3 credits
Fall Semester
Databases and tools of bioinformatics as relevant to research in genomics and molecular biology. Bioinformatics applications. Information retrieval, analytical tools, BLAST searches, promoter analysis, protein structure-function analysis and various applications.
PREREQUISITE: BIL 250

BIL554 Electron Microscopy
4 credits
Fall Semester
Techniques in transmission electron microscopy including tissue preparation, use of the electron microscope, photography, and interpretation of micrographys. Lecture, 1 hour; laboratory, 6 hours.
PREREQUISITE: BIL 255 OR 361 AND PERMISSION OF INSTRUCTOR.

BIL555 Projects in Electron Microscopy
2 credits
Spring Semester
Individual research projects in transmission electron microscopy, 6 hours.
PREREQUISITE: BIL 554. PERMISSION OF INSTRUCTOR.

BIL556 Ecological and Evolutionary Genomics
3 credits
Fall Semester
PREREQUISITE: BIL 250, BIL 255 OR PERMISSION FROM INSTRUCTOR

BIL562 Ornithology
4 credits
Offered By Announcement Only
Advanced ornithology with stress on quantitative aspects.
PREREQUISITE: BIL 261 OR EQUIVALENT.

BIL564 Advanced Developmental Biology
3 credits
Offered By Announcement Only
Comprehensive survey of the principles of development and methods of experimental analysis. Lecture, discussion and demonstration, 3 hours.
PREREQUISITE: BIL 364.
BIL566 Plant Environmental Physiology
3 credits
Offered By Announcement Only
Environmental influence on the physical and chemical bases of life processes in plants, including ecosystem consequences.
PREREQUISITE: BIL 255, 265 OR PERMISSION OF INSTRUCTOR.

BIL567 Animal Physiological Ecology
3 credits
Offered By Announcement Only
Physiological interactions of animals with their biotic and abiotic environments: Information integrated from tissue, organ, and whole organism levels.
PREREQUISITE: BIL 265 OR PERMISSION OF INSTRUCTOR.

BIL568 Evolution and development of Nervous Systems
3 credits
Fall Semester
Mechanisms/pathways/modules underlying formation of the nervous system during development. How some properties of nervous systems have resisted change while others have diverged dramatically during evolution.
PREREQUISITE: BIL 268 OR BIL 355 OR PERMISSION OF INSTRUCTOR

BIL569 Biology of Aging
3 credits
Offered By Announcement Only
The hypotheses and data relating to the biological basis of aging in invertebrates and vertebrates, including humans.
PREREQUISITE: SENIOR OR GRADUATE STATUS IN A BIOLOGICAL SCIENCE.

BIL571 Advanced Special Studies in Biology
1-6 credits
Offered By Announcement Only
Content of course will vary by semester. Content in any semester will be indicated via subtitle in the class schedule.

BIL572 Advanced Special Studies in Biology
1-6 credits
Offered By Announcement Only
Content of course will vary by semester. Content in any semester will be indicated via subtitle in the class schedule.

BIL573 Advanced Special Studies in Biology
1-6 credits
Offered By Announcement Only
Content of course will vary by semester. Content in any semester will be indicated via subtitle in the class schedule.

BIL574 Advanced Special Studies in Biology
1-6 credits
Offered By Announcement Only
Content of course will vary by semester. Content in any semester will be indicated via subtitle in the class schedule.

BIL575 Advanced Special Studies in Biology
1-6 credits
Offered By Announcement Only
Content of course will vary by semester. Content in any semester will be indicated via subtitle in the class schedule.

BIL581 Survey of the History and Literature of Biology
2 credits
Offered By Announcement Only
Emphasis on historical development and central concepts of biology.
PREREQUISITE: SENIOR STANDING AND PERMISSION OF INSTRUCTOR.
BIL 582 Borderless Science  
3 credits  
Fall Semester  
Students from various scientific disciplines will be introduced to new technologies and resources from wide-ranging fields of science and learn to apply them in their own fields. Students will engage in mutual exchange of discipline-specific practices and novel ideas for research in biology, neuroscience, psychology, chemistry, physics, mathematics, engineering, etc.  
PREREQUISITE: PERMISSION FROM INSTRUCTOR

BIL 585 Advanced special topics in biology  
3 credits  
Fall Semester  
Topics relevant to the biological sciences, co-listed with other departments or programs.  
PREREQUISITE: SENIOR OR GRADUATE STUDENT STATUS

BIL 586 Advanced Special Topics in Biology  
4 credits  
Fall Semester  
Topics relevant to the biological sciences, co-listed with other departments or programs.  
PREREQUISITE: SENIOR OR GRADUATE STUDENT STATUS

BIL 590 Studies in Biology  
1-5 credits  
Not Offered; Transfer Credit Only  
Special topics taken at other institutions with no direct equivalents.

BIL 591 Studies in Biology  
1-5 credits  
Not Offered; Transfer Credit Only  
Special topics taken at other institutions with no direct equivalents.

BIL 592 Studies in Biology  
1-5 credits  
Not Offered; Transfer Credit Only  
Special topics taken at other institutions with no direct equivalents.

BIL 593 Studies in Biology  
1-5 credits  
Not Offered; Transfer Credit Only  
Special topics taken at other institutions with no direct equivalents.

BIL 594 Studies in Biology  
1-5 credits  
Not Offered; Transfer Credit Only  
Special topics taken at other institutions with no direct equivalents.

BIL 595 Studies in Biology  
1-5 credits  
Not Offered; Transfer Credit Only  
Special topics taken at other institutions with no direct equivalents.

CHEMISTRY

CHM 101 Fundamentals of Chemistry I  
3 credits  
Fall Semester  
Fundamental concepts of chemistry and their relation to living systems, utilitarian chemical processes, and the environment. Lecture, 3 hours. Not for major or minor credit.

CHM 102 Fundamentals of Chemistry II  
3 credits  
Offered By Announcement Only  
A continuation of Chemistry 101.  
PREREQUISITE: CHM 101 OR HIGH SCHOOL CHEMISTRY.
CHM103 Chemistry for Life Sciences I (Lecture)  
3 credits  
Fall Semester  
Essentials of inorganic chemistry as it applies to biological systems. Designed for (but not limited to) those planning health-related careers. Lecture, 3 hours.

CHM104 Chemistry for Life Sciences II (Lecture)  
3 credits  
Spring Semester  
A continuation of CHM 103, with emphasis on organic and biological chemistry, including biochemical processes and metabolism. Lecture, 3 hours.  
PREREQUISITE: CHM 103.

CHM105 Chemistry for Life Sciences I (Laboratory)  
1 credit  
Fall Semester  
Designed for those students in CHM 103 requiring a laboratory course. Laboratory, 3 hours.  
PREREQUISITE: PREREQUISITE OR COREQUISITE: CHM 103.

CHM106 Chemistry for Life Sciences II (Laboratory)  
1 credit  
Spring Semester  
Designed for those students in CHM 104 requiring a laboratory course. Laboratory, 3 hours.  
PREREQUISITE: PREREQUISITE OR COREQUISITE: CHM 104.

CHM111 Principles of Chemistry I  
3 credits  
Fall & Spring Semester & First Summer Session  
Fundamental principles of chemical science. The beginning course for science majors and premedical students. Lecture, 3 hours.  
PREREQUISITE: PREREQUISITE OR COREQUISITE: MTH 105 OR 107.

CHM112 Principles of Chemistry II  
3 credits  
Fall & Spring Semester & Second Summer Session  
Continuation of CHM 111. Lecture, 3 hours.  
PREREQUISITE: CHM 111 OR 151.

CHM113 Chemistry Laboratory I  
1 credit  
Fall & Spring Semester & First Summer Session  
Laboratory techniques of chemistry. To accompany CHM 111. Laboratory, 3 hours.  
PREREQUISITE: PREREQUISITE OR COREQUISITE: CHM 111.

CHM114 Chemistry Laboratory II  
1 credit  
Fall & Spring Semester & Second Summer Session  
Continuation of CHM 113. Intermediate laboratory techniques and quantitative analysis. To accompany CHM 112. Laboratory, 3 hours.  
PREREQUISITE: CHM 113; PREREQUISITE OR COREQUISITE: CHM 112.

CHM151 Chemistry for Engineers I  
3 credits  
Fall & Spring Semester  
Fundamental principles of chemistry for engineering students. Not recommended for students that plan to enter Medical School. Lecture, 3 hours.  
PREREQUISITE: PREREQUISITE OR COREQUISITE: MTH 105 OR 107.
CHM153 Chemistry Laboratory for Engineers
1 credit
Fall & Spring Semester
An introductory laboratory course to accompany CHM 151. The techniques of chemistry for engineering students.
PREREQUISITE: PREREQUISITE OR COREQUISITE: CHM 151.

CHM201 Organic Chemistry I (Lecture)
3 credits
Fall & Spring Semester & First Summer Session
The chemistry of carbon compounds. Required of chemistry majors, and premedical students; recommended for majors in life sciences. Lecture, 3 hours.
PREREQUISITE: CHM 112.

CHM202 Organic Chemistry II (Lecture)
3 credits
Fall & Spring Semester & Second Summer Session
Continuation of CHM 201. Lecture, 3 hours.
PREREQUISITE: CHM 201.

CHM205 Organic Chemistry Laboratory I
1 credit
Fall & Spring Semester & First Summer Session
Introduction to techniques of organic chemistry. Laboratory, 3 hours.
PREREQUISITE: PREREQUISITE OR COREQUISITE: CHM 201.

CHM206 Organic Chemistry Laboratory II
1 credit
Fall & Spring Semester & Second Summer Session
Continuation of CHM 205. Laboratory, 3 hours.

CHM304 Spectroscopic Methods in Chemistry and Biochemistry
3 credits
Fall Semester
Modern spectroscopic methods of analysis. Lecture 3 hours;
PREREQUISITE: CHM 202 AND 206.

CHM316 Instrumental Analytical Chemistry
3 credits
Spring Semester
Modern methods of quantitative analysis. Lecture, 3 hours.
PREREQUISITE: CHM 304 AND 360.

CHM320 Instrumental Methods in Chemistry and Biochemistry
2 credits
Spring Semester
Instrumental methods in modern chemistry and biochemistry, including spectrometric, electrochemical and chromatographic (separation) techniques. Laboratory, 8 hours.
PREREQUISITE: CHM 304. COREQUISITE: CHM 316.

CHM331 Physical Chemistry for Premedical Students
3 credits
Spring Semester
Fundamentals of thermodynamics as applied to gases, liquids and solutions; chemical kinetics and other selected topics. Lecture, 3 hours.
PREREQUISITE: CHM 112, MTH 110 OR 111 OR 131, PHY 102 OR PERMISSION OF INSTRUCTOR.

CHM360 Physical Chemistry I (Lecture)
3 credits
Fall Semester
Introduction to physical chemistry including thermodynamics, gaseous and liquid states, solutions, homogeneous and heterogeneous equilibriums. Lecture, 3 hours.
PREREQUISITE: CHM 112, MTH 112 OR 132. PREREQUISITE OR COREQUISITE: ONE SEMESTER OF PHYSICS.
CHM364 Physical Chemistry (Laboratory I)  
1 credit Fall & Spring Semester  
Representative experiments in physical chemistry. Laboratory, 4 hours. PREREQUISITE: PREREQUISITE OR COREQUISITE: CHM 331 OR 360.

CHM365 Physical Chemistry II (Lecture)  
3 credits Spring Semester  
Chemical kinetics, introductory quantum chemistry, molecular spectroscopy. PREREQUISITE: CHM 360, MTH 112. PREREQUISITE OR COREQUISITE: TWO SEMESTERS OF PHYSICS.

CHM381 Workshop Leaders in Chemistry I  
1 credit Fall Semester  
Students engaged in Peer-Led Team Teaching of workshops for groups of CHM 111 and/or CHM 112 students may enroll for this course. May be repeated. PREREQUISITE: A GRADE OF "A" OR "B" IN CHM 111 AND 112 OR AP OUTPLACING.

CHM382 Workshop Leaders in Chemistry II  
1 credit Fall Semester  
Students engaged in Peer-Led Team Teaching of workshops for groups of CHM 111 and/or CHM 112 students may enroll for this course. May be repeated. PREREQUISITE: A GRADE OF "A" OR "B" IN CHM 111 AND 112 OR AP OUTPLACING.

CHM401 Environmental Chemistry  
3 credits Spring Semester  
Major environmental features of the earth; Role of natural and synthetic chemicals in the environment; Atmospheric and aquatic pollution; Application of acid-base theory and oxidation reduction to environmental problems. PREREQUISITE: CHM 111 AND 112; AND JUNIOR STANDING; NOT OPEN TO STUDENTS WITH CREDITS IN ESC 401.

CHM416 Environmental Analysis  
3 credits Offered By Announcement Only  
A laboratory course using the Environmental Protection Agency's methods of sampling, sample preparation, and analysis for priority pollutants; methods of ultra-micro chemical analysis; Quality Assurance and Quality Control. PREREQUISITE: CHM 206.

CHM442 Inorganic Chemistry (Laboratory)  
1 credit Spring Semester  
Synthesis of inorganic compounds and determination of their physical and chemical properties. CHM 541 is a corequisite for ACS chemistry majors. Laboratory, 3 hours. PREREQUISITE: CHM 365 AND 541.

CHM464 Physical Chemistry (Laboratory II)  
1 credit Spring Semester  
Continuation of CHM 364. Laboratory, 4 hours. PREREQUISITE: CHM 360 AND 364. PREREQUISITE OR COREQUISITE: CHM 365.

CHM488 Undergraduate Research  
1-3 credits Fall & Spring Semester & First & Second Summer Session  
Laboratory research under the direction of a member of the chemistry faculty. Thesis optional. Course may be repeated for credit. PREREQUISITE: B AVERAGE IN CHEMISTRY COURSES AND DEPARTMENTAL CONSENT.
CHM490 Honors Research
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Laboratory research under the direction of a member of the Chemistry faculty. Thesis required. Course may be repeated for credit.
PREREQUISITE: ADMISSION TO HONORS PROGRAM. CHEMISTRY DEPARTMENT CONSENT. CHM 206.

CHM520 Physical Organic Chemistry
3 credits  Fall Semester
Aspects of chemical bonding, acids and bases, steeochemistry, aromaticity, pericyclic reactions, linear free energy relationships, transition state theory, excited state chemistry, reactive intermediaries, mechanisms of uni- and bimolecular reactions.
PREREQUISITE: CHM 202 AND 360.

CHM522 Synthetic Organic Chemistry
3 credits  Fall Semester
Functional group transformations, Synthon approach. Retrosynthetic analyses, multistep syntheses.

CHM524 Supramolecular Chemistry
3 credits  Fall Semester
Complexation, recognition, and catalysis as applied to bioorganic chemistry. Steric, polar, and lipophilic interactions as well as proximity effects in the design of synthetic enzyme mimics, cationic transport species, etc.
PREREQUISITE: CHM 365 AND 520.

CHM525 Structural Organic Chemistry
3 credits  Spring Semester

CHM541 Principles of Bonding and Reactivity in Inorganic Chemistry
3 credits  Fall Semester
Bonding principles necessary to understand the structure, stability, and fundamental reactivity of main group and transition metal inorganic compounds.
PREREQUISITE: CHM 365.

CHM553 Modern Quantum Chemistry
3 credits  Offered By Announcement Only
Many-electron wave functions and operators. Hartee-Fock approximation, density functional theory, configuration interaction, and many-body perturbation theory.
PREREQUISITE: CHM 365

CHM556 Self-Assembly and Surface Chemistry
3 credits  Fall Semester
Methods of preparation of self-assembly monolayers and surface chemistry properties.
PREREQUISITE: CHM 365.

CHM563 Electronic Structure Methods
3 credits  Fall Semester
Basis sets, post-SCF methods, and potential energy surfaces. Thermodynamic, structural, and vibrational predictions, excited states, solvation and hybrid Hamiltonians.
PREREQUISITE: CHM 365
CHM564 Molecular Simulations
1 credit
Offered By Announcement Only
Classical dynamics, force-fields, sampling, periodic and stochastic boundaries, Monte-Carlo and molecular dynamics simulations, and free energy perturbation.
PREREQUISITE: PERMISSION OF DEPARTMENT.

CHM565 Principles of Spectroscopic Techniques
3 credits
Fall Semester
Spectroscopic techniques: nuclear magnetic resonance (NMR), mass spectra (MS), ultraviolet (UV), visible infrared (IR), fluorescence, and other specialized spectroscopic techniques.
PREREQUISITE: CHM 365.

CHM570 Advanced Physical Chemistry Topics
3 credits
Fall Semester
PREREQUISITE: CHM 365.

CHM579 Special Topics: Chemistry Internship
1-3 credits
Offered By Announcement Only

CHM580 Special Topics: Chemistry Internship
1-3 credits
Fall Semester

CHM591 Topics in Chemistry
1-3 credits
Offered By Announcement Only
Subject matter offerings based upon student demand and availability of faculty. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule following the title, "Topics in Chemistry".
PREREQUISITE: 20 CREDITS IN CHEMISTRY.

CHM592 Topics in Chemistry
1-3 credits
Offered By Announcement Only
Subject matter offerings based upon student demand and availability of faculty. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule following the title, "Topics in Chemistry".
PREREQUISITE: 20 CREDITS IN CHEMISTRY.

CHM593 Readings in Chemistry
1-3 credits
Offered By Announcement Only
Supervised readings on special topics. Offered by special arrangement. May be repeated for credit.
PREREQUISITE: 20 CREDITS IN CHEMISTRY AND PERMISSION OF THE DEPARTMENT CHAIRMAN.

CHM594 Readings in Chemistry
1-3 credits
Offered By Announcement Only
Supervised readings on special topics. Offered by special arrangement. May be repeated for credit.
PREREQUISITE: 20 CREDITS IN CHEMISTRY AND PERMISSION OF THE DEPARTMENT CHAIRMAN.

CHINESE

CHI101 Elementary Chinese (Mandarin)
3 credits
Fall Semester
Conversation, grammar, reading, elementary composition.
CHI102 Elementary Chinese (Mandarin)
3 credits  
Continuation of CHI 101, conversation, grammar, reading, elementary composition.
PREREQUISITE: CHI 101.

CHI201 Intermediate Chinese I
3 credits  
Expanding further on language skills (grammar, composition and reading) while introducing students to aspects of Chinese customs, history and culture. Closed to native speakers.
PREREQUISITE: CHI 102. CLOSED TO NATIVE SPEAKERS

CHI202 Intermediate Chinese II
3 credits  
To consolidate the foundation which students have built on CHI 101, 102, and 201, with emphasis on four language skills and cultural studies. Closed to native speakers.
PREREQUISITE: CHI 201, AND CLOSED TO NATIVE SPEAKERS.

CLASSICS

CLA220 Greek and Roman Mythology
3 credits  
The major political, cultural, and social themes that appear in Greek and Roman mythology, examining literary and material evidence.
PREREQUISITE: ENG 105 AND 106 OR BY PERMISSION OF THE INSTRUCTOR

CLA221 Sports & Society in the Ancient World
3 credits  
Sports in the civilizations of ancient Greece and Rome, making comparisons with modern American sports culture. Topics may include the origins of sports competitions in religious rituals; athletes and athletics in myth and legend; architectural remains such as the Colosseum and the stadium at Olympia; and modern recreations of ancient sports events in films such as Gladiator and Ben Hur.

CLA222 Sexuality and Gender in the Ancient World
3 credits  
Basic questions of sexuality and gender in ancient Greece and Rome: What does it mean to be male or female? What can we discover about ourselves from the way(s) we have sex? How are all these things related to life, love, power?

CLA223 The Ancient World on Screen
3 credits  
How do we represent the ancient Greeks and Romans in modern media? What happens to the books the ancients wrote when these are turned into modern films, TV shows or video games?

CLA224 The Heroic Journey
3 credits  
The figure of the Hero On a Journey has long captivated the minds of story-tellers and audiences. This motif, known as "The Monomyth," speaks the profoundest hopes and fears of humankind. This course will examine the Monomyth as it occurs particularly in the classical tradition from Gilgamesh to Tolkein.
CLA300 Vampire in folklore, fiction and film.
3 credits Fall Semester
Bram Stoker's Dracula remains one of the best-selling novels of all time. Films and television series, from Nosferatu to Trueblood, recapitulate the wild success of such novels. But why exactly is it that the notion of The Vampire so captures our imagination? What do these remarkable intersections of actual history, folklore, high literary art, and popular culture tell us about the human condition today? This course is designed to gain insight into such issues. Special attention will be paid to the historical roots of the Dracula motif.

CLA301 Ancient Greece
3 credits Fall Semester
Greek civilization from the Late Bronze Age to the end of Greek independence at the battle of Chaeronea in 338 B.C.E.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

CLA302 The Hellenistic Age
3 credits Fall Semester
Conquests of Alexander the Great and the spread of Greek culture in the Near East under Alexander's successors until the death of Cleopatra in 31 B.C.E.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

CLA303 The Roman Republic
3 credits Fall Semester
Roman civilization from the establishment of the Republic until the Battle of Actium in 31 B.C.E.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

CLA304 The Roman Empire
3 credits Fall Semester
Roman civilization from the reign of Augustus in 37 B.C.E. to the Fall of Rome in 476 C.E.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

CLA310 Survey of Ancient Greek Literature and Culture
3 credits Fall & Spring Semester & First & Second Summer Session
Classical Greek culture, paying special attention to Greek literature from Homer to Aristotle. It is intended to lay a foundation for understanding how Hellenic thought and art influenced the development of all subsequent Western culture. All texts will be read in English translation.
PREREQUISITE: THREE CREDITS IN LITERATURE.

CLA311 Survey of Classical Latin Literature and Culture
3 credits Fall & Spring Semester & First & Second Summer Session
A broad introduction (in English translation) to the literature of the Roman Republic and Empire. The Greek heritage behind Latin literature will be highlighted. Readings will be chosen from authors such as Catullus, Cicero, Vergil, Horace, Ovid, Petronius, Juvenal, Tacitus, and Suetonius, and from genres such as epic and lyric poetry, oratory, history and satire.
CLA315 The Classical Epic Tradition
3 credits  Offered By Announcement Only
The course treats the rise and development of the Western epic tradition from Homer, Lucretius, and Virgil in the classical world, through Dante in the Middle Ages, Milton in the Renaissance, and Wordsworth and Eliot in modernity.
PREREQUISITE: ENG 106 OR PERMISSION OF INSTRUCTOR

CLA340 Greek Tragedy
3 credits  Fall Semester
Readings in English of the tragedies of Aeschylus, Sophocles, and Euripides.
PREREQUISITE: ENG 106 OR PERMISSION OF INSTRUCTOR.

CLA370 Self and Other in the Ancient World
3 credits  Fall Semester
The course examines Greek and Roman depictions of outsiders in a wide range of ancient texts and material sources.
PREREQUISITE: ENG 105 AND/OR 106 OR PERMISSION OF INSTRUCTOR.

CLA401 Special Topics in Classics
3 credits  Fall & Spring Semester & First & Second Summer Session
This course will address a specific author, topic or text (appearing as a subtitle).
Required readings will be in English. Analogous to REL 404-409 courses.

CLA402 Special Topics in Classics
3 credits  Fall & Spring Semester & First & Second Summer Session
This course will address a specific author, topic or text (appearing as a subtitle).
Required readings will be in English. Analogous to REL 404-409 courses.

CLA403 Special Topics in Classics
3 credits  Fall & Spring Semester & First & Second Summer Session
This course will address a specific author, topic or text (appearing as a subtitle).
Required readings will be in English. Analogous to REL 404-409 courses.

CLA404 Special Projects in Classics
3 credits  Fall & Spring Semester & First & Second Summer Session
This course will address a specific project in Classics (appearing as a subtitle).
Analogous to REL 407-409.

CLA405 Special Projects in Classics
3 credits  Fall & Spring Semester & First & Second Summer Session
This course will address a specific project in Classics (appearing as a subtitle).
Analogous to REL 407-409.

CLA406 Special Projects in Classics
3 credits  Fall & Spring Semester & First & Second Summer Session
This course will address a specific project in Classics (appearing as a subtitle).
Analogous to REL 407-409.

CLA491 Directed Readings
1-3 credits  Fall Semester
Content to be determined by faculty member and registering student(s).
PREREQUISITE: SIX CREDITS IN CLASSICS OR PERMISSION OF INSTRUCTOR.
COLLEGE OF ARTS AND SCIENCES

CLASSICS

CLA492 Directed Reading in Classics
3 credits
Fall & Spring Semester & First & Second Summer Session
This course will address a specific author, topic or text (appearing as a subtitle).
Analogous to REL 401-403 courses and to (existing) CLA 491.
PREREQUISITE: PERMISSION OF INSTRUCTOR

CLA493 Directed Reading in Classics
3 credits
Fall & Spring Semester & First & Second Summer Session
This course will address a specific author, topic or text (appearing as a subtitle).
Analogous to REL 401-403 courses and to (existing) CLA 491.
PREREQUISITE: PERMISSION OF INSTRUCTOR

CLA495 Senior Thesis I
3 credits
Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: SENIOR STANDING

CLA496 Senior Thesis II
3 credits
Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: SENIOR STANDING

CLA505 Seminar in Ancient Studies
3 credits
Fall Semester
Topics in Greek and Roman studies.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR

COMPUTER SCIENCE

CSC115 Social and Ethical Issues in Computing
3 credits
Spring Semester
History, social context and methods and tools of analysis. Professional and ethical responsibilities. Intellectual property. Privacy and civil liberties.
PREREQUISITE: NO PREREQUISITES FOUND FOR THIS COURSE

CSC119 Computers and Society
3 credits
Spring Semester

CSC120 Computer Programming I
4 credits
Fall & Spring Semester
PREREQUISITE: COREQUISITE: MTH 108, OR MAS 110, OR ADEQUATE SCORE ON THE MATHEMATICS PLACEMENT TEST.

CSC210 Computing for Scientists
3 credits
Fall Semester
PREREQUISITE: 3 CREDITS IN SCIENCE
CSC220 Computer Programming II
4 credits                                                    Fall & Spring Semester
PREREQUISITE: CSC 120.

CSC314 Computer Organization and Architecture
3 credits                                                             Fall Semester
PREREQUISITE: PREREQUISITE: CSC 120 OR CIS 324

CSC322 System Programming
3 credits                                                           Spring Semester
PREREQUISITE: CSC 220 OR CIS 324

CSC329 Introduction to Game Programming
3 credits                                                             Fall Semester
Fundamental programming issues in game design: Software design; Version control; Basic graphics; GUI programming. Large-scale game project: Team development of a functional game; Graphics and GUI component; Networking component; Core game engine.
PREREQUISITE: CSC 220.

CSC401 Computer Science Practicum I
1 credit                                               Offered By Announcement Only
Implementation of techniques, algorithms, and data structures being taught in a corequisite computer science course.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CSC402 Computer Science Practicum II
1 credit                                               Offered By Announcement Only
Implementation of techniques, algorithms, and data structures being taught in a corequisite computer science course.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CSC403 Computer Science Practicum III
1- 3 credits                                               Offered By Announcement Only
Implementation of techniques, algorithms, and data structures being taught in a corequisite computer science course.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CSC410 Computer Science Project Planning
1- 3 credits                                               Offered By Announcement Only
Planning for the implementation of a Computer Science project, including: Problem analysis, System architecture design, Algorithm and data structure selection, User interface design, Verification and validation plan, and Prototyping.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
CSC411 Computer Science Project Implementation  
1-3 credits  Offered By Announcement Only  
Implementation of a Computer Science project, including: Hardware preparation, Component implementation, System integration, Verification and validation, and Documentation. 
PREREQUISITE: CSC 410 OR PERMISSION OF INSTRUCTOR.

CSC412 Computer Science Internship  
1-3 credits  Offered By Announcement Only  
A commercial computing environment. Normally 50 internship hours are required per credit earned (the host company must supply documentary evidence of hours worked). 
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CSC498 Senior Topics in Computer Science  
3 credits  Offered By Announcement Only  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CSC506 Logic  
3 credits  Offered By Announcement Only  
PREREQUISITE: MTH 230 OR 309 OR PERMISSION OF THE INSTRUCTOR.

CSC507 Data Security and Cryptography  
3 credits  Offered By Announcement Only  
PREREQUISITE: (CSC 517 OR 527)

CSC517 Data Structures and Algorithm Analysis  
3 credits  Fall & Spring Semester  
PREREQUISITE: MTH 309, AND CSC 220.

CSC518 Interpreters and Compiler Theory  
3 credits  Offered By Announcement Only  
PREREQUISITE: CSC 519.

CSC519 Program Languages  
3 credits  Fall Semester  
PREREQUISITE: CSC 517.
CSC521 Principles of Computer Operating Systems
3 credits  Fall Semester
PREREQUISITE: (CSC 314 OR 350), (CSC 322 OR PERMISSION OF INSTRUCTOR).

CSC523 Database Systems
3 credits  Fall Semester
PREREQUISITE: CSC 517.

CSC524 Computer Networks
3 credits  Spring Semester
PREREQUISITE: (CSC 314 OR 350), (CSC 322 OR PERMISSION OF INSTRUCTOR).

CSC527 Theory of Computing
3 credits  Spring Semester
Sets, relations, and languages. Automata theory. Basic computability theory. Turing machines. The complexity classes P and NP.
PREREQUISITE: CSC 220, MTH 309

CSC529 Introduction to Computer Graphics
3 credits  Offered By Announcement Only
PREREQUISITE: CSC 220, MTH 210

CSC531 Introduction to Software Engineering
3 credits  Spring Semester
PREREQUISITE: CSC 322 OR 517.

CSC540 Algorithm Design and Analysis
3 credits  Offered By Announcement Only
Design techniques include divide-and-conquer, greedy method, dynamic programming, backtracking. Time and space complexity. Sorting, searching, combinatorial and graph algorithms.
PREREQUISITE: CSC 517.

CSC545 Introduction to Artificial Intelligence
3 credits  Offered By Announcement Only
PREREQUISITE: CSC 220 AND MTH 309.
CSC547 Computational Geometry
3 credits Offered By Announcement Only
Algorithms for solving geometric problems arising from application domains including graphics, robotics, and GIS.
PREREQUISITE: CSC 517

CSC548 Bioinformatics Algorithms
3 credits Fall Semester
PREREQUISITE: (CSC120 OR CSC210) AND (BIL150 OR BIL104 OR BIL352 OR BIL552)

CSC555 Multimedia Systems
3 credits Offered By Announcement Only
PREREQUISITE: CSC 517.

CSC595 Topics in Computer Science
1- 3 credits Offered By Announcement Only

CSC596 Topics in Computer Science
1- 3 credits Offered By Announcement Only

CSC597 Topics in Computer Science
1- 3 credits Offered By Announcement Only

CSC598 Topics in Computer Science
1- 3 credits Offered By Announcement Only

CSC599 Topics in Computer Science
1- 3 credits Offered By Announcement Only

ECOSYSTEM SCIENCE & POLICY

ECS111 Introduction to the Earth’s Ecosystem
3 credits Fall & Spring Semester
Earth's ecosystem and the interactions of humans with it. Concepts in ecology, environmental science and policy. Two field trips. Team-taught.

ECS112 Problems in Ecosystem Science and Policy
2 credits Spring Semester
Problem solving in ecology and environmental management. Class projects and case studies providing experience in identifying problems, quantifying scientific issues, and considering management options and outcomes. Extensive field experience. Team-taught.
PREREQUISITE: ECS 111.

ECS113 Introduction to Environmental Policy
3 credits Fall Semester
Theories and case studies from various fields, including anthropology, economics, ethics, geography, political science and psychology, will be used to explore the multiple perspectives that influence group and individual perceptions of environmental issues.
PREREQUISITE: ECS 111
### ECS195 Studies in Ecosystem Science and Policy

1-5 credits  
Not Offered; Transfer Credit Only  
Courses taken at other institutions but having no direct equivalents here.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

### ECS200 Environmental Statistics

3 credits  
Fall Semester  
Descriptive and inferential statistics applied to ecological and environmental data. Probability distributions, data description and presentation, hypothesis testing, decision making and experimental design. (Not open to students with credit in MTH 224, PSY 204 or equivalent).  
PREREQUISITE: MTH 103 OR HIGHER, AND 6 CREDITS IN MSC OR ECS.

### ECS201 Seminar Series in Contemporary Environmental Issues I

1 credit  
Fall Semester  
Current environmental topics involving interaction of science and policy.

### ECS202 Seminar Series in Contemporary Environmental Issues II

1 credit  
Spring Semester  
Current environmental topics involving interaction of science and policy.

### ECS272 Special Topics in Ecosystem Science and Policy

1-3 credits  
Offered By Announcement Only  
Content varies by semester and is indicated in parentheses following course number and title in class schedule.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

### ECS295 Studies in Ecosystem Science and Policy

1-5 credits  
Not Offered; Transfer Credit Only  
For courses taken at other institutions that have no equivalents here.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.
ECS296 Studies in Ecosystem Science and Policy
1- 5 credits                                      Not Offered; Transfer Credit Only
For courses taken at other institutions that have no equivalents here.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ECS297 Studies in Ecosystem Science and Policy
1- 5 credits                                      Not Offered; Transfer Credit Only
For courses taken at other institutions that have no equivalents here.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ECS298 Studies in Ecosystem Science and Policy
1- 5 credits                                      Not Offered; Transfer Credit Only
For courses taken at other institutions that have no equivalents here.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ECS299 Studies in Ecosystem Science and Policy
1- 5 credits                                      Not Offered; Transfer Credit Only
For courses taken at other institutions that have no equivalents here.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ECS301 Tools for Environmental Decision-Making: The Quantitative Perspective
3 credits                                                             Fall Semester
Quantitative decision-making techniques and methodologies.
PREREQUISITE: ECS 111, 112.

ECS302 Perspectives on Environmental Decisions
3 credits                                              Offered By Announcement Only
Analytical techniques to assess human impacts on the environment. Team-taught by
faculty from law, ethics, anthropology and economics with experience in local,
regional and global environmental management issues.
PREREQUISITE: ECS 111, 112 & 113

ECS310 Sustainable Living
3 credits                                                           Spring Semester
Sustainable Living explores ways of living that can be sustained for thousands
of years, without further damage to earth, ocean and atmosphere. Topics covered
include renewable energy, agricultural practices, water issues, green building,
low carbon transportation and healthy living/eating. Students advocate for sustainable
practices of their choice in writing and in oral/visual presentations. Frequent
field trips.
PREREQUISITE: ECS 111 OR PERMISSION OF INSTRUCTOR

ECS371 Readings in Ecosystem Science and Policy
1- 2 credits                                     Offered By Announcement Only
Supervised readings on special topics. Offered by special arrangement with a faculty
member. May be repeated for credit.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ECS372 Special Topics in Ecosystem Science and Policy
1- 3 credits                                     Offered By Announcement Only
Content varies by semester and is indicated in parentheses following course number
and title in class schedule.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
ECS380 Field Studies.  
1-4 credits  Offered By Announcement Only
This course will provide participants with an understanding of the natural history of tropical islands as well as their many environmental issues and conservation concerns.
PREREQUISITE: ADVANCED UNDERGRADUATE STANDING AND PERMISSION OF DEPARTMENT.

ECS401 Internship  
3 credits  Fall & Spring Semester & First & Second Summer Session
Students selecting the internship will be required to spend a minimum of 120 contact hours working in an outside firm or agency whose mission is to address environmental issues where science and policy intersect.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

ECS402 Thesis  
3 credits  Fall & Spring Semester & First & Second Summer Session
Individual, original research of independent study supervised by a UM faculty member and concluded by formal thesis preparation, public oral defense and submission of the thesis.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

ECS403 Interdisciplinary Approaches to Complex Human-Environmental Problems (Capstone  
3 credits  Spring Semester
Students with diverse disciplinary backgrounds will design an interdisciplinary study focused on an environmental problem with a major science component and significant societal implications. Students will apply quantitative methods, formulate usable policy, and communicate their results.
PREREQUISITE: ECS 111, 112, 301, 302.

ENGLISH

ENG103 Basic Academic Writing  
3 credits  Fall & Spring Semester
Intensive approach to the basics of academic writing with emphasis on building written fluency, using conventions of standard written English, and editing for precision and correctness. Intended for students who need extra preparation before entering ENG 105. Not for credit toward graduation.

ENG105 English Composition I  
3 credits  Fall & Spring Semester
Introduction to written academic argument and inquiry. Not for major or minor. Cannot be taken on credit-only option.

ENG106 English Composition II  
3 credits  Fall & Spring Semester
Advanced approaches to written academic argument, with emphasis on textual analysis and incorporation of secondary sources. Not for major or minor. Cannot be taken on credit-only option.
PREREQUISITE: ENG 105.

ENG107 English Composition II: Science and Technology  
3 credits  Fall & Spring Semester
Advanced approaches to written academic argument, with emphasis on textual analysis and incorporating source material using readings and approaches connected to science and technology. Alternative to ENG 106. Not for major or minor. Cannot be taken on credit-only option.
ENG20T Advanced Composition
0 credit
Fall Semester
PREREQUISITE: MDCC TRANSFER COURSE.

ENG201 World Literary Masterpieces I
3 credits
Fall & Spring Semester & First & Second Summer Session
Comparative study of literary masterpieces from ancient times through the Renaissance.
Satisfies writing requirement.
PREREQUISITE: ENG 106 OR EQUIVALENT.

ENG202 World Literary Masterpieces II
3 credits
Fall & Spring Semester & First & Second Summer Session
Comparative study of literary masterpieces from the Renaissance to the present.
Satisfies writing requirement.
PREREQUISITE: ENG 106 OR EQUIVALENT.

ENG205 Jewish Literature
3 credits
Fall Semester & First & Second Summer Session
Selections from the Bible, the Talmud, the Kabbalah, medieval poetry and prose,
Yiddish and Sephardic literature, and contemporary American and Israeli writers.
PREREQUISITE: ENG 106 OR EQUIVALENT.

ENG208 Advanced Academic Writing for Transfer Students
3 credits
Fall & Spring Semester
Review of research techniques and revision strategies. Completes the university
composition requirement for those students who transfer into UM with credit for
one composition course from another institution. Open only to transfer students
who have received transfer credit for either English 105 or English 106. Not open
to students who have taken either English 105 and/or 106 at UM.
PREREQUISITE: OPEN ONLY TO TRANSFER STUDENTS WHO HAVE RECEIVED TRANSFER CREDIT
FOR EITHER ENGLISH 105 OR ENGLISH 106. NOT OPEN TO STUDENTS WHO HAVE TAKEN EITHER
ENGLISH 105 AND/OR 106 AT UM.

ENG209 Creative Writing
3 credits
Fall & Spring Semester & First & Second Summer Session
Analysis and writing of Short stories and poems. Cannot be taken for credit only.
PREREQUISITE: ENG 105 OR EQUIVALENT. CANNOT BE TAKEN FOR CREDIT ONLY.

ENG210 Literary Themes and Topics
3 credits
Fall Semester & First & Second Summer Session
Literary analysis and practice in critical writing through the study of selected
works; themes and topics vary by semester.
PREREQUISITE: ENG 106 OR EQUIVALENT

ENG211 English Literature I
3 credits
Fall & Spring Semester & First & Second Summer Session
Selected readings from the middle ages to the late 18th century. Satisfies writing
requirement.
PREREQUISITE: ENG 106 OR EQUIVALENT.

ENG212 English Literature II
3 credits
Fall & Spring Semester & First & Second Summer Session
Selected readings from the late 18th century to the present. Satisfies writing
requirement.
PREREQUISITE: ENG 106 OR EQUIVALENT.
ENG213 American Literature I
3 credits                    Fall & Spring Semester & First & Second Summer Session
Selected American authors prior to the Civil War. Satisfies writing requirement.
PREREQUISITE: ENG 106 OR EQUIVALENT.

ENG214 American Literature II
3 credits                    Fall & Spring Semester & First & Second Summer Session
Selected American authors from the Civil War to the present. Satisfies writing requirement.
PREREQUISITE: ENG 106 OR EQUIVALENT.

ENG215 English and American Literature by Women
3 credits                                              Offered By Announcement Only
A survey of women writers from the Middle Ages to the present; explores the female literary tradition and women's relationship to culture and society.
PREREQUISITE: ENG 106 OR EQUIVALENT.

ENG220 Introduction to Poetry
3 credits                                              Offered By Announcement Only
Introduction to the forms of poetry through the analysis of representative poems.
PREREQUISITE: ENG 106 OR EQUIVALENT.

ENG221 Introduction to Fiction
3 credits                                              Offered By Announcement Only
Forms of prose fiction and the analysis of representative short stories and novels.
PREREQUISITE: ENG 106 OR EQUIVALENT.

ENG230 Advanced Business Communication
3 credits                    Fall & Spring Semester & First & Second Summer Session
Professional writing with critical attention to complex rhetorical situations. Practice in formal and informal written communication styles.

ENG250 Studies in English
1- 5 credits                     Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

ENG251 Studies in English
1- 5 credits                     Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

ENG252 Studies in English
1- 5 credits                     Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

ENG253 Studies in English
1- 5 credits                     Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

ENG254 Studies in English
1- 5 credits                     Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

ENG255 Studies in English
1- 5 credits                     Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.
ENG256 Studies in English
1-5 credits Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

ENG257 Studies in English
1-5 credits Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

ENG258 Studies in English
1-5 credits Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

ENG259 Studies in English
1-5 credits Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

ENG260 African-American Literature
3 credits Offered By Announcement Only
Selected readings of the eighteenth century to the present.
PREREQUISITE: ENG 106 OR EQUIVALENT.

ENG261 Literature of the Americas
3 credits Offered By Announcement Only
Selected readings from North, Central, and South American, and Caribbean literatures from their origins to the present.
PREREQUISITE: ENG 106 OR EQUIVALENT.

ENG290 Beginning Fiction Workshop
3 credits Fall & Spring Semester
Frequent exercises in workshop environment, with readings in contemporary fiction. Attention to tense and points of view; reviews of grammar and punctuation. 30-40 pages of creative writing, including development and revision of one full-length short story (12-20 pages).
PREREQUISITE: ENG 106 OR EQUIVALENT. PERMISSION OF THE INSTRUCTOR OR ADMISSION TO THE CREATIVE WRITING TRACK BASED ON CREATIVE WRITING SAMPLE.

ENG292 Beginning Poetry Workshop
3 credits Fall & Spring Semester
Emphasis of creation and critique of new student poetry in workshop setting; continued reading in genre. Variety of styles and techniques presented, including line, image and metaphor. 12-15 new poems, plus revisions, required.
PREREQUISITE: ENG 106, OR EQUIVALENT. PERMISSION OF INSTRUCTOR OR ADMISSION TO THE CREATIVE WRITING TRACK BASED ON CREATIVE WRITING SAMPLE.

ENG301 The Study of Language
3 credits Offered By Announcement Only
Language itself as an object of study; broad linguistic issues of language types, processes of language change, and language variation. Emphasis on language in "real world" applications such as law, folk culture, poetry, education, and computers.
PREREQUISITE: ENG106 OR EQUIVALENT.
ENG306 Advanced Composition

3 credits  Offered By Announcement Only
Composition and analysis of English prose. Topics vary. May be repeated if topics are different.
PREREQUISITE: ENG 106 OR EQUIVALENT.

ENG307 Modern English Grammar

3 credits  Offered By Announcement Only
Study of the three major modern systems of grammatical analysis: Traditional, structural, transformational. Some language history and phonetics also included. Recommended for prospective teachers.

ENG310 Literature and Culture in Classical Greece and Rome, I

3 credits  Offered By Announcement Only
Major pre-classical and classical Greek writers, including Homer, Sappho, Pindar, Aeschylus, Herodotus, and Sophocles, treated by close analysis, and attention to connecting themes; Greek art and archeology in reference to specific texts.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG311 Literature and Culture in Classical Greece and Rome, II

3 credits  Offered By Announcement Only
Thucydides on the Peloponnesian War; the drama of Euripides and Aristophanes; the dialogues of Plato on Socrates' trial and death; Aristotle's Poetics. Early Roman tradition; Rome and its relation to Greek culture; Livy on Roman history; Cicero, Virgil's Aeneid, Marcus Aurelius.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG312 The European Middle Ages

3 credits  Offered By Announcement Only
British and continental literature and thought from the 5th through the 15th centuries.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG313 The European Renaissance

3 credits  Offered By Announcement Only
Major writers of the European Renaissance, such as Petrarch, Machiavelli, Castiglione, Erasmus, More, Rabelais, Montaigne, Marguerite de Navarre.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG314 The European Enlightenment

3 credits  Offered By Announcement Only
Major writers of the European Enlightenment, such as Locke, Montesquieu, Vico, Hume, Voltaire, Rousseau, Diderot, Lessing, Smith, and Kant.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG315 The Classical Epic Tradition

3 credits  Offered By Announcement Only
The rise and development of the Western epic tradition from Homer, Lucretius, and Virgil in the classical world, through Dante in the Middle Ages, Milton in the Renaissance, and Wordsworth and Eliot in modernity.
ENG319 Shakespeare
3 credits
Representative comedies, histories, tragedies and romances. Not for students who have taken ENG 430 or 431; may not be taken concurrently with ENG 430 or 431.
PREREQUISITE: THREE CREDITS IN LITERATURE. NOT FOR STUDENTS WHO HAVE TAKEN ENG 430 OR 431; MAY NOT BE TAKEN CONCURRENTLY WITH ENG 430 OR 431.

ENG320 Literature of the Sea
3 credits
The sea and sea-faring as the subject of literature. Includes such writers as Homer, the "Seafarer" poet, Chaucer, Spenser, Shakespeare, Wordsworth, Byron, Cooper, Melville, Conrad, Hemingway, and Steinbeck.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG321 Major American Novelists
3 credits
Works by selected American novelists.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG323 Major British Novelists
3 credits
Works by selected British novelists.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG325 Major European Novelists
3 credits
Works by selected European novelists.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG331 Legal Writing
3 credits
A study of the composition of legal arguments in court opinions, legal briefs, oral arguments before the Supreme Court, and social-legal documents. Emphasis on analysis of issues, structure and style of legal writing, and the function of logic in persuasion.
PREREQUISITE: ENG 106 OR EQUIVALENT.

ENG332 Writing For and About Community Service
3 credits
Writing on social issues from sociological and literary sources, supplemented with community service activities (minimum 12 hours per semester).
PREREQUISITE: ENG 106 OR EQUIVALENT.

ENG333 Writing the Research Paper
3 credits
Advanced techniques in conducting research and writing the research paper. Use of traditional library resources, on-line searches, the Internet, and other research methods. Strategies for effective presentation of research findings. Students not in the Bachelor of General Studies program need permission of instructor.
PREREQUISITE: ENG 106 OR EQUIVALENT. STUDENTS NOT IN THE BACHELOR OF GENERAL STUDIES PROGRAM NEED PERMISSION OF INSTRUCTOR.
ENG334 Legal Rhetoric
3 credits
Offered By Announcement Only
Legal texts and the rhetoric of legal discourse.
PREREQUISITE: ENG 106 OR EQUIVALENT

ENG340 Forms of the Novel
3 credits
Offered By Announcement Only
Techniques and esthetics of the novel form; emphasis on major tendencies in the evolution of long prose fiction rather than on chronological development.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG341 Modern British and American Poetry
3 credits
Offered By Announcement Only
Representative poets and critics of poetry since 1900; attention to the basic principles of poetics.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG342 Lyric Voices and Traditions
3 credits
Offered By Announcement Only
Major figures and trends in the history of lyric poetry.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG350 Studies in English
1-5 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

ENG351 Studies in English
1-5 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

ENG352 Studies in English
1-5 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

ENG353 Studies in English
1-5 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

ENG354 Studies in English
1-5 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

ENG355 Studies in English
1-5 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

ENG356 Studies in English
1-5 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

ENG357 Studies in English
1-5 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.
ENG358 Studies in English
1-5 credits                                      Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

ENG359 Studies in English
1-5 credits                                      Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

ENG360 Comparative Literature of the Black World
3 credits                                              Offered By Announcement Only
Oral and written Black literature in Africa, the United States, the Caribbean, and South America.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG361 Caribbean Literature
3 credits                                              Offered By Announcement Only
Introduction to twentieth-century literature with special emphasis on the regional preoccupation with a distinctly Caribbean aesthetic.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG363 Jewish American Literature
3 credits                                              Offered By Announcement Only
Twentieth-century Jewish writers in the United States such as Singer, Bellow, Roth, Ozick, and Malamud.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG364 Sephardic Literature
3 credits                                              Offered By Announcement Only
Judeo-Spanish culture and literature from medieval times to the present.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG365 Literature of the Holocaust
3 credits                                              Offered By Announcement Only
Literature relating to the Nazi genocide and its aftermath.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG366 Asian American Literature
3 credits                                              Offered By Announcement Only
Literature by Asian immigrants and exiles in the United States.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG372 Women Writing: Theory and Practice
3 credits                                              Offered By Announcement Only
Women writers, emphasizing the role of gender in literary creation.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG373 Literary Representations of Women
3 credits                                              Offered By Announcement Only
The portrayal of women in literature from ancient times to the present.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG374 Women Writers
3 credits                                              Offered By Announcement Only
A study of women's writings and feminist criticism from 1930 to the present.
PREREQUISITE: THREE CREDITS IN LITERATURE.
ENG375 Modern Drama

3 credits
Offered By Announcement Only
The major dramatists of the modern world: Ibsen, Chekhov, Strindberg, Shaw, Pirandello, and O'Neill.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG376 Contemporary Drama

3 credits
Offered By Announcement Only
The dramatists of our time: Albee, Miller, Williams, Becket, Sartre, Genet, Pinter, Osborne, Stoppard, Durenmatt, and others.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG379 Modern Literature

3 credits
Offered By Announcement Only
Western literature of the modern era, emphasizing roots, traditions, practices.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG380 Contemporary Literature

3 credits
Offered By Announcement Only
Fiction, drama, and poetry from World War II to the present.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG383 The Literature of Science Fiction

3 credits
Offered By Announcement Only
A general survey of the literature of science fiction, with emphasis on writings of the twentieth century.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG384 The Bible as Literature

3 credits
Offered By Announcement Only
Selected readings from the Bible.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG385 Myth and Literature

3 credits
Offered By Announcement Only
A study of myth and ritual and their relation to literary works, from the early epic to contemporary literature.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG386 King Arthur in Literature

3 credits
Offered By Announcement Only
King Arthur in literature from the fifteenth to the twentieth century in England and America.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG387 Literature and Imperialism

3 credits
Offered By Announcement Only
Relationships between empire and literary expression. Works by authors such as Shakespeare, Behn, Defoe, Bronte, Conrad, Kipling, Melville, Yeats, Twain, and Forster.
PREREQUISITE: THREE CREDITS IN LITERATURE.
ENG388 Literature and Popular Culture
3 credits Offered By Announcement Only
Literary forms of popular expression, considered in relation to politics, ideology, gender, or race; comparison to other forms of popular culture in print, music, or the visual media.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG390 Intermediate Fiction Workshop
3 credits Fall Semester
Review of craft issues presented in 290, with emphasis on development of structure and contemporary use of point of view.
PREREQUISITE: ENG 290 OR PERMISSION OF INSTRUCTOR.

ENG392 Intermediate Poetry Workshop
3 credits Fall Semester
Review of craft issues presented in 292, integrating formal strategies with research topics.
PREREQUISITE: ENG 292 OR PERMISSION OF INSTRUCTOR.

ENG395 Special Topics
3 credits Offered By Announcement Only
Content varies by semester and is indicated in parentheses following course number and title in Class Schedule.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG396 Special Topics
3 credits Offered By Announcement Only
Content varies by semester and is indicated in parentheses following course number and title in Class Schedule.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG397 Special Topics
3 credits Offered By Announcement Only
Content varies by semester and is indicated in parentheses following course number and title in Class Schedule.
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG398 Directed Readings/Directed Research
3 credits Offered By Announcement Only
By arrangement with instructor. Content varies.
PREREQUISITE: PERMISSION OF DIRECTOR OF UNDERGRADUATE STUDIES AND THREE CREDITS IN LITERATURE.

ENG401 Senior Seminar in Literature
3 credits Spring Semester
An intensive study of a literary topic or figure.
PREREQUISITE: 15 CREDITS IN LITERATURE AND AT LEAST ONE 400 LEVEL COURSE IN LITERATURE.

ENG404 Creative Writing (Prose Fiction)
3 credits Offered By Announcement Only
Work toward professional standards primarily in prose fiction. Student fiction is considered in workshop sessions with comment by members of the class and instructors.
PREREQUISITE: ENG 290 OR PERMISSION OF INSTRUCTOR AND SIX CREDITS IN LITERATURE.
ENG406 Creative Writing (Poetry)  
3 credits  
Offered By Announcement Only  
Work toward professional standards in poetry. Student poetry is considered in workshop sessions with comment by members of the class and by instructor.  
PREREQUISITE: ENG 292 OR PERMISSION OF INSTRUCTOR AND SIX CREDITS IN LITERATURE.

ENG408 Writing Autobiography  
3 credits  
Offered By Announcement Only  
Literary style and method using student autobiography as a resource.  
PREREQUISITE: ENG 290 OR 292 OR PERMISSION OF INSTRUCTOR AND SIX CREDITS IN LITERATURE.

ENG410 Old English Language and Literature  
3 credits  
Offered By Announcement Only  
The grammar, syntax, and phonology of Old English language; readings in Old English poetry and prose.  
PREREQUISITE: THREE CREDITS IN LITERATURE.

ENG411 Old English Literature  
3 credits  
Offered By Announcement Only  
Translation and Close analysis of Beowulf or other major poetic texts of Old English literature.  
PREREQUISITE: ENG 410, OR ITS EQUIVALENT, AND SIX CREDITS IN LITERATURE.

ENG420 Chaucer  
3 credits  
Offered By Announcement Only  
Chaucer's major works.  
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG430 Shakespeare: The Early Plays  
3 credits  
Offered By Announcement Only  
Shakespeare's plays from the period 1583-1600. May not be taken concurrently with ENG 319.  
PREREQUISITE: SIX CREDITS IN LITERATURE. MAY NOT BE TAKEN CONCURRENTLY WITH ENG 319.

ENG431 Shakespeare: The Later Plays  
3 credits  
Offered By Announcement Only  
A study of the second half of Shakespeare's canon, read in chronological sequence. The plays will be selected from those composed in the period 1600-1611. May not be taken concurrently with ENG 319.  
PREREQUISITE: SIX CREDITS OF LITERATURE. MAY NOT BE TAKEN CONCURRENTLY WITH ENG 319.

ENG432 English Renaissance Poetry and Prose  
3 credits  
Offered By Announcement Only  
A study of such figures as Wyatt, Sidney, Spenser, Nashe, Marlowe, Shakespeare, Jonson, Donne, Bacon, Milton.  
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG433 English Renaissance Drama  
3 credits  
Offered By Announcement Only  
English drama during the sixteenth and seventeenth centuries.  
PREREQUISITE: SIX CREDITS IN LITERATURE.
ENG434 Seventeenth-Century Poetry and Prose
3 credits Offered By Announcement Only
Seventeenth-century writers and forms, including work by major and minor writers such as James I, Jonson, Donne, Bacon, Lovelace, Carew, Herrick, Andrewes, Herbert, Milton, Marvell, Clarendon, Dryden, Rochester, Behn, and Bunyan.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG435 Milton
3 credits Offered By Announcement Only
Selected readings in the poetry and prose of John Milton.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG440 Restoration and Eighteenth-Century Literature
3 credits Offered By Announcement Only
English poetry and prose, exclusive of the novel, from Dryden to Burns.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG441 18th-Century British Novel
3 credits Offered By Announcement Only
The British novel through the late eighteenth century.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG442 Politics and Literature
3 credits Offered By Announcement Only
Relations between political theories and forms of literary expression.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG450 The Early Romantic Period
3 credits Offered By Announcement Only
The rise of Romanticism in England and the first generation of writers, Blake, Wordsworth, Coleridge, and their contemporaries.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG451 The Late Romantic Period
3 credits Offered By Announcement Only
The second generation of English Romantic writers: Byron, Shelley, Keats, and their contemporaries.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG455 Victorian Poetry and Prose
3 credits Offered By Announcement Only
Selected English poetry and prose of the period, exclusive of the novel.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG456 Nineteenth-Century English Novel
3 credits Offered By Announcement Only
Studies in the development of the English novel from Scott to Conrad.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG460 Modern British Literature
3 credits Offered By Announcement Only
Studies in Edwardian and Modern literature. Modernist theory and techniques will be illustrated by reference to the work of selected major figures since 1900.
PREREQUISITE: SIX CREDITS IN LITERATURE.
ENG461 Contemporary British Literature
3 credits
Offered By Announcement Only
British literature from World War II to the present.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG465 Irish Literature
3 credits
Offered By Announcement Only
Twentieth-century Irish writers such as Yeats, Synge, Joyce, Stephens, O'Casey, Beckett, and Lavin. Consideration of Irish history, mythology, politics, and culture.
PREREQUISITE: SIX CREDITS OF LITERATURE.

ENG466 Joyce
3 credits
Offered By Announcement Only
The major works of James Joyce.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG470 Contemporary British and American Poetry
3 credits
Offered By Announcement Only
The poetry of the contemporary period, 1945 to the present.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG472 Literature and Psychoanalytic Theory
3 credits
Offered By Announcement Only
A study of the ways in which Literature, Literary Criticism, and Psychoanalytic Theory interact.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG473 Twentieth-Century Literary Theory
3 credits
Offered By Announcement Only
An introduction to the major theories of the past century (e.g., psychoanalytic, formalist, materialist, feminist, new historicist).
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG480 Early American Literature
3 credits
Offered By Announcement Only
American writing before 1800. Topics such as colonialism, ethnicity, nationalism, and the ideology of individualism.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG482 American Literature: 1800-1865
3 credits
Offered By Announcement Only
Topics such as individualism, slavery, class and gender relations. Works by Emerson, Poe, Hawthorne, Melville, Douglass, Stowe, and others.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG483 American Literature: 1865-1915
3 credits
Offered By Announcement Only
The works of such writers as Twain, Howells, James, Dickinson, Robinson, Crane, Norris, London, and Dreiser.
PREREQUISITE: SIX CREDITS IN LITERATURE.
ENG484 American Literature: 1915 to 1945
3 credits
Offered By Announcement Only
The works of such writers as Pound, Eliot, H.D., Stein, Frost, Stevens, e.e. cummings, Ransom, Tate, Fitzgerald, Hemingway, Djuna Barnes, Faulkner, O'Neill.
PREREQUISITE: SIX CREDITS OF LITERATURE.

ENG485 American Literature: 1945 to the Present
3 credits
Offered By Announcement Only
An intensive inquiry into the works of such writers as Albee, Bellow, Ferlinghetti, Ginsberg, Kerouac, Mailer, Miller, O'Connor, Plath, Welty.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG486 Early African-American Literature
3 credits
Offered By Announcement Only
African-American literature from the beginnings to the Harlem Renaissance of the nineteen twenties.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG487 Modern African-American Literature
3 credits
Offered By Announcement Only
African-American literature from the Harlem Renaissance to the present.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG488 Race, Ethnicity, and Literature
3 credits
Offered By Announcement Only
Topic varies by semester. The Construction of racial and ethnic difference in literature, focusing on the politics of group affiliation and identity.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG490 Studies in Women and Literature
3 credits
Offered By Announcement Only
Content varies by semester. Topics such as women in classical antiquity, women in the middle ages, women in the Renaissance, women in the Restoration and eighteenth century, women in the Romantic and Victorian period.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG491 Russian and Soviet Classics in English
3 credits
Offered By Announcement Only
Survey of Russian literature in translation from the late 19th century to the present.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG492 Postcolonial Literature and Theory
3 credits
Offered By Announcement Only
The legacy of colonialism as expressed in the works of Gordimer, Rushdie, Achebe, Walcott, Cesaire, Naipaul, Mukherjee, Crow Dog, Menchu, and others. Readings will address theoretical issues such as national formation, cultural hybridity, globalization.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG493 History of Literary Criticism
3 credits
Offered By Announcement Only
PREREQUISITE: SIX CREDITS IN LITERATURE.
ENG494 Feminist Literary Theory
3 credits
Offered By Announcement Only
Examination of women's contributions to literary theory.
PREREQUISITE: SIX CREDITS IN LITERATURE INCLUDING AT LEAST ONE 300-LEVEL COURSE IN LITERATURE.

ENG495 Special Topics
3 credits
Offered By Announcement Only
Content varies by semester and is indicated parenthetically following the title in the class schedule.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG496 Special Topics
3 credits
Offered By Announcement Only
Content varies by semester and is indicated in parentheses following the title in the class schedule.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG497 Special Topics
3 credits
Offered By Announcement Only
Content varies by semester and is indicated in parentheses following the title in the class schedule.
PREREQUISITE: SIX CREDITS IN LITERATURE.

ENG498 Senior Thesis
3 credits
Offered By Announcement Only
Partial requirement for Departmental Honors in English. Thesis to be a documented essay on a literary subject written under the direction of a member of the English faculty.
PREREQUISITE: SENIOR STATUS, CERTIFICATION BY DIRECTOR OF UNDERGRADUATE STUDIES, AND PERMISSION OF THESIS DIRECTOR.

ENG499 Senior Creative Writing Project
3 credits
Offered By Announcement Only
Partial requirement for Departmental Honors in Creative Writing. Project, in prose fiction or poetry, to be written under the direction of a member of the creative writing faculty.
PREREQUISITE: SENIOR STATUS, CERTIFICATION OF ELIGIBILITY BY DIRECTOR OF UNDERGRADUATE STUDIES, AND PERMISSION OF PROJECT DIRECTOR.

ENG504 Form in Poetry
3 credits
Offered By Announcement Only
Poetic works as literary objects, with attention to poetic trends and the creative process.
PREREQUISITE: PERMISSION OF INSTRUCTOR. SIX CREDITS IN LITERATURE OR GRADUATE STANDING.

ENG505 Form in Fiction
3 credits
Offered By Announcement Only
Fictional works as literary objects with attention to individual styles, Fictional Trends and the creative process.
PREREQUISITE: GRADUATE STUDENTS. PERMISSION OF INSTRUCTOR. UNDER-GRADUATES: SIX CREDITS IN LITERATURE AND PERMISSION OF INSTRUCTOR.
ENGLISH

ENG560 Creative Writing: Fiction I
3 credits Offered By Announcement Only
Advanced work in the writing of fiction.
PREREQUISITE: PERMISSION OF INSTRUCTOR AND, FOR UNDERGRADUATE, SIX CREDITS IN ENGLISH AT THE 200 LEVEL OR ABOVE

ENG561 Creative Writing: Fiction II
3 credits Offered By Announcement Only
Advanced work for students displaying superior ability for prose fiction writing.
Admission by recommendation or demonstration of skills.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ENG562 Creative Writing: Poetry
3 credits Offered By Announcement Only
Advanced work in the writing of poetry.
PREREQUISITE: AT LEAST SIX CREDITS IN ENGLISH AT THE 200 LEVEL OR ABOVE OR GRADUATE STANDING.

ENG591 Graduate Practicum I: Teaching College Writing
0 credit Fall Semester
Methods and problems in teaching English composition and college writing.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR

ENG592 Graduate Practicum II: Teaching College Literature
0 credit Fall Semester
Methods and problems in teaching introductory literature courses.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR

ENG595 Special Topics
3 credits Offered By Announcement Only
PREREQUISITE: FOR UNDERGRADUATES, SIX CREDITS IN LITERATURE OR PERMISSION OF INSTRUCTOR; FOR GRADUATE STUDENTS, PERMISSION OF DIRECTOR OF GRADUATE STUDIES

FRENCH

FRE101 Elementary French I
3 credits Fall & Spring Semester & First Summer Session
For students with no backgroud or previous study of French. The focus of FRE 101 is the development of communicative abilities in speaking, reading, writing, and comprehension of French and an introduction to the cultural practices of the Francophone world. Themes on: university life, family, leisure activities, home and community. Includes both oral and written assessment of grammatical structures and vocabulary introduced, informal and formal writing. Conducted entirely in French. Not open to students who have completed 2 or more years of high school French. Closed to heritage or native speakers of French.

FRE102 Elementary French II
3 credits Fall & Spring Semester & First Summer Session
Continuation of FRE 101. The development of communicative abilities in speaking, reading, writing and comprehension of French and an introduction to the cultural practices of the Francophone world. Themes on: childhood and adolescence, food and lifestyle, university life and professions. Includes both oral and written assessments of grammatical structures and vocabulary introduced, informal and formal writing. Conducted entirely in French.
PREREQUISITE: FRE 101 OR THE EQUIVALENT OF FRE 101 AT ANOTHER INSTITUTION. CLOSED TO HERITAGE AND NATIVE SPEAKERS
FRE105 Accelerated Elementary French
3 credits Fall & Spring Semester
For students with previous study of French desiring to review material covered in FRE 101 and 102 in preparation for continued study of French at the intermediate level. The focus of FRE 105 is the continued development of communicative abilities in speaking, reading, writing, and comprehension of French and an introduction to the cultural practices of the Francophone world. Themes on: family, leisure activities, home, and community, childhood and adolescence, food and lifestyle, university life and professions. Includes both oral and written assessments of grammatical structures and vocabulary introduced, informal and formal writing. Conducted entirely in French.
PREREQUISITE: THREE OR MORE YEARS OF HIGH SCHOOL FRENCH OR THE EQUIVALENT. CLOSED TO HERITAGE AND NATIVE SPEAKERS.

FRE211 Intermediate French I
3 credits Fall & Spring Semester & First Summer Session
For students with previous study of elementary-level French. The continued development of communicative abilities in speaking, reading, writing, and comprehension of French and an introduction to the cultural practices of the Francophone world. Themes on: travel, technological innovations, the evolution of family values, and social and environmental issues. Includes both oral and written assessments of grammatical structures and vocabulary introduced, informal and formal writing. Conducted entirely in French.
PREREQUISITE: FRE 102 OR FRE 105, THE EQUIVALENT FROM ANOTHER INSTITUTION OR 3-4 YEARS HIGH SCHOOL FRENCH. AP 3 (LANGUAGE TEST) OR IB 4. CLOSED TO HERITAGE OR NATIVE SPEAKERS OF FRENCH.

FRE212 Intermediate French II
3 credits Fall & Spring Semester
For students with some previous study of French at the intermediate level, who are familiar with all tenses and with vocabulary related to the topics covered in FRE 101-211. FRE 212 is the first semester of a two-semester sequence ending with FRE 214. The continued development of skills in reading, writing, speaking, and listening in French, with an additional emphasis on cultural competence in the French-speaking world. Themes on: relationships, cultural values, different historical perspectives, and current politics. These themes will be explored through articles, films and literary texts. The course will develop writing and reading strategies, providing them with the tools to think, read, and write critically and analytically in papers of 1-3 pages. Progress will also be assessed through quizzes and exams. Course conducted entirely in French.
PREREQUISITE: FRE 211 OR 5-6 YEARS OF HIGH SCHOOL FRENCH. CLOSED TO NATIVE SPEAKERS OF FRENCH.

FRE214 Advanced French
3 credits Fall & Spring Semester
Continuation of FRE 212. This course will prepare students for advanced literature, linguistics, and culture courses. The class will use films, literary works, and other cultural texts. Students will write analytic essays of 3-5 pages to develop style, vocabulary, and syntax. Course conducted entirely in French.
PREREQUISITE: FRE 212 CLOSED TO NATIVE SPEAKERS OF FRENCH.
FRE301 Introduction to Literary Genres
3 credits  Fall & Spring Semester
Selected materials from various genres and periods of French Literature. Further
development of critical writing skills for non-native speakers. Closed to native
speakers formally educated in French. May be used to fulfill the humanities literature
requirement. Writing credit.
PREREQUISITE: FRE 214 OR EQUIVALENT.

FRE302 French Civilization
3 credits  Offered By Announcement Only
Historical survey of French intellectual, artistic, and popular culture. Writing
credit.
PREREQUISITE: FRE 214 OR EQUIVALENT.

FRE321 Introduction to Literary Themes
3 credits  Offered By Announcement Only
The study of literature through thematic readings. May be repeated for credit if
topic is different. Topics vary. Writing credit.
PREREQUISITE: FRE 301 OR EQUIVALENT.

FRE322 Cultural Topics
3 credits  Offered By Announcement Only
Cultural issues in France and/or French-speaking regions. Topics such as film,
Caribbean history, journalism, Francophone Africa, immigration. May be repeated
for credit if topic is different. Writing credit.
PREREQUISITE: FRE 301 OR PERMISSION OF THE INSTRUCTOR; FRE 302 RECOMMENDED.

FRE363 Introduction to Medieval and Renaissance French Literature
3 credits  Offered By Announcement Only
French literature from the 12th century to the end of the 16th century. May be
used to fulfill the humanities literature requirement. Writing credit.
PREREQUISITE: FRE 301 OR EQUIVALENT.

FRE364 Introduction to 17th and 18th Century French Literature
3 credits  Offered By Announcement Only
French literature from the 17th and 18th centuries. May be used to fulfill the
humanities Literature requirement. Writing credit.
PREREQUISITE: FRE 301 OR EQUIVALENT.

FRE365 Introduction to 19th and 20th Century French Literature
3 credits  Offered By Announcement Only
French literature from the 19th and 20th centuries. May be used to fulfill the
humanities literature requirement. Writing credit.
PREREQUISITE: FRE 301 OR EQUIVALENT.

FRE395 Transfer Credits
1-3 credits  Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

FRE396 Transfer Credits
1-3 credits  Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.
FRE397 Transfer Credits
1- 3 credits Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

FRE398 Transfer Credits
1- 3 credits Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

FRE399 Transfer Credits
1- 3 credits Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

FRE432 Business French
3 credits Fall Semester
Commercial Vocabulary, economic and technical terminology in French. Composition based on models of business correspondence directed to French speaking countries or firms.
PREREQUISITE: FRE 214 OR PERMISSION OF THE INSTRUCTOR.

FRE440 Phonetics
3 credits Offered By Announcement Only
French pronunciation based on phonetics. Exercises in diction and phonetic transcription.
PREREQUISITE: FRE 301 OR PERMISSION OF INSTRUCTOR.

FRE442 Advanced Stylistics and Composition
3 credits Offered By Announcement Only
PREREQUISITE: FRE 301 OR PERMISSION OF INSTRUCTOR.

FRE495 Transfer Credits
1- 3 credits Not Offered; Transfer Credit Only
Awarded for 400-level course work at another institution for which UM has no direct equivalent.

FRE501 Capstone
3 credits Fall & Spring Semester
Course with a broad-based topic designed to integrate high-level linguistic, critical and analytical skills with the body of knowledge acquired during the course of study toward the major. Topics vary. Open only to undergraduates in the last semester of their French major. Course is writing intensive; fulfills writing credit requirement.
PREREQUISITE: TO BE TAKEN IN THE LAST SEMESTER OF THE MAJOR.

FRE591 Directed Readings
1- 3 credits Offered By Announcement Only
May be repeated for credit if topic is different.
PREREQUISITE: ONE 500-LEVEL COURSE AND PERMISSION OF INSTRUCTOR.

FRE592 Directed Readings
1- 3 credits Offered By Announcement Only
PREREQUISITE: ONE 500-LEVEL COURSE AND PERMISSION OF INSTRUCTOR.

FRE593 Directed Readings
1- 3 credits Offered By Announcement Only
PREREQUISITE: ONE 500-LEVEL COURSE AND PERMISSION OF INSTRUCTOR.
FRE594 Senior honors Thesis I
3 credits  Fall Semester
Directed research for honors thesis.
PREREQUISITE: MUST HAVE COMPLETED AT LEAST TWELVE CREDITS AT THE 300-LEVEL OR ABOVE TOWARDS FRENCH MAJOR, MUST MEET ELIGIBILITY FOR HONORS IN FRENCH.

FRE595 Senior Honors Thesis II
3 credits  Fall Semester
Directed writing of honors thesis.
PREREQUISITE: FRE 594.

GEOGRAPHY

GEG105 World Regional Geography
3 credits  Fall & Spring Semester
An introduction to geography's basic concepts within the framework of a comprehensive survey of the world's major regions.

GEG110 Introduction to Human Geography
3 credits  Fall & Spring Semester
An introduction to the sub-fields of human geography by an examination of patterns and process in the international system.

GEG120 Physical Geography
3 credits  Fall & Spring Semester
The Earth system (atmosphere; hydrosphere; biosphere; lithosphere) emphasizing the interrelationships among its constituent subsystems; human-environmental interactions and geographic dimensions of these four subsystems.

GEG199 Introduction to GIS (Geographic Information Systems)
3 credits  Fall & Spring Semester
This course uses lecture and lab sessions to teach fundamental concepts in Geographic Information Systems (GIS) and introduce related geographic technologies (Global Positioning Systems, Remote Sensing, etc.). Topics include the nature and sources of digital and spatial data, map projections and datums, raster and vector data structures, raster and vector spatial analysis, and GIS project design. Students will learn to use ArcView and Idrisi, two leading GIS software programs.

GEG201 Topics in Geography
3 credits  Fall & Spring Semester
Content and prerequisites vary.
PREREQUISITE: ANY 100 LEVEL GEG COURSE.

GEG212 Geography of Middle America and the Caribbean
3 credits  Fall Semester
Human and physical geography of Middle America and the Caribbean.

GEG222 Geography of South America
3 credits  Spring Semester
This course is an introduction to the geography of South America. It explores the physical, political, economic, social and cultural geographies of this diverse and complex world region. The course covers agrarian and urban land-use patterns, migration and territorial development and includes urban and regional planning, health, education and social services, with particular attention given to how these interventions address problems of uneven territorial development and social inequality.
GEG232 Geography and Development in Africa
3 credits  Fall Semester
A survey of the geography of Africa south of the Sahara, with particular emphasis on development and the role of African states in the international system.

GEG242 Economic and Political Geography of the Middle East
3 credits  Fall Semester
Human and physical geography of the Middle East with emphasis on current topics.

GEG252 United States and Canada
3 credits  Spring Semester
Human and physical geography of North America.

GEG262 Political Geography of Europe
3 credits  Spring Semester
Human and physical geography of contemporary Europe.

GEG280 Introduction to Cartography and Computer Mapping
3 credits  Offered By Announcement Only
Methods and techniques of cartography. Cartographic representation of spatial data.

GEG301 Topics in Geography
3 credits  Offered By Announcement Only
Content and prerequisites announced when offered. Course may be repeated for credit if content varies.

GEG304 World Economic Geography
3 credits  Fall Semester
Geographic analysis of the distribution of economic activities with emphasis on present-day patterns and trends of production, distribution, and consumption of the world's major commodities.  
PREREQUISITE: ANY 100 OR 200-LEVEL COURSE IN GEOGRAPHY.

GEG341 Geography of Population and Development
3 credits  Spring Semester
Major world population issues are discussed, including population growth, fertility patterns, mortality change, migration, ethnicity, and population structure changes.  
PREREQUISITE: ANY 100 OR 200-LEVEL GEOGRAPHY COURSE.

GEG350 Gender Relations in Global Perspective: A Social and Economic Geography
3 credits  Fall Semester
Comparative geographic analysis of gender (male and female) roles in their societies and associated issues.  
PREREQUISITE: ANY 100 OR 200 GEOGRAPHY COURSE.

GEG362 World Urban Geography
3 credits  Offered By Announcement Only
An introduction to the principles and methods that apply to the geographic study of cities and urbanization.  
PREREQUISITE: ANY 100- OR 200-LEVEL GEOGRAPHY COURSE.

GEG370 Conservation of Resources
3 credits  Offered By Announcement Only
Problems of resource availability in an urban-industrial society.  
PREREQUISITE: ANY 100 OR 200-LEVEL GEOGRAPHY COURSE.
GEG371 Environmental Geography: Current Issues
3 credits                                               Offered By Announcement Only
Topics selected from a wide range of current environmental problems from a geographical perspective. Students will become familiar with a wide range of ecological processes as well as the human forces that currently modify them.
PREREQUISITE: ONE COURSE IN EITHER PHYSICAL GEOGRAPHY OR ECOLOGY OR PERMISSION OF INSTRUCTOR.

GEG391 Intermediate GIS (Geographic Information Systems)
3 credits                                                    Fall & Spring Semester
This course deals with fundamental concepts of raster and vector data manipulation and analysis through lectures and laboratory exercises. Topics covered include vector polygon editing and topology, data quality assessment, integration of raster and vector data, basic concepts of remote sensing, cartographic modeling, suitability mapping, and multi-criteria evaluations.
PREREQUISITE: GEG 199 OR PERMISSION OF INSTRUCTOR.

GEG392 Remote Sensing of the Environment
3 credits                                                           Spring Semester
Theory and techniques of environmental remote sensing and imagery interpretation for earth resources monitoring and management.
PREREQUISITE: GEG 199 OR PERMISSION OF INSTRUCTOR.

GEG420 Geopolitics
3 credits                                                             Fall Semester
Analysis of contemporary global geopolitical issues.
PREREQUISITE: ANY 100- OR 200-LEVEL GEOGRAPHY COURSE.

GEG430 World Cities
3 credits                                                           Spring Semester
The role of major cities in the world economy and the social consequences of globalization for urban areas.
PREREQUISITE: ANY 100- OR 200-LEVEL GEG COURSE.

GEG471 Ecological Biogeography
3 credits                                               Offered By Announcement Only
Survey in modern Biogeography, emphasizing ecological rather than evolutionary concepts; the distributions of species and factors that have influenced the organization of plant communities.
PREREQUISITE: ONE COURSE IN EITHER PHYSICAL GEOGRAPHY OR ECOLOGY OR PERMISSION OF INSTRUCTOR.

GEG481 Introduction to Quantitative Methods
3 credits                                                             Fall Semester
The use of basic methods or quantitative analysis in geographic research.
PREREQUISITE: GEOGRAPHY MAJOR OR MINOR AND MTH 101 OR EQUIVALENT.

GEG491 GIS and Environmental Modeling
3 credits                                               Offered By Announcement Only
Creation, editing, management and display of spatial databases in ARC/INFO, a vector-based GIS (Geographic Information System).
PREREQUISITE: GEG 391 OR PERMISSION OF INSTRUCTOR.
GEG495 Advanced Seminar in Human Geography
3 credits
Spring Semester
Seminar on development-related issues in South Asia.
PREREQUISITE: ANY 100 OR 200 LEVEL GEG COURSE.

GEG501 Place, Region, Nature
3 credits
Offered By Announcement Only
Introductory seminar for Graduate students about geographic thought and geographical traditions.
PREREQUISITE: AT LEAST 6 CREDITS IN GEOGRAPHY OR PERMISSION FROM INSTRUCTOR.

GEG503 Research Trends in Geography
3 credits
Offered By Announcement Only
Contemporary research trends and methodological developments.

GEG510 Survey Research in Geography
3 credits
Offered By Announcement Only
The use of survey research including the choice of a survey mechanism, sampling, questionnaire design, survey logistics, survey analysis, and reporting of results.

GEG511 Field Studies in Geography
1-6 credits
Offered By Announcement Only
One to six weeks of intensive geographic field studies outside the Miami area. Lectures will be given prior to departure. The locations and topics of study will vary.
PREREQUISITE: GEG 105 OR ANY 200-LEVEL GEOGRAPHY COURSE.

GEG515 Human Dimensions of Global Environmental Change
3 credits
Fall Semester
Explores the human dimensions of global environmental change using an interdisciplinary approach. The course is reading and writing intensive. Special attention is given to the central role that land-use/cover change plays in the larger realm of global environmental change.
PREREQUISITE: GEG 105 AND JUNIOR/SENIOR STANDING.

GEG520 Immigration to the United States
3 credits
Fall Semester
A description and analysis of current immigration patterns in the United States.
PREREQUISITE: ANY 100 OR 200 LEVEL COURSE OR PERMISSION FROM INSTRUCTOR.

GEG521 Global Trade
3 credits
Offered By Announcement Only
Geographic analysis of the distribution of economic activities and capabilities, with emphasis on contemporary trade patterns and policies.

GEG522 Urbanization in the Developing World
3 credits
Spring Semester
Patterns and processes in large cities in the developing world are examined.
PREREQUISITE: ANY 100 OR 200 LEVEL COURSE IN GEOGRAPHY OF PERMISSION FROM INSTRUCTOR.
GEG523 Seminar in Urban Management
3 credits Fall Semester
Identification of and responses to urban problems in large cities in European and Latin American metropolitan areas. Emphasis is on demographic, cultural/ethnic, service-provision, environmental, transportation, and land-use problems. Approach is via case studies, theory applications, and planning practicalities.

GEG525 Problems in Geography
1-6 credits Fall & Spring Semester
Content and prerequisites announced when offered. Course may be repeated for credit if content varies.
PREREQUISITE: GEOGRAPHY GRADUATE STUDENT, MAJOR, OR MINOR ONLY.

GEG535 Internship in Geography
1-4 credits Fall & Spring Semester
Students are assigned to work for a local public or private agency.
PREREQUISITE: 15 CREDITS IN GEOGRAPHY AND PERMISSION OF DEPARTMENT.

GEG545 Special Topics
3 credits Fall & Spring Semester
PREREQUISITE: NINE CREDITS IN GEOGRAPHY.

GEG552 Seminar on the Geography of South Florida
3 credits Offered By Announcement Only
Human and physical geography of South Florida.
PREREQUISITE: NINE CREDITS IN GEOGRAPHY.

GEG570 Gender and Development
3 credits Offered By Announcement Only
Theoretical and empirical examination of gender and development processes through exploration of gender and development evolution as an academic discipline and application in development practice.
PREREQUISITE: GRADUATE STUDENTS OR PERMISSION OF INSTRUCTOR.

GEG580 Introductory quantitative methods for geographical analysis.
3 credits Spring Semester
Basic quantitative methods for geographic analysis.
PREREQUISITE: GRADUATE STANDING

GEG582 Advanced Quantitative Methods
3 credits Spring Semester
Continuation of GEG 481. The use of statistical methods and techniques in the solution of geographic research problems.
PREREQUISITE: GEG 481.

GEG591 Introduction to GIS (Geographic Information Systems) for graduate students
3 credits Offered By Announcement Only
Overview of basic concepts in GIS (Geographic Information Systems) for students wishing to get graduate credit. This class involves a student project using GIS.

GEG595 Advanced Seminar on South Asia
3 credits Spring Semester
Seminar on development-related issues in South Asia.
PREREQUISITE: PERMISSION FROM INSTRUCTOR (GRADUATE).
GSC101 Origin and Evolution of Planet Earth
3 credits Fall & Spring Semester
The origin of the elements and the evolution of the universe. The formation and early evolution of the solar system. The differentiation of the earth into core, mantle, and crust. Origin of the oceans and atmosphere.

GSC102 Evolution of the Biosphere
3 credits Fall & Spring Semester & Second Summer Session
The physical basis of life. The origin, early evolution, history of life on Earth. Emphasis on major crises and innovations, including the evolution of modern man.

GSC103 Evolution of the Modern Earth's Environment
3 credits Fall & Spring Semester & First Summer Session

GSC104 The Coastal Environment of South Florida
1 credit Offered By Announcement Only
Lectures and excursions to the coastal environment and the Everglades.
PREREQUISITE: NOT FOR MAJOR OR MINOR.

GSC105 The Global Environment
3 credits Fall Semester
Ongoing problems in earth systems: global warming, ozone depletion, energy shortages, air and water pollution, radioactivity.

GSC106 Geological Influences on Society
3 credits Spring Semester

GSC110 The Earth System
3 credits Fall & Spring Semester & First Summer Session
Interactions among the major components of the Earth System - the geosphere, the hydrosphere, the atmosphere, and the biosphere. To be taken concurrently with GSC 114 lab section.

GSC111 Earth System History
4 credits Fall & Spring Semester
Earth History, beginning with earliest origins and surveying major steps in the evolution of the geosphere, atmosphere, hydrosphere, and biosphere.

GSC114 Marine Geology Lab/Field Study
2 credits Fall & Spring Semester
Minerals, rocks, sediments, maps, imagery, fossils and paleoenvironmental reconstruction methods. Current frontiers of knowledge and field introduction to marine geology.
Corequisite: GSC 110.
PREREQUISITE: COREQUISITE GSC 110.
GSC115 Environmental Geology Lab/Field Study
2 credits    Fall & Spring Semester & First & Second Summer Session
Minerals, rocks, sediments, soils, maps, imagery, fossils and paleoenvironmental reconstruction, methods for studying dynamics and human impact on surficial environments. Field introduction to environmental geology problems and methods. Corequisite: GSC 110 or 120.
PREREQUISITE: COREQUISITE: GSC 110 OR 120.

GSC131 Volcanoes and Society
1 credit    Spring Semester
Impact of volcanoes on past and present human civilizations. Topics include the origin of volcanoes, types of volcanic hazards, impact of volcanoes on climate, beneficial aspects of volcanic eruptions, and historical examples.

GSC132 History of Life in the Universe
1 credit    Spring Semester

GSC133 Dinosaurs and Disasters
1 credit    Spring Semester
Examination of the biology, evolution and extinction of the dinosaurs.

GSC230 Reef Systems Through Time
3 credits    Spring Semester
Interacting geological, physical, chemical, biological, and climatic processes that define a reeval setting and system. Field trips included.
PREREQUISITE: GSC 110, 111.

GSC231 Field Study of Reef Systems Through Time
2 credits    Spring Semester
PREREQUISITE: GSC 230.

GSC240 Introduction to Marine Geology
3 credits    Offered By Announcement Only
The principal marine geological environments of the world, their substrate, their sediments, their flora and fauna, and their evolution through time.
PREREQUISITE: GSC 110 OR PERMISSION OF INSTRUCTOR.

GSC260 Earth Materials
4 credits    Fall Semester
Physical and optical properties of common rock-forming minerals and their occurrence in igneous, metamorphic, sedimentary rocks, and ore deposits. Lecture, 3 hours; laboratory, 4 hours.
PREREQUISITE: GSC 110; PREREQUISITE OR COREQUISITE CHM 111.
GSC301 Science and Human Affairs in the 20th Century  
3 credits  
Spring Semester  
Scientific descriptions of the technologies arising in the 20th century, and the interactions between them and our civilization. Course will be divided into four parts: World War I, the interwar years, World War II, and the postwar years. Grades will be based on weekly quizzes, three hour-exams, and a final. An extra-credit term paper will be suggested.  
PREREQUISITE: GSC 101.

GSC310 Microbes and the Environment  
3 credits  
Fall Semester  
This course is designed to provide students in geology, biology and environmental science a fundamental understanding of the role microbes play in shaping the Earth and its environments as well as the basic principles and approaches to studying these interactions in both modern and ancient settings. The metabolic diversity displayed by microbial communities makes them an integral component of global elemental cycles. In this regard, microorganisms have shaped our planet over the past 4 billion years and continue to do so in a very prominent way. The goal of this course is to learn about microbial diversity and metabolism, and the ability of microbes to shape and influence the environment.  
PREREQUISITE: GSC110/114, GSC 111 OR CONSENT OF INSTRUCTOR.

GSC311 Field Study of Volcanoes and Society  
2 credits  
Spring Semester  
Field trip to Popocatepetl and surrounding sites near Mexico City. Nature and impact of explosive volcanic eruptions on prehistoric civilizations. Fee required.  
PREREQUISITE: GSC 110 OR PERMISSION OF INSTRUCTOR. GSC 440 RECOMMENDED.

GSC360 Depositional and Diagenetic Systems  
4 credits  
Fall Semester  
Sedimentary processes, sedimentology, and sedimentary diagenesis. Physical, biological and chemical sedimentation in Earth's surficial environments. Paleoenvironmental and diagenetic history reconstruction using petrologic, hand specimen, and field methods. Cyclicity in sedimentary systems. Lecture, 3 hours; field/laboratory, 3 hours.  
PREREQUISITE: GSC 110.

GSC380 Paleontology and Stratigraphy  
4 credits  
Spring Semester  
Biostratigraphy, paleoecology, taphonomy, micro- and macroevolutionary processes, and physical and chemical methods used for stratigraphic correlation. Major groups of invertebrate phyla comprising the bulk of the fossil record. Lecture, 3 hours; laboratory, 2 hours.  
PREREQUISITE: GSC 111.

GSC401 Senior Internship  
3 credits  
Offered By Announcement Only  
Field and laboratory studies conducted in conjunction with an approved academic environmental or industrial research laboratory or agency.  
PREREQUISITE: 15 CREDITS IN GEOLOGICAL SCIENCES AND PERMISSION OF THE DEPARTMENT.
GSC410 Environmental Geochemistry
3 credits Spring Semester
Natural distribution of the elements on earth, and how this is being changed. Radioactivity and energy, greenhouse warming and ozone depletion, water and waste and other environmental problems.
PREREQUISITE: GSC 110; CHM 111 OR PERMISSION FROM THE INSTRUCTOR.

GSC420 Geophysics
3 credits Fall Semester
PREREQUISITE: PHY 205, & 206. OR PERMISSION OF INSTRUCTOR.

GSC440 Igneous and Metamorphic Petrology
4 credits Fall Semester
Genesis and classification of igneous and metamorphic rocks, field relationships of rock assemblages, and results of recent laboratory investigations. Identification of common rock types in hand specimens and by thin-section and X-ray diffraction techniques. Lecture, 3 hours; laboratory, 3 hours.
PREREQUISITE: GSC 260.

GSC450 Sedimentology
4 credits Offered By Announcement Only
Sedimentary environment and processes. The geochemistry, formation and diagenesis of sediments. The role of physical and biological factors, including tectonism and climate. Use of sediments in paleoenvironmental reconstructions. Genesis of sedimentary economic deposits, with special emphasis on the formation of petroleum. Lecture, 3 hours; laboratory, 2 hours.

GSC480 Structural Geology
4 credits Spring Semester
Behavior of rock materials; analysis, description and classification of geologic folds, faults, joints; analysis of rock fabrics; tectonic and geologic history of continents and continental margins. Lecture, 2 hours; laboratory, 2 hours.
PREREQUISITE: GSC 440.

GSC482 Field Methods
2 credits Spring Semester
Field and laboratory exercises in mapping, interpretation of aerial and satellite photographs interpretation; coring and sampling; sequence description and interpretation of modern and ancient environments; sediment and rock sequences. Training in field use of brunton, GPS, well logging; application to sedimentary, tectonic, and marine settings. Laboratory meets two hours/week. Field portion is on alternate Saturdays plus four day trip to Appalachians or Caribbean.
PREREQUISITE: GSC 360 OR 380.

GSC490 Senior Thesis
3 credits Fall & Spring Semester & First & Second Summer Session
Individual, original research of independent study supervised by a member of the Departmental faculty and concluded by formal thesis preparation, public oral defense and submission of the thesis to the Department.
PREREQUISITE: 3.0 GPA IN MAJOR; PASS DEPARTMENTAL EXAMINATION AT CONCLUSION OF JUNIOR YEAR; PERMISSION OF THE DEPARTMENT.
GSC491 Senior Thesis
3 credits   Fall & Spring Semester & First & Second Summer Session
Individual, original research of independent study supervised by a member of the Departmental faculty and concluded by formal thesis preparation, public oral defense and submission of the thesis to the Department.
PREREQUISITE: 3.0 GPA IN MAJOR; PASS DEPARTMENTAL EXAMINATION AT CONCLUSION OF JUNIOR YEAR; PERMISSION OF THE DEPARTMENT.

GSC515 Applied Environmental Geology
3 credits   Spring Semester
An advanced undergraduate/graduate course providing knowledge and methods for effective environmental site surveys, to be presented in a weekly 3-hour lecture and discussion. The course will cover policies and regulation including applied practice to comply with safe environmental conduct and valid assessment. Case study, best management practice, and appropriate field equipment and approaches will complement two one-day field trips associated with this course.
PREREQUISITE: PERMISSION OF INSTRUCTOR OR DEPARTMENT CHAIR.

GSC520 Geology of Florida and the Caribbean
3 credits   Fall Semester
The land and marine geologic history, the natural resources and geologic hazards of Florida and the Caribbean region.
PREREQUISITE: GSC 110, 111, 260.

GSC540 Geophysics
3 credits   Spring Semester
PREREQUISITE: PHY 205, 206.

GSC545 Introduction to Isotope and Nuclear Geology
4 credits   Offered By Announcement Only
Radioactivity and particle counting. The geological time scale. Isotope fractionation in natural systems. Mass spectrometry and the measurements of relative isotopic abundances in the ocean, the atmosphere, and the solid earth. Lecture, 2 hours; laboratory, 4 hours.

GSC550 Hydrogeology
3 credits   Fall Semester
Movement of subterranean water. The mechanical, chemical and thermal interaction of water with porous solids, and the transport of energy and chemical constituents. The origin of porosity and permeability. The controls exerted on aquifers by the lithology, stratigraphy and structure of geologic deposits and formations.
PREREQUISITE: 8 CREDITS IN GEOLOGICAL SCIENCES AND PERMISSION OF INSTRUCTOR.

GSC555 Mathematical Methods for Geoscientists
3 credits   Fall Semester
Background mathematics needed to solve problems in the geosciences. Applications in tectonics, structural geology, geochemical systems, seismology and hydrology.
PREREQUISITE: MTH 112 OR 132, 211 OR 310, OR 312, AND PHY 206, OR EQUIVALENT.
GSC556 Complexity in Coastal Systems
4 credits                                                     Fall Semester
Different aspects of the coastal system and their interactions using inquiry-based learning; will include remote sensing data as a tool for data analysis and visualization. PREREQUISITE: SIX CREDITS IN BIOLOGY OR GEOLOGICAL SCIENCES.

GSC560 Colloquium - Current Topics in the Geosciences
1 credit                                                       Fall Semester
Weekly presentations and discussions. Written and oral presentations required. PREREQUISITE: SENIOR STANDING.

GSC561 Colloquium - Current Topics in the Geosciences
1 credit                                                       Spring Semester
Weekly presentations and discussions. Written and oral presentations required. PREREQUISITE: SENIOR STANDING.

GSC565 Fluxes of Energy and Matter in the Earth Systems
3 credits                                                     Offered By Announcement Only
Transport phenomena, motions, and deformation in Earth Systems. PREREQUISITE: GSC 110, 360.

GSC574 Special Studies
1- 4 credits                                                   Fall & Spring Semester & First & Second Summer Session
Students engaged in approved field and/or laboratory activities, such as work at sea or in the laboratory under supervision, may register for credit. PREREQUISITE: PERMISSION OF DEPARTMENT.

GSC575 Special Studies
1- 4 credits                                                   Fall & Spring Semester & First & Second Summer Session
Students engaged in approved field and/or laboratory activities, such as work at sea or in the laboratory under supervision, may register for credit. PREREQUISITE: PERMISSION OF DEPARTMENT.

GSC576 Special Studies
1- 4 credits                                                   Fall & Spring Semester & First & Second Summer Session
Students engaged in approved field and/or laboratory activities, such as work at sea or in the laboratory under supervision, may register for credit. PREREQUISITE: PERMISSION OF DEPARTMENT.

GSC580 Summer Field Geology
4 credits                                                     Spring Semester & First & Second Summer Session
An intensive four-week summer field laboratory study of modern geological processes and ancient rock sequences. Mapping, description and interpretation of rock and structural sequences, paleoenvironmental reconstruction, interpretation of tectonic history. Reports required. Touring course. Travel fee required. PREREQUISITE: 18 CREDITS IN GEOLOGICAL SCIENCES AND/OR PERMISSION OF INSTRUCTOR.

GSC581 Summer Field Environmental Geology
2 credits                                                     Spring Semester & First & Second Summer Session
GEOLOGICAL SCIENCES

GSC582 Field Studies
1-4 credits  Offered By Announcement Only
Conducted field trips to selected geological sites in the United States and abroad.
Report required.
PREREQUISITE: GRADUATE OR ADVANCED UNDERGRADUATE STANDING AND PERMISSION OF DEPARTMENT.

GSC596 Research in Geology
1-4 credits  Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: PERMISSION OF INSTRUCTOR.

GERMAN

GER101 Elementary German I
3 credits  Fall & Spring Semester
Fundamental grammatical principles; exercises to develop a foundation for skills
of listening, speaking, reading, and writing; introduction to German culture. Closed
to native speakers.

GER102 Elementary German II
3 credits  Fall & Spring Semester
Continuation of GER 101. PREREQUISITE: GER 101 OR EQUIVALENT. CLOSED TO NATIVE SPEAKERS.

GER211 Intermediate German I
3 credits  Fall & Spring Semester
Continuation of GER 102, with special emphasis on essay writing.
PREREQUISITE: GER 102 OR EQUIVALENT. CLOSED TO NATIVE SPEAKERS.

GER212 Intermediate German II
3 credits  Fall & Spring Semester
Integrated grammar, writing, and conversation via content-based instruction. Diverse
selection of readings: stories, plays, essays, interviews, other materials. Development
of skills in a workshop format.
PREREQUISITE: GER 211 OR EQUIVALENT. CLOSED TO NATIVE SPEAKERS.

GER301 Advanced German: Introduction to Literary Genres
3 credits  Fall Semester
Intensive preparation for further 300-level work through use of various genres
of German-language texts (short stories, poems, plays, comics, essays). Development
of critical reading and writing skills. Writing credit.
PREREQUISITE: GER 212 OR EQUIVALENT. CLOSED TO NATIVE SPEAKERS.

GER302 German Civilization
3 credits  Offered By Announcement Only
Historical survey of German civilization; arts, letters, science, political and
social institutions. Conducted in German. Collateral readings and reports.
PREREQUISITE: GER 212 OR EQUIVALENT.

GER310 German Texts in Translation
3 credits  Spring Semester
Topics in German literature, philosophy, history, etc. Readings and discussion
in English. Development of critical reading and writing skills. Fulfills humanities
literature requirement. Writing credit. Does not fulfill foreign language requirement.
May not be used for German minor credit.
PREREQUISITE: ENG 106 AND ONE 200-LEVEL COURSE IN HUMANITIES OR SOCIAL SCIENCES.
GER321 Special Topics in German Studies
3 credits  Offered By Announcement Only
Intensive study of a special topic. May be repeated for credit when topic varies.
May be used to fulfill the humanities literature requirement. Writing credit.
PREREQUISITE: GER 301.

GER363 Eighteenth-century German Studies
3 credits  Offered By Announcement Only
The Enlightenment and its aftermath. Examination of the arts, sciences, letters, and political and social institutions of eighteenth-century Germanophone areas.
May be used to fulfill the humanities literature requirement. Writing credit.
PREREQUISITE: GER 301.

GER364 Nineteenth-Century German Studies
3 credits  Offered By Announcement Only
The concept 'German,' formation of the nation, and social unrest. Examination of the arts, sciences, letters, and political and social institutions of nineteenth-century Germanophone areas. May be used to fulfill the humanities literature requirement. Writing credit.
PREREQUISITE: GER 301.

GER365 Twentieth-Century German Studies
3 credits  Offered By Announcement Only
The second empire and the third Reich, the Weimar Republic, and the two Germanies. Examination of the arts, sciences, letters, and political and social institutions of twentieth-century Germanophone areas. May be used to fulfill the humanities literature requirement. Writing credit.
PREREQUISITE: GER 301.

GER395 Transfer Credits
1- 3 credits  Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

GER396 Transfer Credits
1- 3 credits  Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

GER397 Transfer Credits
1- 3 credits  Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

GER398 Transfer Credits
1- 3 credits  Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

GER399 Transfer Credits
1- 3 credits  Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

GER432 Business and Diplomatic German
3 credits  Offered By Announcement Only
Commercial, economic, and technical terminology. Conversation and composition based on models of business interactions and correspondence directed to German-speaking countries and firms. Writing credit.
PREREQUISITE: GER 212.
GER442 Advanced Stylistics and Composition
3 credits
Spring Semester
PREREQUISITE: ONE 300-LEVEL GER COURSE.

GER521 Advanced German Studies
3 credits
Offered By Announcement Only
German language, literature, culture of the 18th-20th centuries. Involves independent research. WRITING CREDIT: May be repeated for credit if topic is different.
PREREQUISITE: GER 363, 364, OR 365.

GER522 Special Topics in German Literature
3 credits
Offered By Announcement Only
WRITING CREDIT. May be repeated for credit if topic is different.
PREREQUISITE: TWO COURSES ON THE 300-LEVEL; PERMISSION OF THE INSTRUCTOR.

GER566 German Literature of the Twentieth Century
3 credits
Offered By Announcement Only
WRITING CREDIT. Major literary movements: prose, poetry, and drama.
PREREQUISITE: GER 363 OR 364.

GER591 Directed Readings
1-3 credits
Offered By Announcement Only
PREREQUISITE: TWO 300-LEVEL COURSES AND PERMISSION OF THE INSTRUCTOR.

GER592 Directed Readings
1-3 credits
Offered By Announcement Only
PREREQUISITE: TWO 300-LEVEL COURSES AND PERMISSION OF THE INSTRUCTOR.

GER593 Directed Readings
1-3 credits
Offered By Announcement Only
PREREQUISITE: TWO 300-LEVEL COURSES AND PERMISSION OF THE INSTRUCTOR.

GER594 Senior Honors Thesis I
3 credits
Fall Semester
Directed research for honors thesis.
PREREQUISITE: MUST HAVE COMPLETED AT LEAST NINE CREDITS AT THE 300-LEVEL OR ABOVE TOWARDS GERMAN MAJOR, MUST MEET ELIGIBILITY FOR HONORS IN GERMAN.

GER595 Senior Honors Thesis II
3 credits
Fall Semester
Directed writing of honors thesis.
PREREQUISITE: GER 594.

GREEK
GRE101 Elementary Ancient Greek I
3 credits
Offered By Announcement Only
Alphabet, pronunciation, accentuation, vocabulary, grammar, reading exercises, and written exercises.

GRE102 Elementary Ancient Greek II
3 credits
Fall Semester
Continuation of GRE 101.
PREREQUISITE: GRE 101.
GRE201 Intermediate Ancient Greek
3 credits
Spring Semester
Reading from classical and Hellenistic authors. Students must take three semesters (13 credits) of Classical Greek to fulfill the language requirement.
PREREQUISITE: GRE 101 AND 102.

GRE311 Introduction to Prose: Plato
3 credits
Fall Semester
The reading of Greek prose and poetry through the study of Plato's dialogues and Greek drama. Emphasis is on interpretation, analysis of syntax, and the acquisition of vocabulary. This course is the fourth in the introductory Greek sequence.
PREREQUISITE: GRE 201 OR PERMISSION OF THE INSTRUCTOR.

GRE321 Introduction to Greek Poetry: Euripides
3 credits
Fall Semester
Readings from one or two plays of Euripides.
PREREQUISITE: GRE 201 OR PERMISSION OF THE INSTRUCTOR.

GRE401 Special Topics in Greek Literature
3 credits
Fall & Spring Semester & First & Second Summer Session
This course will address a specific author, topic, or text (appearing as a subtitle) Analogous to REL 404-409 courses. This will vary each time the course is offered
PREREQUISITE: GRE 201 OR PERMISSION OF THE INSTRUCTOR

GRE402 Special Topics in Greek Literature
3 credits
Fall & Spring Semester & First & Second Summer Session
This course will address a specific author, topic, or text (appearing as a subtitle) Analogous to REL 404-409 courses. This will vary each time the course is offered
PREREQUISITE: GRE 201 OR PERMISSION OF THE INSTRUCTOR

GRE403 Special Topics in Greek Literature
3 credits
Fall & Spring Semester & First & Second Summer Session
This course will address a specific author, topic, or text (appearing as a subtitle) Analogous to REL 404-409 courses. This will vary each time the course is offered
PREREQUISITE: GRE 201 OR PERMISSION OF THE INSTRUCTOR

GRE404 Special Projects in Ancient Greek Literature & Culture
3 credits
Fall & Spring Semester & First & Second Summer Session
This course will address a specific project in Classics (appearing as a subtitle) Analogous to REL 407-409. This will vary each time the course is offered
PREREQUISITE: GRE 201 OR PERMISSION OF THE INSTRUCTOR

GRE405 Special Projects in Ancient Greek Literature and Culture
3 credits
Fall & Spring Semester & First & Second Summer Session
This course will address a specific project in Classics (appearing as a subtitle). Analogous to REL 407-409.
PREREQUISITE: GRE 201 OR PERMISSION OF INSTRUCTOR

GRE406 Special Projects in Ancient Greek Literature and Culture
3 credits
Fall & Spring Semester & First & Second Summer Session
This course will address a specific project in Classics (appearing as a subtitle). Analogous to REL 407-409.
PREREQUISITE: GRE 201 OR PERMISSION OF INSTRUCTOR
GREEK

GRE407 Supervised Reading in Classical Greek
3 credits                    Fall & Spring Semester & First & Second Summer Session
Variable subject matter determined by instructor and student. Analogous to REL 401-403.
PREREQUISITE: GRE 201 OR PERMISSION OF INSTRUCTOR

GRE408 Supervised Reading in Classical Greek
3 credits                    Fall & Spring Semester & First & Second Summer Session
Variable subject matter determined by instructor and student. Analogous to REL 401-403.
PREREQUISITE: GRE 201 OR PERMISSION OF INSTRUCTOR

GRE409 Supervised Reading in Classical Greek
3 credits                    Fall & Spring Semester & First & Second Summer Session
Variable subject matter determined by instructor and student. Analogous to REL 401-403.
PREREQUISITE: GRE 201 OR PERMISSION OF INSTRUCTOR

GRE411 Homer
3 credits                                                             Fall Semester
Readings from the Iliad and/or Odyssey.
PREREQUISITE: GRE 201 OR PERMISSION OF THE INSTRUCTOR

GRE421 Greek Orators
3 credits                                                             Fall Semester
Readings from Lysias and Demosthenes.
PREREQUISITE: GRE 201 OR PERMISSION OF THE INSTRUCTOR

GRE431 Greek Historians
3 credits                                                             Fall Semester
Readings from Herodotus and Thucydides.
PREREQUISITE: GRE 201 OR PERMISSION OF THE INSTRUCTOR

GRE491 Directed Readings
1- 3 credits                 Fall & Spring Semester & First & Second Summer Session
Content to be determined by faculty member and registering student(s)
PREREQUISITE: SIX CREDITS IN CLASSICS OR PERMISSION OF INSTRUCTOR

HEBREW

HEB101 Elementary Hebrew I
3 credits                                                             Fall Semester
Grammatical principles: reading for comprehension and conversation; oral and written exercises. Normally, closed to students who have completed two years of high school Hebrew. Closed to native speakers.
PREREQUISITE: CLOSED TO NATIVE SPEAKERS.

HEB102 Elementary Hebrew II
3 credits                                                             Spring Semester
Continuation of HEB 101. Closed to native speakers.
PREREQUISITE: HEB 101 OR EQUIVALENT, AND CLOSED TO NATIVE SPEAKERS.
HEB201 Intermediate Hebrew I  
3 credits                                                                Fall Semester  
PREREQUISITE: HEB 102 OR 4 YEARS OF HIGH SCHOOL HEBREW OR PERMISSION OF INSTRUCTOR, AND CLOSED TO NATIVE SPEAKERS.

HEB202 Intermediate Hebrew II  
3 credits                                                           Spring Semester  
Continuation of 201 with oral presentations, compositions, and grammar review. Class conducted in Hebrew. Closed to native speakers.  
PREREQUISITE: HEB 201 OR EQUIVALENT, AND CLOSED TO NATIVE SPEAKERS.

HEB243 Hebrew for Native Speakers  
3 credits                                                             Fall Semester  
Grammar, morphology, syntax, and semantics of Modern Hebrew based on texts and media that expose the student to a multi-faceted experience of Hebrew language and culture.  
PREREQUISITE: FOR NATIVE AND HERITAGE SPEAKERS WITH SOME FORMAL TRAINING IN MODERN HEBREW (SUCH AS AN "ULPAN" IN ISRAEL OR CONSISTENT STUDY OF HEBREW IN A JEWISH HIGH SCHOOL) OR PERMISSION OF INSTRUCTOR.

HISTORY

HIS101 History of the United States, I (to 1877)  
3 credits                                                    Fall & Spring Semester  
Political, social, and economic development of the United States through Reconstruction.

HIS102 History of the United States, II (since 1877)  
3 credits                                                    Fall & Spring Semester  
Political, social, and economic development of the United States since Reconstruction.

HIS121 Development of Asian Civilizations, I  
3 credits                                                        Fall Semester  
Evolution of the principal Asian civilizations to 1600.

HIS122 Development of Asian Civilizations, II  
3 credits                                                Offered By Announcement Only  
The principal Asian civilizations since 1600 emphasizing the breakdown of traditional societies and the rise of modern nations.

HIS131 Development of Western Civilization, I  
3 credits                                                Fall & Spring Semester  
A survey of the development of the West from the emergence of the earliest civilizations in Mesopotamia and Egypt to the formation of modern European nation states in the sixteenth and seventeenth centuries, emphasizing the ideas, values, events, and institutions that have influenced the present.

HIS132 Development of Western Civilization, II  
3 credits                                                       Fall & Spring Semester  
A survey of the development of the West from the formation of modern European nation states in the sixteenth and seventeenth centuries to the present, emphasizing the rivalry of European powers, the impact of European expansion, the effect of industrialism and revolution upon Western society, and the role of the New World.
HIS161 History of Latin America, I (to 1824)  
3 credits  
Fall Semester  
A survey of Spanish and Portuguese America from the pre-Columbian era through the end of the colonial period.

HIS162 History of Latin America, II (since 1824)  
3 credits  
Spring Semester  
A survey of the national period in Latin American history, emphasizing the political and social issues in the transition from colonialism to nationhood.

HIS192 Studies in History  
1-5 credits  
Not Offered; Transfer Credit Only  
Courses taken at other institutions with no direct equivalents.

HIS193 Studies in History  
1-5 credits  
Not Offered; Transfer Credit Only  
Courses taken at other institutions with no direct equivalents.

HIS194 Studies in History  
1-5 credits  
Not Offered; Transfer Credit Only  
Courses taken at other institutions with no direct equivalents.

HIS200 Africa in Cuba and Cuba in Africa: From slavery to the Colonization struggles in Africa.  
3 credits  
Fall Semester  
The course examines the relationship between Cuba and Africa from the slave trade to the 1990s. Section one deals with the African slave trade to Cuba. Section two deals with the African impact on the revolution. Section three examines Cuban internationalism in Angola, Mozambique, Cape Verde, Guinea Bissau and Sao Tome.

HIS201 History of Africa, I (to 1800)  
3 credits  
Offered By Announcement Only  
History of Africa before the Colonial period, emphasizing sources for the study of African history, African political and social institutions, the slave trade, and "legitimate" trade and markets.

HIS202 History of Africa, II (since 1800)  
3 credits  
Spring Semester  
The emergence of modern Africa from about 1800 to the present, emphasizing the European conquest of Africa, African responses to colonialism, independence and the post-independence period.

HIS209 African-American History to 1877  
3 credits  
Fall Semester  

HIS210 African-American History, 1877-PRESENT  
3 credits  
Spring Semester  
History of people of African descent in the United States from 1877 to present.

HIS220 History of European Sexuality  
3 credits  
Fall & Spring Semester  
The history of European sexuality from the Greeks to the present day.
HIS223 Medicine and Society in the West
3 credits Fall Semester
This course analyzes the history of medicine in the western world from its beginnings to 1800.

HIS224 The History of Modern Medicine
3 credits Fall Semester
This course examines the history of medicine from the late 18th century until the end of the twentieth century. During the semester, students will consider a variety of different approaches that seek to place "the rise of modern medicine" in broader historical, social, and cultural contexts.

HIS225 History of the Modern Business Enterprise
3 credits Fall Semester
This course examines the history of big business in the nineteenth and twentieth centuries. Drawing often on individual firm histories, its focus will be a comparative study of the big business experience in America, Europe, Asia, and the imperial world.

HIS226 The World in the Twentieth Century
3 credits Fall Semester
Survey of twentieth century international history with a focus on the main political, social, and economic trends.

HIS228 Holy War and Toleration in Western Religious Traditions
3 credits Spring Semester
An exploration of concepts of Holy War and Just War and of traditions of tolerance and intolerance in Judaism, Christianity, and Islam, from ancient times to the present.

HIS246 The Russian Revolutions of 1917
3 credits Fall Semester

HIS253 History of Mexico: Guns and Tortillas, or, How Mexico Became Mexican
3 credits Fall Semester
Culture and ideology of the Mexican Revolution.

HIS254 Revolution, Nation, and Empire: The Cold War in the Americas
3 credits Fall Semester

HIS265 Witchcraft in Colonial America
3 credits Fall Semester
Exploration of witch beliefs and witch-hunting in colonial America, incorporating religious, cultural, gendered, psychological, political, legal, social, and economic perspectives.

HIS284 World War II: Origins, Sequence, Consequences
3 credits Fall Semester
The Second World War: Analysis of its origins, the military and political course of events, and its consequences, such as the cold war.

HIS285 History of Nazi Germany
3 credits Fall Semester

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HIS288 Europe After Hitler  
3 credits  
Fall Semester  
Survey of European History from the end of World War II, focusing on political and cultural developments.

HIS292 Transfer Credits  
1- 5 credits  
Not Offered; Transfer Credit Only  
Courses for which there is no direct equivalent.

HIS293 Transfer Credits  
1- 5 credits  
Not Offered; Transfer Credit Only  
Courses for which there is no direct equivalent.

HIS294 Transfer Credits  
1- 5 credits  
Not Offered; Transfer Credit Only  
Courses for which there is no direct equivalent.

HIS300 Mass Media and The Modern Presidency  
3 credits  
Fall Semester  
Courses will examine the changing relationship between the mass media and the modern presidency since 1896. Using film, video segments, outside speakers and lecturers, students will assess how power of the office has evolved.  
PREREQUISITE: 3 CREDITS US HISTORY

HIS301 The Ancient Near East  
3 credits  
Fall Semester  
The civilizations of the ancient Near East, emphasizing the history and culture of Mesopotamia, Asia Minor, Syria-Palestine, and peripheral areas before the conquests of Alexander the Great.  
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS302 Ancient Egypt  
3 credits  
Offered By Announcement Only  
History of Egypt from unification (ca. 3100 B.C.) until the conquest by Alexander the Great (323 B.C.).  
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS304 The Byzantine World  
3 credits  
Offered By Announcement Only  
Political and cultural study of the Byzantine Empire from 330 A.D. to 1453 A.D.  
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS306 The Modern Near East  
3 credits  
Offered By Announcement Only  
The Near East since 1453, emphasizing the Ottoman Empire, Arab nationalism and Zionism, the Mandate System, and the Arab-Israeli conflict.  
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS307 Egypt and the Nile Valley  
3 credits  
Offered By Announcement Only  
History of the Nile Valley from the Napoleonic invasion of Egypt to the death of Emperor Menelik II of Ethiopia (1911).  
PREREQUISITE: THREE CREDITS IN HISTORY.
HIS308 West Africa since 1000 A.D.  
3 credits  
Offered By Announcement Only  
The Sudanic empires, the spread of Islam, the slave and legitimate trades, the establishment of European colonies, and the struggle for independence.  
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS309 History of Southern Africa  
3 credits  
Offered By Announcement Only  
The establishment of the Dutch settlements and the apartheid system, African responses to European domination, and the collapse of apartheid and the emergence of a multi-racial South Africa.  
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS315 Imperial China  
3 credits  
Offered By Announcement Only  
History of China from the origins of Chinese civilization to 1798.  
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS316 Modern China  
3 credits  
Offered By Announcement Only  
History of China since 1798.  
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS317 History of the Caribbean, I  
3 credits  
Fall Semester  
Carribean history major topics, debates, and themes from the fifteenth to early nineteenth centuries; the centrality of the Caribbean to larger world histories of conquest, colonialism, slavery and emancipation, capitalism, migration, religious transformation, republicanism, and nation-state formation.  
PREREQUISITE: 3 CREDITS IN HISTORY

HIS318 Modern Caribbean History  
3 credits  
Fall & Spring Semester  
Major topics, debates, and themes in Caribbean history from the late eighteenth century to the present.  
PREREQUISITE: 3 CREDITS IN HISTORY.

HIS321 The Greek World  
3 credits  
Offered By Announcement Only  
Greek civilization from the Late Bronze Age to the end of Greek independence at the battle of Chaeronea in 338 B.C.  
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS322 The Hellenistic World  
3 credits  
Offered By Announcement Only  
Conquests of Alexander the Great and the spread of Greek culture in the Near East under Alexander's successors until the death of Cleopatra in 31 B.C.  
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS323 Roman Republic  
3 credits  
Offered By Announcement Only  
Roman civilization from the establishment of the Republic until the Battle of Actium in 31 BC.  
PREREQUISITE: THREE CREDITS IN HISTORY.
HIS324 Roman Empire
3 credits
Roman Civilization from the reign of Augustus in 27 BC to the Fall of Rome in AD 476.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS325 The Early Middle Ages: Europe, 450-1095
3 credits
Western historical development from the collapse of the classical ancient world to Europe’s emergence as a distinct and viable civilization.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS326 The High and Late Middle Ages: Europe 1095-1500
3 credits
The mature medieval civilization and its transformation.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS327 The Renaissance in Florence
3 credits
Cultural, social, economic, religious, and political life in Florence from the time of Dante to Machiavelli, as a window onto broader developments in Renaissance Europe.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS328 Reformation Europe
3 credits
The religious, political, cultural, social, and economic forces which produced a schism in 16th-century Western Christendom. Note: May be taken for credit in only one department as REL 348 or HIS 328.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS329 Renaissance Humanism
3 credits
Fall Semester
A movement that affected major Renaissance figures from Petrarch to Machiavelli and Erasmus. Emphasis on Education, Ethics, Literature, Religion and relationships with society.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS330 The Scientific Revolution
3 credits
Fall Semester
Transition between medieval science and Newtonian physics, focusing on sixteenth- and seventeenth-century developments in medicine, cosmology, physics, and scientific method.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS331 England to the Accession of the Tudor Dynasty (to 1485)
3 credits
The formation of the English people and their growth to national unity and maturity.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS332 England from the Tudors to Waterloo (1485-1815)
3 credits
The crisis of the English Constitution and the formation of the British Empire.
PREREQUISITE: THREE CREDITS IN HISTORY.
HIS333 England and the Empire in the Age of Queen Victoria (1815-1901)
3 credits Offered By Announcement Only
Victorian Britain, emphasizing the manners, politics, and empire building, and the exploitation and humanitarianism of the century of Pax Britannica.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS334 Britain and the Commonwealth in the Twentieth Century
3 credits Offered By Announcement Only
The challenges and changes in Britain and its overseas dominions in the century of total war.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS335 The French Revolution and Napoleon (1789-1815)
3 credits Offered By Announcement Only
An analysis of French history from the Revolution to the collapse of the Napoleonic Empire, stressing the passing of feudalism in France.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS336 Modern French History
3 credits Fall Semester
This course covers the political, social, cultural, economic, and military history of France since 1870. Major themes include power and decline, the weight of historical memories, issues of French identity, and the central role of the French state.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS337 Modern European Jewish History
3 credits Offered By Announcement Only
Jewish history in Europe since 1789, emphasizing the effects of the Enlightenment, nationalism and Nazism, Jewish life in Western Europe and in the communist bloc, and the impact of Israel.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS338 The Holocaust in Historical Perspective
3 credits Offered By Announcement Only
The evolution and implementation of the theory of racialism in imperial Germany and the Third Reich.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS339 Germany from the Reformation to 1815
3 credits Offered By Announcement Only
German history from the Reformation through the reorganization of the German states after the Napoleonic Wars (1815) with emphasis on the federal character of early modern Germany, religion, and topics of social and economic change.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS340 History of Modern Germany since 1815
3 credits Offered By Announcement Only
German history since 1815 concentrating on the political and social history of the German Empire, Germany's role in World War I, the Weimar Republic and the rise of Hitler, Nazi Germany, and developments since 1945.
PREREQUISITE: THREE CREDITS IN HISTORY.
HIS342 Contemporary Europe
3 credits
Offered By Announcement Only
A study of European history since World War I, giving special attention to contemporary economic, social, political, and international problems.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS343 Ages of Gold and Silver: An Economic and Social History of Europe, 1450-1750
3 credits
Fall Semester
Economic and social history of Europe in the early modern period. Writing intensive course.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS344 Medieval Russia
3 credits
Offered By Announcement Only
Domestic political, economic, social and religious developments, and foreign policies from the foundation to Kievan Rus' through the Mongol era and the formation of Muscovy to the end of Rurikid rule in the late 16th century.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS345 Early Modern Russia
3 credits
Offered By Announcement Only
The transition from Muscovy to Imperial Russia. Domestic political, social, economic and cultural issues, and foreign affairs will be examined with emphasis on Western influences and reactions to them during the first two centuries of Romanov rule (17th and 18th centuries).
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS346 Imperial Russia
3 credits
Offered By Announcement Only
Domestic political, social, economic and cultural developments, and foreign affairs in Russia from the beginning of the 19th century to the Russian Revolution of 1917.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS347 Soviet Union and Post-Soviet Russia
3 credits
Offered By Announcement Only
The Soviet Union from the Russian Revolution (1917) to the disintegration of the USSR (1991), and the post-Soviet period to the present.
PREREQUISITE: SIX CREDITS IN HISTORY.

HIS348 Europe in the Age of Hitler and Stalin
3 credits
Fall Semester
This course covers European history between 1914 and 1945. Principal topics include the experience of two world wars, the rise of fascism and communism, the challenge of democracy, and the failure to secure a lasting peace.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS349 European Diplomatic History from Bismarck to the Cold War
3 credits
Fall Semester
European Diplomatic History from the Revolutions of 1848 to the Cold War period.
PREREQUISITE: THREE CREDITS IN HISTORY.
HIS350 Europe and the World in Modern Times
3 credits
Fall Semester
This course examines European relations with the wider world over the past several centuries. It combines the perspectives of the history of European exploration and expansion, imperialism and decolonization, global transport and trade, world wars, and globalization.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS351 History of the Maya
3 credits
Offered By Announcement Only
Historical continuities and changes in Maya culture, economy, and politics from the classic period to contemporary times.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS352 The Inquisition
3 credits
Fall Semester

HIS353 History of Cuba
3 credits
Offered By Announcement Only
The development of the Cuban nation, emphasizing the nineteenth and twentieth centuries and the Castro revolution. This course will concentrate on studying "Cuba After Castro". We will analyze various scenarios for "change" and what implications these will have for the next administration in Washington DC as well as in other parts of the world.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS354 Caribbean History I
3 credits
Fall & Spring Semester & First & Second Summer Session
Major topics, debates, and themes in Caribbean history from the fifteenth to the late eighteenth Century.
PREREQUISITE: 3 CREDITS IN HISTORY

HIS355 Modern Brazil
3 credits
Offered By Announcement Only
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS356 History of Argentina's Civilization, Barbarism, and Power.
3 credits
Fall & Spring Semester
This course offers a survey of the history of Argentina since colonial times.
PREREQUISITE: 3 CREDITS IN HISTORY.

HIS357 Social History of Latin America
3 credits
Offered By Announcement Only
Demographic changes, race and ethnic relations, immigration, and urbanization.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS358 Gender and Sexuality in Latin America
3 credits
Offered By Announcement Only
Latin American History from colonial times to the present day using gender as a central category of historical analysis.
HIS359 Caribbean Intellectual History
3 credits  Fall Semester
Nineteenth and twentieth-century Caribbean political and social thought. Connects the history of ideas to the history of social movements in the region. Links international, intellectual, political and artistic currents.
PREREQUISITE: 3 CREDITS IN HISTORY

HIS360 Modern Latin America Through Film
3 credits  Fall & Spring Semester
Analysis of films with regard to their historical value and their impact on forming historical perceptions about modern Latin America.
PREREQUISITE: 3 CREDITS IN HISTORY

HIS361 American Colonial History (1607-1763)
3 credits  Offered By Announcement Only
History of the British mainland colonies from the establishment of Jamestown to the end of the French and Indian War.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS362 The American Revolution (1763-1783)
3 credits  Offered By Announcement Only
The political, social, and constitutional issues that culminated in the Declaration of Independence, and the achievement of American nationhood.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS363 The Early Republic (1783-1850)
3 credits  Offered By Announcement Only
A study of the constitutional, political, territorial, economic, and social development of the United States from the end of the American Revolution to the Compromise of 1850.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS364 Civil War and Reconstruction (1850-1877)
3 credits  Offered By Announcement Only
A study of the origins of the American Civil War, emphasizing the economic, political and social, as well as military aspects of the conflict, and the course and consequence of the Reconstruction period.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS365 Emergence of Modern America (1877-1917)
3 credits  Offered By Announcement Only
United States from the end of Reconstruction to the First World War.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS366 America in Crisis (1917-1945)
3 credits  Offered By Announcement Only
The United States from World War I through World War II.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS367 Contemporary America
3 credits  Offered By Announcement Only
The United States since World War II.
PREREQUISITE: THREE CREDITS IN HISTORY.
HIS368 Nature and the Environment in American History  
3 credits  
Fall Semester  
Shifting attitudes toward nature and the environment in American history; the rise of environmentalism and changes in public policy related to environmental conservation and preservation.  
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS369 Introduction to Urban America  
3 credits  
Offered By Announcement Only  
The changing role of the city in American history. The built environment. The interaction of the built environment and the lives of residents.  
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS371 Immigration, Race and Ethnicity in American History  
3 credits  
Offered By Announcement Only  
Migration and immigration in 19th- and 20th-century in the United States. How Americans have understood themselves as part of a multicultural society, and how ethnic and racial identities have been defined throughout American history.  
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS374 History of American Women  
3 credits  
Offered By Announcement Only  
The history of women in the United States from the colonial period to the present, focusing on the contrasts between women's public and private lives and the three waves of feminism.  
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS375 Gender, Sex, and Sexuality in Early America  
3 credits  
Fall Semester  
Gender ideologies, gender relations, family life, attitudes toward sex, sexual behavior, and the regulation of sex in early America (1607-1800).  
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS376 American Legal and Constitutional History  
3 credits  
Offered By Announcement Only  
The development of legal thought and practice in the context of American politics, economy and ideology during the twentieth century. Special consideration will be given to social movements and their treatment under the rule of law.  
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS377 Sport in American History  
3 credits  
Offered By Announcement Only  
The role of sport in American culture. Sports relation to urban growth, professionalism, ethnic identity and assimilation, nationalism, and consumption.  
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS378 Early American Religious History (1607-1800)  
3 credits  
Spring Semester  
Religious beliefs and practices during the seventeenth and eighteenth centuries in the British colonies that became the United States, emphasizing the diversity of religious culture in Early America.  
PREREQUISITE: 3 CREDITS IN HISTORY
HIS379 History of the Old South (1607-1861)  
3 credits  Offered By Announcement Only  
The American South from Jamestown to secession, emphasizing the development of plantation society, the rise of internal and external conflict, and the shaping of the idea of the "Old" South.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS380 The New South (since 1877)  
3 credits  Offered By Announcement Only  
History of the U.S. South from "Redemption" to the present, emphasizing Populism, Progressivism, the idea of a "New" South, and the civil rights movement.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS381 History of Florida  
3 credits  Offered By Announcement Only  
Florida from its discovery, exploration, and colonization to the present.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS382 Ideas and Culture in Early American History  
3 credits  Fall Semester  
Intellectual and cultural history in America from the colonial period to the Civil War, focusing on developments in religion, philosophy, political and social theory, and the arts.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS383 Ideas and Culture in Modern United States History  
3 credits  Fall Semester  
Intellectual and cultural history in the United States from 1865 to the present day, focusing on developments in philosophy, science, political theory, social criticism, and the arts.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS385 The Growth of the American Empire  
3 credits  Offered By Announcement Only  
Diplomatic history of the United States from the American Revolution to the present, focusing on the ideology and perceptions accompanying America's rise to world power.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS386 History of U.S. Relations with Latin America  
3 credits  Offered By Announcement Only  
A study of U.S. policy toward Latin America from the early 1800s to the present, emphasizing the roles of economics, territorial expansion, ideology, and race.
PREREQUISITE: THREE CREDITS IN HISTORY.

HIS387 American Military History  
3 credits  Offered By Announcement Only  
The military history of the United States from the colonial period to the present, emphasizing the development of the armed forces, their operations in wartime, and their interaction with American society.
PREREQUISITE: THREE CREDITS IN HISTORY.
HIS388 The Vietnam War
  3 credits
  Offered By Announcement Only
  U.S. involvement in Vietnam from 1945 to 1973, emphasizing the diplomatic and military components.
  PREREQUISITE: THREE CREDITS IN HISTORY.

HIS389 19th Century Europe: Barricades, Borders, and the Bourgeoisie
  3 credits
  Fall Semester
  Survey of 19th Century Europe from the French Revolution to World War I, focusing on political and cultural history.
  PREREQUISITE: 3 CREDITS IN HISTORY

HIS392 Transfer Credits
  1- 5 credits
  Not Offered; Transfer Credit Only
  Courses taken at other institutions with no direct equivalents.

HIS393 Transfer Credits
  1- 5 credits
  Not Offered; Transfer Credit Only
  Courses taken at other institutions with no direct equivalents.

HIS394 Transfer Credits
  1- 5 credits
  Not Offered; Transfer Credit Only
  Courses taken at other institutions with no direct equivalents.

HIS395 World War I
  3 credits
  Offered By Announcement Only
  The military and political history of the First World War (1914-1918), beginning with a survey of military and naval developments in the early 20th Century and the diplomatic background of the war.
  PREREQUISITE: THREE CREDITS IN HISTORY.

HIS401 Directed Readings in African History
  1- 3 credits
  Fall & Spring Semester
  PREREQUISITE: PERMISSION OF INSTRUCTOR.

HIS411 Directed Readings in Asian History
  1- 3 credits
  Fall & Spring Semester
  PREREQUISITE: PERMISSION OF INSTRUCTOR.

HIS421 Directed Readings in European History
  1- 3 credits
  Fall & Spring Semester
  PREREQUISITE: PERMISSION OF INSTRUCTOR.

HIS451 Directed Readings in Latin-American History
  1- 3 credits
  Fall & Spring Semester
  PREREQUISITE: PERMISSION OF INSTRUCTOR.

HIS461 Directed Readings in United States History
  1- 3 credits
  Fall & Spring Semester
  PREREQUISITE: PERMISSION OF INSTRUCTOR.

HIS491 Directed Readings in Comparative History
  1- 3 credits
  Fall & Spring Semester
  PREREQUISITE: PERMISSION OF INSTRUCTOR.
HIS501 Studies in African History
3 credits
Offered By Announcement Only
Selected topics in African history. Subtitles describing the topics to be offered
will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL

HIS511 Studies in Asian History
3 credits
Offered By Announcement Only
Selected topics in Asian history. Subtitles describing the topics to be offered
will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL

HIS515 Studies in Chinese History
3 credits
Offered By Announcement Only
Selected topics in Chinese history. Subtitles describing the topics to be offered
will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL

HIS531 Studies in European History
3 credits
Offered By Announcement Only
Selected topics in European history. Subtitles describing the topics to be offered
will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL

HIS534 Studies in Ancient History
3 credits
Offered By Announcement Only
Selected topics in Ancient history. Subtitles describing the topics to be offered
will be shown in parentheses in the printed class schedule.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL

HIS536 Studies in Medieval History
3 credits
Offered By Announcement Only
Selected topics in Medieval history. Subtitles describing the topics to be offered
will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL

HIS538 Studies in Early Modern European History
3 credits
Offered By Announcement Only
Selected topics in European history before the French Revolution. Subtitles describing
the topics to be offered will be shown in parentheses in the printed class schedule,
following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL

HIS544 Studies in Modern European History
3 credits
Offered By Announcement Only
Selected topics in European history after the French Revolution. Subtitles describing
the topics to be offered will be shown in parentheses in the printed class schedule,
following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL
HIS551 Studies in Latin American History
3 credits
Offered By Announcement Only
Selected topics in Latin-American history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.

HIS553 Studies in Colonial Latin American History
3 credits
Offered By Announcement Only
Selected topics in the colonial period of Latin-American history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.

HIS554 Studies in Modern Latin American History
3 credits
Offered By Announcement Only
Selected topics in Latin-American history before and after Independence. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.

HIS561 Studies in United States History
3 credits
Offered By Announcement Only
Selected topics in United States history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.

HIS564 Studies in American Intellectual and Cultural History
3 credits
Offered By Announcement Only
Selected topics in American intellectual and cultural history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.

HIS565 Studies in American Political and Diplomatic History
3 credits
Offered By Announcement Only
Selected topics in American political and diplomatic history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.

HIS569 Studies in African-American History
3 credits
Offered By Announcement Only
Selected topics in African-American history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.

HIS570 Studies in Public History
3 credits
Offered By Announcement Only
Selected topics in public history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.
HIS591 Studies in Comparative History
3 credits
Offered By Announcement Only
Selected topics in Comparative History. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.

HIS592 Transfer Credits
1-5 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

HIS593 Transfer Credits
1-5 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

HIS594 Transfer Credits
1-5 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

HIS595 Studies in Visual History
3 credits
Offered By Announcement Only
Selected topics in the use of photographs and other visual evidence for historical purposes. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.

HIS599 Independent Research
3 credits
Offered By Announcement Only
PREREQUISITE: PERMISSION OF INSTRUCTOR.

INTERNATIONAL STUDIES

INS101 Global Perspectives
3 credits
Fall & Spring Semester
Introduces students to the study of international relations focusing on the continuing threat of national and ethnic conflict; terrorism; environmental and health concerns; globalization; economic interdependence, and poverty. Students are provided an overview of the evolution of international affairs in the modern era and are introduced to the various scholarly approaches for an understanding of international affairs.

INS102 Global Economics
3 credits
Fall & Spring Semester
The international economy. This course develops the analytical tools underlying "the economic way of thinking" and applies them to two main topics: the environment and international trade.

INS201 Globalization and Change in World Politics
3 credits
Fall & Spring Semester
The academic and public policy debates regarding the multiple impacts of the globalization of the world economy on the politics of nation-states and on the dynamics of the international system itself.
PREREQUISITE: INS 101 OR PERMISSION OF INSTRUCTOR.

INS202 INS Methodology
3 credits
Spring Semester
The approaches, methods and techniques used for designing and conducting international studies research.
INS210 INS Topics
3 credits  Offered By Announcement Only
Special topics taken at other institutions with no direct equivalents.

INS302 Chile: Politics and Society
3 credits  Offered By Announcement Only
This course serves as an introduction to the main issues in Chilean politics and society at the start of the 21st century. It also approaches the ways in which those issues may be analytically addressed from the standpoint of social and political science.

INS310 Advanced Topics in INS
3 credits  Offered By Announcement Only
PREREQUISITE: INS 201 OR POL 212 OR PERMISSION OF INSTRUCTOR.

INS311 Advanced Topics in INS II
3 credits  Offered By Announcement Only
PREREQUISITE: INS 201 OR POL 212 OR PERMISSION OF INSTRUCTOR.

INS320 Global Economics II
3 credits  Offered By Announcement Only
Macroeconomics and its application to the study of the international economy. Measurement of income and level of development; determinants of economic growth; inflation and unemployment; open economy macroeconomics.
PREREQUISITE: INS 102 OR ECON 211 AND 212, OR PERMISSION OF INSTRUCTOR.

INS321 Global Political Economy
3 credits  Offered By Announcement Only
The implications of the globalization of trade, production, finance, and culture on equity, social welfare and the quality of democratic institutions and practices in both the Global North and the Global South.
PREREQUISITE: INS 102 OR ECON 211 AND 212, OR PERMISSION OF INSTRUCTOR.

INS322 Economics of Development and the Environment
3 credits  Fall Semester
Structural changes that accompany economic growth that impact the environment and sustainable development.
PREREQUISITE: INS 102 OR ECON 211 AND 212, OR PERMISSION OF INSTRUCTOR.

INS330 Introduction of Comparative Studies
3 credits  Offered By Announcement Only
Introduces students to the comparative method and to the theories and concepts required to analyze political transformation of states, societies, economies and culture in a globalization world.
PREREQUISITE: INS 201 OR POL 212 OR PERMISSION OF INSTRUCTOR.

INS335 Democratization
3 credits  Spring Semester
A comparative overview of the problems of introducing democratic and market economic institutions into areas where they have not flourished and how to maintain them in established democracies.
PREREQUISITE: INS 201 OR POL 212 OR PERMISSION OF INSTRUCTOR.
INS341 Nationalism, Ethnicity and Conflict
3 credits                        Fall Semester
Examines theories of ethnic and national conflict focusing on contemporary issues throughout the world.
PREREQUISITE: INS 201 OR POL 212 OR PERMISSION OF INSTRUCTOR.

INS352 Panoramic View of the Middle East
3 credits                        Fall Semester
The Middle East and a basic understanding of the factors, forces and processes shaping developments in the modern and contemporary history of this important world region.
PREREQUISITE: INS 201, GEG 242 OR POL 212 OR PERMISSION OF INSTRUCTOR.

INS367 Foreign Policy Topics
3 credits                        Offered By Announcement Only
PREREQUISITE: INS 201 OR POL 212 OR PERMISSION OF INSTRUCTOR.

INS380 Democracy and Globalization in Latin America
3 credits                        Offered By Announcement Only
The global dimensions of Latin American politics, emphasizing democratization and its discontents; human rights; the emergence of transnational civil society; and the impacts of market reforms on development, equity and social inclusion.
PREREQUISITE: INS 201 OR POL 212 OR PERMISSION OF INSTRUCTOR.

INS385 Latin American Topics
3 credits                        Offered By Announcement Only
PREREQUISITE: INS 201 OR POL 212 OR PERMISSION OF INSTRUCTOR.

INS391 The European Union
3 credits                        Fall & Spring Semester
The course will combine 6 objectives: 1) to investigate the historical development of Europe as a civilization and as an idea through review of some main historical and political factors and ideologies from 1815-present; 2) to survey the main organizations and experiments in European integration before/after World War II; 3) to analyze the historical development of the European communities; 4) to examine major institutions of the European Union; 5) to analyze the main European Union policies and current issues; 6) to reflect upon the future of the nation-state and the idea of a united Europe, the role of transformed ideologies, and the rebirth of nationalism while pondering about future scenarios for European integration.
PREREQUISITE: INS 101.

INS394 European Topics
3 credits                        Offered By Announcement Only
PREREQUISITE: INS 201 OR POL 212 OR PERMISSION OF INSTRUCTOR.

INS410 INS Advanced Seminar
3 credits                        Offered By Announcement Only
PREREQUISITE: INS 201 OR POL 212 OR PERMISSION OF INSTRUCTOR.

INS411 IR Advanced Seminar
3 credits                        Offered By Announcement Only
PREREQUISITE: INS 201 OR POL 212 OR PERMISSION OF INSTRUCTOR.
INS415 Independent Study
1-6 credits  
Fall & Spring Semester  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

INS418 Honors Thesis
3 credits  
Fall & Spring Semester  
Honors thesis research. This course is required for students seeking magna or summa cum laude and those seeking departmental honors. A thesis committee comprised of three members, two from International Studies and one from the university faculty must be established. The thesis advisor must also be from International Studies.  
PREREQUISITE: PERMISSION OF ADVISOR.

INS419 Honors Thesis II
3 credits  
Fall & Spring Semester  
Honors thesis writing.  
PREREQUISITE: INS 418.

INS420 Global Trade
3 credits  
Spring Semester  
Economic principles in global issues such as comparative advantage; specialization and trade; macroeconomics in the open economy; commercial policy; globalization; inequalities, within and among nations; and governance.  
PREREQUISITE: INS 102 OR PERMISSION OF INSTRUCTOR.

INS421 Poverty and the Environment
3 credits  
Fall Semester  
The processes by which a growing economy creates wealth in the form of goods and services while simultaneously increasing poverty and pollution.  
PREREQUISITE: INS 102 OR PERMISSION OF INSTRUCTOR.

INS430 Comparative Studies Seminar
3 credits  
Offered By Announcement Only  
PREREQUISITE: INS 201, OR POL 212, OR PERMISSION OF INSTRUCTOR.

INS460 United Nations Seminar
3 credits  
Fall & Spring Semester  
The organization and functions of the UN, including its structure, network of agencies, and issues in which it is involved. Emphasis is given to reforms, the Millennium Development Goals, and problematic relationships among the UN member states.  
PREREQUISITE: INS 201 OR POL 212 OR PERMISSION OF INSTRUCTOR.

INS503 Int Relations Topics
3 credits  
Offered By Announcement Only  
Selected topics in International Relations Theory. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.

INS504 Int Rel Topics II
3 credits  
Offered By Announcement Only  
Selected topics in International Relations Theory. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
INS510 ISSUES IN INS
3 credits
Analysis of current issues of international importance.
Offered By Announcement Only

INS511 Issues in INS II
3 credits
Analysis of current issues of international importance.
Offered By Announcement Only

INS512 International Administration
3 credits
Introductory course for the Master of Arts in International Administration.
Fall Semester
PREREQUISITE: GRADUATE STUDENTS ONLY.

INS513 Information and Communication in International Relations
3 credits
First semester offering for students in the Master of Arts in International Administration program.
Fall Semester
PREREQUISITE: GRADUATE STUDENTS ONLY.

INS514 World Affairs
3 credits
Explores the complexity of world affairs in relation to international administrative fields. First semester offering for students in the Master of Arts in International Administration program.
Fall Semester
PREREQUISITE: GRADUATE STUDENTS ONLY.

INS515 Independent Study
1-6 credits
Fall & Spring Semester
PREREQUISITE: INS CORE AND MINIMUM 3.0 CUMULATIVE GPA REQUIRED AND PERMISSION OF INSTRUCTOR.

INS516 Str Thinking, Neg and Bargaining
3 credits
Second semester offering for students in the Master of International Administration program.
Spring Semester
PREREQUISITE: GRADUATE STUDENTS ONLY.

INS517 Practicum in International Administration
3 credits
Each student in the Master of Arts in International Studies (with a specialization in International Administration) is required to complete a three (3) credit practicum/internship during the summer months subsequent to their completion of the fall and spring semester. The purpose of the practicum is to give each student the necessary skills to help advance their professional careers.
Offered By Announcement Only
PREREQUISITE: PERMISSION OF PROGRAM COORDINATOR

INS519 Internship
1-3 credits
Fall Semester & First Summer Session

INS520 Microeconomics for INS
3 credits
Microeconomics for students of international studies. Topics will include rationality, market failure and comparative advantage.
Offered By Announcement Only
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.
INS521 INT’L ECON TOPICS II (International Economic System Topics)  
3 credits Offered By Announcement Only  
Selected topics in International Economics. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.  
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS522 Latin American Political Economy  
3 credits Fall Semester  
Latin American political economy including analysis of market reform and integration of the region into the world economy.  
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS523 Economics of Terrorism  
3 credits Fall Semester  
Economic resources of terrorist movements today: their financing, acquisition of tools, recruitment, and operations.  
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS524 INTL ECON Topics  
3 credits Offered By Announcement Only  
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS530 Comparative Analysis  
3 credits Offered By Announcement Only  
Advanced overview of the comparative method. Required for students specializing in Comparative Studies at the graduate level.  
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS531 Dictatorship and Human Rights  
3 credits Offered By Announcement Only  
How have societies coped with traumatic pasts, and how have they faced the tension between remembering and forgetting? This course will explore these issues with a view to various approaches and scenarios.  
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS532 Globalization and Human Rights  
3 credits Offered By Announcement Only  
The integration of markets has many concerns for the political and economic rights of the common citizen. This course examines the effect of globalization on the human rights standards throughout the world.  
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS533 Transnational Social Movements  
3 credits Fall Semester  
Focuses on global civic activism and contentious politics, with particular attention to transnational non-state actors - NGOs, social movements, environmental protection, and the emergence of a global civil society.  
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS534 Military, State and Society  
3 credits Offered By Announcement Only  
The role of the military in state formation; questions of military rule, civilian control, and social structures in contemporary world politics.  
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.
INS536 Comparative Political Regimes
3 credits
Offered By Announcement Only
Literature concerned with the transition from authoritarianism to democracy in various parts of the world.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS537 Comparative Political Economy
3 credits
Fall Semester
Compares how domestic politics and macroeconomic policies interact with globalization. Case studies include welfare states in the U.S. and Europe, East Asian development, postcommunist transitions and market restructuring in Latin America and Africa.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS540 National Security
3 credits
Offered By Announcement Only
The central issues concerning European security since World War II, with emphasis on the period since the end of the cold war.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS541 The Role of Intelligence in U.S. National Security
3 credits
Offered By Announcement Only
Required alternate for students concentrating in Strategic Studies. Explains what is intelligence, how it is collected and analyzed, and what it contributes to U.S. national security. Discusses the issue of secret intelligence activities in a democratic society.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS542 Drug-Trafficking in the Americas
3 credits
Fall Semester
The political economy of the U.S.-Latin American drug trade in the 20th Century along with the dynamics of the U.S.-led war on drugs through the first years of the Twenty First Century.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS543 National Security and Foreign Policy
3 credits
Fall Semester
Explores alternative conceptualizations of "security" and the new challenges to U.S. national security that have emerged in the Post-Cold War era.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS550 Non-Western Regional Topics
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS551 Regional Topics II
3 credits
Offered By Announcement Only
Selected topics in International Business. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.
INS560 US Foreign Policy
3 credits
Spring Semester
The leading approaches to the analysis of American foreign policy. Particular emphasis will be placed on the post-Cold War period and the new challenges to U.S. foreign policy of the 21st century.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS561 Negotiation and Bargaining
3 credits
Fall Semester
Examines the nature of diplomatic negotiation through readings and discussion of international negotiation and through the case method, selecting several cases of high-level policy issues in which the United States has been a principal actor.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS562 International Peace and Conflict Resolution
3 credits
Fall Semester
The major sources of conflict, and what resources are available for making and keeping the peace? This class introduces students to the most fundamental concerns of the field of International Relations (IR), and especially of its subfield IPCR.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS563 International Organizations
3 credits
Offered By Announcement Only
The role, function, and impact on states of international governmental and non-governmental organizations in critical areas like peace and security, human rights, economic development, and environmental degradation.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS564 International Law
3 credits
Fall Semester
How international law affects the conduct of states. Issues include jurisdiction, diplomatic immunity, the use of armed force, peaceful dispute settlement among states, human rights, and the International Criminal Court.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS565 The World Before European Domination
3 credits
Fall Semester
The historical roots of the contemporary international system. Its objective is to question the standard Eurocentric perspective on the rise of the West to a dominant position in the global system.
PREREQUISITE: 15 CREDITS IN ADVANCED LEVEL SOCIAL SCIENCES OR PERMISSION OF INSTRUCTOR.

INS566 US-Latin American Relations
3 credits
Fall Semester
Political, economic and strategic aspects of U.S.-Latin American relations; the historical experience and contemporary issues, including the influence of extra-regional parties such as Europe and China.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS567 Foreign Policy Topics
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.
INS570 Globalization and Health
3 credits Fall Semester
Globalization and its benefits and threats to public health; the relationship between
global economic, political, social, cultural, environmental and technological changes
and their impact on human health.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS571 International Development and Human Welfare
3 credits Spring Semester
Health and development links; macroeconomic policies and their impact on social
equity; poverty and structural inequities; and other key issues that influence
human development.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS572 Global Health Policy and Ethics
3 credits Fall & Spring Semester
National, regional and global health policies with special consideration to ethical
and human rights issues; policies and the moral considerations that shape public
health policy.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS573 Disasters, Terrorism and Global Public Health
3 credits Fall Semester
The historical processes and present trends of disasters, terrorism, humanitarian
emergencies and their impact on human health, safety and security.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS580 Latin American Comparative Politics
3 credits Fall Semester
The major intellectual debates shaping the field of comparative politics including:
(1) development, (2) military politics, (3) democratization and (4) the emergence
of new social movements.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS581 Politics and Ideology in Latin America
3 credits Offered By Announcement Only
The roles played by both "class" and the "new social movements" in the emergence
of new modes of political representation.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS582 Problems of Latin American Democracies
3 credits Offered By Announcement Only
The Left and the Right, business, and indigenous movements along with issues such
as transitional justice, state reform, public security, human rights and the politics
of memory.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS583 Chile: Politics and Society
3 credits Offered By Announcement Only
Changes in Chilean politics and society. The three chronological parts of Chilean
history: pre-1973, the years of dictatorship and the contemporary transition to
democracy since 1990.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.
INS584 Latin American Thought  
3 credits                                                      Spring Semester  
The evolution of Latin American thought through political and intellectual history; the classical writings of the main "pensadores", and a comparative analysis of contemporary ideological trends.  
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS585 Dilemmas of Mexical Democracy  
3 credits                                                      Offered By Announcement Only  
Contemporary politics in Mexico and US-Mexican relations first-hand during visits to Mexico City and Oaxaca. Meetings with Mexican scholars and civil society leaders are included.  
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS586 Brazil in Transition  
3 credits                                                      Offered By Announcement Only  
The social, economic, cultural transformations shaping Brazilian politics. In addition to visiting Rio de Janeiro and Salvador, there will be seminars with Brazilian academics and social and political activists.  
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS587 Politics in Central America  
3 credits                                                      Offered By Announcement Only  
The domestic issues of the Central American republics and their relationships with the United States, other western hemisphere countries and the global system.  
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS588 Politics in the Andes  
3 credits                                                      Offered By Announcement Only  
The domestic issues of the Andean republics and their relationships with the United States, other western hemisphere countries and the global system.  
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS589 Argentine Politics and Society  
3 credits                                                      Offered By Announcement Only  
Seminar offered in Buenos Aires covering dilemmas of democratic consolidation, social justice, and market reform. Students will meet with Argentine social scientists and leaders of major social, economic, and political movements.  
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS591 The European Union  
3 credits                                                      Fall & Spring Semester  
The European Union's history, institutions, policies and contemporary issues.  
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS592 European Union and the World  
3 credits                                                      Spring Semester  
The European Union's development, its main institutions and policies followed by an analysis of the main features of the European Union's external relations.  
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.
INS593 European Security
3 credits
Spring Semester
Regional security in Europe, focusing on NATO expansion, EU expansion, Russian foreign policy, and related issues.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS594 European Topics
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS595 European Social Movements
3 credits
Offered By Announcement Only
The major social movements active today throughout Europe including those concerned with the environment, agriculture, poverty, racism, deifying social democracy, the rights of workers, minorities, and women.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS599 Special Topics
3 credits
Offered By Announcement Only

ITALIAN

ITA101 Elementary Italian I
3 credits
Fall & Spring Semester
Drill in pronunciation, grammatical principles, reading and translation, oral and written exercises. Normally closed to students who have completed two years of high school Italian. Closed to native speakers.
PREREQUISITE: CLOSED TO NATIVE SPEAKERS.

ITA102 Elementary Italian II
3 credits
Fall & Spring Semester
Continuation of ITA 101. Closed to native speakers.
PREREQUISITE: ITA 101. CLOSED TO NATIVE SPEAKERS.

ITA211 Intermediate Italian I
3 credits
Fall & Spring Semester
Integrated grammar review. Diverse selection of readings: stories, plays, essays, interviews. Practice in speaking and in writing. Class conducted in Italian.
PREREQUISITE: CLOSED TO NATIVE SPEAKERS. ITA 102, A STRONG HIGH SCHOOL BACKGROUND (4 YEARS; GOOD PROGRAM; GOOD GRADES).

ITA212 Intermediate Italian II
3 credits
Fall & Spring Semester
This course uses different genres of texts (portraits, descriptions, short stories, film reviews, magazines) to explore different ways of writing and to prepare students for 300-level work. Structured in a workshop format, the course also develops conversational skills. Class conducted in Italian. Closed to native speakers.
PREREQUISITE: ITA 211; CLOSED TO NATIVE SPEAKERS.

ITA301 Introduction to Literary Genres
3 credits
Offered By Announcement Only
Genres and periods of Italian literature. Writing skills for non-native speakers. Closed to native speakers formally educated in Italian. Writing. credit.
PREREQUISITE: ITA 212 OR EQUIVALENT.
ITALIAN

ITA310 Italian Texts in Translation
3 credits  Offered By Announcement Only
Intensive study, in English translation, of a topic, theme, author, period, or literary movement. May be repeated when the topic varies. Writing Credit.
PREREQUISITE: ENG 105 AND 106, OR EQUIVALENT.

ITA321 Special Topics in Italian Literature
3 credits  Offered By Announcement Only
Intensive study of an author, a period, or a literary movement. May be repeated for credit when the topic varies. Writing credit.
PREREQUISITE: ITA 212 OR EQUIVALENT.

ITA363 Introduction to Medieval and Renaissance Italian Literature
3 credits  Offered By Announcement Only
Culture and literature in Italian vernacular from its earliest document through the Renaissance. May be used to fulfill humanities literature requirement. Writing credit.
PREREQUISITE: ITA 212 OR EQUIVALENT.

ITA364 Introduction to 17th-19th Century Italian Literature
3 credits  Offered By Announcement Only
Italian culture and literature from the Baroque to the nineteenth century. May be used to fulfill humanities literature requirement. Writing credit.
PREREQUISITE: ITA 212 OR EQUIVALENT.

ITA365 Introduction to 20th Century Italian Literature
3 credits  Offered By Announcement Only
Italian culture and literature of the twentieth century. May be used to fulfill humanities literature requirement. Writing credit.
PREREQUISITE: ITA 212 OR EQUIVALENT.

ITA395 Transfer Credits
1-3 credits  Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

ITA396 Transfer Credits
1-3 credits  Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

ITA397 Transfer Credits
1-3 credits  Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

ITA398 Transfer Credits
1-3 credits  Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

ITA399 Transfer Credits
1-3 credits  Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

ITA591 Directed Readings
1-3 credits  Offered By Announcement Only
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.
ITALIAN

ITA592 Directed Readings
1-3 credits
Offered By Announcement Only
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

ITA593 Directed Readings
1-3 credits
Offered By Announcement Only
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

JAPANESE

JPN101 Elementary Japanese I
3 credits
Fall Semester
Introduction to modern Japanese: pronunciation, grammar, conversation, and the elements of the writing system. Closed to native speakers.

JPN102 Elementary Japanese II
3 credits
Spring Semester
Continuation of JPN 101. Introduction to modern Japanese: pronunciation, grammar, conversation, and the elements of the writing system. Closed to native speakers.
PREREQUISITE: JPN 101, AND CLOSED TO NATIVE SPEAKERS.

JPN201 Intermediate Japanese I
3 credits
Fall Semester
Continuation of JPN 102. Grammar, composition and readings in modern Japanese, which will introduce students to aspects of Japanese customs, history and culture. Closed to native speakers.
PREREQUISITE: JPN 102, AND CLOSED TO NATIVE SPEAKERS.

JPN202 Intermediate Japanese II
3 credits
Spring Semester
Continuation of JPN 201. Grammar, dialogues, and readings, designed to integrate listening, comprehension, speaking, reading and writing skills. Discussion of the Japanese culture, history, and customs. Closed to native speakers.
PREREQUISITE: JPN 201. CLOSED TO NATIVE SPEAKERS.

JUDAIC STUDIES - HUMANITIES

JUH231 Jewish Civilization: Society, Culture, and Religion
3 credits
Offered By Announcement Only
Introduction to Jewish civilization from Abraham to present.

JUDAIC STUDIES

JUS205 Icheic Service Corps Internship
3 credits
Fall Semester
Interns will gain meaningful experiences that will offer them an opportunity to become involved in service-oriented activities that give them a deep insight and unique understanding of the historical significance of the Holocaust while providing valuable services to the survivors of Nazi atrocities.

JUS206 Icheic Service Corps Internship
3 credits
Spring Semester
Interns will gain meaningful experiences that will offer them an opportunity to become involved in service-oriented activities that give them a deep insight and unique understanding of the historical significance of the Holocaust while providing valuable services to the survivors of Nazi atrocities.
JUS231 Jewish Civilization: Society, Culture, and Religion
3 credits Offered By Announcement Only
Introduction to Jewish civilization from Abraham to present.

JUS310 Development of Jewish Intellectual Roots
3 credits Offered By Announcement Only
Contributions by Jewish intellectuals from diversified fields in the establishment of Jewish roots.
PREREQUISITE: JUS 231.

JUS311 Ethics in Jewish Life
3 credits Offered By Announcement Only
Jewish ethics as a foundation for personal conduct and for social justice. Moral issues and their relationships to ancient and contemporary Jewish teachings.
PREREQUISITE: JUS 231 OR JUNIOR STANDING.

JUS314 The Rise of Judaism
3 credits Fall & Spring Semester
The history and literature of early Judaism, covering the period from the fall of Jerusalem in 587/586 BCE to the beginnings of rabbinic Judaism and the formation of the Mishnah (ca.200 CE).
PREREQUISITE: 3 CREDITS IN JUDAIC STUDIES

JUS352 Panoramic View of the Middle East
3 credits Fall & Spring Semester
The course is designed to provide a comprehensive introduction to the Middle East and a basic understanding of factors, forces and processes shaping developments in the modern and contemporary history of this important world region.
PREREQUISITE: INS 201, GEG 242 OR POL 212 OR PERMISSION OF INSTRUCTOR

JUS360 Hollywood and Popular Culture: The American Jewish Experience
3 credits Offered By Announcement Only
The image of the Jew and the Jewish experience in American Cinema.
PREREQUISITE: JUH 231 OR HIS 102 AND PERMISSION OF INSTRUCTOR.

JUS375 Religion and Democracy in Israel
3 credits Offered By Announcement Only
Israel's evolution as a nation and a society by focusing on how religion impacts ethnicity, culture, and democracy.
PREREQUISITE: THREE CREDITS IN REL AND/OR PERMISSION OF INSTRUCTOR.

JUS380 Archeology of Palestine
3 credits Fall & Spring Semester
Survey of the major archaeological excavations and surveys of Palestine, how this is used to interpret biblical narrative. The emergence of Judaism and Christianity.
PREREQUISITE: 3 CREDITS IN REL, HIS 221, OR PERMISSION OF INSTRUCTOR.

JUS401 Studies in Judaica
1-3 credits Offered By Announcement Only
Designed to enable students interested in some phase of Judaic Studies to study extensively in that field of interest.
PREREQUISITE: JUS 231 OR PERMISSION OF INSTRUCTOR.
JUS410 Special Topics
1- 3 credits                                           Offered By Announcement Only
PREREQUISITE: JUS 231 OR PERMISSION OF INSTRUCTOR.

JUS411 Special Topics
1- 3 credits                                           Offered By Announcement Only
PREREQUISITE: JUS 231 OR PERMISSION OF INSTRUCTOR.

JUS421 Internship in Judaic Studies
1- 3 credits                                                 Fall & Spring Semester
Prescribed study and supervised work with practitioners in Judaic services.
PREREQUISITE: JUS 231 AND THREE OTHER CREDITS IN JUDAIC STUDIES.

JUS498 Senior Thesis
3 credits                                                             Fall Semester
Partial requirement for Departmental Honors in Judaic Studies. Thesis to be a documented
essay in any area of Judaic Studies written under the direction of a member of
the faculty.
PREREQUISITE: SENIOR STATUS, CERTIFICATION BY DIRECTOR OF JUDAIC STUDIES, AND PERMISSION
OF THE THESIS DIRECTOR.

JUS499 Senior Thesis
3 credits                                                             Fall Semester
Partial requirement for Departmental Honors in Judaic Studies. Thesis to be a documented
essay in any area of Judaic Studies written under the direction of a member of
the faculty.
PREREQUISITE: SENIOR STATUS, CERTIFICATION BY DIRECTOR OF JUDAIC STUDIES, AND PERMISSION
OF THE THESIS DIRECTOR.

LATIN
LAT101 Elementary Latin I
3 credits                                                             Fall Semester
Elementary vocabulary, grammar and reading.

LAT102 Elementary Latin II
3 credits                                                           Spring Semester
Continuation of LAT 101.
PREREQUISITE: LAT 101.

LAT201 Intermediate Latin
3 credits                                                             Fall Semester
Translation and grammatical analysis of selected texts from Latin authors.
PREREQUISITE: LAT 101 AND 102.

LAT311 Introduction to Latin Prose: Cicero
3 credits                                                             Fall Semester
Advanced translation and grammatical analysis of selected texts from Latin authors.
PREREQUISITE: LAT 201 OR PERMISSION OF THE INSTRUCTOR.

LAT321 Introduction to Latin Poetry: Virgil
3 credits                                                             Fall Semester
Readings from Virgil's Eclogues, Georgics, and the Aeneid.
PREREQUISITE: LAT 201 OR PERMISSION OF THE INSTRUCTOR.
LAT401 Special Topics in Latin Literature  
3 credits  
Fall & Spring Semester & First & Second Summer Session  
This course will address a specific author, topic, or text (appearing as a subtitle).  
Analogous to REL 404-409 courses. This will vary each time the course is offered.  
PREREQUISITE: LAT 201 OR PERMISSION OF THE INSTRUCTOR

LAT402 Special Topics in Latin Literature  
3 credits  
Fall & Spring Semester & First & Second Summer Session  
This course will address a specific author, topic, or text (appearing as a subtitle).  
Analogous to REL 404-409 courses. This will vary each time the course is offered.  
PREREQUISITE: LAT 201 OR PERMISSION OF THE INSTRUCTOR

LAT403 Special Topics in Latin Literature  
3 credits  
Fall & Spring Semester & First & Second Summer Session  
This course will address a specific author, topic, or text (appearing as a subtitle).  
Analogous to REL 404-409 courses. This will vary each time the course is offered.  
PREREQUISITE: LAT 201 OR PERMISSION OF THE INSTRUCTOR

LAT404 Special Projects in the Literature & Culture of Ancient Rome  
3 credits  
Fall & Spring Semester & First & Second Summer Session  
This course will address a specific project in Classics (appearing as a subtitle).  
Analogous to REL 407-409. This will vary each time the course is offered.  
PREREQUISITE: LAT 201 OR PERMISSION OF THE INSTRUCTOR

LAT405 Special Projects in the Literature and Culture of Ancient Rome  
3 credits  
Fall & Spring Semester & First & Second Summer Session  
This course will address a specific project in Classics (appearing as a subtitle).  
Analogous to REL 407-409.  
PREREQUISITE: LAT 201 OR PERMISSION OF THE INSTRUCTOR

LAT406 Special Projects in the Literature and Culture of Ancient Rome  
3 credits  
Fall & Spring Semester & First & Second Summer Session  
This course will address a specific project in Classics (appearing as a subtitle).  
Analogous to REL 407-409.  
PREREQUISITE: LAT 201 OR PERMISSION OF INSTRUCTOR

LAT407 Supervised Reading in Classical Latin  
3 credits  
Fall & Spring Semester & First & Second Summer Session  
Variable subject matter determined by instructor and student. Analogous to REL 401-403.  
PREREQUISITE: LAT 201 OR PERMISSION OF INSTRUCTOR

LAT408 Supervised Reading in Classical Latin  
3 credits  
Fall & Spring Semester & First & Second Summer Session  
Variable subject matter determined by instructor and student. Analogous to REL 401-403.  
PREREQUISITE: LAT 201 OR PERMISSION OF INSTRUCTOR

LAT409 Supervised Reading in Classical Latin  
3 credits  
Fall & Spring Semester & First & Second Summer Session  
Variable subject matter determined by instructor and student. Analogous to REL 401-403.  
PREREQUISITE: LAT 201 OR PERMISSION OF INSTRUCTOR
LAT 411 Catullus and Horace  
3 credits  Fall Semester  
Readings from the lyric poetry of Catullus and Horace.  
PREREQUISITE: LAT 201 OR PERMISSION OF THE INSTRUCTOR.

LAT 421 Roman Epic  
3 credits  Fall Semester  
Studies from Roman epic poetry of Lucretius and Virgil to Lucan and Statius.  
PREREQUISITE: LAT 201 OR PERMISSION OF THE INSTRUCTOR.

LAT 431 Roman Historians  
3 credits  Fall Semester  
Readings from Sallust, Livy, and Tacitus.  
PREREQUISITE: LAT 201 OR PERMISSION OF THE INSTRUCTOR.

LAT 491 Directed Readings  
1-3 credits  Fall & Spring Semester & First & Second Summer Session  
Content to be determined by faculty member and registering student(s)  
PREREQUISITE: SIX CREDITS IN CLASSICS OR PERMISSION OF INSTRUCTOR.

LATIN AMERICAN STUDIES  
LAS 196 Film Series and Colloquia for First Year Seminar in Latin American and Caribbean  
1 credit  Fall Semester  
Screening and discussion of films related to FSS 195. Must be taken with FSS 195.  
PREREQUISITE: MUST BE TAKEN WITH FSS 195

LAS 201 Introduction to Latin American and Caribbean Studies  
3 credits  Fall Semester  
Course will focus interdisciplinarily on culture, economy, geography, history, politics, and society of Latin America and the Caribbean, as well as on the ways in which scholars have studied the region.  
PREREQUISITE: FSS 195 OR ANY COURSE WITH A LATIN AMERICAN AND/OR CARIBBEAN FOCUS

LAS 251 History Discussion Section for Learning Community  
0 credit  Fall Semester  
PREREQUISITE: COREQUISITE HIS 251

LAS 301 Interdisciplinary Topics in Latin American and Caribbean Studies  
3 credits  Fall & Spring Semester  
Topics Vary, Interdisciplinary focus may be thematic (e.g.: revolutions, new social movements, women's rights, Latin Americanism, testimonio, culture industries, etc.) or regional/national (e.g.: Andean Studies, Southern Cone Studies, Caribbean Studies, Mexican Studies, etc.)  
PREREQUISITE: LAS 201 OR APPROVED LAS COURSE

LAS 302 Interdisciplinary Topics in Latin American and Caribbean Studies-Travel Course  
3 credits  Spring Semester  
Topics vary, Interdisciplinary focus is thematic and regional (i.e. tourism in Yucatan; civil society in Chile, civil society in Haiti, cultural policy in the Caribbean, environmental policy in Panama.). Course involves travel during Spring Break and it has a program fee.  
PREREQUISITE: LAS 201 OR AN APPROVED LAS COURSE AND PERMISSION OF THE INSTRUCTOR.
LATIN AMERICAN STUDIES

LAS320 Interdisciplinary Topics in Latin American and Caribbean Environments
3 credits  
Fall Semester
Topics vary. Interdisciplinary focus on policies and impact on globalization on the environment.
PREREQUISITE: LAS 201 OR AN APPROVED LAS COURSE.

LAS330 Interdisciplinary Topics in Latin American and Caribbean Religions
3 credits  
Fall & Spring Semester
Topics vary. Interdisciplinary focus may be thematic or regional (e.g., Liberation Theology, Latin American and Latino Religions, Caribbean Religions.)
PREREQUISITE: LAS 201, OR AN APPROVED LAS COURSE.

LAS360 Interdisciplinary Topics in Latin American and Caribbean Politics
3 credits  
Fall Semester
Topics Vary. Interdisciplinary focus may be thematic or regional (e.g., democracy, new social movements, globalization, politics and society.)
PREREQUISITE: LAS 201 OR AN APPROVED LAS COURSE.

LAS494 Independent Study in Latin American and Caribbean Studies
1-3 credits  
Fall & Spring Semester
Independent study leading to a thesis, original piece of research, or creative project on a Latin American or Caribbean subject.
PREREQUISITE: SIX CREDITS IN LAS OR LAS-APPROVED COURSES AT OR ABOVE THE 300-LEVEL, AND PERMISSION OF INSTRUCTOR.

LAS501 Interdisciplinarity in Latin American and Caribbean Studies.
3 credits  
Fall Semester
Interdisciplinary methods and politics of Latin American and Caribbean area Studies.
PREREQUISITE: SIX CREDITS IN LAS OR LAS-APPROVED COURSES AT OR ABOVE THE 300-LEVEL.

LAS502 Interdisciplinary Research Methods in Latin American and Caribbean Studies
3 credits  
Spring Semester
Interdisciplinary research methods and skills in Latin American and Caribbean studies.
PREREQUISITE: LAS 501 OR SIX CREDITS IN LAS OR LAS-APPROVED COURSES AT OR ABOVE THE 300-LEVEL.

LAS503 Program Seminar in Latin American Studies and Caribbean Studies
3 credits  
Fall & Spring Semester
Content of course will vary by semester.
PREREQUISITE: LAS 501 OR SIX CREDITS IN LAS OR LAS-APPROVED COURSES AT OR ABOVE THE 300-LEVEL.

LAS505 Internship in Latin American and Caribbean Studies
1-3 credits  
Fall & Spring Semester & First & Second Summer Session
On-site experience in business, governmental organization, or non-profit organization dealing with Latin America and/or the Caribbean.
PREREQUISITE: DECLARED MAJOR OR MINOR IN LATIN AMERICAN STUDIES, SIX CREDITS IN LAS OR LAS-APPROVED COURSES AT OR ABOVE THE 300-LEVEL, AND PERMISSION OF LAS DIRECTOR.

LAS594 Directed Readings in Latin America and Caribbean
3 credits  
Fall & Spring Semester
Independent Study leading to an original piece of research, or creative project on a Latin American or Caribbean interdisciplinary topic.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF LAS DIRECTOR.
LAS597 Readings for the Comprehensive Exam
3 credits  Fall & Spring Semester
Readings for M.A. students who are preparing for comprehensive examinations.
PREREQUISITE: PERMISSION OF ADVISOR AND PROGRAM DIRECTOR

MATHMATICS

MTH099 Intermediate Algebra
3 credits  Fall & Spring Semester & First & Second Summer Session
Real number operations, polynomials, factoring, rational numbers and rational expressions. Cannot be used to fulfill the 120 credits required for graduation.
PREREQUISITE: EXTREME DEFICIENCY IN ALGEBRA. CANNOT BE USED TO FULFILL THE 120 CREDITS REQUIRED FOR GRADUATION.

MTH101 Algebra for College Students
3 credits  Fall & Spring Semester & First & Second Summer Session
Algebraic operations and properties of the real numbers; linear and quadratic equations and inequalities; polynomials and factoring; rational expressions; radical expressions; graphs of lines; systems of linear equations.
PREREQUISITE: ADEQUATE ACHIEVEMENT ON MATHEMATICS PLACEMENT TEST. NOT OPEN TO STUDENTS WITH CREDIT IN MTH 105 OR 107. NOT FOR MAJOR OR MINOR.

MTH103 Finite Mathematics
3 credits  Fall & Spring Semester & First & Second Summer Session
Sets, logic, counting, elementary probability and statistics, matrices, linear programming, applications to finance.
PREREQUISITE: MTH 101 OR ADEQUATE ACHIEVEMENT ON MATHEMATICS PLACEMENT TEST. NOT FOR MAJOR OR MINOR.

MTH104 Geometry for Educators
3 credits  Offered By Announcement Only
Origins of geometry; topics from Euclidean, coordinate, and transformational geometry. Includes laboratory component. Only for pre-certification students in the School of Education who are not mathematics or science majors.
PREREQUISITE: MTH 101 OR ADEQUATE ACHIEVEMENT ON MATHEMATICS PLACEMENT TEST.

MTH105 Algebra and Trigonometry
5 credits  Fall & Spring Semester
An intensive course in algebra and trigonometry as covered in MTH 107-108, but without analytic geometry.
PREREQUISITE: MTH 101 OR ADEQUATE ACHIEVEMENT ON MATHEMATICS PLACEMENT TEST. NOT OPEN TO STUDENTS WITH CREDIT IN MTH 107 OR 108. NOT FOR MAJOR OR MINOR.

MTH106 Calculus concepts with Foundations
4 credits  Fall & Spring Semester
Algebraic and trigonometric tools for calculus. Functions and graphs, limits and continuity, the derivative and applications.
PREREQUISITE: ADEQUATE ACHIEVEMENT ON MATHEMATICS PLACEMENT TEST. NOT OPEN TO STUDENTS WITH CREDIT IN MTH 111 OR 112 OR 131 OR 132.

MTH107 Precalculus Mathematics I
3 credits  Fall & Spring Semester & First & Second Summer Session
Algebraic operations; equations and inequalities; complex numbers; functions and their graphs; polynomial, exponential, and logarithmic functions; systems of equations.
PREREQUISITE: ADEQUATE ACHIEVEMENT ON MATHEMATICS PLACEMENT TEST. NOT OPEN TO STUDENTS WITH CREDIT IN MTH 105. NOT FOR MAJOR OR MINOR.
MTH108 Precalculus Mathematics II
3 credits                  Fall & Spring Semester & First & Second Summer Session
Rational functions; analytic geometry; trigonometric functions, identities, and equations.
PREREQUISITE: AT LEAST C- IN MTH 107 OR ADEQUATE ACHIEVEMENT ON MATHEMATICS PLACEMENT TEST. NOT OPEN TO STUDENTS WITH CREDIT IN MTH 105. NOT FOR MAJOR OR MINOR.

MTH109 Introductory Calculus
3 credits                                             Fall & Spring Semester
A one semester survey of the fundamental principles of calculus: functions, limits, derivatives, definite integrals, applications.
PREREQUISITE: MTH 107 OR ADEQUATE ACHIEVEMENT ON MATHEMATICS PLACEMENT TEST. NOT FOR MAJOR OR MINOR. NOT FOR B.S. STUDENTS.

MTH110 Analytic Geometry and Calculus I
5 credits                                             Fall & Spring Semester
Introduction to plane analytic geometry, and the subject matter MTH 111.
PREREQUISITE: AT LEAST A C- IN MTH 105 OR ADEQUATE ACHIEVEMENT ON MATHEMATICS PLACEMENT TEST AND HIGH SCHOOL TRIGONOMETRY. NOT OPEN TO STUDENTS WITH CREDIT IN MTH 111 OR 131.

MTH111 Calculus I
4 credits                                             Fall & Spring Semester & First & Second Summer Session
Limits and continuity, derivatives and applications, the definite integral and applications.
PREREQUISITE: AT LEAST A C- IN MTH 108 OR ADEQUATE ACHIEVEMENT ON MATHEMATICS PLACEMENT TEST TOGETHER WITH COMPLETION OF HIGH SCHOOL TRIGONOMETRY AND ANALYTIC GEOMETRY. NOT OPEN TO STUDENTS WITH CREDIT IN MTH 110 OR 131.

MTH112 Calculus II
4 credits                                             Fall & Spring Semester & First & Second Summer Session
Transcendental functions, methods of integration, L'Hopital's Rule and improper integrals, infinite series, polar coordinates, and introduction to differential equations.
PREREQUISITE: MTH 110 OR 111. NOT OPEN TO STUDENTS WITH CREDIT IN MTH 132.

MTH131 Calculus I
4 credits                                             Fall Semester
The theory of limits, the derivative and the definite integral, techniques and applications. The sequence MTH 131-132 is more conceptually oriented than MTH 111-112.
PREREQUISITE: AT LEAST A B IN MTH 108 OR ADEQUATE ACHIEVEMENT ON MATHEMATICS PLACEMENT TEST AND HIGH SCHOOL TRIGONOMETRY AND ANALYTIC GEOMETRY. NOT OPEN TO STUDENTS WITH CREDIT IN MTH 110 OR 111.

MTH132 Calculus II
4 credits                                             Fall & Spring Semester
Continuation of MTH 131. Additional topics on the derivative and definite integral, improper integrals, infinite series, and introduction to differential equations.
PREREQUISITE: MTH 131. NOT OPEN TO STUDENTS WITH CREDIT IN MTH 112.
MTH210 Introduction to Linear Algebra
3 credits Fall & Spring Semester
PREREQUISITE: PREREQUISITE OR COREQUISITE: MTH 112 OR 132.

MTH211 Calculus III
3 credits Fall & Spring Semester & First Summer Session
Matrix algebra, vectors in space, partial differentiation, multiple integration.
PREREQUISITE: MTH 112. NOT OPEN TO STUDENTS WITH CREDIT IN MTH 312.

MTH224 Introduction to Probability and Statistics
3 credits Fall & Spring Semester & First Summer Session
Probability distributions, random variables, expectation and variance, point estimation, interval estimation, testing of hypothesis, analysis of variance.
PREREQUISITE: ONE SEMESTER OF CALCULUS.

MTH230 Introduction to Abstract Mathematics
3 credits Fall & Spring Semester
Fundamentals of set theory, logic and methods of mathematical proof.
PREREQUISITE: PREREQUISITE OR COREQUISITE: MTH 112 OR 132.

MTH309 Discrete Mathematics I
3 credits Fall & Spring Semester
PREREQUISITE: MTH 111.

MTH310 Multivariable Calculus
3 credits Fall & Spring Semester & First Summer Session
Equations of curves, surfaces, solids; vector differential calculus; integration of scalar valued functions. Applications.
PREREQUISITE: MTH 210 AND (MTH 112 OR 132). OPEN TO STUDENTS WITH CREDIT IN MTH 533.

MTH311 Ordinary Differential Equations
3 credits Fall & Spring Semester
PREREQUISITE: MTH 112 OR 132.

MTH320 Introduction to Numerical Analysis
3 credits Spring Semester
Interpolation, quadrature, numerical solution of algebraic and transcendental equations, matrix inversion.
PREREQUISITE: MTH 210 or 211; KNOWLEDGE OF A STRUCTURED PROGRAMMING LANGUAGE.

MTH433 Advanced Calculus
3 credits Fall Semester
A rigorous and comprehensive treatment of the theoretical concepts of calculus. The real number system; sequences; series; continuity, differentiation, and integration of functions of one variable.
PREREQUISITE: MTH 230 AND 310.
MTH461 Survey of Modern Algebra
3 credits Fall & Spring Semester
ALGEBRAIC SYSTEMS, EQUIVALENCE CLASSES, GROUPS, RINGS, FIELDS, UNIQUE FACTORIZATION DOMAINS.
PREREQUISITE: MTH 210 AND MTH 230. NOT OPEN TO STUDENTS WITH CREDIT IN MTH 509 OR 561.

MTH471 Directed Readings
1-3 credits Offered By Announcement Only
Topics selected from algebra, geometry, analysis, topology.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

MTH472 Directed Readings
1-3 credits Offered By Announcement Only
Topics selected from algebra, geometry, analysis, topology.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

MTH502 History of Mathematics
3 credits Fall Semester
The development of mathematics from its earliest beginnings through the first half of the twentieth century. Numeral systems, geometry, algebra, analysis and set theory.
PREREQUISITE: TWO COURSES IN MATHEMATICS AT THE 200 LEVEL OR ABOVE.

MTH504 Foundations of Geometry
3 credits Fall Semester
Axiom systems and models of Euclidean and Non-Euclidean geometry.
PREREQUISITE: MTH 230 OR 309.

MTH505 Theory of Numbers
3 credits Spring Semester
Divisibility, primes; congruences, quadratic residues and reciprocity; Diophantine equations. Applications to cryptography.
PREREQUISITE: MTH 210 OR 504.

MTH506 Logic
3 credits Offered By Announcement Only
PREREQUISITE: MTH 230 OR 309 OR PERMISSION OF THE INSTRUCTOR.

MTH509 Discrete Mathematics II
3 credits Offered By Announcement Only
Groups and combinatorics; applications of group theory to computer design and error correcting codes; Semigroups and applications to finite state machines; rings and fields; applications of Boolean algebra to computer design.
PREREQUISITE: MTH 210, 309.

MTH510 Linear Algebra
3 credits Fall Semester
Abstract vector spaces, bases and dimensions, linear maps, eigenvalues and eigenvectors, inner product spaces, operators, spectral theorems, canonical forms.
PREREQUISITE: MTH 210: TRANSITION COURSE IN LOGICAL REASONING SUCH AS MTH 230 OR 309 RECOMMENDED BUT NOT REQUIRED.
MTH512 Elementary Complex Analysis
3 credits
Spring Semester
Complex variables; conformal mapping, contour integration.
PREREQUISITE: MTH 211 OR 310.

MTH513 Partial Differential Equations I
3 credits
Fall Semester
Derivation, well posedness, and qualitative properties of initial value and boundary
value problems for the heat, wave and Laplace equations. Energy methods, causality,
maximum principles, heat kernels, Fourier series, and potential theory.
PREREQUISITE: MTH 210, 311 AND EITHER MTH 211 OR 310.

MTH514 Partial Differential Equations II
3 credits
Spring Semester
Continuation of MTH 513. Approximations of solutions, distributions and integral
transform methods, spectral theory and scattering. Applications to physical problems.
Nonlinear equations and phenomena.
PREREQUISITE: MTH 513 OR PERMISSION OF THE INSTRUCTOR.

MTH515 Ordinary Differential Equations
3 credits
Fall Semester
Linear systems, equilibria and periodic solutions, stability analysis, bifurcation,
phase plane analysis, boundary value problems, applications to engineering and
physics.
PREREQUISITE: MTH 311 AND EITHER MTH 211 OR 310.

MTH516 Dynamics and Bifurcations
3 credits
Spring Semester
Bifurcation of equilibria and periodic solutions, global theory of planar systems,
planar maps, nonlinear vibrations, forced oscillations, chaotic solutions, Hamiltonian
systems, applications to engineering and physics.
PREREQUISITE: MTH 515 OR PERMISSION OF INSTRUCTOR.

MTH517 Data Structures and Algorithm Analysis
3 credits
Offered By Announcement Only
Data abstraction, formal specification, trees, B-trees, balanced binary trees,
graphs, searching and sorting. Algorithm analysis. Memory management.
PREREQUISITE: MTH 112, 220, AND 309.

MTH520 Numerical Analysis I
3 credits
Offered By Announcement Only
Numerical linear algebra including the algebraic eigenvalue problem.
PREREQUISITE: MTH 320 OR PERMISSION OF DEPARTMENT CHAIRMAN.

MTH521 Numerical Analysis II
3 credits
Offered By Announcement Only
Numerical solution of ordinary and partial differential equations.
PREREQUISITE: MTH 320 OR 520 OR PERMISSION OF DEPARTMENT CHAIRMAN.

MTH524 Introduction to Probability Theory
3 credits
Fall Semester
Probability spaces, random variables, expectation, limit theorems.
PREREQUISITE: MTH 224 AND 310
MTH525 Introduction to Mathematical Statistics
3 credits
Spring Semester
Probability distributions, theory of sampling and hypothesis testing.
PREREQUISITE: MTH 524.

MTH527 Theory of Automata
3 credits
Offered By Announcement Only
Finite-state automata, context-free grammars, pushdown automata, Turing machines and computability.
PREREQUISITE: MTH 309 OR 508.

MTH528 Combinatorics
3 credits
Offered By Announcement Only
Permutations and combinations, generating functions, enumerative analysis.

MTH531 Topology I
3 credits
Fall Semester
Set theory, topological spaces, compactness, connectedness, separation properties, quotient spaces, Tychonoff Theorem, compactification, Urysohn Lemma and Tietze Extension Theorem, function spaces.
PREREQUISITE: MTH 230

MTH532 Topology II
3 credits
Spring Semester
Differential and topological manifolds, classical groups and associated manifolds, tangent and tensor bundles, vector fields, differential forms, transversality, Sard's theorem, Stokes' Theorem.
PREREQUISITE: MTH 210 AND 531.

MTH533 Introduction to Real Analysis I
3 credits
Fall Semester
Sequences and series in Euclidean space; sequences and series of functions; Fourier series; continuity, differentiation, and integration of functions between Euclidean spaces; implicit and inverse function theorems.
PREREQUISITE: MTH 230 AND MTH 310

MTH534 Introduction to Real Analysis II
3 credits
Spring Semester
Continuation of MTH 533.
PREREQUISITE: MTH 533.

MTH540 Algorithm Design and Analysis
3 credits
Offered By Announcement Only
Design techniques include divide-and-conquer, greedy method, dynamic programming, backtracking. Time and space complexity. Sorting, searching, combinatorial and graph algorithms.
PREREQUISITE: MTH 517.

MTH542 Statistical Analysis
3 credits
Offered By Announcement Only
Statistical inference about one or two populations from interval, ordinal and categorical data; analysis of variance; simple and multiple linear regression; designing research studies.
PREREQUISITE: MTH 224, 310 (OR 211 OR 312).
MTH551 Introduction to Differential Geometry
3 credits  
Fall Semester  
Geometry of curves and surfaces in Euclidean space. Local space curve theory, intrinsic and extrinsic curvature of surfaces, geodesics, parallelism, and differential forms.  
PREREQUISITE: MTH 210 AND EITHER MTH 211 OR 310

MTH561 Abstract Algebra I
3 credits  
Fall Semester  
Groups; rings; linear algebra; modules.  
PREREQUISITE: MTH 210 AND PERMISSION OF DEPARTMENT CHAIRMAN

MTH562 Abstract Algebra II
3 credits  
Spring Semester  
Continuation of MTH 561.  
PREREQUISITE: MTH 561

MTH571 Directed Readings in Mathematics
1- 3 credits  
Fall Semester  
Readings in special topics.  
PREREQUISITE: GRADUATE STANDING; PERMISSION OF DEPARTMENT CHAIR.

MTH572 Directed Readings in Mathematics
1- 3 credits  
Fall Semester  
Readings in special topics.  
PREREQUISITE: GRADUATE STANDING; PERMISSION OF DEPARTMENT CHAIR.

MTH591 Topics in Mathematics
1- 3 credits  
Offered By Announcement Only

MTH592 Topics in Mathematics
1- 3 credits  
Offered By Announcement Only

MTH593 Topics in Mathematics
1- 3 credits  
Offered By Announcement Only

MTH594 Topics in Mathematics
1- 3 credits  
Offered By Announcement Only

MICROBIOLOGY & IMMUNOLOGY
MIC301 Introduction to Microbiology and Immunology
4 credits  
Spring Semester  
Basic principles of microbiology and immunology, including laboratory exercises. Course is required for Microbiology/Immunology majors; recommended for Biology and Chemistry majors and premedical students.  
PREREQUISITE: CHM 111 AND BIL 150/151. CO-REQUISITE MIC 301 LAB

MIC302 Introduction to Microbiology and Immunology Honors Seminar
1 credit  
Spring Semester  
Special topics in Microbiology/Immunology requiring a term paper and/or an oral presentation.  
PREREQUISITE: CO-REQUISITE: MIC 301 HONORS AND MIC 301 LAB.

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MIC320 Introduction to Microbiology and Immunology for Nurses  
3 credits  
Course covers the basic principles of microbiology and immunology. Course cannot be used for MIC major or minor credit.  
PREREQUISITE: CHM 103 & BIL 150. OPEN TO NURSING STUDENTS ONLY. MIC DEPARTMENT MUST SIGN FOR STUDENTS NOT CODED AS NURSING.

MIC321 Immunobiology  
3 credits  
Mechanisms underlying the cooperation between T-cells, B-cells, and antigens leading to humoral and cell mediated responses. The significance of immune cells and their products pertaining to autoimmunity, transplantation, and the surveillance of neoplastic cells is covered.  
PREREQUISITE: MIC 301.

MIC322 Medical Parasitology  
3 credits  
Course discusses the biochemistry, physiology, pathogenicity, immunology, and mechanism of drug action and resistance of medically important parasitic protozoa, trematodes, nematodes, and cestodes.  
PREREQUISITE: MIC 301.

MIC323 Principles of Microbial Pathogenesis  
3 credits  
Course analyzes host-microbe relationships at the molecular and cellular levels with an emphasis on microbial virulence determinants and host cell defense responses.  
PREREQUISITE: MIC 301.

MIC421 Molecular Immunobiology  
4 credits  
Offered By Announcement Only  
Techniques of Molecular Immunology.  
PREREQUISITE: MIC 321.

MIC434 Microbial Genetics and Molecular Immunology  
3 credits  
Course analyzes DNA replication, mutation, repair, recombination, jumping genes (transposons), infective hereditary mechanisms, gene regulation, protein synthesis, recombinant DNA technology, modern methods, and application of genetic engineering. Origin of antibody diversity, organization, and expression of antibody genes is included.  
PREREQUISITE: MIC 301.

MIC436 Fundamental and Medical Virology  
3 credits  
Spring Semester  
The study of viruses as biological entities and etiological agents of disease. Virus-cell and virus-host interactions are also discussed.  
PREREQUISITE: MIC 301.

MIC441 Microbiology and Immunology Colloquium  
1 credit  
Fall & Spring Semester  
Faculty presentations of recent advances in research. Course meets one hour per week.  
PREREQUISITE: 17 CREDITS IN MICROBIOLOGY AND IMMUNOLOGY.
MIC451 Special Projects in Immunobiology
1- 4 credits Fall & Spring Semester
Laboratory research problems in major areas of immunobiology including literature search, experiment design, data gathering, and evaluation of results.
PREREQUISITE: MAJOR IN MICROBIOLOGY/IMMUNOLOGY, 17 CREDITS IN MICROBIOLOGY AND IMMUNOLOGY AS WELL AS, A MINIMUM GPA OF 3.0 WITHIN MAJOR AND OVERALL AND PERMISSION OF MIC PROGRAM DIRECTOR/ADVISOR.

MIC452 Special Projects in Parasitology
2- 4 credits Fall & Spring Semester
Laboratory research problems in major areas of parasitology including literature search, experiment design, data gathering, and evaluation of results.
PREREQUISITE: MAJOR IN MICROBIOLOGY/IMMUNOLOGY, 17 CREDITS IN MICROBIOLOGY AND IMMUNOLOGY AS WELL AS, A MINIMUM GPA OF 3.0 WITHIN MAJOR AND OVERALL AND PERMISSION OF MIC PROGRAM DIRECTOR/ADVISOR.

MIC453 Special Projects in Pathogenic Bacteriology
2- 4 credits Fall & Spring Semester
Laboratory research problems in major areas of pathogenic bacteriology including literature search, experiment design, data gathering, and evaluation of results.
PREREQUISITE: MAJOR IN MICROBIOLOGY/IMMUNOLOGY, 17 CREDITS IN MICROBIOLOGY AND IMMUNOLOGY AS WELL AS, A MINIMUM GPA OF 3.0 WITHIN MAJOR AND OVERALL AND PERMISSION OF MIC PROGRAM DIRECTOR/ADVISOR.

MIC454 Special Projects in Microbial Genetics
2- 4 credits Fall & Spring Semester
Laboratory research problems in major areas of microbial genetics including literature search, experiment design, data gathering, and evaluation of results.
PREREQUISITE: MAJOR IN MICROBIOLOGY/IMMUNOLOGY, 17 CREDITS IN MICROBIOLOGY AND IMMUNOLOGY AS WELL AS, A MINIMUM GPA OF 3.0 WITHIN MAJOR AND OVERALL AND PERMISSION OF MIC PROGRAM DIRECTOR/ADVISOR.

MIC455 Special Projects in Immunogenetics
2- 4 credits Fall & Spring Semester
Laboratory research problems in major areas of immunogenetics including literature search, experiment design, data gathering, and evaluation of results.
PREREQUISITE: MAJOR IN MICROBIOLOGY/IMMUNOLOGY, 17 CREDITS IN MICROBIOLOGY AND IMMUNOLOGY AS WELL AS, A MINIMUM GPA OF 3.0 WITHIN MAJOR AND OVERALL AND PERMISSION OF MIC PROGRAM DIRECTOR/ADVISOR.

MIC456 Special Projects in Virology
2- 4 credits Fall & Spring Semester
Laboratory research problems in major areas of virology including literature search, experiment design, data gathering, and evaluation of results.
PREREQUISITE: MAJOR IN MICROBIOLOGY/IMMUNOLOGY, 17 CREDITS IN MICROBIOLOGY AND IMMUNOLOGY AS WELL AS, A MINIMUM GPA OF 3.0 WITHIN MAJOR AND OVERALL AND PERMISSION OF MIC PROGRAM DIRECTOR/ADVISOR.

MIC501 Medical Microbiology
5 credits Offered By Announcement Only
Course discusses the nature of microbial agents of infectious disease as well as relationship of virulence to host resistance and fundamental immunologic concepts. Microbial physiology and genetics, the structure, design, and mechanism of action on antimicrobials are also.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.
MIC523 Mechanisms of Microbial Virulence  
5 credits  
Spring Semester  
This course primarily focuses on mechanisms employed by bacterial and viral pathogens to produce disease in animals, plants, and humans. The course explores both the basic biology of pathogenic bacteria and viruses, as well as specific mechanisms of virulence. The general topics that will be addressed include: identification of virulence factors, virulence gene regulation, invasion of eukaryotic cells, delivery of bacterial virulence factors, bacterial toxins, and viral replication. Classes will consist of a mixture of lectures and discussions of recent or classic papers.

MILITARY SCIENCE  
MSL101 Basic Military Science  
2 credits  
Fall Semester  
Introduction to Army organizations, military customs and courtesies, basic stationary and marching drills, basic map reading, land navigation, drownproofing, rappelling, river crossing techniques, physical fitness training, and practical exercises in field discipline. Requires outdoor leadership laboratory and at least one weekend field training exercise.

MSL102 Basic Military Science  
2 credits  
Spring Semester  
Introduction to basic leadership principles and traits, army command and staff officer duties, awards, decorations, individual military tactics, field discipline, patrolling techniques, radio telephone procedures, rappelling and river crossing. Requires outdoor leadership laboratory and at least one weekend field training exercise.

MSL201 Basic Military Science  
2 credits  
Fall Semester  
Instruction to squad and platoon marching drills, development of physical fitness training programs, conduct on military training and inspections, leadership techniques, advanced map reading, rappelling and river crossing techniques. Requires outdoor leadership laboratory and at least one weekend field training exercise.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MSL202 Basic Military Science  
2 credits  
Spring Semester  
Continued instruction in drill and ceremonies, radio/telephone procedures, nuclear, biological, and chemical warfare, practical land navigation, orienteering, and introduction to combat troop leading procedures. Requires outdoor leadership laboratory and at least one weekend field training exercise.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MSL301 Basic Military Science  
3 credits  
Fall Semester  
Classroom and field experience in leading squads and platoons in both garrison and combat environments. Basic rifle marksmanship and live fire of the M16A1 rifle. Practical exercises in combat troop leading procedures. Advanced physical fitness training to include endurance runs and tactical road marches.  
PREREQUISITE: PERMISSION OF DEPARTMENT.
MILITARY SCIENCE

MSL302 Advanced Military Science
3 credits  Spring Semester
Classroom instruction and field experience in combat troop leading procedures for offensive, defensive and patrolling missions. Advanced written and practical land navigation exercises. M16AI rifle qualification. Company level drill and ceremonies to include manual of arms. Classroom and practical exercises on requests for artillery and mortar fires. Practical experience with training underclassmen in first aid and individual tactics.
PREREQUISITE: PERMISSION OF DEPARTMENT.

MSL401 Advanced Military Science
3 credits  Fall Semester
Instruction instills an uncompromising commitment to the Army Ethic, enhances thought processes and decision-making skills, and relates officer behavior to cadet leadership roles. Students are primarily responsible for the command and control of the cadet battalion for training purposes. Student's role is principally one of officer leader at the platoon (30 or more under classmen) and higher levels and cadet instructor/evaluator.
PREREQUISITE: PERMISSION OF DEPARTMENT.

MSL402 Advanced Military Science
3 credits  Spring Semester
Capstone course in the preparation for a commission as a second lieutenant. The training is intended to solidify the commitment to officership, reinforce individual competencies, and afford maximum practical officer leader experiences through responsible leadership positions within the cadet battalion command and staff.
PREREQUISITE: PERMISSION OF DEPARTMENT.

MSL440 Studies in Military History
1-3 credits  Fall Semester
Supervised readings and independent study in military history.
PREREQUISITE: PERMISSION OF DEPARTMENT.

MSL441 Studies in Military History
1-3 credits  Fall Semester
Supervised readings and independent study in military history.
PREREQUISITE: PERMISSION OF DEPARTMENT.

MSL499 Independent Studies in U.S. Military History
3 credits  Fall Semester
Supervised readings and independent study in United States Military History. Writing requirements.
PREREQUISITE: DEPARTMENT APPROVAL REQUIRED.

MODERN LANGUAGES & LITERATURES

MLL321 Topics in Literary and Cultural Studies
3 credits  Fall Semester
Comparative topics in the study of literature and culture. Specific topics vary; may be repeated for credit if topics differ. Taught in English.
PREREQUISITE: THREE CREDITS IN LITERATURE

MLL597 Readings for the Ph.D. Examinations
1-3 credits Offered By Announcement Only
For Ph.D. students who are preparing for exams.
PREREQUISITE: PERMISSION OF DIRECTOR OF GRADUATE STUDIES
MLL599 Internship
1 credit
Offered By Announcement Only
Students work in a community or business setting on issues related to language, culture, and/or teaching.

NEUROSCIENCE

NEU120 Orientation to the Study of Neuroscience II
1 credit
Spring Semester
Critical discussion of research in Neuroscience.
PREREQUISITE: ONLY FIRST YEAR NEUROSCIENCE MAJORS. COUNTS AS ELECTIVE CREDIT.

NEU342 Neural Mechanisms of Disease
3 credits
Fall & Spring Semester
Cellular and molecular mechanisms underlying nervous system dysfunction and mental illness. Biological bases, including clinical and therapeutic aspects, of specific neurological disorders.
PREREQUISITE: BIL 268 OR PSY 202 AND PERMISSION OF INSTRUCTOR OR DIRECTOR OF NEUROSCIENCE

NEU367 Introduction to Research Projects
1-3 credits
Fall & Spring Semester
Students assist on a research project under supervision of a faculty member. Activities include library research, data collection and management, and attendance at research team meetings.
PREREQUISITE: SECOND SEMESTER AND SOPHOMORE STANDING. STUDENTS MUST OBTAIN FACULTY SPONSORSHIP IN WRITING, PRIOR TO REGISTRATION.

NEU368 Introduction to Research Projects.
1-3 credits
Fall & Spring Semester
Students assist on a research project under supervision of a faculty member. Activities include library research, data collection and management, and attendance at research team meetings.
PREREQUISITE: SECOND SEMESTER AND SOPHOMORE STANDING. STUDENTS MUST OBTAIN FACULTY SPONSORSHIP IN WRITING, PRIOR TO REGISTRATION.

NEU403 Neuroscience laboratory
4 credits
Fall & Spring Semester
Research methods and laboratory experiments in contemporary neuroscience from individual cells to behavior. Scientific report writing and computer applications in experimental design and analysis.
PREREQUISITE: PSY 316; PSY 402 OR BIL 268

NEU465 Cellular and Molecular Neuroscience
3 credits
Spring Semester
Biophysical, biochemical and structural features of nerve, muscle and sensory cells. Basic cellular processes underlying function and development of nervous system.
PREREQUISITE: BIL 255, CHM 202, PSY 202, OR BIL 268

NEU468 Developmental Neuroscience.
3 credits
Spring Semester
Cellular and molecular aspects of nervous system including neuronal differentiation.
PREREQUISITE: BIL 255; BIL 268 OR PSY 202; CHM 202

NEU498 Senior Honors Thesis in Neuroscience I
3 credits
Fall & Spring Semester
Independent research project.
PREREQUISITE: 18 CREDITS IN MAJOR, PSY 316 AND ELIGIBILITY FOR HONORS IN NEUROSCIENCE.
NEU499 Senior Honors Thesis in Neuroscience I  
3 credits  
Fall & Spring Semester  
PREREQUISITE: 18 CREDITS IN MAJOR, PSY 316 AND ELIGIBILITY FOR HONORS IN NEUROSCIENCE.

PHILOSOPHY

PHI101 Introduction to Philosophy  
3 credits  
Fall & Spring Semester & First Summer Session  
Problems concerning knowledge, mind, freedom, religion, and morality. Reading and discussion of primary sources.

PHI110 Critical Thinking  
3 credits  
Fall & Spring Semester  
Principles of sound reasoning; the construction and evaluation of arguments in everyday contexts and the assessment of evidence.

PHI115 Social and Ethical Issues in Computing  
3 credits  
Fall Semester  
History, social context and methods and tools of analysis. Professional and ethical responsibilities. Intellectual property. Privacy and civil liberties.

PHI130 Contemporary Moral Issues  
3 credits  
Fall & Spring Semester & First Summer Session  
An examination of the philosophical problems which arise in connection with such moral and social issues as abortion, war, suicide, civil disobedience, racial discrimination, the death penalty, and the right to privacy.

PHI195 Special Topics  
1-4 credits  
Not Offered; Transfer Credit Only  
Special Topics taken at other institutions with no direct equivalents.

PHI196 Special Topics  
1-4 credits  
Not Offered; Transfer Credit Only  
Special Topics taken at other institutions with no direct equivalents.

PHI197 Special Topics  
1-4 credits  
Not Offered; Transfer Credit Only  
Special Topics taken at other institutions with no direct equivalents.

PHI210 Symbolic Logic  
3 credits  
Fall Semester & First Summer Session  
Introduction to symbolic logic and its methods.

PHI215 Logic and Law  
3 credits  
Spring Semester  
Principles and techniques of logic applied to legal reasoning.

PHI271 Ancient Philosophy  
3 credits  
Fall Semester  
Ancient Greek, Hellenistic, Roman, and early Christian (Patristic) philosophy with emphasis on its contribution to Western culture.  
PREREQUISITE: THREE CREDITS IN PHILOSOPHY OR SOPHOMORE STANDING.

PHI272 Modern Philosophy  
3 credits  
Spring Semester  
The Renaissance through Kant.  
PREREQUISITE: THREE CREDITS IN PHILOSOPHY OR SOPHOMORE STANDING.
PHI295 Special Topics
1-4 credits Not Offered; Transfer Credit Only
Special Topics taken at other institutions with no direct equivalents.

PHI296 Special Topics
1-4 credits Not Offered; Transfer Credit Only
Special Topics taken at other institutions with no direct equivalents.

PHI297 Special Topics
1-4 credits Not Offered; Transfer Credit Only
Special Topics taken at other institutions with no direct equivalents.

PHI330 Ethics
3 credits Fall & Spring Semester
The main ethical systems and ethical concepts, an analysis of important ethical readings, and an application of ethical concepts to the individual and to society.
PREREQUISITE: THREE CREDITS IN PHILOSOPHY OR PERMISSION OF INSTRUCTOR.

PHI331 Social and Political Philosophy
3 credits Offered By Announcement Only
Relations between morality and politics, the sources and the limits of political obligation, the function of the state, the nature of law, civil disobedience and revolution.
PREREQUISITE: THREE CREDITS IN PHILOSOPHY.

PHI332 Philosophy of Law
3 credits Offered By Announcement Only
An examination of basic philosophical issues concerning the nature and function of law, with particular attention to the legal system of the United States.
PREREQUISITE: THREE CREDITS IN PHILOSOPHY.

PHI333 Philosophical foundations of criminal law
3 credits Fall Semester
Philosophical examination of questions concerning the purpose, scope and limits of criminal law and the justification of punishment.
PREREQUISITE: THREE CREDITS IN PHILOSOPHY OR PERMISSION OF INSTRUCTOR.

PHI334 Biomedical Ethics
3 credits Offered By Announcement Only
Fundamental issues including: the allocation of medical resources, behavior control, definition of death, experimentation with human subjects, euthanasia, and abortion.
PREREQUISITE: THREE CREDITS IN PHILOSOPHY.

PHI335 Professional Ethics
3 credits Offered By Announcement Only
Moral issues in business, engineering, law, and medicine. Development of moral principles to guide those in professional roles.
PREREQUISITE: THREE CREDITS IN PHILOSOPHY OR PERMISSION OF INSTRUCTOR.

PHI340 Theory of Knowledge
3 credits Offered By Announcement Only
Analysis of the nature, sources and structure of knowledge. Possible topics include perception, skepticism, reason, truth, justification, and certainty.
PREREQUISITE: PHI 110 OR 210.
PHI341 Philosophy of Language

3 credits
Offered By Announcement Only
Theories of meaning, reference, predication, nature of signs and symbols, types and functions of discourse.
PREREQUISITE: THREE CREDITS IN PHILOSOPHY.

PHI343 Philosophy of Science

3 credits
Offered By Announcement Only
Scientific theories and their relation to evidence; experimentation and its logic; explanation, the rationality of science and the growth of scientific knowledge.
PREREQUISITE: PHI 110 OR 210.

PHI344 Philosophy of Mind

3 credits
Offered By Announcement Only
The nature of mind and mental acts, events, and states and their relations to physical states of the brain and body and to behavior.
PREREQUISITE: THREE CREDITS IN PHILOSOPHY.

PHI345 Metaphysics

3 credits
Offered By Announcement Only
The basic structure and kinds of constituents of the world.
PREREQUISITE: THREE CREDITS IN PHILOSOPHY OR JUNIOR STANDING.

PHI351 Philosophy of Religion

3 credits
Offered By Announcement Only
The nature of and grounds for religious beliefs; traditional arguments for and against the existence of God; God's attributes; reason vs. faith.
PREREQUISITE: THREE CREDITS IN PHILOSOPHY.

PHI352 Aesthetics

3 credits
Offered By Announcement Only
The philosophy of art, such as defining 'art', adjudicating among competing judgments or interpretations of works of art, and understanding the metaphysical status of art objects.
PREREQUISITE: THREE CREDITS IN PHILOSOPHY OR PERMISSION OF INSTRUCTOR.

PHI353 Philosophy of Film

0-30 credits
Fall & Spring Semester
Philosophical questions concerning the ontology and aesthetics of film.
PREREQUISITE: 3 CREDITS IN PHILOSOPHY, OR PERMISSION FROM INSTRUCTOR.

PHI373 Nineteenth Century Philosophy

3 credits
Offered By Announcement Only
Fichte, Schelling, Hegel, Schopenhauer, Kierkegaard, Marx, Comte, Mill, Spencer, and Nietzsche.
PREREQUISITE: THREE CREDITS IN PHILOSOPHY.

PHI374 Twentieth Century Philosophy

3 credits
Offered By Announcement Only
Philosophy and philosophers in the twentieth century.
PREREQUISITE: THREE CREDITS IN PHILOSOPHY.
PHI381 Existentialism
3 credits
Offered By Announcement Only
Existentialist philosophy as seen in the works of such authors as Kierkegaard, Nietzsche, Heidegger, Sartre, Camus, and Dostoevsky.
PREREQUISITE: THREE CREDITS IN PHILOSOPHY.

PHI391 Special Studies
3 credits
Offered By Announcement Only
Study of selected problems, philosophers, or movements. May be repeated for credit.
PREREQUISITE: THREE CREDITS IN PHILOSOPHY.

PHI392 Special Studies
3 credits
Offered By Announcement Only
Study of selected problems, philosophers, or movements. May be repeated for credit.
PREREQUISITE: THREE CREDITS IN PHILOSOPHY.

PHI395 Special Topics
1-4 credits
Not Offered; Transfer Credit Only
Special Topics taken at other institutions with no direct equivalents.

PHI396 Special Topics
1-4 credits
Not Offered; Transfer Credit Only
Special Topics taken at other institutions with no direct equivalents.

PHI397 Special Topics
1-4 credits
Not Offered; Transfer Credit Only
Special Topics taken at other institutions with no direct equivalents.

PHI494 Independent Study in Philosophy
3 credits
Offered By Announcement Only
Independent research conducted under the guidance of a faculty member. May be repeated for credit.
PREREQUISITE: SIX CREDITS IN PHILOSOPHY AND PERMISSION OF INSTRUCTOR.

PHI495 Senior Honors Thesis
3 credits
Offered By Announcement Only
Directed reading and a substantial and scholarly paper.
PREREQUISITE: SENIOR STANDING AND ENROLLMENT IN THE DEPARTMENTAL HONORS PROGRAM.

PHI496 Senior Honors Thesis
3 credits
Offered By Announcement Only
PREREQUISITE: PHI 495.

PHI510 Formal Logic
3 credits
Spring Semester
First and second-order quantification theory; metalogic.

PHI530 Ethical Theory
3 credits
Offered By Announcement Only
G. E. Moore to the present.
PREREQUISITE: THREE COURSES AT THE 200 LEVEL OR ABOVE, INCLUDING PHI 210 AND 330.
PHI533 Political Philosophy
3 credits
Offered By Announcement Only
A survey of some central issues and developments in political philosophy.
PREREQUISITE: THREE COURSES AT THE 200 LEVEL OR ABOVE, INCLUDING PHI 210 AND 330.

PHI540 Epistemology
3 credits
Offered By Announcement Only
A survey of the basic topics and questions in epistemology: knowledge acquisition and justification, perception, fallibilism, and skepticism.

PHI541 Mind and Language
3 credits
Offered By Announcement Only
Philosophical problems about signs, linguistic and mental representations, intentionality, action, and consciousness.

PHI543 Induction, Probability, and Scientific Method
3 credits
Offered By Announcement Only
Foundations of inductive reasoning and role of experiment in science.

PHI545 Metaphysics
3 credits
Offered By Announcement Only
A selection of topics dealing with the main problems of metaphysics: existence, modality, universals, identity and persistence through time, causation, the self and physicalism.

PHI546 Evidence and Knowledge in Medicine
3 credits
Fall Semester
Basic methodologies in medicine in the context of philosophical theories of evidence.
PREREQUISITE: 2 COURSES IN PHI, OR PERMISSION FROM INSTRUCTOR

PHI555 Philosophy of Education
3 credits
Fall Semester
Problems concerning the nature and aims of education.

PHI560 History of Logic
3 credits
Fall Semester
Aristotle, the Stoics, the Scholastics, Leibniz, Boole, DeMorgan, Peirce, Frege, and Russell and Whitehead.

PHI562 History of Ethics
3 credits
Offered By Announcement Only
A selection of ethical theories from Aristotle to Rawls.
PREREQUISITE: THREE COURSES AT THE 200 LEVEL OR ABOVE, INCLUDING PHI 210 AND 330.
PHI570 Presocratics and Plato  
3 credits  
Offered By Announcement Only  
Fragments from the Presocratics and the dialogues of Plato.  
PREREQUISITE: THREE COURSES AT THE 200 LEVEL OR ABOVE, INCLUDING PHI 210 AND 271.

PHI571 Aristotle and Hellenistic Philosophy  
3 credits  
Offered By Announcement Only  
A survey of central philosophical topics in Aristotle and Hellenistic Philosophers (Epicureans, Stoics, and Skeptics).  
PREREQUISITE: THREE COURSES AT THE 200 LEVEL OR ABOVE, INCLUDING PHI 210 AND 271.

PHI572 Medieval Philosophy  
3 credits  
Offered By Announcement Only  
The patristic period through the scholasticism of the late middle ages.  

PHI573 Early Modern Philosophy  
3 credits  
Offered By Announcement Only  
An examination of early modern philosophy from Hobbes and Descartes to Hume.  
PREREQUISITE: THREE COURSES AT THE 200 LEVEL OR ABOVE, INCLUDING PHI 210 AND 272.

PHI575 Kant  
3 credits  
Offered By Announcement Only  
An examination of selected issues in Kant's theoretical or practical philosophy.  
PREREQUISITE: THREE COURSES AT THE 200 LEVEL OR ABOVE, INCLUDING PHI 210 AND 272.

PHI581 Pragmatism  
3 credits  
Offered By Announcement Only  
Peirce, James, Dewey, and others.  

PHI582 History of Analytic Philosophy  
3 credits  
Offered By Announcement Only  
The development of analytic philosophy from its beginnings in the work of Frege and Russell through logical positivism to contemporary philosophy.  

PHI583 The Phenomenological Tradition  
3 credits  
Offered By Announcement Only  
An examination of the phenomenological movement (Edmund Husserl, Martin Heidegger, Maurice Merleau-Ponty, and others) and of its impact on contemporary thought.  

PHI591 Special Topics  
3 credits  
Offered By Announcement Only  
A selected philosopher or philosophical problem. May be repeated for credit.  
PREREQUISITE: SIX CREDITS IN PHILOSOPHY AND JUNIOR STANDING.
PHI592 Special Topics
3 credits
Offered By Announcement Only
A selected philosopher or philosophical problem. May be repeated for credit.
PREREQUISITE: SIX CREDITS IN PHILOSOPHY AND JUNIOR STANDING.

PHI594 Independent Study in Philosophy
1-3 credits
Offered By Announcement Only
Directed reading on a topic or philosopher. May be repeated for credit.
PREREQUISITE: SIX CREDITS IN PHILOSOPHY AND JUNIOR STANDING.

PHYSICAL SCIENCE
PSC101 Physical Science
3 credits
Fall & Spring Semester
An interdisciplinary course to provide the non-science major with an understanding of some of the methods, ideas and accomplishments of Physics, Astronomy, Chemistry, Geology, and their role in the development of civilization.
PREREQUISITE: NOT FOR MAJOR OR MINOR.

PHYSICS
PHY101 College Physics I
4 credits
Fall & Spring Semester & First Summer Session
Elementary mechanics, thermal phenomena, fluids, waves. Courses 101-102-106-108 provide a ten credit 'physics with lab' sequence for premedical students and others.
PREREQUISITE: MTH 108 OR 105.

PHY102 College Physics II
4 credits
Fall & Spring Semester & First & Second Summer Session
Electromagnetism, optics, and modern physics.
PREREQUISITE: PHY 101.

PHY103 General Physics
3 credits
Spring Semester
Mechanics, waves, electromagnetism.
PREREQUISITE: ARCHITECTURE MAJOR.

PHY106 College Physics Laboratory I
1 credit
Fall & Spring Semester & First Summer Session
Laboratory course to accompany PHY 101.
PREREQUISITE: PREREQUISITE OR COREQUISITE: PHY 101.

PHY108 College Physics Laboratory II
1 credit
Fall & Spring Semester & First & Second Summer Session
Laboratory course to accompany PHY 102.
PREREQUISITE: PREREQUISITE OR COREQUISITE: PHY 102.

PHY110 Descriptive Astronomy
3 credits
Fall & Spring Semester
For students not majoring in Mathematics or a Physical Science. brief non-technical treatment of the universe and its contents. Mathematical requirements are minimal with emphasis on our present knowledge about energy and matter in space. Not for major or minor.
PREREQUISITE: NOT FOR MAJOR OR MINOR.

PHY160 Physics of the Arts
3 credits
Spring Semester
Newtonian mechanics, energy, wave motion, atoms, and electricity. Applications to music, art and communications.
PHY195 Studies in Physics
1-5 credits
Not Offered; Transfer Credit Only
Special topics taken at other institutions but having no direct equivalents here.

PHY196 Studies in Physics
1-5 credits
Not Offered; Transfer Credit Only
Special topics taken at other institutions but having no direct equivalents here.

PHY197 Studies in Physics
1-5 credits
Not Offered; Transfer Credit Only
Special topics taken at other institutions but having no direct equivalents here.

PHY198 Studies in Physics
1-5 credits
Not Offered; Transfer Credit Only
Special topics taken at other institutions but having no direct equivalents here.

PHY199 Studies in Physics
1-5 credits
Not Offered; Transfer Credit Only
Special topics taken at other institutions but having no direct equivalents here.

PHY201 University Physics I. Life Sciences
4 credits
Fall Semester
Calculus based introductory physics: mechanics, heat, fluids, waves, with applications from the life sciences.
PREREQUISITE: MTH 112 OR 132.

PHY202 University Physics II - Life Sciences.
4 credits
Fall Semester
Calculus based introductory physics: electromagnetism, optics, modern physics, with applications from the life sciences.
PREREQUISITE: PHY 201

PHY205 University Physics I
3 credits
Fall & Spring Semester & First Summer Session
Mechanics through gravity and harmonic motion, intended for science and engineering students.
PREREQUISITE: COREQUISITE: MTH 110 OR 131, WITH A "B" IN MTH 105 OR 108 OR PLACEMENT INTO CALCULUS BY MTH PLACEMENT EXAM. OTHERWISE, PREREQUISITE: MTH 110, 111, OR 131.

PHY206 University Physics II
3 credits
Fall & Spring Semester & Second Summer Session
Fluids, waves, optics, thermal phenomena.
PREREQUISITE: PHY 205. PREREQUISITE OR COREQUISITE: MTH 112 OR 132.

PHY207 University Physics III
3 credits
Fall & Spring Semester & First Summer Session
Electromagnetism through Maxwell's equations.
PREREQUISITE: PHY 205; MTH 112 OR 132.

PHY208 University Physics II Lab
1 credit
Fall & Spring Semester & Second Summer Session
Laboratory to accompany PHY 206.
PREREQUISITE: PREREQUISITE OR COREQUISITE: PHY 206.
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Undergraduate Course Listing
COLLEGE OF ARTS AND SCIENCES
PHYSICS

PHY209 University Physics III Lab
1 credit                              Fall & Spring Semester & First Summer Session
Lab to accompany PHY 207.
PREREQUISITE: PREREQUISITE OR COREQUISITE: PHY 207.

PHY210 Honors University Physics II-III
5- 6 credits                                                 Fall & Spring Semester
Fluids, waves, optics, thermal phenomena, electromagnetism. Combines PHY 206 and 207.
PREREQUISITE: PHY 205, MTH 112 OR 132, AND WRITTEN PERMISSION.

PHY295 Studies in Physics
1- 5 credits                                      Not Offered; Transfer Credit Only
Special topics taken at other institutions but having no direct equivalents here.

PHY296 Studies in Physics
1- 5 credits                                      Not Offered; Transfer Credit Only
Special topics taken at other institutions but having no direct equivalents here.

PHY297 Studies in Physics
1- 5 credits                                      Not Offered; Transfer Credit Only
Special topics taken at other institutions but having no direct equivalents here.

PHY298 Studies in Physics
1- 5 credits                                      Not Offered; Transfer Credit Only
Special topics taken at other institutions but having no direct equivalents here.

PHY299 Studies in Physics
1- 5 credits                                      Not Offered; Transfer Credit Only
Special topics taken at other institutions but having no direct equivalents here.

PHY315 Mathematical Tools for Physics
3 credits                                                             Fall Semester
How to use mathematics. Series, complex algebra, vector analysis, differential
equations, etc.
PREREQUISITE: PHY 207, MTH 310. PREREQUISITE OR COREQUISITE: MTH 311.

PHY316 Physics of the Solar System
3 credits                                              Offered By Announcement Only
A mathematical treatment of the structure and composition of the solar system.
The physical nature of the sun, planets, satellites, comets, and meteors. Occasional
observation sessions will be scheduled.
PREREQUISITE: PHY 206, 207.

PHY317 Physics of Stellar Systems
3 credits                                              Offered By Announcement Only
Normal and peculiar stars: their structure and evolution. Galactic structure and
some cosmology. Occasional observation sessions will be scheduled.
PREREQUISITE: PHY 206, 207.

PHY321 Thermodynamics and Kinetic Theory
3 credits                                              Spring Semester
An intermediate course in thermal phenomena, from both macroscopic and microscopic
points of view.
PREREQUISITE: PHY 206 AND MTH 211 OR 310
PHY340 Classical Mechanics I  
3 credits Fall Semester
Includes harmonic motion, orbit theory, coupled oscillations, rigid body motions.  
PREREQUISITE: PHY 206, 207. PREREQUISITE OR COREQUISITE: MTH 311.

PHY350 Intermediate Electricity and Magnetism  
3 credits Fall Semester
Includes the integral and differential forms of Maxwell’s equations, circuit theory, and boundary value problems.  
PREREQUISITE: PHY 206, 207, MTH 211 OR 310. PREREQUISITE OR COREQUISITE: MTH 311.

PHY351 Intermediate Electricity and Magnetism II  
3 credits Spring Semester  
A continuation of PHY 350. Includes further application of Maxwell’s equations with emphasis on radiation theory.  
PREREQUISITE: PHY 350.

PHY360 Introduction to Modern Physics  
3 credits Fall & Spring Semester
Emphasis on the experimental foundations of modern physics. Relativity, quantization, atomic structure, radiation, nuclei.  
PREREQUISITE: PHY 206. PREREQUISITE OR COREQUISITE: PHY 207.

PHY362 Modern Physics Honors Seminar  
1 credit Fall & Spring Semester
Special Topics to accompany PHY 360. Corequisite: PHY 360.  
PREREQUISITE: COREQUISITE: PHY 360.

PHY395 Studies in Physics  
1- 5 credits Not Offered; Transfer Credit Only
Special topics taken at other institutions but having no direct equivalents here.

PHY396 Studies in Physics  
1- 5 credits Not Offered; Transfer Credit Only
Special topics taken at other institutions but having no direct equivalents here.

PHY397 Studies in Physics  
1- 5 credits Not Offered; Transfer Credit Only
Special topics taken at other institutions but having no direct equivalents here.

PHY398 Studies in Physics  
1- 5 credits Not Offered; Transfer Credit Only
Special topics taken at other institutions but having no direct equivalents here.

PHY399 Studies in Physics  
1- 5 credits Not Offered; Transfer Credit Only
Special topics taken at other institutions but having no direct equivalents here.

PHY401 Senior Thesis  
3 credits Offered By Announcement Only

PHY402 Senior Thesis  
3 credits Offered By Announcement Only
PHYSICS

PHY500 Research
1-3 credits Offered By Announcement Only
Project course introducing methods of research, individual investigation of current problems.

PHY505 Advanced Laboratory
1-2 credits Fall Semester
Advanced experiments such as properties of the electron, optical spectra, electrical measurements, radioactive decay, absorption, etc.
PREREQUISITE: PHY 208. PREREQUISITE OR COREQUISITE: PHY 360.

PHY506 Advanced Laboratory
1-2 credits Spring Semester
Advanced experiments such as properties of the electron, optical spectra, electrical measurements, radioactive decay, absorption, etc.
PREREQUISITE: PHY 208. PREREQUISITE OR COREQUISITE: PHY 360.

PHY515 Mathematical Techniques in Physics
3 credits Spring Semester
Complex variables and applications. Infinite series and their uses, particularly in differential equations. Multiple integrals and Fourier series.
PREREQUISITE: PHY 206, 207; MTH 311, AND 310 OR 312.

PHY516 Readings in Physics
1-3 credits Fall & Spring Semester
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

PHY517 Readings in Physics
1-3 credits Spring Semester
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

PHY518 Readings in Physics
1-3 credits Offered By Announcement Only
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

PHY520 Solid State Physics
3 credits Offered By Announcement Only
Crystal structure, quantum theory of the electronic structure of solids, mechanical, electric, magnetic and optical properties of solids.
PREREQUISITE: PHY 560.

PHY530 Plasma Physics I
3 credits Offered By Announcement Only
Kinetic theory of plasmas, adiabatic motion of charged particles magnetofluid dynamics, transport properties of plasmas in electromagnetic fields.
PREREQUISITE: PHY 340, 351, 360.

PHY540 Classical Mechanics II
3 credits Fall Semester
Lagrangian formulation, rigid body dynamics. Topics selected from fluid dynamics, non-linear oscillations, normal modes, phase plane analysis.
PREREQUISITE: PHY 340.
COLLEGE OF ARTS AND SCIENCES

PHYSICS

PHY545 Introduction to Astrophysics
3 credits
Fall Semester
Celestial mechanics, solar models, galaxies, distance scales, instruments.
PREREQUISITE: PHY 360 and another 3 credit 300 level physics course.

PHY552 Optical Physics
3 credits
Offered By Announcement Only
Geometric optics, interference and diffraction, polarized light, optical pumping, coherence phenomena, applications to modern physical research.
PREREQUISITE: PHY 351, 360.

PHY560 Quantum Mechanics and Modern Physics I
3 credits
Fall Semester
Introductory theory with applications to simple systems. Perturbation theory and atomic structure.
PREREQUISITE: PREREQUISITE OR COREQUISITE: PHY 350.

PHY561 Quantum Mechanics and Modern Physics II
3 credits
Spring Semester
Applications of quantum mechanics to atomic and molecular spectroscopy, quantum statistical mechanics, and nuclear physics.
PREREQUISITE: PHY 560.

POLITICAL SCIENCE

POL201 Introduction to American National Government
3 credits
Fall & Spring Semester & First & Second Summer Session
Examination of the principles, structures, and processes of the national government of the United States. Frequent comparisons made with others countries.

POL202 Introduction to Comparative Politics
3 credits
Fall & Spring Semester & First & Second Summer Session
This course examines how countries around the world, democracies (established and new) and authoritarian regimes are governed. The different ways in which, and the different degrees to which, governments intervene in the economy.

POL203 Introduction to International Relations
3 credits
Fall & Spring Semester & Second Summer Session
Introduction to the theory and practice of international relations. Analyzes the modern state system; globalization; diplomacy and negotiation, balance of power considerations.
PREREQUISITE: NONE

POL213 Government and Society
3 credits
Offered By Announcement Only
Examination of such key issues as the role of business in society, the nature of corporate responsibility, business ethics practices, and the interactive roles of government and business in a global society. Not for major or minor credit.
PREREQUISITE: POL 211.
POL250 Scope and Methods of Political Science
3 credits Offered By Announcement Only
The basic skills needed in political science to critically read academic journal articles and books. The application of scientific methods to the study of public life, focusing on research design and introducing students to the various methodologies used by researchers to draw descriptive and causal inference about the political world. Some methods introduced include ethnography, experimentation, the case study, and survey research.
PREREQUISITE: POL 20, 202, OR 203

POL305 Introduction to Political Theory
3 credits Offered By Announcement Only
Survey and analysis of political theories from Plato to the present. Topics include competing ideas on the organization of human communities, morality, and justice. Illumination of traditional political thought with more recent insights and concepts that question previous theories on the nature of the self, the scope of rationality, and social organization.
PREREQUISITE: POL 201, 202, OR 203

POL306 Positive Political Theory
3 credits Fall Semester
Introduction to positive political theory as a study of politics using quantitative methods such as game theory, laboratory experiments, and computer simulation. The political agents involved in a given interaction are modeled as rational players guided by self-interest whose behavior can be formally explained or predicted.

POL307 Political Ideologies
3 credits Offered By Announcement Only
Covers modern and contemporary political ideologies, such as Liberalism, Conservativism, and Marxism.
PREREQUISITE: POL 201, 202 OR 203

POL309 American Political Thought
3 credits Fall Semester
This class traces the evolution of democratic thinking in America. Topics include the meaning of representation, citizenship, equality and liberty.
PREREQUISITE: POL 201

POL310 God, Science, and Politics
3 credits Fall Semester
A study of morality and religion that addresses the competing influences of material and spiritual discourses on political regimes and practices. The talking points for the course include the various proofs and refutations offered throughout history of God’s existence, the differences and similarities of scientific and religious approaches to experience, and the ways in which moral and religious principles enlighten politics as they fold into the vocabularies of natural law and right, and contaminate the political with religious violence in the name of God.
PREREQUISITE: POL 201 OR POL 202 OR POL 203 OR REL 101 OR PHI 101

POL314 Legislative Processes
3 credits Spring Semester
Examination and analysis of the United States Congress. Emphasis on internal structure and operations, congressional roles and procedures, party leadership, external influences on congress, and incentives for congressional behavior.
PREREQUISITE: POL 201
POL315 American Presidency
3 credits
Offered By Announcement Only
Historic development of presidential power; sources of the powers of the modern presidency, institutional decision-making; how and to what degree presidential power should be controlled.
PREREQUISITE: POL 201

POL321 Public Policy and Administration
3 credits
Fall & Spring Semester
Analysis of justification for government policies, and specifically of situations where private sector institutions fail to achieve the socially optimal level of a good or service. Identifies the general type of government policies and which of these policies are appropriate for the various problems. Explores the likelihood that policies will be successful and the way the political process shapes the final choice and implementation of government policies.
PREREQUISITE: POL 201

POL322 Environmental Politics and Policy
3 credits
Fall Semester & First Summer Session
Examines the federal government's policies toward the National Forests and public grasslands; water supply policies and politics of the Everglade and Far West; global warming; U.S. air and water pollution policies and politics as well as those related to waste management; U.S. energy policies; and trade and the environment.
PREREQUISITE: POL 201 OR POL 203.

POL332 Mass Media and Politics
3 credits
Offered By Announcement Only
Role of media in American politics. Historical development of the media from newspapers, through radio, to television and new media such as the internet. Changing norms of news media reportage. The growth of political advertising both during and between elections; the effects of these developments on American government and on the public.
PREREQUISITE: POL 201

POL334 Campaigns
3 credits
Offered By Announcement Only
Students learn about political campaigns by becoming involved in an active campaign and studying the academic literature about elections and campaigns. Topics are media, campaign organization, voters, issues, political parties, elections, and the five elements of every campaign.
PREREQUISITE: POL 201

POL335 Local Government
3 credits
Offered By Announcement Only
Examination of city and county governments and politics. Focuses on structures, leadership, taxing and spending, the influence of state and federal governments, and "hot-button" issues of importance to South Florida communities.
PREREQUISITE: POL 201
POL337 International Law and Organizations
3 credits Offered By Announcement Only
This course focuses on the interaction of states through various legal regimes. We will consider the role of international law and organizations in politics, and the political implications of both criminal and civil international law from the perspective of the state, the individual, and non-governmental actors. Readings, lectures, class discussions, and examinations will familiarize the students with the parameters and limitations as well as the policy and practice of international law.
PREREQUISITE: POL 203

POL342 State and Local Government and Politics
3 credits Spring Semester
State constitutions, political parties, legislatures, executives court systems, administrative systems and services, financial problems, city and county governments, local-state, federal-state and interstate relations. Special emphasis on governments in Florida.
PREREQUISITE: POL 201

POL343 Government in Metropolitan Areas
3 credits Offered By Announcement Only
Political and administrative processes of governmental units within metropolitan areas; interrelations of these units and the evolution of metropolitan processes and forms.
PREREQUISITE: POL 201

POL345 The United States and Asia
3 credits Offered By Announcement Only
Political, economic, and security aspects of America's relations with the Asian-Pacific area. Trade and alliance relationships. Actions and interactions of Asian states, their alignments with each other; the impact of these alignments on their relationships with the United States and in the global balance of power.
PREREQUISITE: POL 203

POL346 U.S.-Latin American Relations
3 credits Fall Semester
Systematic survey of U.S.-Latin American relations highlighting contending paradigms in the study of hemispheric relations. Examines issues in East-West and North-South relations and political economy of Brazil, Mexico, and Argentina. Considers alternative U.S. foreign policies.
PREREQUISITE: POL 202, OR POL 203

POL347 American Foreign Policy
3 credits Offered By Announcement Only
Examination and analysis of American diplomacy with emphasis on the post-cold war period. Introduces the constitutional framework within which foreign policy is formulated and the evolution of policies in response to changes in the external environment.
PREREQUISITE: POL 201 AND 203.
POL348 United States Relations with the Middle East
3 credits
Evolution of American relations with the Middle East. Analysis of the motivations and calculations, including domestic and external sources of policy-making and implementation. Emphasis on post-World War II period, with particular attention to the current administration.
PREREQUISITE: POL 203

POL349 U. S. Defense Policy
3 credits
Spring Semester
Examination of key problems of national security in the post-Cold War environment. Emphasis on the structure and functioning of the US defense establishment and its interactions with its most probable adversaries and allies. Consideration of the constraints on, and options open to, policy planners, and with the institutional elements of the decision making process.
PREREQUISITE: POL 201 AND 203 OR HIS 121 OR HIS 122

POL351 Public Opinion
3 credits
Fall Semester
Political functions of public opinion; opinion dynamics in the U.S.A.; quantitative analysis of elements in opinion change; principles of political control via mass media in the U.S.A.
PREREQUISITE: POL 201

POL352 Political Parties
3 credits
Offered By Announcement Only
Analysis of political organizations and electoral processes in the United States: their history, current status, and present trends. Consideration of the organization, control, and finances of political parties and pressure groups, their characteristic practices, and their relationship to political democracy.
PREREQUISITE: POL 201

POL353 Interest Groups and Lobbying
3 credits
Offered By Announcement Only
Analysis of lobbying and political interest groups in the United States; history, current status, and present trends. The organizations, control, and finances of pressure groups, their characteristic practices, and their relationship to democracy. Also, lobbying by citizens and groups more broadly, including the role of campaign contributions.
PREREQUISITE: POL 201

POL360 Congressional Representation
3 credits
Fall Semester
Examination of how and when citizens influence legislators' behavior. How legislators' floor behavior reflects citizens' preferences and how these preferences influence the formation of electoral coalitions.
PREREQUISITE: POL 201

POL372 Introduction to Criminal Justice
3 credits
Spring Semester
The criminal justice process as a means of achieving social control. Current policies, practices and problems of crime control.
PREREQUISITE: POL 201
POL373 Constitutional Law I
3 credits Fall Semester
A study of the development of the principles of American Constitutional Law, with a course focus upon those constitutional principles developed from the original document. Areas of study include judicial review, separation of powers, the Commerce Clause, the Contract Clause, and the Due Process Clauses.
PREREQUISITE: POL 201

POL374 Constitutional Law II
3 credits Not Offered; Transfer Credit Only
This course is a continuation of Constitutional LAW I. The curriculum covers the twenty-seven Amendments to the Constitution with a primary focus upon speech, assembly, religion, right to counsel, self-incrimination and unreasonable searches.
PREREQUISITE: POL 201

POL380 Comparative Political Analysis
3 credits Spring Semester
An introduction to the techniques of comparative political analysis by applying major social scientific arguments to the question: Why do some countries develop stable democracies and others do not? Students will pursue their own research projects seeking to answer this question in the context of a country or countries of their choice.
PREREQUISITE: POL 202; POL 250 IS RECOMMENDED

POL381 European Governments and Politics
3 credits Fall Semester
Examination of post-war political, and economic developments in selected European countries. Focuses on political parties, welfare states, and political institutions.
PREREQUISITE: POL 202

POL382 Government and Politics of the Federal Republic of Germany
3 credits Offered By Announcement Only
An examination of Germany's political system, its political parties, and the country's economic, social and foreign policies.
PREREQUISITE: POL 202

POL384 Soviet and Russian Politics
3 credits Fall Semester
Explores political, economic, and social developments in the Soviet Union and Russia from pre-1917 to the present day; analysis of the dissolution of the USSR, struggles over economic reform in post-Soviet Russia, and historical sources of contemporary problems. Critical examination of different models and interpretations of the Soviet experience.
PREREQUISITE: POL 202

POL385 Politics and Society in Latin America
3 credits Fall & Spring Semester
Introduction to the politics of Latin American countries focusing on 20th century history, the impact of the Cold War and home-grown social struggles, economic development models, the difficulties of democratic consolidation, U.S-Latin America relations, the emergence of new political actors such as women's and indigenous movements, and current political constellations. The course combines a study of thematic issues with case studies.
PREREQUISITE: POL 202
POL386 Democratic Consolidation

3 credits  Fall Semester
Explore the general concept of "democratic consolidation" which has become a timely topic in the discourse of today's foreign policy. We will examine the central theoretical concepts that frame the discourse and then examine several case studies.
PREREQUISITE: POL 202

POL387 Politics of the Middle East

3 credits  Fall Semester
Comparative analysis of the political development of the Middle East in terms of nations and as a region. Particular stress is on the relationships within the region and with other regions of the world.
PREREQUISITE: POL 202

POL388 Politics of Israel

3 credits  Fall Semester
Comparative analysis of the political development of the state of Israel from the Yishuv period to the current pluralistic society. Particular stress is on the unique status of a predominantly Jewish state in the midst of an Arab/Islamic regional subsystem of political relationships.
PREREQUISITE: POL 202

POL392 International Terrorism

3 credits  Spring Semester
Study of phenomenon of low-intensity warfare known as international terrorism in all its variations: state, state-sponsored, state-supported, domestic revolutionary terrorism and counterterrorism. Also examines governmental policies of countering terrorism.
PREREQUISITE: POL 202 OR 203

POL397 Transfer Credits

1- 5 credits  Fall & Spring Semester & First & Second Summer Session
Course for which there is no direct UM equivalent.

POL398 Transfer Credits

1- 5 credits  Fall Semester
Course for which there is no direct UM equivalent.

POL399 Transfer Credits

1- 5 credits  Fall & Spring Semester & First & Second Summer Session
Course for which there is no direct UM equivalent

POL501 Budget and Financial Management and Administration

3 credits  Fall Semester
Role of the budget in shaping public policy; managing public revenues; budgetary theory, politics, and fiscal management. Examples from state, municipal and federal governments.
PREREQUISITE: ADVANCED UNDERGRADUATE OR GRADUATE STANDING AND PERMISSION OF INSTRUCTOR

POL505 Security, globalization, and human rights: ideals and

6 credits  First Summer Session
POL510 Political Analysis
3 credits
Fall Semester
Introduction to the tools used to investigate empirical questions relevant to politics, policy and public administration. Students apply statistical concepts to contemporary social phenomena. Examines the impact of minority-majority redistricting, the fairness of the butterfly ballot, and the sources of political realignment.
PREREQUISITE: POL 201 OR POL 202 OR POL 203 OR POL 380 OR GRADUATE STANDING

POL512 Advanced Political Analysis
3 credits
Offered By Announcement Only
This course teaches students how to do social science research using the applied techniques of statistics and case study analysis while exposing them to research in the leading sub-fields of political science. Students will produce an original paper that evaluates an academic question using empirical social science evidence.
PREREQUISITE: POL 380 OR POL 510

POL513 Models of Politics
3 credits
Offered By Announcement Only
Hands-on examination of the process by which quantitative and qualitative models are constructed in political science. The course focuses on the creative aspect of model building and diverse forms of theory construction.
PREREQUISITE: POL 201, POL 202, OR POL 203

POL515 Media Content Analysis
3 credits
Fall Semester
There are few facets of our lives which are not directly affected by media content. From cell phones to televisions, the media is with us all the time. But what messages are contained in the mass media? What methods can we employ to study media content scientifically? This course will explore methods of analyzing media sources including movies, newspapers, magazines, and television. Course topics will include political bias, campaign coverage, and news content. Students will design their own projects and implement their own coding strategies.
PREREQUISITE: FOR POLITICAL SCIENCE MAJORS: POL201. FOR NON-POLITICAL SCIENCE MAJORS, JUNIOR SENIOR, OR GRADUATE STUDENT STANDING.

POL520 Internship
3 credits
Fall & Spring Semester & First & Second Summer Session
Provides advanced political science majors with an opportunity to participate in a structured, supervised internship. 25-35 page research paper required.
PREREQUISITE: JUNIOR OR SENIOR STANDING; OPEN TO POLITICAL SCIENCE MAJORS ONLY, WITH MINIMUM GPA OF 3.5 IN THE MAJOR, 3.3 OVERALL; PERMISSION OF SUPERVISING INSTRUCTOR AND DEPARTMENT CHAIR.

POL521 Public Affairs Internship
3 credits
Fall & Spring Semester & First & Second Summer Session
Opportunity for the advanced student specializing in public administration to participate in an administrative capacity in an agency of state or local government. Periodic conferences with adviser and paper required.
PREREQUISITE: JUNIOR OR SENIOR STANDING; OPENING TO POLITICAL SCIENCE MAJORS ONLY. NEED MINIMUM GPA OF 3.5 IN THE MAJOR, 3.3 GPA OVERALL. PERMISSION OF SUPERVISING INSTRUCTOR AND DEPARTMENT CHAIR.
POL522 Introduction to Graduate Public Administration
3 credits  Fall & Spring Semester
Introduction to concepts, issues, problems, theories and process in the field of public administration and/or public management.
PREREQUISITE: ADVANCED UNDERGRADUATE OR GRADUATE STANDING AND PERMISSION OF INSTRUCTOR.

POL523 Problems in Public and Non-Profit Management
3 credits  Offered By Announcement Only
Nature of the power vested in administrative bodies and problems involved in management procedures. Special emphasis on local or non-profit administration.
PREREQUISITE: ADVANCED UNDERGRADUATE OR GRADUATE STANDING. PERMISSION OF INSTRUCTOR.

POL524 Non-Profit Organizations: Law, Policy, and Management
3 credits  Fall Semester
This course teaches students the essential requirements for creation and operation of tax-exempt nonprofit organization in accordance with state and federal law. The course covers a wide range of relevant topics including guidelines for charitable giving and charitable solicitation, pitfalls that can result in personal liability for officers and directors, and statutory constraints on legislative lobbying and political activities.
PREREQUISITE: JUNIOR OR SENIOR STATUS, GRADUATE STANDING, OR PERMISSION OF THE INSTRUCTOR.

POL525 Comparative Public Policy and Administration
3 credits  Offered By Announcement Only
Comparison and analysis of the organizational and managerial policy problems of developed and developing nations. The administrative process will be considered within the institutional and cultural framework of each nation. Case studies will be used to focus on transition from traditional to modern techniques of public management.

POL526 Administrative Law
3 credits  Fall Semester
Administrative law is the study of the legal relationship of government agencies to legislatures, courts, and private parties. The course examines the legal dimensions of bureaucratic power and procedures as well as constitutional and statutory constraints on regulators and administrators. Topics include rulemaking, adjudication, investigation and enforcement, political controls on agencies, judicial review of agency decisions, governmental liability and immunity, public records and open meetings laws. Both federal law and Florida law are covered. The course assumes a basic knowledge of the American legal system, constitutional law and bureaucracy.
PREREQUISITE: FOR POLITICAL SCIENCE MAJORS: POL 201 AND POL 321. FOR NON-POLITICAL SCIENCE MAJORS, JUNIOR, SENIOR, OR GRADUATE STANDING.

POL528 Advanced Seminar on Electoral Behavior
3 credits  Fall Semester
This seminar examines the opinions that Americans have and how those opinions are expressed through participation in elections. At the end of the semester we will also examine other forms of political participation (e.g., interest groups).
PREREQUISITE: POL 201.
POL530 Intelligence and National Security Decision Making
3 credits
Offered By Announcement Only
This course will study the US national security community structure and decision making process. The course will look at the National Security Council, the principal national security agencies (such as the CIA, Defense Department, and State Department), how they interact, and their roles in dividing and executing policy. We will also examine the role and function of senior policy decision makers such as the President. We will study recent policy challenges such as Iraq and Afghanistan as examples of National Security policy.
PREREQUISITE: POL 201 AND POL 203

POL531 Global Environmental Politics
3 credits
Offered By Announcement Only
Examination of the environment within the context of economic globalization. Contrasts the international trading regime and those regimes designed to protect the environment, with specific attention to the issues of global warming and bio-diversity.
PREREQUISITE: POL 203

POL535 Comparative Legal Systems
3 credits
Fall & Spring Semester
Considers the institutional and political roles of Courts from a comparative perspective. With a focus on judicial independence and judicial review, will consider the juridical systems of a variety of countries and regions including the US, the EU, Germany, France, Great Britain, Chile, Argentina, Russia, The Asian-Pacific Rim, South Africa, Israel, Central America and the Middle East.
PREREQUISITE: POL 202 OR GRADUATE STANDING.

POL536 U.S. Health Care Crisis: Politics and Policies
3 credits
Fall Semester
This seminar will explore the politics and policies of healthcare in the United States. Our examination of the current crisis in cost and coverage will draw on experience from the debates on comprehensive and incremental reform over the past decade. In addition, we will explore the politics and policies of other health and science issues. Students will be expected to attend every class and be actively involved in class discussions. There will be two examinations, one at mid-term and a final based on readings and course discussions.
PREREQUISITE: SENIORS ONLY (PEOPLE GRADUATING THE SEMESTER THE COURSE IS HELD OF THE FOLLOWING DECEMBER)

POL541 Philosophy of Law
3 credits
Offered By Announcement Only
Case-based study of jurisprudence designed to illuminate and explain philosophies of law. Examination of theories of free expression; bioethical matters; theories of punishment and legal responsibility; and the placement of religious discourses in liberal systems of law. Special attention to cases involving fundamental rights and liberties; the role of the individual and the state in civil society; and the capacities of individual to be legally competent in contemporary systems of law.
PREREQUISITE: POL 201, 212 OR POL 203 OR GRADUATE STANDING.
POL542 American Constitutional Development

3 credits Offered By Announcement Only
This seminar examines the judicial role in protecting civil rights and liberties under the Constitution, with principal attention to the Supreme Court's interpretation of due process of law, the right of privacy, First Amendment freedoms, and equal protection.
PREREQUISITE: POL 201

POL543 Urban Politics

3 credits Offered By Announcement Only
Examination of sources of political power in urban areas and how they influence the policies pursued in those areas. Analysis of the role of economic power, protest actions, neighborhood groups, and voting to evaluate whether there is a bias in urban politics that systematically favors some groups over other and, if so, how likely it is that the bias can be overcome.
PREREQUISITE: POL 201 OR GRADUATE STANDING.

POL544 Chinese Foreign Policy

3 credits Fall Semester
PREREQUISITE: POL 203

POL545 Environmental Policymaking

3 credits Spring Semester
Examination of different ethical approaches to the environment; the federal government's management of natural resources; selected environmental policies; international environmental policy issues. Topics include federal management of national grazing lands, national forests, and minerals in the public domain. Analyzes environmental policies such as air, water, toxic wastes, energy, and environmentally-related issues in international trade and national security.
PREREQUISITE: POL 201 OR POL 203

POL546 Public Policy

3 credits Fall Semester
Analysis of American federal policy formulation and implementation processes; roles of congress, the executive branch, and the supreme court, interest groups, public opinion, voting, and political parties in the formulation of policy. Addresses economic, social and environmental policies. Considers the causes and consequences of public policy and the extent in which the policy formulation process is democratic.
PREREQUISITE: POL 201

POL547 Congressional Representation

3 credits Not Offered; Transfer Credit Only
This course examines how and when citizens influence legislators' behavior. More specifically, we examine how legislators' floor behavior reflects citizens' preferences and how these preferences influence the manner in which legislators build electoral coalitions.
PREREQUISITE: POL 201
POL548 Civic Participation and Democracy
3 credits  Fall Semester
Citizens participate in the governing process by communicating their preferences and pressuring the government to respond. In this course we examine these various mechanisms of “civic participation”, and discuss the meaning and consequences of participatory democracy. The course focuses on the contemporary United States, but we will devote some time to discuss civic participation in other countries as well.
PREREQUISITE: POL 201

POL550 Advanced Seminar on American Politics
3 credits  Fall Semester
This seminar provides students with a survey of significant research on major topics in American Politics. We will read influential works of the past, as well as recent cutting-edge research. Particular attention will be paid to discussing the methods and theories used in the research we will read. The purpose of the course is to acquaint students with the literature on American Politics, while also providing an opportunity for students to develop skills in critically assessing and skillfully conducting social science research.
PREREQUISITE: POL 201

POL551 Productivity in the Public and Non-Profit Sectors
3 credits  First Summer Session
Definitions and measures of productivity. Evaluation of government programs, and methods of productivity improvement.
PREREQUISITE: POL 201

POL553 The Environmental Movement: Groups, Beliefs and Values
3 credits  Fall Semester
Exploration of the origins and political impact of environmentalism in the United States and, to a lesser extent, in the global context. Impact of democratic participation on environmental politics.
PREREQUISITE: POL 201

POL554 Social Welfare Policy
3 credits  Not Offered; Transfer Credit Only
Examination of major domestic policy issues in the United States, including poverty, housing, homelessness, education, and crime. Analysis of the different definitions of the underlying problem or different causes of each issue. Particular stress is on how those definitions determine the type of policy solution needed and the conflict in policy recommendations that occur because of the different problem definitions.
PREREQUISITE: POL 201 OR GRADUATE STANDING

POL555 Total Quality Public Service Management: Achieving High Performance Government
3 credits  Fall Semester
Examination of the theory and practice of Total Quality Management (TQM) in the government and non-profit sector. Focuses on budgetary, customer service, employee and process improvements that facilitate increased public and non-profit performance. Special emphasis to TQM’s contribution to improved service delivery.
PREREQUISITE: POL 201
POL556 Politics and Ethics
3 credits
Offered By Announcement Only
Personal, professional, organizational, and societal levels of ethical analysis. Ethical theories will be reviewed and applied to actual cases that focus on public policy and/or the officials who create and implement it. Profiles of moral exemplars in public life will be examined.
PREREQUISITE: POL 201 OR GRADUATE STANDING

POL557 Ethical and Managerial Issues in Government, Business and Non-Profit Organizations
3 credits
Offered By Announcement Only
PREREQUISITE: POL 201 OR GRADUATE STANDING

POL563 Senior Honors Course (I)
3 credits
Fall & Spring Semester
General reading, preparation of research design and collection of information. Admission to this course requires an application to the Director or Undergraduate Studies for Political Science. Contact the department for details.
PREREQUISITE: ADMISSION BY APPLICATION ONLY. SEE THE DIRECTOR OF UNDERGRADUATE STUDIES FOR DETAILS.

POL564 Senior Honors Course (II)
3 credits
Fall & Spring Semester
Continuation of POL 563: writing and defense of the theses. Admission to this course requires an application to the Director or Undergraduate Studies for Political Science. Contact the department for details.
PREREQUISITE: ADMISSION BY APPLICATION ONLY. SEE THE DIRECTOR OF UNDERGRADUATE STUDIES FOR DETAILS.

POL570 Uniting States in International Perspective
3 credits
Fall Semester
How states form and fragment; The main actors in nation formation; the elements of continuity and change; the impact outsiders can have on the process.
PREREQUISITE: POL 211 AND POL 212

POL577 Security in South Asia: The Conflicts of Afghanistan, Pakistan and India
3 credits
Fall & Spring Semester
The security system of South Asia's northern reaches and the current conflict involving Afghanistan, Pakistan, and India: considerations of sovereignty and the role of frontiers in world politics.
PREREQUISITE: POL 203

POL578 Energy and Security in the Caspian and Black Sea Regions
3 credits
Fall & Spring Semester
The intersection of energy and sevurity within the contested geopolitical and geocultural space of the Caspian and Black Sea basins. It is concerned with these two, interconnected, sub-regions for what they tell us about ideas and acts, identities and interests, in a notoriously fluid perios in international politics.
PREREQUISITE: POL 203
POL579 The politics of post-communist transactions
3 credits  Fall Semester
Examination of the creation, breakdown, and aftermath of communist governments in Eastern Europe and the USSR. Develops a theoretical framework for understanding cross-national patterns of post-communist development in the context of country-specific experiences.
PREREQUISITE: POL 202

POL580 Ethnicity, Nationalism and Secession
3 credits  Spring Semester
Examination of the creation, breakdown, and aftermath of communist governments in Eastern Europe and the Soviet Union. Using empirical evidence from four case studies, develops a theoretical framework for understanding cross-national patterns of post-communist development in the context of country-specific experiences.
PREREQUISITE: POL 202 OR POL 203

POL581 Comparative Political Economy of Post-Industrial Democracies
3 credits  Fall Semester
This seminar examines four key turning points in the development of capitalism: the industrial revolution, the aftermath of the depression and world wars, the oil crisis of the 1970's, and today's "globalization". We will compare the relationships between government and the economy in Western Europe, Canada, the U.S., Australia, New Zealand, and Japan in each period, and attempt to evaluate why these countries react similarly or differently to identical changes in world economy.
PREREQUISITE: POL 202

POL582 Political Economy of Development
3 credits  Offered By Announcement Only
Overview of the principal theoretical paradigms of the development process Comparative analysis of issues such as the role of the state, strategies of industrialization, changes in social structure, basic needs and the trade-offs between growth and equity.
PREREQUISITE: POL 202 OR GRADUATE STANDING.

POL584 Contemporary Latin American Politics
3 credits  Fall & Spring Semester
This course assumes a basic knowledge of Latin American politics, and is designed to foster deeper understanding of political processes in the region and to provide an overview of key debates among political scientists specializing in Latin America. We discuss issues related to democratic consolidation, political participation, representation and governance.
PREREQUISITE: POL 202; POL 385 IS STRONGLY RECOMMENDED

POL586 Conflict in the Middle East and Africa
3 credits  Fall Semester
Introduction to major paradigms for the explanation of war and conflict in two of the most unstable regions of the world. Reading and class discussions on select cases of current and past conflicts in each region in order to discern patterns of conflict within and across regions, gain a clearer understanding of what drives violent conflict, and assess strategies of resolution.
PREREQUISITE: POL 203.
POL588 Politics in China
3 credits
Spring Semester
Development and nature of Chinese domestic politics in theory and practice; problems of political stability and conflict; the role of historical and cultural traditions, institutions, social, economic and personality factors in Chinese politics; process of change and problems of leadership succession; the significance of changes in the character and style of Chinese leadership.
PREREQUISITE: POL 202 OR HIS 121 OR HIS 122 OR GRADUATE STANDING.

POL591 International Security
3 credits
Offered By Announcement Only
Analysis and evaluation of approaches to international conflict, resolution, reduction and stabilization such as international organization, law, collective security, balance of power, functionalism, world government, morality, and conscience. Special emphasis on recent problems and efforts at institutionalizing social control.
PREREQUISITE: POL 203 OR GRADUATE STANDING.

POL592 International Political Economy
3 credits
Offered By Announcement Only
This course provides an analysis of the changing trade and financial structures of the international economy and the differing approaches that developed and developing states have taken in adapting to them. Special emphasis will be placed on the political implications of economic strategies, the challenges and opportunities posed by the increasingly free mobility of capital and goods across borders, and the ability of states to shape domestic economic outcomes.
PREREQUISITE: POL 203

POL593 International Relations of the Middle East
3 credits
Offered By Announcement Only
Regional and interregional analysis of the foreign relations of Middle Eastern nations, domestic and geopolitical factors.
PREREQUISITE: POL 203, 387 OR GRADUATE STANDING.

POL599 Special Topics
1-3 credits
Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: POL 201, POL 202 OR 203

PORTUGUESE

POR101 Elementary Portuguese I
3 credits
Offered By Announcement Only
Drill in pronunciation, fundamental grammatical principles, simple reading and translation, oral and written exercises. Normally, not open to students who have completed two years of Portuguese. Closed to native speakers.

POR102 Elementary Portuguese II
3 credits
Offered By Announcement Only
Continuation of POR 101. Closed to native speakers.
PREREQUISITE: POR 101. CLOSED TO NATIVE SPEAKERS.
**COLLEGE OF ARTS AND SCIENCES**

**PORTUGUESE**

**POR 105 Accelerated Elementary Portuguese**
- **3 credits**
- **Fall & Spring Semester**
- Intensive study of material covered in 101 and 102. Specifically intended for students who have completed three or more than years of high school Spanish or beginning Spanish at another university. Also intended for heritage speakers of Romance Languages other than Portuguese, or students with at least two years of college study of Spanish, Italian, or French. Closed to native speakers.
- PREREQUISITE: TWO OR MORE YEARS OF COLLEGE STUDY OF SPANISH, FRENCH, ITALIAN, OR LATIN. ALSO OPEN TO HERITAGE SPEAKERS OF ROMANCE LANGUAGES OTHER THAN PORTUGUESE.

**POR 211 Intermediate Portuguese I**
- **3 credits**
- **Fall & Spring Semester**
- PREREQUISITE: POR 102 OR 4 YEARS HIGH SCHOOL PORTUGUESE, OR PERMISSION OF INSTRUCTOR, AND CLOSED TO NATIVE SPEAKERS.

**POR 212 Intermediate Portuguese II**
- **3 credits**
- **Fall & Spring Semester**
- Intensive preparation for 300-level work through various genres (portraits, descriptions, short stories, film reviews, magazines, a novel). Workshop format, the course also develops conversational skills. Students complete a number of written projects (including an analytic paper). Class conducted in Portuguese. Closed to native speakers.
- PREREQUISITE: POR 211 or AP-4 (IB-5), AND CLOSED TO NATIVE SPEAKERS.

**POR 301 Introduction to Literary Genres**
- **3 credits**
- **Offered By Announcement Only**
- Selected materials from various genres of Luso-Afro-Brazilian literatures. Further development of critical writing and reading skills for non-native and heritage speakers. May be used to fulfill the humanities literature requirement. Writing credit.
- PREREQUISITE: POR 212, OR EQUIVALENT, OR HERITAGE SPEAKERS NOT FORMALLY EDUCATED IN PORTUGUESE.

**POR 310 Brazilian Women Writers in Translation**
- **3 credits**
- **Offered By Announcement Only**
- Selected contemporary Brazilian women writers. Conducted in English. Emphasis on representations of nationality, race, class, ethnicity, gender, and sexuality. May be used to fulfill the humanities literature requirement; writing credit.
- PREREQUISITE: ENG 106, OR EQUIVALENT; ONE 200-LEVEL COURSE IN HUMANITIES OR SOCIAL SCIENCES; OR PERMISSION OF INSTRUCTOR.

**POR 353 Brazilian Poetry**
- **3 credits**
- **Offered By Announcement Only**
- Brazilian poetry from colonial times to the present. Emphasis on major figures. Taught in Portuguese. Humanities literature credit; writing credit.
- PREREQUISITE: POR 212 OR EQUIVALENT.
POR354 The Modern Brazilian Novel  
3 credits  
Offered By Announcement Only  
The Brazilian novel since 1865. Emphasis on major works. Conducted in Portuguese.  
POR minors must complete all written assignments in Portuguese. Others may opt  
to write in English, Portuguese, or Spanish. Fulfills humanities literature requirement;  
writing credit.  
PREREQUISITE: POR 212 OR EQUIVALENT.

POR363 Contemporary Lusophone Film  
3 credits  
Offered By Announcement Only  
Portuguese, Brazilian, and Lusophone African cinema from the 1950s to the present.  
POR minors must complete all written assignments in Portuguese; Others may opt  
to write in English, Portuguese, or Spanish. Conducted in Portuguese. Fulfills  
Humanities literature requirement; writing credit.  
PREREQUISITE: POR 212 OR EQUIVALENT.

POR364 The Brazilian Short Story  
3 credits  
Offered By Announcement Only  
The Brazilian short story since 1890. Conducted in Portuguese. POR minors must  
complete all written assignments in Portuguese. Others may opt to write in English,  
Portuguese, or Spanish. Fulfills Humanities literature requirement; writing credit.  
PREREQUISITE: POR 212 OR EQUIVALENT.

POR391 Directed Readings  
1- 3 credits  
Offered By Announcement Only  
Individual work on a topic not covered in the regular curriculum. May be repeated  
on a different topic.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

POR392 Directed Readings  
1- 3 credits  
Offered By Announcement Only  
Individual work on a topic not covered in the regular curriculum. May be repeated  
on a different topic.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

POR393 Directed Readings  
1- 3 credits  
Offered By Announcement Only  
Individual work on a topic not covered in the regular curriculum. May be repeated  
on a different topic.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

POR395 Transfer Credits  
1- 3 credits  
Not Offered; Transfer Credit Only  
Awarded for course work at another institution for which UM has no direct equivalent.

POR396 Transfer Credits  
1- 3 credits  
Not Offered; Transfer Credit Only  
Awarded for course work at another institution for which UM has no direct equivalent.

POR397 Transfer Credits  
1- 3 credits  
Not Offered; Transfer Credit Only  
Awarded for course work at another institution for which UM has no direct equivalent.
PORTUGUESE

POR398 Transfer Credits
1-3 credits Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

POR399 Transfer Credits
1-3 credits Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

POR591 Directed Readings in Portuguese
1-3 credits Offered By Announcement Only
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

POR592 Directed Readings in Portuguese
1-3 credits Offered By Announcement Only
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

POR593 Directed Readings in Portuguese
1-3 credits Offered By Announcement Only
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

PSYCHOLOGY

PSY10T HUMAN RELATIONS
0 credit Offered By Announcement Only
Fall Semester
PREREQUISITE: MDCC TRANSFER COURSE.

PSY11T DYNAMICS OF BEHAVIOR
0 credit Offered By Announcement Only
Fall Semester
PREREQUISITE: MDCC TRANSFER COURSE.

PSY110 Introduction to Psychology
3 credits Offered By Announcement Only
Fall & Spring Semester & First & Second Summer Session
A survey of modern scientific psychology. Topics include learning, memory, perception, cognition, personality, motivation, emotion, development, abnormal psychology, and social psychology. Participation in a small number of experiments is required to ensure that students become acquainted first hand with the experimental laboratory methods used in Psychology. Students may choose to satisfy this requirement by writing a small number of methodology papers instead.

PSY120 Orientation to the Study of Psychology II
1 credit Offered By Announcement Only
Spring Semester
Critical discussion of research reports in psychology.
PREREQUISITE: PSY 110. ONLY FOR PSYCHOLOGY AND NEUROSCIENCE MAJORS WITH FEWER THAN NINE PSYCHOLOGY CREDITS-COUNTS AS ELECTIVE CREDIT.

PSY201 Social Psychology: Psychological Perspective
3 credits Offered By Announcement Only
Fall & Spring Semester
The major theories, methods and research findings in social psychology. Attitude formation and change, person perception, interpersonal attraction, aggression, group structure, leadership, conformity and mass phenomena. Emphasizes the individual as the basic unit of analysis (compare SOC 302).
PREREQUISITE: PSY 110.
PSY202 Introduction to Psychobiology  
3 credits  
**Fall & Spring Semester**  
Behavior viewed from a biological perspective. Survey of biological factors subserving sensation, perception, sleep, emotions, motivation, learning, memory, and development. 
PREREQUISITE: PSY 110.

PSY203 Child and Adolescent Development  
3 credits  
**Fall & Spring Semester & First & Second Summer Session**  
Survey of significant aspects of growth and development throughout the lifespan. Emphasis placed on childhood and adolescence. 
PREREQUISITE: PSY 110.

PSY204 Introductory Biobehavioral Statistics  
4 credits  
**Spring Semester**  
Application of descriptive and inferential statistics to behavioral data. Principles and methods of summarizing data. Correlation and regression. Basic concepts of probability, hypothesis testing, and decision making. Tests of significance, confidence intervals, and analysis of variance. Examples and problems from biology, education, medicine, nursing, psychology, sociology. 
PREREQUISITE: MTH 101 OR 105 OR SCORES ON THE MATHEMATICS PLACEMENT TEST SUFFICIENT FOR ADMISSION TO A CALCULUS COURSE.

PSY207 Introduction to Cognition  
3 credits  
**Fall & Spring Semester**  
Survey of theory and research on human information processing and cognitive processes. 
PREREQUISITE: PSY 110.

PSY209 Introduction to Personality  
3 credits  
**Fall & Spring Semester**  
A survey of the area of Personality, including the relation of Personality to General Psychology, history of theory and research in the field, definition, assessment, and research findings in major substantive areas. 
PREREQUISITE: PSY 110. NOT FOR STUDENTS WITH CREDIT IN PSY 416.

PSY215 Stress Management  
3 credits  
**Fall & Spring Semester**  
Causes and symptoms of stress. Theory and practice of stress management. Discussion of relaxation techniques, meditation, biofeedback, exercise, diet, cognitive restructuring, assertiveness training, time management, and social engineering (Summer session only). 
PREREQUISITE: PSY 110 OR PERMISSION OF INSTRUCTOR.

PSY261 Industrial and Organizational Psychology  
3 credits  
**Fall & Spring Semester**  
Applications of psychology in business, industry, and to organizational effectiveness in general. Supervisory, leadership, morale, personnel selection, training, human factors engineering, and consumer psychology. 
PREREQUISITE: PSY 110 FOR PSYCHOLOGY MAJORS. JUNIOR OR SENIOR STANDING FOR NON-MAJORS.

PSY281 Special Topics in Psychology  
1-3 credits  
**Offered By Announcement Only**  
PREREQUISITE: PSY 110.
PSY295 Studies in Psychology  
1-5 credits  
Not Offered; Transfer Credit Only  
Special topics taken at other institutions with no direct equivalents.

PSY296 Studies in Psychology  
1-5 credits  
Not Offered; Transfer Credit Only  
Special topics taken at other institutions with no direct equivalents.

PSY297 Studies in Psychology  
1-5 credits  
Not Offered; Transfer Credit Only  
Special topics taken at other institutions with no direct equivalents.

PSY301 Psychology of Gender  
3 credits  
Fall & Spring Semester & Second Summer Session  
Psychological theories and research related to understanding issues of gender across the lifespan.  
PREREQUISITE: SIX CREDITS IN PSYCHOLOGY.

PSY305 Psychology of Drugs and Behavior  
3 credits  
Spring Semester  
The psychological and physiological effects of drugs. Includes psychosocial aspects of drug use and the treatment and prevention of abuse. An introduction to psychopharmacology.  
PREREQUISITE: PSY 202; OR BIL 150 AND 6 CREDITS IN PSYCHOLOGY.

PSY316 Experimental Psychology  
4 credits  
Fall & Spring Semester  
Selected laboratory experiments and demonstrations, lectures, collateral readings in methods and results of psychological experimentation.  
PREREQUISITE: PSY 110 AND 204.

PSY332 Tests and Measurements  
3 credits  
Offered By Announcement Only  
Theory and principles of construction, use, evaluation, and interpretation of psychological tests and testing procedures.  
PREREQUISITE: PSY 110 AND 204.

PSY333 Attitudes and Persuasion  
3 credits  
Offered By Announcement Only  
An analysis of the major theories and research findings relating to attitude formation and change, including a review of widely used persuasion techniques.  
PREREQUISITE: SIX CREDITS IN PSYCHOLOGY.

PSY340 The Psychology of Thinking and Learning in Children  
3 credits  
Fall & Spring Semester  
Development of perception, thought, and language processes throughout the lifespan with an emphasis on early and middle childhood.  
PREREQUISITE: PSY 203.

PSY341 Psychology of Social and Emotional Development  
3 credits  
Fall & Spring Semester  
Social and emotional growth; topics include family and peer relationships, sex roles, self-control, and moral development.  
PREREQUISITE: PSY 203.
PSY342 Psychology of Adulthood and Aging
3 credits
Spring Semester
Major developments during the middle and later years of adulthood including changes in family and peer relationships, cognitive changes, physical changes, psychological aspects of death and dying.
PREREQUISITE: PSY 203.

PSY343 Psychology of Language Development
3 credits
Offered By Announcement Only
Developmental sequences in the acquisition of language; the scientific endeavor to understand language learning.
PREREQUISITE: PSY 203.

PSY344 Psychology of Infancy
3 credits
Offered By Announcement Only
Perceptual, motor, cognitive and social development during the first two years of life. Specialized research methods and assessment procedures.
PREREQUISITE: PSY 203.

PSY350 Psychology of Human Sexual Behavior
3 credits
Offered By Announcement Only
Interaction of biological and social factors in normal sexual development, and behavior patterns; etiologies of dysfunctions, paraphilias and gender-identity disorders; assessment and intervention procedures.
PREREQUISITE: SIX CREDITS IN PSYCHOLOGY.

PSY352 Abnormal Psychology
3 credits
Fall & Spring Semester
Diagnostic formulations of the clinical syndromes; theories of psychopathological states.
PREREQUISITE: SIX CREDITS IN PSYCHOLOGY.

PSY365 Practicum
1-3 credits
Fall & Spring Semester
Individual or small group activities and discussions regarding general principles of psychology; learn by doing; field experiences, library research, or teaching assistance. PSY 365 does not count for major or minor.
PREREQUISITE: SIX CREDITS IN PSYCHOLOGY, JUNIOR STANDING, AND PERMISSION OF CHAIRMAN.

PSY367 Introduction to Research Projects
1-3 credits
Fall & Spring Semester & First & Second Summer Session
Students assist on a research project in psychology under supervision of a faculty member. Activities include library research, data collection and management, and attendance at research team meetings.
PREREQUISITE: SIX CREDITS IN PSYCHOLOGY PREFERABLY INCLUDING 204. STUDENTS MUST OBTAIN FACULTY SPONSORSHIP, IN WRITING, PRIOR TO REGISTRATION.

PSY368 Introduction to Research Projects
1-3 credits
Fall & Spring Semester & First & Second Summer Session
Students assist on a research project in psychology under supervision of a faculty member. Activities include library research, data collection and management, and attendance at research team meetings.
PREREQUISITE: SIX CREDITS IN PSYCHOLOGY PREFERABLY INCLUDING 204. STUDENTS MUST OBTAIN FACULTY SPONSORSHIP, IN WRITING, PRIOR TO REGISTRATION.
PSY381 Special Topics in Psychology  
1-3 credits  Offered By Announcement Only  
PREREQUISITE: SIX CREDITS IN PSYCHOLOGY.

PSY395 Studies in Psychology  
1-5 credits  Not Offered; Transfer Credit Only  
Special topics taken at other institutions with no direct equivalents.

PSY396 Studies in Psychology  
1-5 credits  Not Offered; Transfer Credit Only  
Special topics taken at other institutions with no direct equivalents.

PSY402 Psychobiology  
3 credits  Fall & Spring Semester  
Basic neuroanatomy, neurophysiology, and neurochemistry followed by an introduction to the physiological bases of sensation, motor systems, motivation, emotion, learning and memory.  
PREREQUISITE: NINE CREDITS IN PSYCHOLOGY INCLUDING PSY 202; OR NINE CREDITS IN PSYCHOLOGY AND BIL 150.

PSY403 Neuroscience Laboratory  
4 credits  Fall & Spring Semester  
Research methods and laboratory experiments in contemporary Neuroscience, from individual cells to behavior. Scientific report writing and computer applications in experimental design and analysis. Lecture/Lab.  
PREREQUISITE: PSY 316. PREREQUISITE OR COREQUISITE: PSY 402 OR BIL 268.

PSY414 Motivation  
3 credits  Offered By Announcement Only  
Experimental evidence relating to theories of motivation.  
PREREQUISITE: NINE CREDITS IN PSYCHOLOGY.

PSY416 Personality Theory  
3 credits  Fall & Spring Semester  
The role of structure, development, dynamics, individual differences, assessments, and deviations.  
PREREQUISITE: NINE CREDITS IN PSYCHOLOGY.

PSY417 Emotion  
3 credits  Fall & Spring Semester  
Theory and research concerning the development, arousal, and expression of emotional reaction.  
PREREQUISITE: NINE CREDITS IN PSYCHOLOGY.

PSY418 Experimental Personality and Social Psychology  
4 credits  Fall & Spring Semester  
Readings, laboratory experiments, and demonstrations relevant to behavioral and biomedical sciences. Experimental design, methodology, implementation, analysis, and interpretation of research with scientific report writing and computer applications.  
PREREQUISITE: PSY 316 AND EITHER 201, 203, OR 209.

PSY420 Health and Medical Psychology  
3 credits  Offered By Announcement Only  
The psychosomatic and biopsychosocial models of illness.  
PREREQUISITE: NINE CREDITS IN PSYCHOLOGY INCLUDING 202, OR PERMISSION OF INSTRUCTOR.
PSY440 Abnormal Child Psychology
3 credits   Fall & Spring Semester & First & Second Summer Session
Factors that interfere with normal development, including mental retardation, learning disabilities, emotional disturbances, and delinquency.
PREREQUISITE: JUNIOR STANDING AND NINE CREDITS IN PSYCHOLOGY INCLUDING PSY 203.

PSY441 Psychology of the Mentally Retarded
3 credits   Offered By Announcement Only
The etiological, social, and psychological aspects of mental retardation.
PREREQUISITE: NINE CREDITS IN PSYCHOLOGY INCLUDING PSY 203.

PSY444 Intermediate Psychological Statistics
3 credits   Spring Semester
Statistical reasoning and methods.
PREREQUISITE: NINE CREDITS IN PSYCHOLOGY INCLUDING PSY 204.

PSY450 Psychology of Religion
3 credits   Offered By Announcement Only
Contemporary psychological theory and research on religious belief, experience, and behavior. Topics include the biological bases of religion, religious development, and the links of religion to health and well-being.
PREREQUISITE: PSY 110, REL 101, AND THREE ADDITIONAL CREDITS IN PSYCHOLOGY OR RELIGIOUS STUDIES.

PSY475 Social Interaction Processes
3 credits   Offered By Announcement Only
An in-depth analysis of variables leading to, and processes involved in, human social interactions ranging from superficial encounters to intimate relationships.
PREREQUISITE: NINE CREDITS IN PSYCHOLOGY, INCLUDING PSY 201.

PSY481 Special Topics in Psychology
1-3 credits   Offered By Announcement Only
PREREQUISITE: NINE CREDITS IN PSYCHOLOGY.

PSY495 Studies in Psychology
1-5 credits   Not Offered; Transfer Credit Only
Special topics taken at other institutions with no direct equivalents.

PSY496 Studies in Psychology
1-5 credits   Not Offered; Transfer Credit Only
Special topics taken at other institutions with no direct equivalents.

PSY498 Senior Honors in Psychology I
3 credits   Fall & Spring Semester
Independent research project.
PREREQUISITE: 18 CREDITS IN PSYCHOLOGY AND ELIGIBILITY FOR HONORS IN PSYCHOLOGY.

PSY499 Senior Honors in Psychology II
3 credits   Fall & Spring Semester
Independent research project.
PREREQUISITE: 18 CREDITS IN PSYCHOLOGY AND ELIGIBILITY FOR HONORS IN PSYCHOLOGY.
PSY501 History and Systems of Psychology  
3 credits
Offered By Announcement Only
Development of psychology as a science.
PREREQUISITE: 12 CREDITS IN PSYCHOLOGY.

PSY502 Culture, Values, Religiosity, and Mental Illness  
3 credits
Offered By Announcement Only
Cultural differences in the manifestation, course, and outcome of serious mental disorders; the relationship between chronic mental disorders and ethnicity, religious values, family cohesion, attributions of control, and world view; cultural differences in societies' reactions to and treatment of mentally ill patients.
PREREQUISITE: PSY 110; 316; 352.

PSY590 Special Topics  
3 credits
Offered By Announcement Only
PREREQUISITE: NINE CREDITS IN PSYCHOLOGY.

REL101 Introduction to Religion  
3 credits
Fall & Spring Semester & First & Second Summer Session
An overview of religious perspectives concerning ultimate reality, humankind, and the world, with special attention to major Asian and Abrahamic religions.

REL111 Introduction to the Hebrew Bible (Old Testament)  
3 credits
Fall & Spring Semester & First & Second Summer Session
The history and literature of ancient Israel and early Judaism.

REL119 Transfer Credits  
1 - 4 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents (Religious Literature or Texts subject area).

REL121 Introduction to the New Testament  
3 credits
Fall & Spring Semester
The history and literature of the early Christian movement.

REL131 Religion in American Life  
3 credits
Fall & Spring Semester & First & Second Summer Session
The history of religion in the U.S. from the pre-colonial period to the present. Includes study of the religion of Native Americans, African Americans, Asian Americans, women, Protestants, Catholics, Jews, and cults.

REL139 Transfer Credits  
1 - 4 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents (Religious or Historical Traditions subject area).

REL151 Religion and Moral Choices  
3 credits
Fall & Spring Semester
Religious responses to dilemmas raised by issues such as capital punishment, biotechnology, abortion, euthanasia, and war.

REL159 Transfer Credits  
1 - 4 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents (Religious Issues or Problems subject area).
REL171 Introduction to Islam
3 credits
Offered By Announcement Only
History of Islam, the Qur'an, and the systematization of Islamic law. Emergence of the theological schools, the mystical and philosophical traditions, and the spread of Islamic civilization.

REL219 Transfer Credits
1-4 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents (Religious Literature or Texts subject area).

REL231 Jewish Civilization: Society, Culture and Religion
3 credits
Fall & Spring Semester
Introduction to Jewish Civilization from Abraham to present.

REL232 History of Christianity
3 credits
Fall & Spring Semester & First & Second Summer Session
A survey of the historical development of Christianity from the first century to the present, focusing on the major theological and institutional issues considered in their social and cultural contexts.

REL238 Holy War and Toleration in Western Religious Traditions
3 credits
Spring Semester
An exploration of concepts of Holy War and Just War and of traditions of tolerance and intolerance in Judaism, Christianity, and Islam, from ancient times to the present.

REL239 Transfer Credits
1-4 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents (Religious or Historical Traditions subject area).

REL252 Religion and Human Sexuality
3 credits
Fall Semester
The relationship between religious concepts and sexual values as the religious traditions of the United States confront contemporary sexual ethics and behavior.

REL259 Transfer Credits
1-4 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents (Religious Issues or Problems subject area).

REL301 Ancient Greece
3 credits
Fall Semester
Greek civilization from the Late Bronze Age to the end of Greek independence at the battle of Chaeronea in 338 B.C.E.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

REL302 The Hellenistic Age
3 credits
Fall Semester
Conquests of Alexander the Great and the spread of Greek culture in the Near East under Alexander's successors until the death of Cleopatra in 31 B.C.E.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.
REL303 The Roman Republic
3 credits
Fall Semester
Roman civilization from the establishment of the Republic until the Battle of Actium in 31 B.C.E.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

REL304 The Roman Empire
3 credits
Fall Semester
Roman civilization from the reign of Augustus in 27 B.C.E. to the Fall of Rome in 476 C.E.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

REL305 The Ancient Near East: Religion and Culture
3 credits
Spring Semester
Historical and cultural forces in the major religions of the ancient Near East, from 3000 to 300 B.C.E. Cultural achievements such as the Epic of Gilgamesh, the pyramids and the Bible.
PREREQUISITE: THREE CREDITS IN RELIGIOUS STUDIES OR JUNIOR STANDING.

REL306 Religion and Culture in Ancient Egypt
3 credits
Fall Semester
A survey of religion and culture in Ancient Egypt from pre-dynastic times to the Roman era.
PREREQUISITE: THREE CREDITS IN REL, HIS 221, OR PERMISSION OF INSTRUCTOR.

REL307 Religion and Culture in Pre-Islamic Arabia
3 credits
Fall Semester
A survey of religion and culture in Arabia from prehistory to the coming of Islam.
PREREQUISITE: THREE CREDITS IN REL, HIS 221, OR PERMISSION OF INSTRUCTOR.

REL308 The Greco-Roman Context of Early Christianity
3 credits
Fall Semester
The Greco-Roman world in which the first Christians lived, with particular emphasis given to the historical, moral, political, religious, rhetorical, and social contexts of early Christianity.
PREREQUISITE: 3 CREDITS IN RELIGIOUS STUDIES.

REL311 Prophecy and Prophetic Literature in the Hebrew Bible
3 credits
Fall & Spring Semester
Prophecy in ancient Israel and Judah and the prophetic literature of the Hebrew Bible in relation to its ancient near-eastern historical, religious, and social context.
PREREQUISITE: THREE CREDITS IN RELIGIOUS STUDIES.

REL312 The Five Books of Moses
3 credits
Fall & Spring Semester
The first five books of the Hebrew Bible (Genesis, Exodus, Leviticus, Numbers, Deuteronomy) in relation to their ancient Near Eastern historical, cultural, and religious context.
PREREQUISITE: THREE CREDITS IN RELIGIOUS STUDIES.
REL314 The Rise of Judaism
3 credits
Fall Semester
The history and literature of early Judaism, covering the period from the fall of Jerusalem in 587/586 BCE to the beginnings of rabbinic Judaism and the formation of the Mishnah (ca.200 CE).
PREREQUISITE: 3 CREDITS IN RELIGIOUS STUDIES

REL315 Jewish Mysticism
3 credits
Fall & Spring Semester
A survey of the major ideas and texts dealing with Jewish Mysticism (Kabbalah, Hassidism).
PREREQUISITE: REL 101 OR JUNIOR STANDING.

REL319 Transfer Credits
1-4 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents (Religious Literature or Texts subject area).

REL321 Jesus and the Gospels
3 credits
Fall & Spring Semester
An examination of the Jesus tradition, focusing on the formative period of the first two centuries. Special emphasis on the four New Testament Gospels, with a survey of the treatment of Jesus in other documents, both Christian and non-Christian.
PREREQUISITE: THREE CREDITS IN RELIGIOUS STUDIES.

REL322 St. Paul: His Letters and Controversies
3 credits
Fall & Spring Semester
The heritage, writings, and legacy of the apostle Paul. Careful analysis of the Pauline corpus (especially Romans), with particular attention given to the radically different interpretations of Paul in both ancient and modern thought.
PREREQUISITE: THREE CREDITS IN RELIGIOUS STUDIES.

REL324 The Bible and Modern Film.
3 credits
Offered By Announcement Only
The diverse ways in which contemporary cinematic arts interpret and depict narratives from the Bible and the ancient Mediterranean world.
PREREQUISITE: THREE CREDITS IN RELIGIOUS STUDIES.

REL325 Jesus in Myth and History
3 credits
Fall & Spring Semester
Changing concepts of Jesus in Western culture, as they emerge in literature, art, and films.
PREREQUISITE: THREE CREDITS IN RELIGIOUS STUDIES.

REL330 Caribbean Religion
3 credits
Fall Semester
Caribbean Religion with an emphasis on African Diaspora and Creole religions. The religious traditions we will cover include: Rastafarianism, Regla de Ocha (Santeria), Voodoo, Espiritismo, Regla de Palo, and Obeah.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR
REL331 Religions of Asia  
3 credits Offered By Announcement Only  
The major religions of South and East Asia including Hinduism, Buddhism, Confucianism, Taoism, and Shinto.  
PREREQUISITE: THREE CREDITS IN RELIGIOUS STUDIES OR JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

REL332 Judaism, Christianity, and Islam  
3 credits Offered By Announcement Only  
Completes the study of world religions begun in REL 331, but emphasizes the religions of the West. Religions studied: Zoroastrianism, Sikhism, Judaism, Christianity, and Islam. May be taken without having had REL 331.  
PREREQUISITE: THREE CREDITS IN RELIGIOUS STUDIES OR JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

REL334 The American Jewish Experience: Hollywood and Popular Culture  
3 credits Spring Semester  
Analysis and interpretation of the image of the Jew and the Jewish experience in American cinema, with emphasis on how the experience and attitudes of Americans in general and the American Jewish community in particular have been reflected on the screen from the pre-World War II period until the present and on the tension between maintaining an ethnic identity and assimilating.

REL336 The American Encounter with Asian Religions  
3 credits Offered By Announcement Only  
A study of inter-cultural interaction and inter-religious encounter focusing on the history of American responses to Asian religions from 1784 to the present.  
PREREQUISITE: REL 101 OR JUNIOR STANDING.

REL338 Latin American and U.S. Latino/a Religion  
3 credits Fall Semester  
The roots of Latino/a religion in Indigenous, African, and Spanish culture and religiosity. Issues of race, identity, politics, and culture will feature prominently throughout the course.  
PREREQUISITE: THREE CREDITS IN RELIGIOUS STUDIES OR PERMISSION OF INSTRUCTOR.

REL339 Transfer Credits  
1-4 credits Not Offered; Transfer Credit Only  
Courses taken at other institutions with no direct equivalents (Religious or Historical Traditions subject area).

REL341 Modern Religious Thought I  
3 credits Fall & Spring Semester  
The main currents and major figures in Western religious thought from the beginnings of the Enlightenment to the middle of the nineteenth century.  
PREREQUISITE: THREE CREDITS IN RELIGIOUS STUDIES OR JUNIOR STANDING.

REL342 Modern Religious Thought II  
3 credits Fall & Spring Semester  
Western religious thought from the middle of the nineteenth century to the present.  
PREREQUISITE: THREE CREDITS IN RELIGIOUS STUDIES OR JUNIOR STANDING.

REL343 Catholic Life and Thought  
3 credits Fall & Spring Semester  
PREREQUISITE: THREE CREDITS IN RELIGIOUS STUDIES OR PERMISSION OF INSTRUCTOR.
REL345 Religion and Gender
3 credits  Fall & Spring Semester
The influence of Western religion on the status and role of women.
PREREQUISITE: THREE CREDITS IN RELIGIOUS STUDIES OR JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

REL348 Reformation Europe
3 credits  Offered By Announcement Only
The religious, political, cultural, social, and economic forces that produced a schism in 16th-century Western Christendom. Note: May be taken for credit in only one department as REL 348 or HIS 328.
PREREQUISITE: THREE CREDITS IN RELIGIOUS STUDIES.

REL350 Current Issues in Religion
3 credits  Fall & Spring Semester
Individual study and group discussion of the relevance of religion to contemporary issues such as race conflict, women's rights, intermarriage, refugees, media, prejudice, and counter culture groups.

REL351 Religious Issues in Death and Dying
3 credits  Fall Semester
Major religious perspectives on the experience of death and the nature of the dying process.
PREREQUISITE: JUNIOR STANDING.

REL352 Religion and Science
3 credits  Offered By Announcement Only
The religious and ethical issues created by modern science and technology.
PREREQUISITE: SIX CREDITS IN RELIGIOUS STUDIES, OR PERMISSION OF INSTRUCTOR.

REL353 Religion and American Politics
3 credits  Fall & Spring Semester
Religious and ethical issues at debate in the American political scene.
PREREQUISITE: THREE CREDITS IN RELIGIOUS STUDIES.

REL354 Religion and the Problem of Evil
3 credits  Offered By Announcement Only
Major religious perspectives on the origin and nature of evil and human suffering.
PREREQUISITE: JUNIOR STANDING.

REL355 Religion and Its Interpreters
3 credits  Offered By Announcement Only
Nineteenth and twentieth century Western interpretations of religion including anthropological, sociological psychological, theological, literary, and feminist approaches.
PREREQUISITE: REL 101 OR JUNIOR STANDING.

REL356 Myth and Religion
3 credits  Fall Semester
How humans use language to form and communicate conceptions of reality, focusing on the highly elusive concept "myth"; special attention to the concept's usefulness for thinking about religion.
PREREQUISITE: SIX CREDITS IN RELIGIOUS STUDIES OR PHILOSOPHY, OR APY 204; OR BY PERMISSION OF INSTRUCTOR.
REL357 Sex, Gender and Ethics
3 credits O Offered By Announcement Only
The relationship between sex, gender, and ethics in Judaism, Christianity, Islam and Hinduism. Topics covered include feminism, race and ethnicity, homosexuality, transsexuality, and masculinity.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR

REL359 Transfer Credits
1-4 credits Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents (Religious Issues or Problems subject area).

REL360 Religion and Bioethics
3 credits Fall & Spring Semester
The implications of religious thought for contemporary problems of biomedical ethics.
PREREQUISITE: JUNIOR STANDING.

REL370 Islam in Modern Times
3 credits Offered By Announcement Only
Islam's encounter with the west, the impact of modernization on the Muslim World, and the rise of Islamic Fundamentalism. Islam in America and the Afro-American Islamic movements will also be discussed.
PREREQUISITE: THREE CREDITS IN RELIGIOUS STUDIES.

REL371 ISLAM AND GENDER
3 credits Spring Semester
GENDER ISSUES SUCH AS HOMOSEXUALITY, MASCULINITY, FEMININITY, MODESTY, VIRGINITY, SEXUALITY AND ITS CONTROL, AND VEILING IN ISLAM.
PREREQUISITE: ONE COURSE IN ISLAM OR PERMISSION OF THE INSTRUCTOR.

REL375 Religion and Democracy in Israel
3 credits Fall Semester
Israel's evolution as a nation and a society by focusing on the impact of religion on ethnicity, culture, and democracy.
PREREQUISITE: THREE CREDITS OF REL AND/OR PERMISSION OF INSTRUCTOR.

REL376 Shi'ism: Religion, Culture, and History
3 credits Fall Semester
the religious, cultural, and historical aspects of Twelver Shi'ism. The course has a film component.
PREREQUISITE: ONE COURSE IN ISLAM OR PERMISSION OF THE INSTRUCTOR.

REL377 Sufism: Islamic Mysticism
3 credits Fall & Spring Semester
The doctrines, practices, teachings, and history of Sufism, the mystical dimension of Islam.
PREREQUISITE: ONE COURSE IN ISLAM OR PERMISSION OF THE INSTRUCTOR.

REL380 Archaeology of Palestine from Prehistory to Islam
3 credits Offered By Announcement Only
A survey and analysis of the major archaeological excavations and surveys of Palestine.
PREREQUISITE: THREE CREDITS IN REL, HIS 221, OR PERMISSION OF INSTRUCTOR.
COLLEGE OF ARTS AND SCIENCES

RELIGIOUS STUDIES

REL401 Supervised Reading in Religious Literature or Texts
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Independent study to enable students to read extensively in an area of personal
interest in religious literature or texts.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

REL402 Supervised Reading in Religious or Historical Traditions
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Independent study to enable students to read extensively in an area of personal
interest in religious or historical traditions.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

REL403 Supervised Reading in Religious Issues or Problems
1-3 credits  Spring Semester
Independent study to enable students to read extensively in an area of personal
interest in religious issues or problems.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

REL404 Special Topics in Religious Literature or Texts
3 credits  Fall Semester
PREREQUISITE: PERMISSION OF INSTRUCTOR.

REL405 Special Topics in Religious or Historical Traditions
3 credits  Fall Semester
PREREQUISITE: PERMISSION OF INSTRUCTOR.

REL406 Special Topics in Religious Issues or Problems
3 credits  Fall Semester
PREREQUISITE: PERMISSION OF INSTRUCTOR.

REL407 Special Projects in Religious Literature or Texts
3 credits  Fall Semester
PREREQUISITE: PERMISSION OF INSTRUCTOR.

REL408 Special Projects in Religious or Historical Traditions
3 credits  Fall Semester
PREREQUISITE: PERMISSION OF INSTRUCTOR.

REL409 Special Projects in Religious Issues or Problems
3 credits  Fall Semester
PREREQUISITE: PERMISSION OF INSTRUCTOR.

REL419 Transfer Credits
1-4 credits  Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents (Religious Literature
or Texts subject area).

REL439 Transfer Credits
1-4 credits  Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents (Religious or Historical
Traditions subject area).
REL450 Psychology of Religion
3 credits
Offered By Announcement Only
Contemporary psychological theory and research on religious belief, experience, and behavior. Topics include the biological bases of religion, religious development, and the links of religion to health and well-being.

PREREQUISITE: NINE CREDITS IN RELIGIOUS STUDIES. PSY 110, REL 101 AND THREE ADDITIONAL CREDITS IN PSYCHOLOGY OR RELIGIOUS STUDIES.

REL459 Transfer Credits
1- 4 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents (Religious Issues or Problems subject area).

REL491 Sr. Honors Thesis
3 credits
Offered By Announcement Only
PREREQUISITE: SENIOR STANDING AND ENROLLMENT IN THE DEPARTMENTAL HONORS PROGRAM.

REL492 Sr. Honors Thesis II
3 credits
Fall Semester
PREREQUISITE: SENIOR STANDING AND ENROLLMENT IN THE DEPARTMENTAL HONORS PROGRAM.

REL499 Major/Minor Seminar
3 credits
Fall Semester
An examination of central issues and texts in the academic study of religion, with special focus on the rise of the discipline, its axioms, and its several schools of interpretation.
PREREQUISITE: RELIGIOUS STUDIES MAJORS AND MINORS WITH JUNIOR STANDING

REL501 Supervised Reading in Religious Literature or Texts
1- 3 credits
Fall Semester
Independent study to enable students to read extensively in an area of personal interest in religious literature or texts.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

REL502 Supervised Reading in Religious or Historical Traditions
1- 3 credits
Fall Semester
Independent study to enable students to read extensively in an area of personal interest in religious or historical traditions.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

REL503 Supervised Reading in Religious Issues or Problems
1- 3 credits
Fall Semester
Independent study to enable students to read extensively in an area of personal interest in religious issues or problems.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

REL505 Seminar in Ancient Studies
3 credits
Fall Semester
Various topics in Greek and Roman Studies.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.
COLLEGE OF ARTS AND SCIENCES

RELIGIOUS STUDIES

REL510 Seminar in Hebrew Bible and Ancient Judaism
3 credits
Offered By Announcement Only
Selected topics in Hebrew Bible and Ancient Judaism.
PREREQUISITE: JUNIOR STANDING AND SIX CREDITS IN RELIGIOUS STUDIES; PERMISSION OF THE INSTRUCTOR.

REL520 Seminar in New Testament and Early Christianity
3 credits
Offered By Announcement Only
Selected topics in New Testament and Early Christianity.
PREREQUISITE: JUNIOR STANDING AND SIX CREDITS IN RELIGIOUS STUDIES; PERMISSION OF THE INSTRUCTOR.

REL530 Seminar in Religious or Historical Traditions
1-3 credits
Fall Semester
Selected topics in religious or historical traditions.
PREREQUISITE: JUNIOR STANDING AND SIX CREDITS IN RELIGIOUS STUDIES; PERMISSION OF INSTRUCTOR.

REL550 Seminar in Religious Ethics
3 credits
Offered By Announcement Only
Selected issues in religious ethics and their social implications.
PREREQUISITE: SIX CREDITS IN RELIGIOUS STUDIES AND JUNIOR STANDING.

REL560 Seminar in Contemporary Religious Issues
1-3 credits
Fall Semester
Selected topics in contemporary religious issues.
PREREQUISITE: JUNIOR STANDING AND SIX CREDITS IN RELIGIOUS STUDIES; PERMISSION OF INSTRUCTOR.

SOCIOLOGY

SOC101 Introduction to Sociology
3 credits
Fall & Spring Semester & First & Second Summer Session
Organization of human society, processes of change, and society's influence on individual behavior.

SOC103 Social Problems
3 credits
Offered By Announcement Only
Causes, scope, and possible solutions of social problems in American society.

SOC210 Introduction to Social Research
3 credits
Fall & Spring Semester & First & Second Summer Session
Purposes, methods, and techniques of social investigation.
PREREQUISITE: SOC 101.

SOC211 Quantitative Methods for Sociologists
3 credits
Fall & Spring Semester
Data analytic techniques to analyze sociological topics. Emphasis is on basic graphic displays, measures of center and variation, chi-square, ANOVA, correlations, and regression.
PREREQUISITE: MAJOR IN SOCIOLOGY OR CRIMINOLOGY, MTH 101, SOC 210 OR PERMISSION OF INSTRUCTOR.
SOC212 Quantitative Methods Lab
1 credit  Fall Semester
Statistical lab associated with SOC 211 introduces the use of computer statistical packages for analyzing quantitative data. Corequisite: SOC 211.
PREREQUISITE: COREQUISITE: SOC 211.

SOC270 Deviant Behavior
3 credits  Offered By Announcement Only
General deviance concepts, theories of deviance and non-criminal deviance.
PREREQUISITE: SOC 101.

SOC271 Criminal Justice
3 credits  Offered By Announcement Only
A survey of the criminal justice system in the United States with an emphasis on the interrelationships between law enforcement, the courts, and corrections.
PREREQUISITE: SOC 101.

SOC291 Special Topics
3 credits  Fall Semester
PREREQUISITE: THREE CREDITS IN SOCIOLOGY.

SOC292 Special Topics
3 credits  Fall Semester
PREREQUISITE: THREE CREDITS IN SOCIOLOGY.

SOC293 Special Topics
3 credits  Fall Semester
PREREQUISITE: THREE CREDITS IN SOCIOLOGY.

SOC301 Social Organization
3 credits  Offered By Announcement Only
Roles, organization, personality and values as components of formal and informal groups.
PREREQUISITE: SOC 101.

SOC302 Social Psychology: Sociological Perspective
3 credits  Offered By Announcement Only
The influence of human groups and social processes on individual behavior, and personality.
PREREQUISITE: SOC 101 OR PSY 110.

SOC303 Social Inequalities
3 credits  Offered By Announcement Only
Social ranking by class, status, and power. Stratification by age, sex or minority group membership.
PREREQUISITE: SOC 101.

SOC304 Dynamics of Poverty in the United States
3 credits  Fall Semester
Examines trends in the incidence and causes of major types of poverty among the urban underclass, the homeless, migrant laborers, the working poor. Also explores policy-related solutions.
PREREQUISITE: SOC 101.
SOC320 Social Epidemiology: Illness and Death in Society
3 credits  Fall Semester
Theories, issues and methods of study pertinent to illness and death in society. Social factors implicated in patterns of mental and physical health and mortality. PREREQUISITE: SOC 101

SOC332 Collective Behavior
3 credits  Offered By Announcement Only
Classical theories, issues, and research on fads, fashions, riots, crowd behavior, social movements and other forms of collective behavior. PREREQUISITE: SOC 101.

SOC335 Sociology of Gays and Lesbians
3 credits  Fall Semester
Gender, race, age, class and cultural differences in the experiences of gay individuals and communities, using both social movements and lifespan perspectives. PREREQUISITE: SIX CREDITS IN SOCIOLOGY.

SOC340 Sociology of Religion
3 credits  Fall Semester
Social foundations of religion, growth and change within religious institutions and relationships of religion to other institutions. PREREQUISITE: SOC 101.

SOC341 Social and Cultural Change
3 credits  Offered By Announcement Only
Survey of major theories of change; analysis of the processes and mechanisms of change. Contemporary transitions in the underdeveloped regions of the world. PREREQUISITE: SOC 101.

SOC342 Contemporary Latin American Societies
3 credits  Offered By Announcement Only
Social characteristics of Latin American societies and their comparison with North American society. PREREQUISITE: SOC 101.

SOC345 Population and Society
3 credits  Offered By Announcement Only
Demographic analysis of fertility, mortality, sex-age structure, migration, urbanization and population control. PREREQUISITE: SOC 101.

SOC350 Sociology of the Family
3 credits  Offered By Announcement Only
Examines definitions, history and larger social structures in which family relations are embedded. PREREQUISITE: SOC 101.

SOC351 Business and Society
3 credits  Offered By Announcement Only
This course explores the influence of business objectives, values, and ethics on American culture, moral standards, and societal institutions. PREREQUISITE: SOC 101.
SOC352 Sport and Society
3 credits
Offered By Announcement Only
Sport as an expression of, and shaper of U.S. society; cross cultural and historical comparisons; specialization, player rights, violence, and the “winning” psychology.
PREREQUISITE: SOC 101.

SOC359 The Sociology of Human Sexuality
3 credits
Offered By Announcement Only
A socio-historical survey of sexual attitudes and behavior in the western world, with emphasis on social factors; premarital sex, extra-marital sex, prostitution, homosexuality, and venereal disease.
PREREQUISITE: SIX CREDITS IN PSYCHOLOGY AND/OR SOCIOLOGY.

SOC365 Criminology Internship
6 credits
Fall & Spring Semester
Prescribed study and supervised work in a selected criminal justice or social service agency.

SOC368 Violence in America
3 credits
Offered By Announcement Only
Violence in historical, international and situational contexts, including the major explanations of violence, and factors associated with violent crime.
PREREQUISITE: SOC 101.

SOC370 Juvenile Delinquency
3 credits
Fall & Spring Semester
The extent and nature of juvenile delinquency. The juvenile justice system, correctional institutions for delinquents, community treatment and prevention programs.
PREREQUISITE: SOC 101.

SOC371 Criminology
3 credits
Fall & Spring Semester
Social, cultural and individual factors in the etiology of crime; the consequences of criminal behavior.
PREREQUISITE: SOC 101.

SOC372 Criminology: Police and Community
3 credits
Spring Semester
The police in U.S. society. Interaction with groups and institutions.
PREREQUISITE: SOC 101.

SOC373 Criminology: Courts and Society
3 credits
Offered By Announcement Only
The courts and judicial functions in U.S. society.
PREREQUISITE: SOC 101.

SOC374 Criminology: Corrections
3 credits
Offered By Announcement Only
Corrections in the U.S. society; philosophies of rehabilitation, punishment, and incapacitation.
PREREQUISITE: SOC 101.
SOC375 Sociology of Mental Health and Illness
3 credits  Offered By Announcement Only
An introduction to sociological theories and research regarding the definition, experience, and treatment of mental illness.
PREREQUISITE: SOC 101.

SOC376 Sociology of Alcohol Abuse
3 credits  Offered By Announcement Only
Epidemiology and etiology of alcohol abuse; treatment and prevention, social policies.
PREREQUISITE: SOC 101.

SOC377 Sociology of Drug Abuse
3 credits  Offered By Announcement Only
The epidemiology and etiology of drug abuse, treatment and prevention, societal reaction.
PREREQUISITE: SOC 101.

SOC378 Criminology: Law and Society
3 credits  Offered By Announcement Only
Function of law in a complex social structure.
PREREQUISITE: SOC 101.

SOC380 Sociology of Gender
3 credits  Offered By Announcement Only
Social and historical construction of gender. Discussion of gender and various social institutions and categories.
PREREQUISITE: SOC 101.

SOC381 Aging in Society
3 credits  Offered By Announcement Only
Basis for understanding the social aspects of aging, diversity in the lives of older adults (e.g., family, health, work and retirement, wealth and poverty, death and dying), and public policy that affects us all.
PREREQUISITE: SOC 101.

SOC382 The U.S. Jewish Community
3 credits  Offered By Announcement Only
An application of minority group analysis to the U.S. Jewish community.
PREREQUISITE: SOC 101.

SOC383 Sociology of Education
3 credits  Fall Semester
Course focuses on the institution of education. Assesses its structure, processes, and interaction patterns within it. Also examines its impact on socioeconomic inequality along race, class, and gender lines.
PREREQUISITE: SOC 101.

SOC384 Medical Sociology
3 credits  Offered By Announcement Only
Sociological aspects of health care, patient behavior, medical institutions.
PREREQUISITE: SOC 101.
SOC385 U. S. Latinos
3 credits Fall Semester
Sociological perspectives are employed in the examination of the historical, social, economic, and cultural experiences of Latino/as in the United States.
PREREQUISITE: SOC 101.

SOC386 U. S. Immigration
3 credits Fall Semester
The major sociological debates in the field of immigration with an emphasis on recent immigrants to the U.S.
PREREQUISITE: SOC 101.

SOC387 Race and Ethnic Relations
3 credits Fall & Spring Semester
The influence of racial distinctions on individual and social behavior.
PREREQUISITE: SOC 101.

SOC389 Social Psychology of Health and Illness
3 credits Offered By Announcement Only
Social and psychological factors affecting susceptibility to illness, illness behavior, and patient-practitioner relationship; impact of illness of family.
PREREQUISITE: THREE CREDITS IN SOCIOLOGY AND THREE CREDITS IN PSYCHOLOGY.

SOC390 Directed Studies
1-3 credits Offered By Announcement Only
Individually supervised readings or research on special topics offered by arrangement with instructor.
PREREQUISITE: SOC 101.

SOC391 Special Topics
3 credits Fall Semester
PREREQUISITE: SOC 101

SOC470 Theories of Deviant Behavior
3 credits Fall & Spring Semester & First Summer Session
Social, cultural, and individual factors involved in the etiology of deviance and crime. Strain and control theories, learning theory, conflict and interaction theories.
PREREQUISITE: NINE CREDITS IN SOCIOLOGY INCLUDING SOC 101, 371.

SOC487 Race, Ethnicity, and Criminal Justice
3 credits Spring Semester
Discussion of race and ethnicity, crime and justice. Examination and evaluation of theory, research and the justice system.
PREREQUISITE: SIX CREDITS IN SOCIOLOGY.

SOC488 Gender and Crime
3 credits Offered By Announcement Only
Examination of gender, power, and crime, including feminist theories and the criminal justice system.
PREREQUISITE: SIX CREDITS IN SOCIOLOGY.
SOC490 Directed Studies in Sociology  
1-3 credits  
Fall & Spring Semester  
Supervised independent study on special topics. Arrangement with individual faculty.  
PREREQUISITE: SOC 101, JUNIOR/SENIOR STANDING, OVERALL GPA 2.75 OR HIGHER, AND PERMISSION OF INSTRUCTOR.

SOC491 Special Topics  
3 credits  
Offered By Announcement Only  
PREREQUISITE: SIX CREDITS IN SOCIOLOGY.

SOC492 Special Topics  
3 credits  
Offered By Announcement Only  
PREREQUISITE: SIX CREDITS IN SOCIOLOGY.

SOC493 Special Topics  
3 credits  
Offered By Announcement Only  
PREREQUISITE: SIX CREDITS IN SOCIOLOGY.

SOC498 Senior Honors Thesis in Sociology or Criminology I  
3-6 credits  
Fall Semester  
Independent research project.  
PREREQUISITE: 18 CREDITS IN SOCIOLOGY/CRIMINOLOGY INCLUDING SOC 210 AND 211.

SOC499 Senior Honors Thesis in Sociology or Criminology II  
3-6 credits  
Fall Semester  
Independent research project.  
PREREQUISITE: 18 CREDITS IN SOCIOLOGY/CRIMINOLOGY INCLUDING SOC 201 AND 211.

SOC501 Sociological Theory  
3 credits  
Fall & Spring Semester  
Classical sociological concepts and theory from the eighteenth century to the present.  
PREREQUISITE: NINE CREDITS IN SOCIOLOGY AND SENIOR STANDING.

SOC502 Sociology of Science  
3 credits  
Offered By Announcement Only  
Culture of science, sociology of knowledge, various positions on the nature of knowledge, causality, and the relationship between theory and social research.  
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR.

SOC511 Sociological Statistics  
3 credits  
Offered By Announcement Only  
Probability theory, descriptive statistics and tests of independence.  
PREREQUISITE: GRADUATE STATUS OR PERMISSION OF INSTRUCTOR.

SOC530 Advanced Social Psychology: Sociological Perspective  
3 credits  
Offered By Announcement Only  
Major theoretical perspectives in sociological social psychology including symbolic interaction and role theory, social structure and personality, psychoanalytic, and ethnomethodology. Selected research is reviewed.  
PREREQUISITE: NINE CREDITS IN SOCIOLOGY OR GRADUATE STANDING.

SOC550 Theories of Family Structure  
3 credits  
Offered By Announcement Only  
PREREQUISITE: NINE CREDITS IN SOCIOLOGY.
SOC570 Theories of Criminology
3 credits
Offered By Announcement Only
Review and critique of central criminological theories. Evaluation of these theories in view of recent criminological research.

SOC591 Special Topics
3 credits
Offered By Announcement Only
The content of this course will vary by semester. In any given semester its content will be expressed in parentheses following the title "Special Topics" in the printed class schedule.
PREREQUISITE: SENIOR STANDING.

SOC592 Special Topics
3 credits
Offered By Announcement Only
The content of this course will vary by semester. In any given semester its content will be expressed in parentheses following the title "Special Topics" in the printed class schedule.
PREREQUISITE: SENIOR STANDING.

SPANISH
SPA101 Elementary Spanish I
3 credits
Fall & Spring Semester & First Summer Session
For students with no background or previous study of Spanish. The focus of SPA 101 is the development of communicative abilities in speaking, reading, writing, and comprehension of Spanish and an introduction to the cultural practices of the Spanish-speaking world. Themes on: university life, family, leisure activities, and professions. Includes both oral and written assignments of grammatical structures and vocabulary introduced, informal and formal writing. Conducted entirely in Spanish.
Not open to students who have completed 2 or more years of high school Spanish. Closed to heritage and native speakers of Spanish.

SPA102 Elementary Spanish II
3 credits
Fall & Spring Semester & First & Second Summer Session
Continuation of SPA 101. The development of communicative abilities in speaking, reading, writing, and comprehension of Spanish and an introduction to the cultural practices of the Spanish-speaking world. Themes on: childhood and adolescence, university life, home and community, food and lifestyle, and environmental issues. Includes both oral and written assessments of grammatical structures and vocabulary introduced, informal and formal writing. Conducted entirely in Spanish.
PREREQUISITE: SPA 101 OR EQUIVALENT AT ANOTHER INSTITUTION. CLOSED TO HERITAGE AND NATIVE SPEAKERS OF SPANISH.

SPA105 Accelerated Elementary Spanish
3 credits
Fall & Spring Semester
For students with previous study of Spanish desiring to review material covered in SPA 101 and 102 in preparation for continued study of Spanish at the intermediate level. The focus of SPA 105 is the continued development of communicative abilities in speaking, reading, writing, and comprehension of Spanish and an introduction to the cultural practices of the Spanish-speaking world. Themes on: university life, family, leisure activities, and professions, childhood and adolescence, university life, home and community, food and lifestyle, and environmental issues. Includes both oral and written assessments of grammatical structures and vocabulary introduced, informal and formal writing. Conducted entirely in Spanish.
PREREQUISITE: TWO OR MORE YEARS OF HIGH SCHOOL SPANISH OR THE EQUIVALENT. CLOSED TO HERITAGE OR NATIVE SPEAKERS OF SPANISH.
SPANISH

SPA143 Basic Spanish for Heritage Learners
3 credits Fall & Spring Semester
Designed for students with little or no prior instruction in Spanish who, because of family background or social experience, can understand some casual spoken Spanish and have a passive knowledge of the language, but do not speak the language themselves. Focus on developing basic speaking, reading, and writing abilities.

SPA211 Intermediate Spanish I
3 credits Fall & Spring Semester & First & Second Summer Session
For students with previous study of Elementary-level Spanish. The focus of SPA 211 is the continued development of communicative abilities in speaking, reading, writing and comprehension of Spanish and as an introduction to the cultural practices, family values, and social and environmental issues. Includes both oral and written assessments of grammatical structures and vocabulary introduced, informal and formal writing. Conducted entirely in Spanish.
PREREQUISITE: SPA 102 OR SPA 105, THE EQUIVALENT FROM ANOTHER INSTITUTION, OR 3-4 YEARS HIGH SCHOOL SPANISH; AP 3 (LANGUAGE TEST OR IB 4. CLOSED TO HERITAGE OR NATIVE SPEAKERS OF SPANISH.

SPA212 Intermediate Spanish II
3 credits Fall & Spring Semester
For students with some previous study of Spanish at the intermediate level, who are familiar with all tenses and with vocabulary related to the topics covered in SPA 101-211. SPA 212 is the first semester of a two-semester sequence ending with SPA 214. The continued development of skills in reading, writing, speaking and listening in Spanish with an additional emphasis on cultural competence in the Spanish-speaking cultures of the world. Themes on: relationships, cultural values, different historical perspectives, and current politics. These themes will be explored through articles, films, and literary texts. The course will develop writing and reading strategies, providing students with the tools to think, read, and write critically and analytically in papers of 1-3 pages. Progress will also be assessed through quizzes and exams. Course conducted entirely in Spanish.
PREREQUISITE: SPA 211 OR 5-6 YEARS OF HIGH-SCHOOL SPANISH OR AP LANGUAGE 4. CLOSED TO NATIVE SPEAKERS AND HERITAGE LEARNERS OF SPANISH.

SPA214 Advanced Spanish
3 credits Fall & Spring Semester
Continuation of SPA 212. This class will prepare students for advanced literature, linguistics and culture courses. The class will use films, literary works, and other cultural texts. Students will write analytic essays of 3-5 pages to develop style, vocabulary, and syntax. Course conducted entirely in Spanish.
PREREQUISITE: SPA 212 CLOSED TO NATIVE SPEAKERS AND HERITAGE LEARNERS OF SPANISH.

SPA243 Intermediate Spanish for Heritage Learners
3 credits Fall & Spring Semester
Designed for students with some prior instruction in Spanish who, because of family background or social experience, can understand casual spoken Spanish and have some functional communication abilities in the language. Focus on developing basic speaking, reading, and writing abilities.
PREREQUISITE: SPA 143 OR TWO YEARS OF HIGH SCHOOL SPANISH.
SPA244 Advanced Spanish for Heritage Learners
3 credits Fall Semester
This course is designed for those students who, because of family background or social experience and prior instruction in Spanish, possess functional communication abilities in the language. Focus is on developing formal speaking, reading and writing abilities.
PREREQUISITE: SPA 243 OR ADVANCED ABILITY IN THE LANGUAGE

SPA301 Introduction to Literary Genres
3 credits Fall & Spring Semester
Selected material from various genres and periods of Spanish and Latin American literature. Further development of critical writing skills for non-native speakers. Closed to native speakers. May be used to fulfill the humanities literature requirement. Writing credit. Students may not receive credit for 301 or 343.
PREREQUISITE: SPA 214 OR EQUIVALENT AND CLOSED TO NATIVE SPEAKERS.

SPA302 Spanish Culture and Civilization
3 credits Offered By Announcement Only
Historical survey of the arts, science, letters, and political and social institutions. Writing Credit.
PREREQUISITE: SPA 214 OR 244, OR EQUIVALENT.

SPA303 Latin American Culture and Civilization
3 credits Offered By Announcement Only
Historical survey of the arts, letters, science, and political and social institutions. Writing Credit.
PREREQUISITE: SPA 214 OR 244 OR EQUIVALENT.

SPA321 Introduction to Literary Themes
3 credits Fall & Spring Semester
The study of literature through thematic readings. Writing credit. May be repeated for credit if topics vary.
PREREQUISITE: SPA 343, OR 301, OR EQUIVALENT.

SPA322 Topics in Spanish Culture
3 credits Offered By Announcement Only
Cultural issues in the Spanish-speaking world. Topics include film, journalism, religion, language in society, popular and mass culture, visual arts, immigration, slavery, mestizaje. Writing credit. May be repeated for credit if topics vary.
PREREQUISITE: SPA 301 OR 343; SPA 302 OR 303 RECOMMENDED. MAY BE REPEATED FOR CREDIT IF TOPICS VARY.

SPA343 Introduction to Literary Genres for Native/Heritage Speakers
3 credits Fall & Spring Semester
Basic tools for literary analysis and critical writing skills through the analysis of selected materials from various genres and periods of Spanish and Spanish American literature. Special attention to problems of oral and written expression unique to native/heritage speakers. Writing credit. Students may not receive credit for 301 and 343.
PREREQUISITE: SPA 244 OR EQUIVALENT; NATIVE/HERITAGE SPEAKERS ONLY.
COLLEGE OF ARTS AND SCIENCES
SPANISH

SPA353 Studies in Colonial Literatures and Cultures
3 credits
Offered By Announcement Only
Latin American Literatures and cultures from the colonial centuries. May be used to fulfill the humanities literature requirement. Writing Credit.
PREREQUISITE: SPA 343, OR 301

SPA354 Studies in 19th Century Latin American Literatures and Cultures
3 credits
Offered By Announcement Only
Latin American literature and cultures from Independence to the end of the nineteenth century. May be used to fulfill the humanities literature requirement. Writing Credit.
PREREQUISITE: SPA 301, OR 343.

SPA355 Studies in 20th and 21st Century Latin American Literatures and Cultures
3 credits
Fall Semester
Latin American literature and cultures from the beginning of the 20th century to the present. May be used to fulfill the humanities literature requirement. Writing Credit.
PREREQUISITE: SPA 343, OR 301, OR EQUIVALENT

SPA363 Introduction to Medieval through 17th Century Spanish Literature and Cultures
3 credits
Offered By Announcement Only
Spanish peninsular literature and cultures from the earliest literary forms through the seventeenth century. May be used to fulfill the humanities literature requirement. Writing Credit.
PREREQUISITE: SPA 343, OR 301.

SPA364 Studies in 18th and 19th century Spanish literatures and cultures
3 credits
Offered By Announcement Only
Spanish peninsular literatures and cultures from the eighteenth and nineteenth centuries. May be used to fulfill the humanities literature requirement. Writing credit.
PREREQUISITE: SPA 301, OR 343.

SPA365 Studies in 20th and 21st Century Spanish literatures and Cultures
3 credits
Fall Semester
Spanish peninsular literatures and cultures from the twentieth century to the present. May be used to fulfill the humanities literature requirement. Writing Credit.
PREREQUISITE: SPA 301 OR SPA 343

SPA395 Transfer credits
1- 3 credits
Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

SPA396 Transfer credits
1- 3 credits
Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

SPA397 Transfer credits
1- 3 credits
Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

SPA398 Transfer credits
1- 3 credits
Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.
SPA399 Transfer credits
1-3 credits Not Offered; Transfer Credit Only
Awarded for course work at another institution for which UM has no direct equivalent.

SPA401 Introduction to Hispanic Linguistics
3 credits Offered By Announcement Only
Survey of principal areas of inquiry in Hispanic linguistics, including phonetics/phonology, morphology, syntax, pragmatics, historical, social and dialectal variations. Writing credit.
PREREQUISITE: TWO COURSES AT THE 300-LEVEL

SPA402 Spanish Second Language Acquisition
3 credits Offered By Announcement Only
The linguistic contrast between Spanish and English and the pedagogical and practical implications of understanding language, especially grammar, from a foreign/second language perspective.
PREREQUISITE: TWO COURSES AT THE 300 LEVEL

SPA422 Topics in Hispanic Linguistics
3 credits Offered By Announcement Only
Special topics in the study of Hispanic linguistics. Possibilities include phonetics/phonology, pragmatics/discourse analysis, sociolinguistics, sociocultural theory, bilingualism.
PREREQUISITE: TWO COURSES AT THE 300-LEVEL

SPA432 Business and Diplomatic Spanish
3 credits Offered By Announcement Only
Commercial vocabulary, economic, technical, and diplomatic terminology in Spanish. Composition based on models of business correspondence directed to Spanish-speaking countries or firms.
PREREQUISITE: SPA 301, OR 343, OR EQUIVALENT.

SPA433 Spanish for Health Care Professions
3 credits Offered By Announcement Only
Medical vocabulary, technical and practical terminology in Spanish. Composition based on models of the documents, letters, medical history cases required in health care professions.
PREREQUISITE: SPA 301, OR 343, OR EQUIVALENT.

SPA442 Stylistics and Composition
3 credits Offered By Announcement Only
PREREQUISITE: SPA301 OR 343 OR PERMISSION OF THE INSTRUCTOR.

SPA444 Introduction to Translation
3 credits Offered By Announcement Only
Problems in translation: Spanish to English; English to Spanish. Writing Credit.
PREREQUISITE: TWO COURSES ON THE 300-LEVEL OR PERMISSION OF THE INSTRUCTOR, NATIVE OR NEAR NATIVE BI-LINGUAL ABILITY.

SPA495 Transfer Credits
1-3 credits Not Offered; Transfer Credit Only
Awarded for 400-level course work at another institution for which UM has no direct equivalent.
COLLEGE OF ARTS AND SCIENCES
SPANISH

SPA501 CAPSTONE
3 credits
Fall & Spring Semester
Course with a broad-based topic designed to integrate all the high-level linguistic, critical and analytical skills with the body of knowledge acquired during the course of study towards the major. Topics vary. Open only to undergraduates completing their Spanish major. Writing Credit. To be taken in the last semester of the major.
PREREQUISITE: TO BE TAKEN IN THE LAST SEMESTER OF THE MAJOR.

SPA591 Directed Readings
1-3 credits
Offered By Announcement Only
PREREQUISITE: ONE 500-LEVEL COURSE AND THE PERMISSION OF THE INSTRUCTOR.

SPA592 Directed Readings
1-3 credits
Offered By Announcement Only
PREREQUISITE: ONE 500-LEVEL COURSE AND THE PERMISSION OF THE INSTRUCTOR.

SPA593 Directed Readings
1-3 credits
Offered By Announcement Only
PREREQUISITE: ONE 500-LEVEL COURSE AND THE PERMISSION OF THE INSTRUCTOR.

SPA594 Senior Honors Thesis I
3 credits
Fall Semester
Directed research for honors thesis.
PREREQUISITE: MUST HAVE COMPLETED AT LEAST 12 CREDITS AT THE 300-LEVEL OR ABOVE TOWARDS SPANISH MAJOR, MUST MEET ELIGIBILITY FOR HONORS IN SPANISH.

SPA595 Senior Honors Thesis II
3 credits
Fall Semester
Directed writing of honors thesis.
PREREQUISITE: SPA 594.

THEATRE ARTS
THA101 Introduction to Theatre
3 credits
First Summer Session
Intro survey course in theatre--what it is now, how it works, its practitioners and the relationship of theatre to the contemporary world. Attendance at Ring Theatre productions is required.

THA105 Introduction to Acting
3 credits
First Summer Session
Basic tools of acting craft including analysis, physical action and reacting in the moment explored through exercises, scripted work and readings. A doing class, making attendance essential.

THA111 Acting I-A
2 credits
Fall Semester
Introduction to the elements of drama and theatre, and to the basic tools of acting craft.
PREREQUISITE: OPEN ONLY TO FRESHMAN BFA/BM MUSICAL THEATRE MAJORS ONLY.

THA112 Acting I-B
2 credits
Spring Semester
Continued work on basic tools of craft including script analysis.
PREREQUISITE: THA 111.
THA113 Movement I-A
2 credits  Fall Semester
Basic movement for the actor (self-use training): physical awareness and correct habits, mind/body connections, muscle tension release, body alignment, coordination, balance, flexibility and strength. Begin study of the Alexander Technique.
PREREQUISITE: OPEN ONLY TO FRESHMAN BFA/BM MUSICAL THEATRE MAJORS.

THA114 Movement I-B
2 credits  Spring Semester
Advanced movement for the actor; study physical/emotional choices for characters through physical centers, develop process for character's physical development through observations, explore spatial awareness, rhythm, kinesthetic body, and sensory awareness. Continued study of the Alexander Technique.
PREREQUISITE: THA 113.

THA116 Dance I-A
2 credits  Fall Semester
Beginning ballet and jazz for Musical Theatre with strong focus on technique and terminology.
PREREQUISITE: OPEN ONLY TO FRESHMAN BFA/BM MUSICAL THEATRE MAJORS.

THA117 Dance I-B
2 credits  Spring Semester
Continuation of THA 116.
PREREQUISITE: THA 116. COREQUISITE: BFA/BM MUSICAL THEATRE MAJORS.

THA120 Freshman Studio I
1-2 credits  Fall Semester
First year theatre laboratory with strong focus on ensemble, rehearsal, and performance skills.
PREREQUISITE: OPEN ONLY TO FRESHMAN BFA/BM MUSICAL THEATRE MAJORS.

THA121 Freshman Studio II
1-2 credits  Spring Semester
A continuation of THA 120.
PREREQUISITE: THA 120.

THA140 Introduction to Dance
1-3 credits  Fall Semester
Beginning dance skills and stylistic elements of theatrical forms of dance (repeatable.)

THA141 Introduction to Scene Design/Stagecraft I (Lecture)
2 credits  Fall Semester
Introduction to scene design and construction. Corequisite: THA 143.
PREREQUISITE: COREQUISITE THA 143.

THA142 Introduction to Costume Design/Stagecraft II (Lecture)
2 credits  Spring Semester
Introduction to stage lighting and costume design. Corequisite: THA 144.
PREREQUISITE: COREQUISITE THA 144.

THA143 Introduction to Theatre Crafts I (Lab)
1 credit  Fall Semester
Practical applications of THA 141. Corequisite: THA 141.
PREREQUISITE: COREQUISITE THA 141.
THA144 Introduction to Theatre Crafts II (Lab)  
1 credit  
Spring Semester  
Practical applications of THA 142. Corequisite: THA 142. 
PREREQUISITE: COREQUISITE: THA 142.

THA194 Singing for Actors  
1-2 credits  
Offered By Announcement Only  
Fundamentals of singing to include breath control, tone production, articulation. 
An ensemble approach to exploring and gain self-confidence in the skill of singing 
for the American musical stage. 
PREREQUISITE: OPEN ONLY TO FRESHMEN B.F.A. ACTING MAJORS OR BY PERMISSION OF INSTRUCTOR.

THA195 Singing for Actors  
1-2 credits  
Offered By Announcement Only  
Continuation of THA 194. Effective interpretation and performing of solo vocal 
music material. 
PREREQUISITE: THA 194. OPEN ONLY TO FRESHMEN BFA PERFORMANCE MAJORS.

THA196 Singing for the Stage I-A  
1-2 credits  
Fall Semester  
The selection of learning process and performance of Musical Theatre Songs with 
emphasis on lyrics. 
PREREQUISITE: OPEN ONLY TO FRESHMAN BFABM MUSICAL THEATRE MAJORS.

THA197 Singing for the Stage I-B  
1-2 credits  
Spring Semester  
Continuation of THA 196. 
PREREQUISITE: THA 196.

THA198 Voice and Speech I-A  
2 credits  
Fall Semester  
Fundamentals of relaxation and breath management, alignment, tone production, pitch 
and resonance. Anatomy and physiology of the vocal structures. Introduction to 
the International Phonetic Alphabet (IPA). 
PREREQUISITE: OPEN ONLY TO FRESHMAN BFABM MUSICAL THEATRE MAJORS.

THA199 Voice and Speech I-B  
2 credits  
Spring Semester  
Development of General American speech production and articulation skills through 
further phonetic study. Explorations in range, inflection, resonance, tempo and 
rhythm within the application of voice to text. 
PREREQUISITE: THA 198.

THA211 Acting II-A  
2 credits  
Fall Semester  
Intensive scene study for sophomore conservatory actors. Basic tools of craft developed 
through use of contemporary plays, script analysis, and rehearsal techniques. 
PREREQUISITE: THA 112.

THA212 Acting II-B  
2 credits  
Spring Semester  
A continuation of THA 211. 
PREREQUISITE: THA 211.
THA216 Dance II-A
1 credit                                                              Fall Semester
Intermediate Musical Theatre dance taught through ballet and jazz, with an emphasis
on technique and style.
PREREQUISITE: THA 117. COREQUISITE: BFA/BM MUSICAL THEATRE MAJORS.

THA217 Dance II-B
2 credits                                                           Spring Semester
A continuation of THA 216 incorporating characterization and additional style.
PREREQUISITE: THA 216. COREQUISITE: BFA/BM MUSICAL THEATRE MAJORS.

THA240 Introduction to Dance II
1- 3 credits                                                          Fall Semester
Continuation of THA 140 (repeatable.)
PREREQUISITE: THA 140/DAN140.

THA241 Advance Theatre Crafts
3 credits                                                             Fall Semester
Basic scenic painting and costume construction techniques. Scenic painting includes
fundamentals in wood, marbles, brick, stones, lights and shadows. Costume construction
includes fundamentals in hand/machine sewing, dyeing, distressing and pattern reading.
PREREQUISITE: THA 141 AND 142.

THA242 Drafting for the Theatre
3 credits                                                           Spring Semester
Drafting standards and techniques used for the theatre to produce scenic and lighting
plans. Hand drafting and computer aided drafting.

THA243 Introduction to Drawing for the Theatre
3 credits                                                             Fall Semester
Basic sketching, mechanical drawing and rendering techniques used for costume and
scenic design. Basic black and white figure drawing, lights and shadows and perspective
elevations.
PREREQUISITE: PREREQUISITE OR COREQUISITE THA 141

THA244 Advance Drawing for the Theatre
3 credits                                                           Spring Semester
Advanced training in drawing and rendering used for costume and scenic design for
the theatre. Color costume plates and scenic renderings.
PREREQUISITE: THA 243

THA251 Intermediate Acting I
3 credits                                                      First Summer Session
Basic tools of the actor's craft are developed through script work, scene study,
and improvisational techniques.
PREREQUISITE: THA 105.

THA252 Intermediate Acting II
3 credits                                                           Spring Semester
A continuation of THA 251.
PREREQUISITE: THA 251.
THA253 Voice for the Stage
3 credits
Fall Semester
Fundamentals in voice and speech skills developed through vocal warm-ups, alignment, relaxation, breathing, tone production, resonance, sound focus, and articulation.
PREREQUISITE: THA 105 OR PERMISSION OF THE INSTRUCTOR.

THA254 Movement for Actors
3 credits
Spring Semester
Physical range and control, physicalization and condition of character, and stage violence.
PREREQUISITE: THA 251.

THA294 Singing for Actors II-A
2 credits
Offered By Announcement Only
Development of musical theatre singing technique for BFA Acting majors. Skills to be developed include proper breathing, tone, articulation, lyric interpretation, and physical presentation. Course is repeatable.
PREREQUISITE: OPEN TO BFA ACTING MAJORS OR BY PERMISSION OF INSTRUCTOR.

THA295 Singing for Actors II-B
2 credits
Offered By Announcement Only
Development of musical theatre singing technique for BFA Acting majors. Skills to be developed include proper breathing, tone, articulation, lyric interpretation and physical presentation. Course is repeatable.
PREREQUISITE: OPEN TO BFA ACTING MAJORS OR BY PERMISSION OF INSTRUCTOR.

THA296 Singing for the Stage II-A
1 credit
Fall Semester
A continuation of ideas presented in THA 196 and 197.
PREREQUISITE: THA 197.

THA297 Singing for the Stage II-B
1 credit
Spring Semester
Instruction in preparing vocal material for musical scenes drawn from American musical theatre as well as other challenging musical material.
PREREQUISITE: THA 296.

THA298 Voice and Speech II-A
1 credit
Fall Semester
Improvement of individual voice and speech skills: through in-depth examination of habitual speech formation and vocal patterns. Application of the IPA within American accent study.
PREREQUISITE: THA 199.

THA299 Voice and Speech II-B
2 credits
Spring Semester
Strengthening the connection between the acting impulse and speaking voice. Extended voice production within scene work. Introduction to Shakespeare's verse structure.
PREREQUISITE: THA 298.

THA311 Acting III-A
2 credits
Fall Semester
A scene study class focusing on plays with elevated language, with an emphasis on Shakespeare. May include Restoration and Greek drama as well.
PREREQUISITE: THA 212.
THA312 Acting III-B
2 credits
Spring Semester
A continuation of THA 311 with focus on high style and Comedy of Manners. May include Shaw, Wilde, and Coward.
PREREQUISITE: THA 311.

THA313 Movement II-A
1 credit
Fall Semester
Period Movement: special movement requirements and techniques for four different periods of history - 16th, 17th, 18th and 19th centuries, including manners, etiquette, social mores, history and costume.
PREREQUISITE: THA 114.

THA314 Movement II-B
1 credit
Spring Semester
Fundamentals of mask work through the study of a "personal clown"; the character mask and/or an in-depth study of Commedia dell'Arte masks and character types.
PREREQUISITE: THA 313.

THA316 Dance III-A
2 credits
Fall Semester
Advanced Musical Theatre Dance incorporating high technical proficiency for expression, characterization and style.
PREREQUISITE: THA 217. COREQUISITE: BMA/BM MUSICAL THEATRE MAJORS.

THA317 Dance III-B
2 credits
Spring Semester
A continuation of THA 316.
PREREQUISITE: THA 316. COREQUISITE: BFA/BM MUSICAL THEATRE MAJORS.

THA341 Sound for the Theatre
3 credits
Offered By Announcement Only
A basic sound design class to develop an ear for music and sound.
PREREQUISITE: THA 141 AND 142.

THA342 Scenic Design
3 credits
Offered By Announcement Only
Techniques for analyzing, planning and designing stage scenery, executing color rendering and stage models.
PREREQUISITE: THA 141 AND 243.

THA343 Costume Design
3 credits
Fall Semester
Techniques for analyzing, planning, and designing theatrical costumes. Executing color rendering plates.
PREREQUISITE: THA 142 AND 243.

THA344 Lighting Design
3 credits
Spring Semester
Techniques for analyzing, planning and designing theatrical lighting. Executing light plots and corresponding paperwork.
PREREQUISITE: THA 142
THA347 Make-Up
3 credits  Fall Semester & First Summer Session
A lecture-laboratory course in make-up for the stage, television and motion picture.
PREREQUISITE: THA 141 and 142.

THA348 Advanced Make-up
3 credits  Offered By Announcement Only
A continuation of THA 347.
PREREQUISITE: THA 347.

THA351 Auditioning and Preparing for the Profession
3 credits  Fall Semester
How to succeed in the theatre profession. Students will prepare audition pieces
and learn resume preparation, headshots, interviewing, and other aspects of searching
for and obtaining work. Not for BFA Students.
PREREQUISITE: THA 251; 252; NOT FOR BFA STUDENTS.

THA352 Singing for the Musical Theater
3 credits  Offered By Announcement Only
The process of acting and singing a song for a musical play or review. Song selection,
technical and acting mechanics, and how to deliver the song using 16 and 32 bar
material.
PREREQUISITE: THA 251; PERMISSION OF THE INSTRUCTOR.

THA364 Introduction to Producing and Managing Theatre
3 credits  Fall Semester
Producing trends on Broadway, the Road, and Regional Theatre. The basics of producing,
managing, and marketing a play from securing the performance rights to closing
night.
PREREQUISITE: THA 101 OR 105 OR PERMISSION OF INSTRUCTOR.

THA365 Principles of Stage Management
3 credits  Fall Semester
The art and craft of Stage Management from pre-production through post-production.
PREREQUISITE: THA 141 OR 142.

THA366 Theatre Management Practicum I
3 credits  Fall Semester
Practical experience on the annual season ticket campaign, marketing, finances, house
management, and facilities management at the Jerry Herman Ring Theater. Open only
to Theatre Management majors.
PREREQUISITE: THA 364 AND PERMISSION OF INSTRUCTOR.

THA367 Theatre Management Practicum II
3 credits  Spring Semester
Practical experience on the annual season ticket campaign, marketing, finances, house
management, and facilities management at the Jerry Herman Ring Theatre. Open only
to Theatre Management majors.
PREREQUISITE: THA 364 AND PERMISSION OF INSTRUCTOR.

THA369 Producing Musical Theatre I
3 credits  Fall Semester
Practical Study of the creative aspects of mounting a new, original musical.
PREREQUISITE: 3 CREDITS IN THA AT 200 LEVEL OR ABOVE.
THA375 Introduction to Playwriting
3 credits
Understanding of the basic principles involved in play construction.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

THA381 Play Analysis I
3 credits
Offered By Announcement Only
Play structure from the viewpoints of the actor, director, designer, and audience.
Understanding the play and making production choices.
PREREQUISITE: SIX CREDITS IN THEATRE ARTS.

THA382 Play Analysis II
3 credits
Spring Semester
A continuation of THA 381. Emphasis on non-realistic theatre.
PREREQUISITE: THA 381.

THA385 History of Decor
3 credits
Fall Semester
A History of interior decor and furniture. To provide a research background for theatrical design. Classical Greece through the present.
PREREQUISITE: THA 141 AND 142; OR SOPHOMORE AND ABOVE STATUS

THA386 History of Fashion
3 credits
Spring Semester
A history of clothing and other visual elements that provide a research background for theatrical design. Prehistoric through present.
PREREQUISITE: THA 141 AND 142, OR SOPHOMORE AND ABOVE STATUS

THA396 Singing for the Stage III-A
1-2 credits
Fall Semester
Instruction and coaching of advanced vocal and audition material drawn from American musical theatre.
PREREQUISITE: THA 297.

THA397 Singing for the Stage III-B
1 credit
Spring Semester
Vocal techniques for plays that require singing, but are non-musicals such as certain Shakespearean, Restoration, and Contemporary plays by Brecht, Weiss, or Coward.
PREREQUISITE: THA 396.

THA398 Voice and Speech III-A
1 credit
Fall Semester
Application of voice and speech in classic texts-particularly that of Shakespeare and translation plays. Accent monologues and scenes.
PREREQUISITE: THA 299.

THA399 Voice and Speech III-B
1 credit
Spring Semester
PREREQUISITE: THA 398.
THA401 Internship
3 credits  
Fall & Spring Semester
Prescribed work and study at a theatre, opera, or dance company as it pertains to the major's concentration of study. Collateral reports, readings, conferences with faculty supervisor.
PREREQUISITE: OPEN TO B.F.A. CANDIDATES ONLY.

THA402 Internship
3 credits  
Continuation of THA 401.
PREREQUISITE: OPEN TO B.F.A. CANDIDATES ONLY.

THA403 Internship
3 credits  
Continuation of THA 402.
PREREQUISITE: OPEN TO B.F.A. CANDIDATES ONLY.

THA404 Internship
3 credits  
Continuation of THA 403.
PREREQUISITE: OPEN TO B.F.A. CANDIDATES ONLY.

THA405 Production Thesis
3 credits  
Offered By Announcement Only
PREREQUISITE: OPEN TO B.F.A. CANDIDATES ONLY.

THA410 Independent Study
1-3 credits  
Offered By Announcement Only
Individualized instruction on special topics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

THA411 Acting IV-A
2 credits  
Fall Semester
Scene study focusing on early modern European playwrights that may include Ibsen, Chekhov, Strindberg, and others.
PREREQUISITE: THA 312 OR PERMISSION OF INSTRUCTOR.

THA412 Acting IV-B
2 credits  
Spring Semester
Scene study focusing on contemporary playwrights who use elevated language. May include Pinter, Stoppard, Mamet, Anouilh, Churchill, and others.
PREREQUISITE: THA 411 OR PERMISSION OF INSTRUCTOR.

THA413 Movement III-A
2 credits  
Fall Semester
Unarmed combat for the stage: basic and advanced techniques including punches, slaps, kicks, rolls and fight choreography. As sanctioned by the Society of American Fight Directors (SAFD).
PREREQUISITE: THA 314 OR PERMISSION OF INSTRUCTOR.
THA414 Movement III-B  
2 credits  Fall Semester  
Weapons for the stage: basic and advanced techniques of armed combat including rapier, rapier and dagger, broadsword and/or quarterstaff as sanctioned by the Society of American Fight Directors (SAFD).  
PREREQUISITE: THA 413 OR PERMISSION OF INSTRUCTOR.

THA415 Auditioning-I  
2 credits  Fall Semester  
A course dedicated to the business of theatre for actors. Students will prepare three to five audition pieces. Covers headshots, resumes, income tax situations, unions, and methods of searching for and obtaining work.  
PREREQUISITE: THA 312.

THA416 Auditioning-II  
2 credits  Spring Semester  
Continuation of THA 415.  
PREREQUISITE: THA 415.

THA420 Senior Studio  
3 credits  Spring Semester  
Rehearsal and production of a showcase culminating in a New York performance for agents and casting directors.  
PREREQUISITE: THA 412 AND BFA/BM MUSICAL THEATRE MAJOR WITH SENIOR STATUS OR BY PERMISSION OF INSTRUCTORS.

THA431 Musical Theatre Styles I  
2-3 credits  Fall Semester  
Focus on the preparation of a professional musical theatre audition book. Emphasis on all current musical theatre song styles. 16 and 32 bar audition cuts, full songs and appropriate monologues.  
PREREQUISITE: SENIOR BFA/BM MUSICAL THEATRE MAJORS WITH SENIOR STATUS OR PERMISSION OF INSTRUCTOR.

THA432 Musical Theatre Styles II  
2-3 credits  Spring Semester  
Musical scene study class exploring scenes from various styles and genres of musical theatre. Scenes will consist of spoken dialogue and singing. Continuation of THA 431.  
PREREQUISITE: THA 431.

THA441 Design Studio I  
3 credits  Fall Semester  
Hands on practicum training working as a designer or technical craftsperson for a mainstage or studio production; or as an assistant designer or assistant technical craftsperson for a mainstage production. Repeatable once for credit toward major.  
PREREQUISITE: THA 342 OR 343 OR 344.

THA442 Design Studio II  
3 credits  Spring Semester  
Hands on practicum training working as a designer or technical craftsperson for a mainstage or studio production; or as an assistant designer or assistant technical craftsperson for a mainstage production. Repeatable once for credit toward major.  
PREREQUISITE: THA 342 OR 343 OR 344.
THA451 Advanced Acting: Classical Poetic Text  
3 credits  Fall Semester  
An introduction to styles focusing on the Greeks, Shakespeare, Restoration and other plays on poetic language.  
PREREQUISITE: THA 252 OR PERMISSION OF INSTRUCTOR.

THA452 Advanced Acting: Contemporary Poetic Text  
3 credits  Spring Semester  
Acting and scene study focusing on contemporary playwrights who use poetic language, such as Mamet, Stoppard, Pinter, Shepard, Vogel, and Churchill.  
PREREQUISITE: THA 252 OR PERMISSION OF INSTRUCTOR.

THA455 Acting for the Camera  
3 credits  Offered By Announcement Only  
Practical and audition aspects of acting in the genres of film and dramatic episodic television (situation comedy, Drama, soap opera, and commercial).  
PREREQUISITE: THA 212 OR 252.

THA456 Improvisational Acting  
3 credits  Offered By Announcement Only  
Exploration of the unique skills involved in this form of acting.  
PREREQUISITE: THA 212 OR 252.

THA459 Stage Management Practicum  
3 credits  Fall & Spring Semester  
Practical experience as a stage manager for a production. Weekly individual meetings with instructor for analysis of performance and evaluation.  
PREREQUISITE: THA 365.

THA461 Play Direction I  
3 credits  Fall Semester  
The art and craft of stage direction.  
PREREQUISITE: THA 141, 142, 105, 152, 312 AND 381.

THA462 Play Direction II  
3 credits  Spring Semester  
A continuation of THA 461 in which the student directs a one act play. Enrollment limited.  
PREREQUISITE: THA 461. ENROLLMENT LIMITED.

THA463 Advanced Stage Management I  
3 credits  Offered By Announcement Only  
Detailed work of the theatrical stage manager: people management skills, leadership, communication and organization techniques. Students will serve as a stage manager for a studio show, ASM or Stage Manager of a mainstage production.  
PREREQUISITE: THA 365.

THA464 Advanced Stage Management II  
3 credits  Offered By Announcement Only  
Indepth look at AEA rules as stated in the LORT rulebook. Refinements of organizational and communications styles, professional observations and interviews. Students will serve as an ASM or Stage Manager of a mainstage production.  
PREREQUISITE: THA 463.
THA465 Theatre Management I
3 credits
Offered By Announcement Only
History of producing on Broadway along with the evolution of contemporary producers and producing organizations. Copyright Law, securing property rights, budgeting and financing the production, business structure and current developments and trends in both Broadway and commercial Broadway tours.
PREREQUISITE: THA 364 OR PERMISSION OF INSTRUCTOR.

THA466 Theatrical Unions
3 credits
Offered By Announcement Only
History of theatrical unions in America. Major unions and their contracts: actors, directors and choreographers, playwrights, composers and lyricists, designers and non-union personnel management and organizational structure.
PREREQUISITE: THA 364

THA467 Producing for Regional Theatre
3 credits
Offered By Announcement Only
History of American Regional Theatre. Forming the non-profit corporation; the mission statement; the Board of Directors; legal and tax requirements; budgeting and record keeping; staffing and organizational management.
PREREQUISITE: THA 364

THA468 Theatrical Fundraising and Marketing
3 credits
Offered By Announcement Only
Marketing and fundraising for the non-profit, professional theatre. Detailed instruction in single ticket and subscription sales; other sources of earned revenue; marketing and public relations; research for fundraising and grant writing.
PREREQUISITE: THA 364

THA469 Producing Musical Theatre II
3 credits
Fall Semester
Designed to develop, refine, rehearse, mount, and present a new musical.
PREREQUISITE: THA 369

THA471 Directing the Actor for Film
3 credits
Offered By Announcement Only
The craft of directing actors for work before a camera.
PREREQUISITE: CMP 222 OR THA 105 OR 151 OR PERMISSION OF INSTRUCTOR.

THA481 Theatre History I
3 credits
Fall Semester & First Summer Session
Theatre history from the Greeks through European Renaissance.

THA482 Theatre History II
3 credits
First Summer Session
Theatre history from the 17th century to the present.
PREREQUISITE: THA 481.

THA485 Playwriting II
3 credits
Spring Semester
Further examination of dramatic writing techniques including Hero’s Journey model, adaptation and experimental structures.
PREREQUISITE: THA 375 OR PERMISSION OF INSTRUCTOR
THA487 Advanced Projects
3 credits  Fall & Spring Semester
Advanced practical projects in directing, dramatic writing or dramaturgy. Repeatable up to four times for credit towards major.
PREREQUISITE: 200 LEVEL THA COURSE OR PERMISSION OF INSTRUCTOR

THA561 Advanced Directing I
3 credits  Offered By Announcement Only
Continuation of THA 462. Developing a philosophy of theatrical production. Case studies in practical directing problems. The student directs a short play.
PREREQUISITE: THA 462 OR PERMISSION OF INSTRUCTOR.

URBAN STUDIES
URB201 Metropolitan Miami
3 credits  Fall Semester
This course provides interdisciplinary perspectives on the urbanization of South Florida and Miami's urban milieu. The course uses the case of Metropolitan Miami to introduce and illustrate a range of basic concepts in urban studies.

URB301 Cities in Time and Space
3 credits  Spring Semester
This course provides interdisciplinary perspectives on the city, urbanity, and urbanization through a series of wide-ranging historical-geographical contexts.

WOMEN'S & GENDER STUDIES
WGS201 Introduction to Women's and Gender Studies
3 credits  Fall Semester
Conceptions of masculinity and femininity; gender relations; gender inequalities; the intersections of gender with other categories of identity such as class, race, sexuality, and stages in the life cycle; and the broad impact of gender on society.

WGS210 Popular representations of Queer sexualities
3 credits  Fall Semester
Critical analysis of queer subjects in popular culture.
PREREQUISITE: NONE

WGS220 European Sexualities
3 credits  Fall & Spring Semester
The history of European sexuality from the Greeks to present day.

WGS301 Feminist Inquiries
3 credits  Fall Semester
A history of feminist thought, central issues in contemporary feminist theory, the emergence of feminist methodologies across a range of disciplines, and the ways in which feminist inquiry transforms our understanding of key issues across the curriculum. Writing Credit.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

WGS302 International Perspectives on Gender and Sexuality
3 credits  Fall Semester
A comparative study of gender identities, gender relations, and sexualities in different cultures and societies.
WGS305 Queer Studies
3 credits Fall Semester
Gay, lesbian, bisexual, transgender, transexual, and queer identities; alternative family structures; queer theory; and current debates over the meaning and validity of sexuality as a way of understanding human sexual desire, emotions and behavior.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

WGS315 Gender, Race, and Class
3 credits Fall Semester
Conceptions and intersections of gender, race, and class in historical and contemporary cultures; the impact of these experiences on individuals and society as a whole.

WGS320 Comparative Perspectives on Gender and Sexuality
3 credits Fall Semester
A comparative study of gender identities, gender relations, and sexualities in different cultures and societies. Writing Credit.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

WGS350 Special Topics in Women's and Gender Studies
3 credits Fall Semester
Content varies by semester.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

WGS361 Gender and Language
3 credits Fall & Spring Semester
The ways in which language is used in the constitution of gender, from a cross-linguistic and cross-cultural perspective.
PREREQUISITE: APY 204 OR PERMISSION OF INSTRUCTOR.

WGS405 Gender and Sexuality in Cultural Context
3 credits Fall Semester
How cultural values shape our understanding and experience of gender and sexuality; how those values are produced and policed; and the impact of codes of conduct for gender relations on individuals and society as a whole within a specific cultural milieu. Writing Credit.
PREREQUISITE: THREE CREDITS IN WGS, JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

WGS410 Gender, Sex, and the Law
3 credits Fall Semester
The impact of legal institutions and laws in shaping and regulating gender relations and sexual practices; the evolving relationship between legal codes and social values for women and men. Writing Credit.
PREREQUISITE: THREE CREDITS IN WGS, JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

WGS420 Interpreting Bodies
3 credits Fall Semester
Perceptions, representations, and regulation of the physical body as a gendered and sexual site, as a source of pleasure, as a means of social validation, and as an object of coercion. Writing Credit.
PREREQUISITE: THREE CREDITS IN WGS, JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

WGS450 Special Topics in Women's and Gender Studies
3 credits Fall Semester
Content varies by semester.
PREREQUISITE: THREE CREDITS IN WGS, JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.
WGS499 Independent Study
1-3 credits  
Fall Semester
By arrangement with instructor; content varies.
PREREQUISITE: THREE CREDITS IN WGS, JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

WGS501 Senior Research Project
3 credits  
Fall Semester
A student initiated research project with a faculty member of the student's choice and approved by the Program director. Writing Credit.
PREREQUISITE: WGS MAJOR OR MINOR, SENIOR STATUS, AND WGS 201 AND 301.

WGS505 Senior Thesis
3 credits  
Fall Semester
Women's and Gender Studies majors with a cumulative GPA of at least 3.5 in WGS courses and an overall GPA of at least 3.0 may earn departmental honors by completing an honors thesis instead of the senior research project. Candidates for departmental honors are responsible for finding a faculty member who is willing to serve as thesis adviser and then must complete a thesis proposal of approximately 400 words which must be approved by the thesis adviser and then the program director. Most students will take this course twice, for a total of six credits. Writing Credit.
PREREQUISITE: WGS MAJOR OR MINOR, SENIOR STATUS, WGS 201 AND 301, AND APPROVAL OF PROGRAM DIRECTOR.
ACC101 Principles of Accounting
3 credits Offered By Announcement Only
Course focuses on the use and understanding of basic financial and managerial accounting reports. Coverage of basic accounting assumptions and current issues affecting accounting processes and reporting are included, but detailed accounting procedures are not emphasized. Completion of the course should permit students to understand accounting information and to communicate with professional accountants. Limited to students in the Saturday BBA program, it does not satisfy any accounting requirement needed to sit for the CPA exam in Florida.

ACC211 Principles of Financial Accounting
3 credits Fall & Spring Semester & First & Second Summer Session
Course explores the role of accounting in providing financial information about an enterprise to decision-makers. Emphasis is placed on understanding financial accounting from a user perspective. Course covers the reporting of financial position including coverage of assets, liabilities, equity accounts, the results of operations, and cash flows.
PREREQUISITE: SOPHOMORE STANDING.

ACC212 Managerial Accounting
3 credits Fall & Spring Semester & First & Second Summer Session
Introduction to managerial accounting. Topics include various product costing techniques, analysis of cost behavior patterns, budgeting, and the use of accounting information to solve problems. The course is taught from a managerial perspective.
PREREQUISITE: ACC 211.

ACC301 Cost Accounting
3 credits Fall & Spring Semester & First Summer Session
Topics include basic cost concepts, product costing techniques including job-order and process costing, in-depth studies of techniques and issues surrounding cost allocation methods, basic approaches to solving complex accounting problems, standard cost systems and variance analysis, and variable costing. Additionally, activity-based costing concepts and methodology are introduced. Course is designed to provide students with the necessary skills to perform basic cost accounting.
PREREQUISITE: ACC 212.

ACC306 Accounting Systems
3 credits Fall & Spring Semester & First Summer Session
Contemporary accounting systems are computer based. Course covers the nature, design, implementation, and controls in computerized systems as well as manual systems. Micro computers are used as a learning tool.
PREREQUISITE: ACC 212.

ACC311 Intermediate Accounting I
3 credits Fall & Spring Semester & First Summer Session
The accounting principles which shape the financial reporting practices followed by entities that prepare financial statements in accordance with generally accepted accounting principles are discussed. Course also includes the determination of income components and balance sheet elements with brief coverage of the statement of cash flows.
PREREQUISITE: ACC 212.
ACC312 Intermediate Accounting II
3 credits Fall & Spring Semester & Second Summer Session
A continuation of ACC 311. Course focuses on more complex accounting applications such as leases, postretirement benefits, accounting for income taxes, and other topics. Additionally, the course includes coverage of the statement of cash flows.
PREREQUISITE: ACC 311 PLUS A GPA OF 3.0 OR HIGHER IN ACCOUNTING.

ACC401 International Business Analysis
3 credits Offered By Announcement Only
Inter-disciplinary course in the international aspects of accounting, finance, marketing, and management. Students work on an integrative case project analyzing the financial, managerial, and marketing issues in the acquisition of a foreign firm by an American firm and produce a marketing plan, pro-forma financial statements, and an organizational plan.
PREREQUISITE: FIN 330 OR MKT 360.

ACC402 Auditing
3 credits Fall & Spring Semester & First Summer Session
Course provides an introduction to the field of auditing. It concentrates on conducting an audit of financial statements in accordance with generally accepted auditing standards. Course covers accounting information systems, audit planning, audit risk and materiality assessments, evaluation of internal control, audit evidence, documentation, and audit reports.
PREREQUISITE: ACC 306, 312 AND SENIOR STATUS.

ACC403 Fundamentals of Taxation
3 credits Fall & Spring Semester & First Summer Session
Basic concepts of federal income taxation applicable to all taxpayers. The principles of individual income taxation, the tax consequences of property transactions, and an introduction to the impact of income taxes on corporations and partnerships are discussed. Emphasis is placed on study of the basic income tax formula including income exclusions, inclusions, statutory deductions, exemptions, and credits. The fundamentals of tax research are also introduced. For students who need to take ACC 303, this course satisfies that requirement. Prerequisite: ACC 311
PREREQUISITE: ACC 311.

ACC404 Advanced Taxation
3 credits Fall & Spring Semester & Second Summer Session
Study of Federal income tax laws and regulations as they affect corporations, partnerships, their owners, and employees. Emphasis is placed on tax planning aspects of formation, operation, reorganization, distribution, and liquidation of corporations and partnerships. Also includes an introduction to estate and gift taxation. Prerequisite: ACC 312 as prerequisite or co-requisite and ACC 403 or ACC 303.
PREREQUISITE: ACC 312 AS PREREQUISITE OR CO-REQUISITE AND ACC 303 OR ACC 403.

ACC411 Advanced Accounting
3 credits Fall & Spring Semester & First Summer Session
The primary focus of the course is on business combinations and preparing consolidated financial statements. Additionally, there is coverage of the accounting principles and practices applied to foreign operations and partnerships. For Accounting majors who need to take a 500-level accounting course, this course satisfies that requirement.
Prerequisite: ACC 312.
PREREQUISITE: ACC 312 AND SENIOR STATUS
ACC501 Advanced Cost Accounting
3 credits  First Summer Session
The latest developments in cost and managerial accounting are studied. Using case studies, the course focuses on activity based product cost allocation methodology in terms of: (1) basic concepts and rationale, (2) applicability in both manufacturing and service industries, (3) strategic cost analyses, and (4) applicability in total quality management programs. Other topics include cost pools, two stage costing methodologies, and the behavioral aspects of cost systems. Finally, students implement an activity based cost system using commercially developed software.
PREREQUISITE: ACC 301 AND SENIOR STATUS.

ACC505 Accounting Controls in Information Technology
3 credits  Second Summer Session
Course develops a student's understanding of the theory and practice of relational database management systems in the accounting view of enterprise-wide databases. With a focus on controls, students build accounting system elements related to main accounting transaction cycles, the revenue cycle, and the purchase cycle.
PREREQUISITE: ACC 212 AND PERMISSION OF INSTRUCTOR; SENIOR STATUS.

ACC506 Internal Auditing
3 credits  Offered By Announcement Only
Course explores the unique issues associated with the internal audit function. Additionally, the ethical code applicable to internal auditors is discussed.
PREREQUISITE: ACC 402 AND SENIOR STATUS.

ACC522 Advanced Issues in Auditing
3 credits  Spring Semester
Course covers advanced issues which arise in audit practice including audit reporting issues, fraud detection and reporting, attestation engagements, special reporting issues, compilation and review engagements, scope of services issues, and other new issues which have a significant impact on audit practice.
PREREQUISITE: ACC 402 AND SENIOR STATUS.

ACC523 International Accounting and Taxation
3 credits  First Summer Session
Course covers tax accounting and business considerations in the global business environment. U.S. issues involved in international transactions, working across national borders, the Foreign Corrupt Practices Act, money laundering, and uses of accounting information in managing an international business.
PREREQUISITE: ACC 212 AND SENIOR STATUS.

ACC524 Accounting for Governmental and Not-for-Profit Entities
3 credits  First Summer Session
The course introduces accounting within the environment of modern government and not-for-profit organizations. Emphasis is placed on financial accounting and reporting, current accounting issues, and managerial activities.
PREREQUISITE: ACC 312 AND SENIOR STATUS.
SCHOOL OF BUSINESS ADMINISTRATION

ACCOUNTING

ACC525 Trends in Present Day Accounting
3 credits  
Offered By Announcement Only
Recent developments in accounting thought and advanced accounting theory. The analysis of trends as disclosed by recent releases of the Securities and Exchange Commission, the American Institute of Certified Public Accountants, and the Financial Accounting Standards Board are discussed. Other topics include terminology, current trends in the measurement, presentation of financial data to meet the needs of third parties, and surveys accounting literature.
PREREQUISITE: ACC 312 AND SENIOR STATUS.

ACC550 Accounting Internship
0-3 credits  
Fall & Spring Semester & First & Second Summer Session
Student is individually assigned to operating business firm or other organization to gain insight into management practice in area of career interest. Periodic reports and conferences are required. Approval of chairman is required at time of registration.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

ACC599 Directed Readings
1-3 credits  
Fall & Spring Semester & First & Second Summer Session
Individually supervised research projects in selected fields. Approval of supervising professor as to topic and evaluation of project is required at time of registration.
PREREQUISITE: SENIOR STANDING AND PERMISSION OF DEPARTMENT CHAIR.

BUSINESS LAW

BSL212 Introduction to Business Law
3 credits  
Fall & Spring Semester & First Summer Session
Introduction to law and legal procedure. Topics include contracts (nature and requisites, formation, operations, interpretation, discharge, and remedies) sales (Uniform Commercial Code, transfer of title, warranties, rights, and remedies of buyer and seller), and business ethics.

BSL213 Business Organizations and Personal Property
3 credits  
Fall & Spring Semester & First Summer Session
PREREQUISITE: BSL 212 OR EQUIVALENT.

BSL301 Commercial Paper and Creditors' Rights
3 credits  
Fall & Spring Semester & First Summer Session
Brief history of the law merchant. Topics include Article 3 of the Uniform Commercial Code: formal requisites, negotiation, holders in due course, defenses, liabilities, discharge; Article 4 of the Uniform Commercial Code: Bank deposits; Article 9 of the Uniform Commercial Code: secured transactions, bankruptcy, suretyship, and guaranty.
PREREQUISITE: BSL 212 OR EQUIVALENT.

BSL305 Legal and Social Aspects of Business Regulation
3 credits  
Offered By Announcement Only
An introduction to the legal and ethical issues arising out of business and the regulatory environment. Topics include business ethics and subjects as environmental law antitrust, securities, administrative process, consumer protection, and employment regulation.
SCHOOL OF BUSINESS ADMINISTRATION

BUSINESS LAW

BSL313 Coastal Law
3 credits
Fall Semester
Basic doctrines and public policy related to the use and regulation of the United States coastal zone and seabed.
PREREQUISITE: BSL 212 OR EQUIVALENT.

BSL314 Ocean Law
3 credits
Spring Semester
The principles of international ocean law regarding ocean management. Topics include ocean delimitation and issues of environmental ocean regulation within international legal framework.
PREREQUISITE: BSL 212 OR EQUIVALENT.

BSL333 Legal Aspects of Real Estate Transactions
3 credits
Fall & Spring Semester & First Summer Session
Legal principles controlling the acquisition, ownership, financing, and development of real property. Topics include nature and acquisition of rights in real property, theory of estates, co-ownership, fixtures, easements, legal descriptions, evidence of title, title insurance, deeds, mortgages, closing the sales and mortgage transactions, condominiums and cooperatives, brokers, and land use.
PREREQUISITE: BSL 212 OR EQUIVALENT.

BSL412 International Business Law
3 credits
Fall & Spring Semester & First Summer Session
International law and organizations, international sales, credits and commercial transactions, U.S. trade law, and the regulation of the international market place are discussed.
PREREQUISITE: BSL 212 OR EQUIVALENT.

BSL424 Intellectual Property Law
3 credits
Spring Semester
This course is designed to acquaint the business student with the general framework of laws that regulate innovation, marketing, competition, and business development in the U.S. Special emphasis will be placed on discussion of ethical issues in information property, unfair competition, and management of intellectual property across various industries.
PREREQUISITE: BSL 212 OR EQUIVALENT.

BSL460 Healthcare Law and Ethics
3 credits
Fall & Spring Semester
This course is designed to offer the business student an appreciation of the legal foundations and ethical considerations in healthcare administration in the United States.
PREREQUISITE: BSL 212 OR EQUIVALENT.

BSL485 Managing the Legal Factor
3 credits
Fall & Spring Semester
This course offers the business manager a frank and analytical view of law and legal practice as they affect business decision-making. It addresses both the issues of cost containment and relationships between counsel and the company with the objective of achieving a more effective management of the legal function in business.
PREREQUISITE: BSL 212 OR EQUIVALENT AND SENIOR STANDING.
BSL499 Special Topics

1-3 credits  Offered By Announcement Only
Independent investigation of special subjects. Approval of supervising professor as to topic and evaluation of project required at time of registration.
PREREQUISITE: PERMISSION OF THE DEPARTMENT CHAIRMAN.

BSL550 Business Law Internship

2-3 credits  Offered By Announcement Only
Student is individually assigned to operating business firm or other organization to gain insight into management practice in area of career interest. Periodic reports and conferences are required. Approval of chairman required at time of registration.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

BSL575 Advanced Business Law

3 credits  Spring Semester
Legal problems encountered by Certified Public Accountants, Finance, Management and Marketing Executives, including agency, commercial paper, bank deposits and collections, secured transactions, suretyship, bankruptcy, partnership, corporations, contracts, anti-trust, insurance, property, wills and estates, SEC law, and accountants' legal responsibility. Special attention is given to the commercial law segment of the Uniform Public Accountant Examination.
PREREQUISITE: BSL 212 OR EQUIVALENT AND SENIOR STANDING. NOT FOR LST MAJORS OR BSL MINORS.

COMPUTER INFORMATION SYSTEMS

CIS120 Introduction to Computer Information Systems

3 credits  Offered By Announcement Only
An introduction to computers and information processing, with emphasis on application software. The course material includes: spreadsheet design and analysis, as well as the use of spreadsheet tools in facilitating decision making; relational database design and the development of database management tools; basic Internet terminology and Web design; development of team-work, presentation, and communication skills through presentation software; and the use of advanced word processing features to create a more efficient and productive working environment, as well as software application integration.

CIS150 Business Analytics

3 credits  Fall & Spring Semester
The primary purpose of this course is to build skills in learning and using software technologies to support business-oriented problem solving and decisionmaking. Specifically, you will develop the ability to solve problems, to organize and analyze data using spreadsheet and database software, and to learn to distribute information to others through the effective use of collaborative technologies and the Web. Case problems will cover areas such as accounting, finance, marketing, statistics and operations management. Professors from several business school departments will discuss how their disciplines use spreadsheets to solve problems.

CIS316 Microcomputer Business Applications

3 credits  Offered By Announcement Only
A continuation of CIS 120, with emphasis on spreadsheet macros, advanced DOS, structured methodology, and command level programming. Students design and implement a relational system in Access. Course cannot be used as a technical elective in the Computer Information Systems major.
PREREQUISITE: CIS 120.
CIS320 Introduction to Programming
3 credits
Fall & Spring Semester
Course covers the fundamentals of programming logic and structured programming principles including problem solving, algorithm design, and program development using Visual Basic.

CIS322 Introduction to C++ Programming
3 credits
Offered By Announcement Only
An introduction to the syntax and semantics of the C++ programming language. Topics include editing, compiling and linking C++ source code, data types, operators, precedence rules, flow of control, repetitive calculations, input/output, functions, arrays, structures, and pointers.
PREREQUISITE: CIS 320 OR EQUIVALENT.

CIS323 Object-Oriented Programming in C++
3 credits
Offered By Announcement Only
This course introduces the fundamental concepts of the C++ programming language and the techniques of object-orientation. Topics include data abstraction, encapsulation, inheritance, polymorphism, overloading, data structures, namespaces, virtual functions, stream input/output, Standard Template Library, advanced pointers, and interactive code debugging.
PREREQUISITE: CIS 320 OR EQUIVALENT.

CIS324 Object-Oriented Programming in Java
3 credits
Spring Semester
This course introduces the fundamental concepts of JAVA programming language and the techniques of Object-Orientation. Topics include data abstraction, encapsulation, inheritance, polymorphism, Java class library, graphics/GUI, exception handling, multithreading, multimedia, files and streams, Internet applets, application development, integrated development environment, and interactive program debugging.
PREREQUISITE: CIS 320 OR EQUIVALENT.

CIS360 Analysis of Information Systems
3 credits
Fall & Spring Semester
Overview of the systems development life cycle (SDLC). Topics include concepts, tools, techniques of systems analysis, data modeling, process modeling, CASE tools, and the role of the system analyst in the organization. Students work in groups to analyze an application system for a business related problem.
PREREQUISITE: CIS 320, OR CSC 120 OR EEN 118 OR EQUIVALENT.

CIS361 Design of Information Systems
3 credits
Fall Semester
Continuation of CIS 360. Topics include concepts, tools, and techniques of systems design, prototyping, file/database design, and physical process modeling. Students work in groups to design an application system for a business related problem.
PREREQUISITE: CIS 360.

CIS390 Topics in Computer Information Systems
3 credits
Offered By Announcement Only
Topics in selected areas of specialization.

CIS391 Topics in Computer Information Systems
3 credits
Offered By Announcement Only
Topics in selected areas of specialization.
CIS392 Topics in Computer Information Systems  
3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS393 Topics in Computer Information Systems  
3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS394 Topics in Computer Information Systems  
3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS395 Topics in Computer Information Systems  
3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS396 Topics in Computer Information Systems  
3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS397 Topics in Computer Information Systems  
3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS398 Topics in Computer Information Systems  
3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS399 Topics in Computer Information Systems  
3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS410 Information Systems and Technology  
3 credits  
Fall & Spring Semester & First Summer Session  
Course develops an understanding of the role of information technology within an organizational perspective. The course focuses upon the basic building blocks of information technology architectures and examines the issues facing a Chief Technology Officer in developing systems solutions. Topics include enterprise systems, database, decision support, intelligent systems, the Internet and e-business, as well as the ethical policy issues that affect systems architectures and their use. 
PREREQUISITE: NO PREREQUISITE (ANY SCHOOL OR COLLEGE) BUT CLASS OF 2, SOPHOMORE OR BETTER.

CIS423 Database Management Systems  
3 credits  
Fall Semester  
Course covers the fundamental concepts of database management systems using the Oracle DBMS. Topics include database theory and terminology, logical modeling, normalization, SQL language, database design and implementation, database administration, data security, database transaction/concurrency, and data backup. 
PREREQUISITE: CIS 360
CIS430 Business Telecommunications
3 credits  Spring Semester
This course introduces the subject of voice and computer networks and their use in business applications. Topics include the local and long distance telephone networks, client-server networks, network hardware and software, distributed computing, key issues in network management, and the fundamentals of data communication.
PREREQUISITE: JUNIOR OR SENIOR STANDING.

CIS465 Applied Software Project Development
3 credits  Spring Semester
Advanced concepts and techniques in application project development. Topics include project management, project development, testing, implementation, documentation, and maintenance. Students work on a group project to fully understand the skills required in the development of complete production quality applications.
PREREQUISITE: CIS 324, 361, 423 AND 430.

CIS490 Topics in Computer Information Systems
3 credits  Offered By Announcement Only
Topics in selected areas of specialization.

CIS491 Topics in Computer Information Systems
3 credits  Offered By Announcement Only
Topics in selected areas of specialization.

CIS492 Topics in Computer Information Systems
3 credits  Offered By Announcement Only
Topics in selected areas of specialization.

CIS493 Topics in Computer Information Systems
3 credits  Offered By Announcement Only
Topics in selected areas of specialization.

CIS494 Topics in Computer Information Systems
3 credits  Offered By Announcement Only
Topics in selected areas of specialization.

CIS495 Topics in Computer Information Systems
3 credits  Offered By Announcement Only
Topics in selected areas of specialization.

CIS496 Topics in Computer Information Systems
3 credits  Offered By Announcement Only
Topics in selected areas of specialization.

CIS497 Topics in Computer Information Systems
3 credits  Offered By Announcement Only
Topics in selected areas of specialization.

CIS498 Topics in Computer Information Systems
3 credits  Offered By Announcement Only
Topics in selected areas of specialization.
CIS499 Directed Study in Computer Information Systems  
1-3 credits  
Offered By Announcement Only  
Individually supervised investigation or research project in selected topics. Offered by special arrangement only. Approval of supervising professor as to topic and evaluation of project required at time of registration.  
PREREQUISITE: APPROVAL OF SUPERVISING PROFESSOR AND DEPARTMENT CHAIRMAN.

CIS550 Computer Information Systems Internship  
1-3 credits  
Fall & Spring Semester & First & Second Summer Session  
Student is individually assigned to operating business firm or other organization to gain insight in information technology practice in the area of career interest. Periodic reports and conferences are required.  
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN. FOR CREDIT ONLY.

CIS590 Topics in Computer Information Systems  
1-3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS591 Topics in Computer Information Systems  
1-3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS592 Topics in Computer Information Systems  
1-3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS593 Topics in Computer Information Systems  
1-3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS594 Topics in Computer Information Systems  
1-3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS595 Topics in Computer Information Systems  
1-3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS596 Topics in Computer Information Systems  
1-3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS597 Topics in Computer Information Systems  
1-3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS598 Topics in Computer Information Systems  
1-3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS599 Topics in Computer Information Systems  
1-3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.
ECO201 Essentials of Economic Theory  
3 credits  Offered By Announcement Only  
A study of the economic system providing a broad based survey of basic economic principles, concepts, and tools of conventional economics. Topics include how markets function, how firms maximize profits, and the analysis of macroeconomic factors. Limited to students in Saturday BBA program.

ECO211 Economic Principles and Problems  
3 credits  Fall & Spring Semester & First & Second Summer Session  
Fundamental course devoted to development and application of basic analytical tools and principles required for an understanding of major economic problems and policy alternatives available for their solution. Particular emphasis on microeconomic analysis. Topics include the study of markets under varying conditions of competition, including market deficiencies such as pollution, prices, and resource allocation distribution of income, including poverty problems, the economics of the firm and the government, and international economic relations.

ECO212 Economic Principles and Problems  
3 credits  Fall & Spring Semester & First & Second Summer Session  
Continuation of ECO 211. Course emphasis is placed on macroeconomic analysis. Areas covered include national income and employment analysis, money and banking, economic growth, and comparison of different economic systems, including the problems of developing the less developed world.

ECO301 Macroeconomic Theory  
3 credits  Fall & Spring Semester & First Summer Session  
Intermediate level analysis of the measurement, determination, and control of aggregate economic activity.  
PREREQUISITE: ECO 211 AND 212 AND MTH 109 OR MAS 110; OR PERMISSION OF INSTRUCTOR.

ECO302 Microeconomic Theory  
3 credits  Fall & Spring Semester & First & Second Summer Session  
Intermediate level analysis of the role of price in resource allocation in markets of varying degrees of competition, as well as in the determination of wages, rent, interest, profits, and public policy.  
PREREQUISITE: ECO 211 AND 212 AND MTH 109 OR MAS 110.

ECO307 Public Finance and Fiscal Policy  
3 credits  Offered By Announcement Only  
The role of local, state, and federal government in attaining an efficient allocation of resources and an equitable distribution of income. Emphasis on criteria for the selection and evaluation of public expenditure and tax programs including the problems of coordinating federal, state, and local finance. Special attention is given to current policy issues.  
PREREQUISITE: ECO 211, 212, 302.
ECO311 Labor Economics (I)  
3 credits  Fall Semester  
Course surveys the structure and functioning of labor markets. Topics include determinants of labor supply and labor demand, economics of wage differentials, economic impact of labor unions, discrimination in labor markets, and the labor market effects of various government policies such as payroll and income taxes, educational subsidies, and minimum wage laws. The central goal of the course is to provide the student with a framework for analyzing diverse issues related to the labor sector of the economy.  
PREREQUISITE: ECO 211.

ECO345 Economics of Natural Resources and the Environment  
3 credits  Spring Semester  
This course brings together the approaches of natural resource and environmental economics to provide a comprehensive overview of the economics of national, international, and global natural resource problems. A unifying theme throughout is the concept of sustainable development, defined as maximizing the net benefits of economic development while maintaining the services and quality of natural resources over time. Economic reasoning is used to examine the causes and consequences of natural resource problems, as well as measures for dealing with them. Specific topics include cost-benefit analysis, non-market valuation, incentive policy instruments, intertemporal resource management, and international trade and the environment.

ECO350 The US in the World Economy  
3 credits  Offered By Announcement Only  
Course introduces International Studies students to International Economics. The gains from international trade, "competitiveness" and free trade areas are dealt with in the first part of the class. The final part of the course deals with international macroeconomics. Topics include national income accounting as well as the balance of payments and exchange rates.  
PREREQUISITE: ECO 211 and 212.

ECO351 Economics of Developing Countries  
3 credits  Offered By Announcement Only  
Factors underlying economic development, measures of and goals for development, principles applicable to problems of development, the role of markets and planning in development, social, cultural, and political factors affecting economic development, and comparative rates of progress in different countries.  
PREREQUISITE: ECO 211 AND 212.

ECO355 Urban and Regional Economics  
3 credits  Offered By Announcement Only  
Analysis of the location and organization of urban and regional economic activities. Topics include regional income analysis, economic stability, factor mobility, economic growth and development, land use patterns, and special urban and regional problems and policies.  
PREREQUISITE: ECO 211 AND 212.

ECO371 Economic Problems of Latin America  
3 credits  Spring Semester  
An analysis of the historical growth of major Latin American countries, with emphasis on the post World War II period. Topics include industrialization, foreign investment, international trade and regional integration, agrarian reform, inflation, and development strategies and planning within the context of Latin America.  
PREREQUISITE: ECO 211 AND 212.
ECO386 Health Economics
3 credits
Offered By Announcement Only
The course applies the tools of microeconomic analysis to the health care sector. By examining the actors and issues in this market, students are able to discuss policy issues from an economic perspective.
PREREQUISITE: ECO 211, 212, 302

ECO391 Managerial Economics
3 credits
Offered By Announcement Only
Course introduces modern techniques of economic analysis and decision science with particular application to the management of the firm in a global environment. Topics include estimation of demand (regression analysis, exponential smoothing, and moving averages), linear program solving of product mix, cost problems, game-theory in a competitive business environment, decision trees, risk and uncertainty management, and capital budgeting. Other managerial economics tools are applied to the theory of the firm.
PREREQUISITE: ECO 211/212.

ECO403 Contemporary Issues in Monetary Economics
3 credits
Fall Semester
Analysis of the role of money in economic affairs. Topics include the determinants of the money supply and interest rates, money and prices, money and stability, and growth. Emphasis is placed on current problems and policies.
PREREQUISITE: ECO 211 AND 212.

ECO420 Economic Growth
3 credits
Offered By Announcement Only
Course covers selected topics in economic growth. Topics include stylized facts associated with economic growth, the theoretical study of economic growth, and empirical tests of those theories. Course work is supplemented by case studies of individual countries, particularly developing countries.
PREREQUISITE: ECO 301.

ECO430 Applied Econometrics
3 credits
Fall & Spring Semester
This course introduces basic econometric techniques for analyzing economic data. The goal is to make students sophisticated consumers and skilled producers of empirical analysis, which will be attained by extensive work on a variety of real-world data like students' test scores, CEO wages, mortgage applications, cigarette demand, stock market capitalization, inflation, GDP and interest rates. Learning how to use econometric analysis software is an integral part of the course.
PREREQUISITE: ECO 302, MAS 110 OR MTH 109 OR EQUIVALENT, AND MAS 202 OR MTH 224 OR EQUIVALENT.

ECO441 International Trade Theory
3 credits
Fall Semester
Study of the principles of comparative advantage and the gains from international trade. Analysis of tariffs, quotas, and protectionism is included.
PREREQUISITE: ECO 301.

ECO442 International Monetary Economics
3 credits
Spring Semester
Analysis of models of the exchange rate, the balance of payments, and monetary policy in an open economy.
PREREQUISITE: ECO 211 AND 212.
ECO460 Industrial Organization
3 credits
Offered By Announcement Only
This course shows how microeconomic theory can be used to understand the diverse practices encountered in real-world markets between the extreme cases of perfect competition and monopoly. Topics to be covered include strategic pricing behavior, collusion, advertising and information, vertical integration, vertical restraints, regulation and a review of empirical literature.
PREREQUISITE: ECO 302.

ECO499 Special Topics
1-3 credits
Fall & Spring Semester & First & Second Summer Session
Topics in area of specialization. Approval of department required at time of registration.

ECO507 Taxation and Government Expenditure
3 credits
Offered By Announcement Only
The incentive and equity effects of taxation and public expenditures. Efficiency aspects of various tax and expenditure programs and the application of cost-benefit analysis to such areas as health, education, and welfare programs, both domestic and foreign, are discussed.
PREREQUISITE: ECO 302.

ECO510 Mathematical Economics
3 credits
Fall Semester
Introduction to mathematical techniques commonly employed in economic analysis. Topics include simultaneous linear equation systems, linear algebra, expansions of polynomials, logarithmic and exponential equations, differential calculus, and optimization theory. A substantial part of the course focuses on the comparative static analysis of both macroeconomic and microeconomic problems.
PREREQUISITE: A SEMESTER COURSE IN CALCULUS. ECO 301 AND 302.

ECO511 Labor Economics (II)
3 credits
Spring Semester
A theoretical and empirical analysis of how labor markets operate. A survey of the literature, problems, and methodology of modern labor economics. Human capital analysis, the wage structure, job search and job-matching models, time-allocation models, the economic impact of labor unions, labor market discrimination, the determinants of labor demand and supply, and the factors affecting government policy relating to the labor sector is also included.
PREREQUISITE: ECO 302.

ECO512 Mathematical Economics (II)
3 credits
Spring Semester
Economics 512 will be sequential to the introductory Mathematical Economics I (ECO 510). Topics include integral calculus, differential equations, difference equations, Kuhn-Tucker conditions, solutions to general equilibrium systems, optimization under uncertainty, and an introduction to dynamic optimization. Applications of mathematical techniques to economic analysis will be stressed.
PREREQUISITE: ECO 510 OR ITS EQUIVALENT.

ECO520 Econometrics
3 credits
Fall Semester
Statistical methods of estimating and testing mathematical model of economic relationships.
PREREQUISITE: ECO 301 AND 302, A COURSE IN STATISTICS AND PERMISSION OF INSTRUCTOR.
ECO521 Graduate Macroeconomic Theory
3 credits Fall Semester
The primary objective of this course is to introduce the student to the mathematical presentation of the major Classical, Neo-classical, Keynesian, and Neo-Keynesian macroeconomic models.
PREREQUISITE: INTERMEDIATE MACROECONOMIC THEORY AND PERMISSION OF INSTRUCTOR.

ECO532 History of Economic Thought
3 credits Offered By Announcement Only
Historical development of economic doctrines and theory. Topics and individuals discussed include mercantilism, physiocracy, Adam Smith, Thomas Malthus, David Ricardo, J. S. Mill, Karl Marx, marginal analysis, Alfred Marshall, and J. M. Keynes. Special emphasis is placed on the effect of historical insights upon the contemporary core of economic theory.
PREREQUISITE: ECO 301 AND 302.

ECO533 Advanced Microeconomic Theory
3 credits Fall Semester
An introduction to the mathematical approach to microeconomic theory. Topics include consumer/household behavior, the theory of the firm, resource allocation, welfare economics, and uncertainty theory.
PREREQUISITE: ECO 302, AND PERMISSION OF INSTRUCTOR.

ECO545 Natural Resources Economics II
3 credits Offered By Announcement Only
This course surveys the economics of natural resource use, and is targeted to upper-division undergraduate and graduate students in economics. Topics include the economics of pollution control, the application of cost/benefit analysis to the marine environment, the economics of non-renewable and renewable resource extraction, and international environmental problems.
PREREQUISITE: ECO 345 or MAF 502.

ECO586 Economics of Health
3 credits Offered By Announcement Only
A survey of the literature on the health care market. Economic theory is used to analyze public policy alternatives.
PREREQUISITE: ECO 302 OR 691, OR CONSENT OF INSTRUCTOR.

FINANCE
FIN250 Personal Finance
3 credits Offered By Announcement Only
This course addresses all of the major personal financial planning problems that individuals and households encounter. It presents a model of the major elements of effective money management. All of the latest financial planning tools and techniques are discussed. (Not for credit for finance majors or minors.)

FIN300 Finance for Non-Business Majors
3 credits Fall & Spring Semester
This course provides an overview of modern finance for non-business majors. Topics include: how financial markets work, understanding financial pages in newspapers and the Internet, how stock and bond prices are determined, how investment portfolios are structured, concepts of risk and return, how companies manage their cash and investments and international finance. Not for credit for business students.
PREREQUISITE: JUNIOR STANDING.
FIN302 Fundamentals of Finance  
3 credits  
Fall & Spring Semester & First Summer Session  
Introduction to the basic tools and concepts in finance. This is the core class in finance for our undergraduate program. Topics include the financial framework of business entity, taxes, the time value of money, capital market theory, financial risk measures, and capital budgeting. Note: to be eligible to major in finance, a student must earn a grade of B or higher in this class (a grade of B- does not qualify).  
PREREQUISITE: MAS 201 OR EQUIVALENT, ECO 211, ACC 211.

FIN303 Intermediate Financial Management  
3 credits  
Fall & Spring Semester & First Summer Session  
This course provides an overview of financial decision-making by corporations. Building on topics covered in the introductory finance classes, this course develops the foundations of optimal financial policy and applies these principles to corporate financial decision-making including capital structure, capital budgeting, dividend policy, leasing, securities issuance and the role of investment banks, and mergers and acquisitions. Note: a student must have obtained a B or higher grade in FIN302 to major in Finance. Earning an A in this class or any other class or classes does not eliminate that requirement.  
PREREQUISITE: FIN 302 & MAS 202

FIN320 Investment and Security Markets  
3 credits  
Fall & Spring Semester & First Summer Session  
This course introduces students both practical and theoretical aspects of investment with an emphasis on the financial markets. Main topics include (1) valuation of securities such as stocks, bonds and options; (2) modern portfolio theory that explains certain market phenomena; and (3) process and institutional characteristics of investments. Note that this course does not address the details of individual security valuation and selection, i.e., this course is not about stock picking or about how to get rich by investing in the markets. Instead, this course attempts to help you develop a lasting conceptual framework in which to view the investment process and to analyze future ideas and changes in investment environment. This class is essential to any students considering a finance concentration. Note: A student must have obtained a B or higher in FIN302 to major in Finance. Earning an A in this class or any other class or classes does not eliminate this requirement.  
PREREQUISITE: FIN 302, MAS 202

FIN330 International Finance  
3 credits  
Fall & Spring Semester & First Summer Session  
This course introduces you to the management of the finance function of a multinational corporation. Discussed during the semester are such aspects as floating or fixed exchange rates, how to hedge forex risk, how to forecast FX rates, using letters of credit to guarantee exports, transfer pricing, theory of tariffs and free trade, and the Euro. We also discuss international cash management, political risk, translation losses, tax treaties, Eurobonds, Eurocurrencies, the IMF, World Bank, currency swaps, among other topics.  
PREREQUISITE: FIN 302

FIN339 Introduction to Finance for Real Estate Development  
3 credits  
Offered By Announcement Only  
This course is designed to introduce architects, planners and traditional finance students to the financial analysis typically performed to forecast the expected profitability of proposed real estate projects.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.
FIN340 Real Estate Principles
3 credits
Fall & Spring Semester
Basic real estate principles--Procedures, practices, institutional facts, legal issues involved in the ownership, transfer, financing, and valuing of real property. Topics include the ownership forms, financing contracts, brokerage, management, investing laws and appraisals. Waived for state license holders.
PREREQUISITE: FIN 300 OR 302.

FIN344 Real Estate Investment Analysis
3 credits
Fall & Spring Semester
Techniques of economic and financial analysis and planning for real estate investment. An investigation of current financing methods for profit making and government financed real estate projects. Special emphasis on relationship of planning, financing, and development to avoid and solve urban problems.
PREREQUISITE: FIN 302, 340

FIN401 International Business Analysis
3 credits
Offered By Announcement Only
Inter-disciplinary course in the international aspects of accounting, finance, marketing, and management. Students work on an integrative case project analyzing the financial, managerial, and marketing issues in the acquisition of a foreign firm by an American firm as well as produce a marketing plan, pro-forma financial statements, and an organizational plan.
PREREQUISITE: FIN 330 OR MKT 360, SENIOR STANDING.

FIN404 Applications in Corporate Finance
3 credits
Offered By Announcement Only
An application of the concepts and tools of corporate finance. Primary emphasis analyzing real-world cases dealing with liquidity issues, capital budgeting, firm valuation, advanced corporate financing, hedging with options and futures, corporate financial strategy, and other current issues in corporate finance.
PREREQUISITE: FIN 302, 303.

FIN405 Financial Modeling.
3 credits
Fall & Spring Semester & First Summer Session
This course takes a variety of finance topics, which have been covered in the prerequisite courses, and implements them using practical spreadsheet models. Students will use the internet and financial databases to obtain input data for their models. Students will use Visual Basic for Applications (VBA) and design functions and macros to enhance their models. In addition to class time, this course will meet in the computer lab for hands-on instruction. Students are presumed to have a working knowledge of Windows and Excel, as well as a good understanding of the material taught in the prerequisite finance classes. In addition to this class students are required to take FIN 406 which will meet in the computer lab for hands-on instruction. Students must have a mobile computer with capability to run Windows based software.
PREREQUISITE: FIN 302, 303, 320, 406 (CO-REQUISITE)

FIN406 Financial Modeling Lab
0 credit
Fall & Spring Semester
This is the lab component for FIN 405. Students must have a mobile computer with capability to run Windows based software.
PREREQUISITE: FIN 302, 303, 320, 405 (CO-REQUISITE). PASS/FAIL ONLY.
FIN410 Financial Institutions and Markets  
3 credits  
Fall Semester  
PREREQUISITE: FIN 302, 320.

FIN411 Commercial Bank Management  
3 credits  
Fall & Spring Semester  
This course introduces you to the theory and practice of asset-liability management of large publicly traded commercial banks. We will also deal with fundamental principles of structuring loans into balance sheets. In this way you can see how the vastly complex bank balance sheet interacts. You see how securities management affects lending policy and how liability management affects the types of securities and loans a bank undertakes. At the end of this course you should be qualified to enter the credit department in the executive development program of a major money center bank.  
PREREQUISITE: FIN 302, 320.

FIN421 Investment Portfolio Management  
3 credits  
Fall & Spring Semester  
This course covers the techniques of institutional and individual portfolio management. Topics include: Portfolio theory, diversification, asset allocation strategies, equity indexing, equity style management: value versus growth, mutual funds, basics of hedge funds and fund of funds, ETF basics, introduction to private equity, equity and bond portfolio management strategies and an introduction to asset bubbles.  
PREREQUISITE: FIN 302, 320.

FIN422 Speculative Markets and Derivatives  
3 credits  
Fall & Spring Semester  
This course provides an introduction to the fastest growing areas in derivative securities. It builds on FIN302, FIN320, and FIN421 to provide insights to the nature of financial derivatives and applications of such instruments used in an investments and corporate setting. This course is divided into three parts: (1) options; (2) futures and forwards; and (3) other derivative instruments, which include options on futures, foreign currency derivatives, swaps, exotic options, financial engineering, and corporate real options. Emphasis will be placed on derivatives on equity instruments (stocks and stock indices) although short and long term interest bearing instruments (Treasury securities, Eurodollar, etc.) will also be discussed in detail.  
PREREQUISITE: FIN 302, 303, 320.

FIN425 Business and Security Valuation  
3 credits  
Fall Semester  
Applications of finance theory to the problem of valuing public and non-public companies. Multiplier models, discounted cash flow analysis, and the strengths and weaknesses of traditional security valuation methods are addressed in detail. Financial spreadsheet programs and data sources are an integral part of the course.  
PREREQUISITE: FIN 302, 320.
FIN427 Fixed Income Markets and Analysis
3 credits
Offered By Announcement Only
This course takes an in-depth view of the basic fixed income markets with particular emphasis on the financial analysis of the major debt types. Students are presumed to have a working knowledge of Excel 2007, as well as a good understanding of the material taught in the prerequisite finance courses.
PREREQUISITE: FIN 320

FIN431 International Financial Management
3 credits
Fall & Spring Semester
The financial management and maintenance of international enterprises. Short and long-term capital sources, investment decisions in today's changing foreign exchange conditions, management of accounting, transactions, and competitive exposure coverage are discussed. Taxation impacts and repatriation techniques as well as lectures and cases with emphasis on cases.
PREREQUISITE: FIN 302, 330.

FIN444 Real Estate Investment Analysis
3 credits
Fall Semester
This course will introduce you to the theoretical concepts and analytical techniques used to make a decision to purchase an ownership interest in a commercial real estate project. There is heavy reliance on Excel applications and the use of the Argus database that is a standard resource in the commercial real estate market. Each student will complete a written evaluation and investment analysis of an existing or proposed commercial real estate project in Miami-Dade, Broward or Monroe County.
PREREQUISITE: FIN 303 OR 320

FIN445 Real Estate Finance
3 credits
Offered By Announcement Only
This course will introduce you to the theoretical concepts and analytical techniques used to make a decision to finance the purchase or development of a commercial real estate project. There is heavy reliance on Excel applications and the use of the Argus database that is a standard resource in the commercial real estate market. Students are also encouraged to use their semester projects to apply for one of the numerous case competitions.

FIN476 Pure Risk Management
3 credits
Offered By Announcement Only
The nature and objectives of corporate and personal risk management. Emphasis is placed on the recognition, evaluation, and treatment of the pure risks to which businesses and individuals are exposed.
PREREQUISITE: FIN 302, 303, 320.

FIN499 Special Topics in Finance
3 credits
Offered By Announcement Only
Topics in selected areas of specialization.
PREREQUISITE: FIN 302, 303, 320; REQUIRES DEPARTMENTAL APPROVAL.
FIN590 Internship
1 credit
Offered By Announcement Only
Student is individually assigned to operating business firm or other organization to gain insight into management practice in area of career interest. Periodic reports and conferences are required. Approval of department is required at time of registration. Note: FIN 590 is an elective and is not for credit toward the major.
PREREQUISITE: FIN 303, 320 AND PERMISSION OF DEPARTMENT CHAIRMAN. REQUIRES DEPARTMENTAL APPROVAL. NOTE: DOES NOT COUNT AS CREDIT TOWARDS MAJOR.

FIN599 Directed Study
3 credits
Offered By Announcement Only
Individually supervised research projects in selected finance topics. Approval of the Chairperson and advisor is required prior to registration.
PREREQUISITE: FIN 302, 320. REQUIRES DEPARTMENTAL APPROVAL.

MANAGEMENT

MGT100 First Step (Freshman Integrity, Responsibility, and Success through teamwork)
3 credits
Fall Semester
This course is designed to provide entering freshman business majors an enriched curriculum that examines key issues in the global business environment and emphasizes the importance of ethical business practices. The course culminates with a team project that encourages students to address real world problems and encourages a lifelong commitment to civic engagement.

MGT251 Nature and Foundations of Entrepreneurship
3 credits
Fall Semester
This course seeks to understand some of the basic social, legal, cultural, and economic infrastructure that enables and sustains the creation of new enterprises. Although conventional perspectives on entrepreneurship often overlook political or religious activists whose "products" are not "sold" in traditional markets, a more expansive view considers actions that transform idea into enterprises that generate intellectual, social, cultural, religious, or economic value. Theory, data, and case study will be covered to help students to think both broadly and deeply about what it means - and what it takes - to be an entrepreneur, and what characterizes the entrepreneurial society.

MGT270 Introduction to Health Sector Administration
3 credits
Fall & Spring Semester
This course provides a basic understanding of the components of the health care sector and their interrelationships. The role of hospitals, ambulatory care (including physicians), long-term care, mental health care, hospice care, and pharmaceuticals will be examined. The role of government financed (Medicare and Medicaid) and private health insurance in affecting decision making by health care consumers and providers will be examined as well. A historical context will be used.

MGT302 Human Resource Management
3 credits
Fall & Spring Semester
Theory and practice of modern personnel management related to the other management functions in the conduct of the enterprise. Attention is focused on the needs of the line executive as well as those intending to pursue a staff career.
MGT303 Operations Management
3 credits
Fall & Spring Semester
Problems and methods of planning the efficient utilization of capital, labor, equipment, and materials. Sales forecasting, production planning, production control, scheduling, routing, dispatching, expediting, materials planning, inventory control, capital budgets, and costing are discussed. The application of quantitative techniques in problem solving and decision making are included as well as case problems.
PREREQUISITE: MAS 201.

MGT304 Organizational Behavior
3 credits
Fall & Spring Semester & First & Second Summer Session
First professional course in management. Concepts of organization, motivation, leadership, dynamics of the group, personality, organizational development strategies, and other behavioral aspects involved in the effective management of an organization are discussed.

MGT307 Advanced Organizational Behavior
3 credits
Fall & Spring Semester
Continuation of MGT 304--primarily for, but not limited to, BMO majors. Through case analysis and other relevant exercises, theories are applied to specific situations in organizational settings.
PREREQUISITE: MGT 304.

MGT308 Training and Development
3 credits
Fall & Spring Semester
An examination of key issues in designing training and development programs. Topics include organizational needs analysis, training design and implementation, evaluation techniques, and understanding of how such programs interact with other human resource functions.
PREREQUISITE: MGT 302 AND HRM/BMO MAJOR.

MGT349 International Business
3 credits
Fall & Spring Semester
An introduction to the theory and institutions relevant to the conduct of business internationally. Includes an overview of current business patterns and their historical antecedents; social systems in countries as they affect the conduct of business from one country to another; basic assessment of international activities that fall within functional disciplines; and analysis of alternative ways in which international business may evolve in the future.

MGT353 Entrepreneurship
3 credits
Fall & Spring Semester
The opportunities for the organization and operation of the small business. Organization, location, financial planning, records, unit costs, merchandising, credits, and personnel are discussed. Opportunities in various other fields are also considered.
PREREQUISITE: JUNIOR STANDING AND ENT/BMO MAJOR.

MGT359 Comparative Management
3 credits
Offered By Announcement Only
Analysis of professional management as affected by the cultural environments in which it operates in major industrial nations. The problems of trans-cultural managers in multinational structures is examined.
MGT360 Effective Leadership
3 credits
Fall & Spring Semester
This course covers the key theories, models, and frameworks about the effective leadership of people in organizations. A multimedia approach is taken, using readings, films, lecture, discussion, and case analyses. The emphasis is on building a sound grasp of good practice, and on developing the ability to apply such knowledge to everyday leadership situations.
PREREQUISITE: MGT 304

MGT401 Strategic Management
3 credits
Fall & Spring Semester
An integrative approach to strategy formulation and implementation, from a domestic and international perspective, is the focus of this core capstone course. All the primary areas of business are emphasized using cases and readings. Course is required of all graduating seniors in Business.
PREREQUISITE: GRADUATING SEMESTER BUSINESS SENIORS ONLY.

MGT422 Leading Teams
3 credits
Offered By Announcement Only
The objectives of this course are to develop interpersonal communication and conflict management skills necessary to work in teams and exercise leadership in teams. Topics include team development, decision making, and managing conflict.
PREREQUISITE: MGT 304.

MGT428 Wage and Salary Administration
3 credits
Fall & Spring Semester
Theory techniques and procedures of Job Evaluation and Wage Incentive as a basis for managerial procedures. The development and evaluation of alternative means of determining the relative worth of jobs, and the conversion of data to actual base rates is discussed. The design, evaluation, and administration of wage incentive plans through the application of work measurement time values to jobs involving bonus, piece work, or time-saved provisions is also included.
PREREQUISITE: MGT 302 AND HRM/BMO MAJOR.

MGT454 High Potential Ventures
3 credits
Fall Semester
The basics of starting a business for aspiring entrepreneurs. Topics include sources of capital, market choices, division of the equity pie, choice of distribution channels, choosing an accountant and a legal advisor, preparation of a business plan, and product design. Teams of students develop business plans to start new enterprises.
PREREQUISITE: MGT 353

MGT455 Entrepreneurial Consulting
3 credits
Spring Semester
Students review techniques, methods, and organizational forms of management consultants. Emphasis on small business problems, particularly start-ups, is provided through preparation of consulting reports on written cases, guest speakers, and actual business firms or start-ups.
PREREQUISITE: MGT 353, 554
MGT459 International and Multinational Management
3 credits  Fall & Spring Semester
Foreign environment for overseas operations with a survey involving economics, political, and social constraints. The effects of overseas investments on foreign economies with emphasis on the emerging managerial structures is included.

MGT480 Organizational Development and Change
3 credits  Fall & Spring Semester
Course is intended for students who are interested in learning about how to manage, plan, and implement large-scale change efforts within organizations. Part of the course is devoted to organizational analysis techniques and the remainder addresses behavioral intervention strategies (including survey feedback, technostructural interventions, and team building).
PREREQUISITE: MGT 302, 304

MGT498 Selected Topics
1- 6 credits  Fall & Spring Semester & First Summer Session
Topics in selected areas of specialization.

MGT538 Labor-Management Relations
3 credits  Offered By Announcement Only
Legal and institutional framework of labor relations both in the United States and globally. Topics include labor law, collective bargaining, contract administration, arbitration, and NLRB regulation. Additional emphasis is placed on dispute resolution, grievance machinery, and other methods of alternative dispute resolution.
PREREQUISITE: UNDERGRADUATE: MGT 302 + JUNIOR STANDING. GRADUATE: MGT 602.

MGT540 Behavioral Aspects of Productivity
3 credits  Offered By Announcement Only
Productivity management impacts organizational strategy, efficiency, quality, and survival. Course examines these varied impacts and discusses the managerial issues related to productivity measurement, organizational values, incentives, gainsharing, motivation, organizational change, gainsharing, motivation, organizational change, and organizational politics. Course is taught from behavioral and systems theory viewpoints, focusing on how behavioral change impacts system productivity. Course is multidisciplinary and supplemented with examples of corporate applications.

MGT545 Self-Assessment and Career Development
3 credits  Offered By Announcement Only
Course provides a framework for individuals facing the complex process of making career decisions. Emphasis is placed on self-assessment to help students better understand their career motivations. Additional topics include job searches, interviewing, analyzing, choosing job offers, managing the first year on the job, developmental relationships such as mentoring, the early career experience, and managing a career over time.
PREREQUISITE: MGT 304 + SENIOR STANDING.

MGT550 MGT Internship
1 credit  Fall & Spring Semester & First & Second Summer Session
Student is individually assigned to operating business firm or other organization to gain insight into management practice in area of career interest. Periodic reports and conferences are required. Cannot be used toward major requirements.
PREREQUISITE: MAJOR/SPECIALIZATION IN MGT DEPARTMENT, MINIMUM 3.0 GPA, AND DEPARTMENT CHAIR APPROVAL PRIOR TO REGISTRATION.
MGT598 Selected Topics
3 credits                    Fall & Spring Semester & First & Second Summer Session
Topics in selected areas of specialization.

MGT599 Directed Study
1- 6 credits                 Fall & Spring Semester & First & Second Summer Session
Individually supervised research projects in selected fields. Approval of supervising
professor as to topic and evaluation of project required at time of registration.
Only open to undergraduate students.
PREREQUISITE: SENIOR STANDING + MAJOR IN MGT DEPARTMENT.

MANAGEMENT SCIENCE
MAS105 Quantitative Methods in Business I
3 credits                    Offered By Announcement Only
This course provides a background in algebra, linear equations, matrices, quadratic,
exponential, and logarithmic functions appropriate for the successful understanding,
interpretation, and use of these concepts and their application to business and
economics within the Business School curriculum and in career endeavors. The course
also provides an introduction to the mathematics of finance, interest rates, discounting
of future returns, and linear programming.
PREREQUISITE: HIGH SCHOOL ALGEBRA.

MAS110 Quantitative Applications in Business
3 credits                    Fall & Spring Semester & First & Second Summer Session
Review of algebra emphasizing its application to supply and demand functions, market
equilibrium, compound interest, and amortization. Differential calculus emphasizing
its applications to marginal cost and revenue functions, maximization, taxation
in competitive markets, and elasticity of demand are discussed. The application
of integral calculus to total cost and profit of demand, to total cost and profit
functions, consumer's and producer's surplus, computation of present value, and
constrained optimization using partial differentiation are also included.
PREREQUISITE: MTH107 OR EQUIVALENT

MAS201 Introduction to Business Statistics
3 credits                    Fall & Spring Semester & First & Second Summer Session
Data analysis and presentation, cross tabulations, descriptive statistical measures,
probability, sampling, statistical inference, hypothesis testing for one and two
populations, covariance and correlation analysis. Utilization of microcomputer
statistical packages is also included.
PREREQUISITE: MAS 110.

MAS202 Intermediate Business Statistics
3 credits                    Fall & Spring Semester & First & Second Summer Session
Chi-squared goodness of fit tests, and contingency tables, analysis of variance,
simple linear regression, multiple regression, time series, forecasting, statistical
methods of quality. Utilization of microcomputer statistical packages, case analyses,
and presentations are also included.
PREREQUISITE: MAS 201.
MAS251 Statistical and Operational Models for Business  
6 credits  
Offered By Announcement Only  
Six topics from statistics and management science are integrated into a cohesive flow including exploratory data analysis, probability and decision theory, inferential analysis, forecasting, mathematical programming, and simulation. This course fulfills requirements of both MAS 201 (Introduction to Business Statistics) and MAS 302 (Operations Management Modeling).  
PREREQUISITE: MAS 110.

MAS302 Operations Management Modeling  
3 credits  
Offered By Announcement Only  
Formulation and solution of quantitative models for business decisions. Applications to operations, and production management are examined. Topics include decision theory, linear programming, project scheduling, simulation, and inventory management. Selected cases and computer assisted solutions are included.  
PREREQUISITE: MAS 110 AND 201.

MAS311 Applied Probability and Statistics  
3 credits  
Fall & Spring Semester  
Descriptive statistics, basic probability, distribution theory, point and interval estimation, testing hypotheses, simple linear regression, correlation, and quality control charts are discussed. Examples are drawn from various disciplines. Lecture, 3 hours.  
PREREQUISITE: PREREQUISITE OR COREQUISITE: MTH 112 OR 132.

MAS312 Statistical Methods and Quality Control  
3 credits  
Fall & Spring Semester  
Analysis of variance, multiple regression, and statistical quality control methodology, including reliability are discussed.  
PREREQUISITE: MAS/IEN 311 OR EQUIVALENT.

MAS441 Deterministic Models in Operations Research  
3 credits  
Fall Semester  
Introduction to deterministic mathematical models with applications to business problems. Topics include the methodology of operations research, linear, integer, and dynamic programming, project management, networks, multi-objective optimization and heuristics. Software packages are used for programming applications. Lecture, 3 hours.  

MAS442 Stochastic Models in Operations Research  
3 credits  
Spring Semester  
Introduction to probabilistic models and their applications. Topics include inventory theory, stochastic processes (queuing systems, Markov chains), and computer simulation. Lecture, 3 hours.  
PREREQUISITE: MAS 311 OR EQUIVALENT.

MAS452 Systems Analysis Methodology and Applications  
3 credits  
Spring Semester  
Solution of problems from the general systems point of view. Case studies are used with emphasis on report writing. The preparation of a project proposal and the conduct of the proposed study are also required.  
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.
MAS499 Directed Study
1-3 credits Fall & Spring Semester & First Summer Session
Independent investigation of special problems. Offered by special arrangement only. Approval of supervising professor as to topic and evaluation of project required at time of registration.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

MAS540 Quantitative Foundations for Management Science
3 credits Offered By Announcement Only
A review of basic quantitative concepts for management. Topics include: linear and nonlinear functions, systems of equations, linear programs, financial applications, set theory, probability, differentiation, and integration.

MAS547 Computer Simulation Systems
3 credits Fall Semester
Introduction to discrete-event computer simulation and hands-on development of simulation models. Topics include introduction to queuing theory, input and output analysis, random number generation, and variance reduction techniques. Students practice their modeling skills using commercial state-of-the-art simulation software. Assigned readings of real-life simulation projects complement the material learned in the classroom. Lecture, 3 hours.
PREREQUISITE: MAS/IEN 311 OR EQUIVALENT.

MAS548 System Dynamics Modeling and Analysis
3 credits Offered By Announcement Only
The course involves building and analyzing simulation models of social, managerial, economic, physical, and biological systems. It focuses on modeling dynamically complex systems, strategic issues and human decision-making; and investigates case studies of successful applications in growth strategy, management of technology, operations, project management, and others.
PREREQUISITE: MTH 110-112 (OR 131-132) AND MAS 311 OR EQUIVALENTS.

MAS550 Management Science Internship
1-3 credits Fall & Spring Semester & First Summer Session
Student is individually assigned to operating business firm or other organization to gain insight into management practice in area of career interest. Periodic reports and conferences are required. Permission of department chair is required prior to registration.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN. FOR CREDIT ONLY.

MAS595 Topics in Management Science
1-3 credits Fall & Spring Semester & First Summer Session
Topics in selected areas of specialization.

MAS596 Topics in Management Science
1-3 credits Fall & Spring Semester & First Summer Session
Topics in selected areas of specialization.

MARKETING
MKT201 Foundations of Marketing
3 credits Fall Semester
Understanding and satisfying consumer need through product planning, pricing, promotion, and distribution. Students identify and analyze marketing problems. Discovery and application of marketing skills are developed by marketing planning assignments, computer simulations, and case analysis.
PREREQUISITE: FOR SCHOOL OF BUSINESS FRESHMAN ONLY
MKT301 Marketing Foundations

3 credits  
Fall & Spring Semester & First & Second Summer Session
Understanding and satisfying consumer needs through product planning, pricing, promotion, and distribution. Students identify and analyze marketing problems. Discovery and application of marketing skills are developed by marketing planning assignments, computer simulation, and case analysis.
PREREQUISITE: JUNIOR STATUS.

MKT302 Marketing Research and Market Analysis

3 credits  
Fall & Spring Semester
Examination of the process, role, and function of marketing research, including research problem formation, research methods and procedures, data acquisition, sampling theory and practice, data analysis, presentation of results, ethical issues, and application for each of the above.
PREREQUISITE: MAS 201, MAS 202 AND MKT 201 OR MKT 301

MKT310 Consumer Behavior and Marketing Strategy

3 credits  
Fall & Spring Semester
The study of behavioral science research findings, principles, and theories, especially those from psychology and sociology, as they relate to the determinants of consumer buying behavior. The case approach is utilized to stimulate the development of creative marketing strategy.
PREREQUISITE: MKT 201 OR MKT 301

MKT320 Retailing

3 credits  
Fall & Spring Semester
Retail store management, location, buying, merchandise control, policies, services, pricing, expenses, profits, training and supervision of retail sales force, and administrative problems are discussed.
PREREQUISITE: MKT 201 OR MKT 301

MKT340 Professional Selling

3 credits  
Fall & Spring Semester
Nature of the professional selling function and its relationship and contribution to the marketing strategy of organizations. Special emphasis is placed on broadly applicable principles and effective personal communication skills during the sales process.
PREREQUISITE: MKT 201 OR MKT 301 OR PERMISSION OF INSTRUCTOR.

MKT360 International Marketing

3 credits  
Fall & Spring Semester
The major current factors affecting international marketing. Course is designed to acquaint students with the growing importance of world marketing in the U.S. and the strategic issues involved.
PREREQUISITE: MKT 201 OR MKT 301.

MKT386 Advertising Management

3 credits  
Fall & Spring Semester
In this course, students learn about the components involved in researching, planning, creating, and executing advertising strategies. The class gives students a better understanding of how advertising can be effectively used in a marketing strategy. Students also learn how advertising both influences and is influenced by cultural trends. Implications of this to both marketers and society as a whole are discussed.
PREREQUISITE: MKT 201 OR MKT 301.
MKT401 International Business Analysis
3 credits  Spring Semester
Inter-disciplinary course in the international aspects of accounting, finance, marketing, and management. Students work on an integrative case project analyzing the financial, managerial, and marketing issues in the acquisition of a foreign firm by an American firm and produce a marketing plan, pro-forma financial statements, and an organizational plan.
PREREQUISITE: FIN 330, MKT 360 AND SENIOR STANDING.

MKT403 Marketing Management
3 credits  Fall Semester
Marketing Management is a capstone course that examines new concepts and insights regarding marketing management. Through case analysis the course covers important aspects of marketing management. The students also participate in a simulation in which they manage multi-segment markets.
PREREQUISITE: MKT 201 OR MKT 301, FIN 302 AND COMPLETION OF/OR CURRENTLY ENROLLED IN MKT 302.

MKT450 Marketing Internship
1 credit  Fall Semester
The student is individually assigned to an operating business firm or other organization to gain insight into management practice in the area of their career interest. The internship cannot be used to satisfy course requirements for marketing majors or minors and periodic reports and conferences are required. Obtain permission of department chairman before enrolling.
PREREQUISITE: DECLARED MARKETING OR IFM MAJOR, A MINIMUM OF 3.0 GPA AND APPROVAL OF SUPERVISING PROFESSOR AND DEPARTMENT CHAIRMAN.

MKT451 Marketing Internship
1 credit  Fall Semester
The student is individually assigned to an operating business firm or other organization to gain insight into management practices in the area of their career interest. The internship cannot be used to satisfy course requirements for marketing majors and minors periodic reports and conferences are required. Obtain permission of department chair before enrolling.
PREREQUISITE: DECLARED MARKETING OR IFM MAJOR, A MINIMUM OF 3.0 GPA AND APPROVAL OF SUPERVISING PROFESSOR AND DEPARTMENT CHAIRMAN.

MKT469 International Marketing Management
3 credits  Fall & Spring Semester
International Marketing Management is a capstone course that examines new concepts and insights regarding international marketing management. Through case analysis the course covers important aspects of international marketing management. The students also participate in a simulation in which they manage multi-country markets.
PREREQUISITE: MKT 360 AND FIN 302 AND COMPLETION OF/OR CURRENTLY ENROLLED IN MKT 302.

MKT497 Topics in Marketing
1- 3 credits  Fall Semester
Topics in selected areas of marketing.

MKT498 Undergraduate Topics in Marketing
1- 3 credits  Fall Semester
Topics in selected areas of Marketing.
MKT499 Undergraduate Directed Study

1-3 credits

Fall Semester

Individually supervised readings or research projects. Restricted to students with superior academic records. Approval of supervising professor as to topic and evaluation of project required at time of registration.

PREREQUISITE: SENIOR STANDING AND APPROVAL OF SUPERVISING PROFESSOR AND DEPARTMENT CHAIRMAN.
CAD114 Principles of Advertising
3 credits Fall & Spring Semester & First Summer Session
An introduction to the principles and practice of advertising in a free-market economy. Students will be introduced to several areas of advertising including account planning, creative strategy, media planning, research methods, consumer behavior, and integrated marketing. Emphasis on cultural, social, ethical, and regulatory aspects of advertising.

CAD201 Advertising Strategy Development
3 credits Fall & Spring Semester
Introduction to the development of effective advertising strategies. Topics include consumer behavior, attitude development, persuasion tactics, targeting, market segmentation, market analysis, and brand management.
PREREQUISITE: CAD 114

CAD202 Introduction to Graphic Design
3 credits Fall Semester
An introduction to the art of visual communication as it relates to advertising design. Topics include typography, design principles, art and illustration, conceptualization and layout stages, color and color reproduction, printing processes, and production.
PREREQUISITE: CAD 114 OR COMMUNICATION MAJOR

CAD231 Advertising Copywriting and Concept
3 credits Fall & Spring Semester & First Summer Session
Introduction to writing advertising copy and conceptualizing campaign ideas for print, broadcast, out-of-home, interactive, and specialty media.
PREREQUISITE: CAD 114

CAD233 Writing for Advertising Account Planning
3 credits Spring Semester
Introduction to writing for the business side of advertising. This course will prepare students to write and create comprehensive reports and prepare presentations related to the business of account planning, including research, creative strategies, and media planning.
PREREQUISITE: CAD 114. COREQUISITE: CAD 201

CAD312 Research Methods for Advertising
3 credits Fall & Spring Semester & First Summer Session
Application of research techniques used in the field of advertising. Students will learn to collect, analyze, and report secondary and primary research findings as they apply to advertising decision-making.
PREREQUISITE: CAD 201

CAD340 Interactive, Digital, and Social Media in Advertising
3 credits Offered By Announcement Only
The course will explore the use of new and evolving media in the development of effective advertising campaigns, as well as the impact of these media on the advertising industry.
PREREQUISITE: CAD 114
CAD350 International and Cross-cultural Advertising  
3 credits  Offered By Announcement Only  
This course will explore advertising in a global marketplace. Emphasis will be placed on understanding cultural differences as they relate to international advertising planning, as well as techniques for gathering secondary and primary data on international markets and consumers.  
PREREQUISITE: CAD 114

CAD380 Advertising Internship  
3 credits  Fall & Spring Semester & First & Second Summer Session  
Students select an internship in the field of advertising for on-the-job training. The student will work a minimum of 45 hours for each credit.  
PREREQUISITE: JUNIOR STANDING; MINIMUM GPA OF 2.75; PERMISSION OF PROGRAM DIRECTOR

CAD384 Advertising Creative Strategy and Execution  
3 credits  Fall & Spring Semester & First & Second Summer Session  
Development of effective creative campaigns. Students will design advertisements for print, broadcast, interactive, and specialty media that meet specific campaign objectives.  
PREREQUISITE: CAD 201, 202, AND CAD 231

CAD388 Media Planning  
3 credits  Fall & Spring Semester & First Summer Session  
An introduction to the principles and concepts of advertising media planning, including media selection, media plan development, media buying, and budgeting.  
PREREQUISITE: CAD 312 (PRE- OR CO-REQUISITE)

CAD389 Media Buying and Advertising Sales  
3 credits  Fall & Spring Semester  
Students will learn the art of buying media in all categories, as well as how to sell advertising space in these media.  
PREREQUISITE: CAD 201. COREQUISITE: CAD 388

CAD390 Art Direction  
3 credits  Fall Semester  
Students will learn art direction skills for both print and electronic media, including newspapers, magazines, outdoor, television, radio, and the internet.  
PREREQUISITE: CAD 202,CAD 231, CAD 384

CAD401 Advertising and Societies  
3 credits  Offered By Announcement Only  
This course will introduce students to the economic, ethical, societal, and regulatory effects of advertising, both domestically and globally.  
PREREQUISITE: CAD 114; JUNIOR STANDING

CAD412 Public Opinion and Mass Communication  
3 credits  Fall Semester  
An exploration of the formation and role of public opinion in mass communication. Emphasis is placed on its role in advertising and promotion. Topics include the evolution and history of public opinion in American culture, the application of public opinion on attitude formation and persuasion, measurement of public opinion, and propaganda.
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</thead>
<tbody>
<tr>
<td>CAD434</td>
<td>Advertising Campaigns</td>
<td>3</td>
<td>CAD 312, CAD 388</td>
<td>Fall &amp; Spring Semester &amp; First Summer Session</td>
</tr>
<tr>
<td></td>
<td>Capstone course in which students develop a full-scale advertising campaign. Students are responsible for conducting secondary and primary research, strategic planning, development of creative executions, planning and executing media selections, and campaign evaluation.</td>
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<tr>
<td>CAD438</td>
<td>Practicum in Advertising</td>
<td>3</td>
<td>Senior Standing, CAD 434, Permission of Instructor and Director</td>
<td>Fall Semester</td>
</tr>
<tr>
<td></td>
<td>Function as an advertising account executive in a professional environment.</td>
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<tr>
<td>CAD483</td>
<td>Integrated Marketing Communication</td>
<td>3</td>
<td></td>
<td>Offered By Announcement Only</td>
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<tr>
<td></td>
<td>An exploration of how brands are built and promoted through the integration of advertising, public relations, sales promotion, personal selling, direct marketing, and e-commerce.</td>
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<tr>
<td>CAD490</td>
<td>Special Topics in Advertising</td>
<td>3</td>
<td>Senior Standing, Admission to Major, Permission of Instructor</td>
<td>Offered By Announcement Only</td>
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<tr>
<td></td>
<td>This course subject matter varies according to announced special topic. See class schedule for details.</td>
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<tr>
<td>CAD495</td>
<td>Advertising Management</td>
<td>3</td>
<td>CAD 201, 233, 312, 388, CAD 434</td>
<td>Fall &amp; Spring Semester</td>
</tr>
<tr>
<td></td>
<td>Students will learn to approach advertising problems at both micro and macro levels from the perspective of a manager in charge of solving such problems. Emphasis will be on problem identification, development of alternative strategies to solve problems, tactics for executing strategies, and evaluation of proposed solutions.</td>
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<tr>
<td>CAD496</td>
<td>Portfolio Development</td>
<td>3</td>
<td>CAD 201, 202, 231, 384, 434</td>
<td>Fall &amp; Spring Semester</td>
</tr>
<tr>
<td></td>
<td>This course will assist students in putting together a professional-quality advertising portfolio of their work.</td>
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<tr>
<td>CAD498</td>
<td>AAF National Student Advertising Campaign Competition</td>
<td>3</td>
<td>CAD 312, 388</td>
<td>Spring Semester</td>
</tr>
<tr>
<td></td>
<td>Students compete in the American Advertising Federations's National Student Advertising Campaign Competition.</td>
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<tr>
<td>CAD499</td>
<td>Projects and Directed Research in Advertising</td>
<td>3</td>
<td>Permission of Instructor, Junior Standing, Admission to Major</td>
<td>Fall &amp; Spring Semester &amp; First &amp; Second Summer Session</td>
</tr>
<tr>
<td></td>
<td>Individual study.</td>
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</tbody>
</table>

**COMMUNICATION**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>COM101</td>
<td>Mass Media Communication in Society</td>
<td>3</td>
<td></td>
<td>Fall &amp; Spring Semester &amp; First Summer Session</td>
</tr>
<tr>
<td></td>
<td>A survey of the history, development, structure, and effects of mass communication media.</td>
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</tbody>
</table>
COM 110 Communication Theory  
3 credits  Fall & Spring Semester & First & Second Summer Session  
Survey of basic communication theories and models. Study of processes, functions, levels, and general principles of human communication.

COM 250 Freedom of Expression and Communication Ethics  
3 credits  Fall & Spring Semester & Second Summer Session  
An examination of the concept of freedom of expression, its philosophical roots, its application of contemporary issues in communication, and of the basics of moral philosophy (ethics) and moral reasoning.  
PREREQUISITE: COM 101.

COM 395 Honors Seminar in Communication  
3 credits  Fall & Spring Semester  
An examination of central issues and topics in the field of Communication.  
PREREQUISITE: SENIOR STANDING AND ENROLLMENT IN THE SCHOOL’S HONORS PROGRAM.

COM 401 Honors Communication Colloquium  
3 credits  Fall & Spring Semester  
An examination of central issues and topics in the field of communication.  
PREREQUISITE: JUNIOR OR SENIOR STANDING AND ENROLLMENT IN THE SCHOOL’S HONORS PROGRAM.

COM 406 SPECIAL TOPICS IN COMMUNICATION  
3 credits  Offered By Announcement Only  
Course subject matter varies according to announced special topic. See class schedule for details.  
PREREQUISITE: PERMISSION OF INSTRUCTOR OR PROGRAM DIRECTOR

COM 499 Senior Honors Project/Thesis  
3 credits  Fall & Spring Semester & First & Second Summer Session  
PREREQUISITE: SENIOR STANDING AND ENROLLMENT IN THE SCHOOL’S HONORS PROGRAM.

COM 598 Special Topics in Communication  
3 credits  Offered By Announcement Only  
This course subject matter varies according to announced special topic. See class schedule for details.  
PREREQUISITE: 12 CREDITS IN COMMUNICATION AT 300 LEVEL OR ABOVE OR EQUIVALENT.

COMMUNICATION STUDIES  

COS 112 Interpersonal Communication  
3 credits  Offered By Announcement Only  
Overview of current theories of interpersonal communication. Consideration is given to impression formation, relationship between self-concept and others, function of language in social interaction, development, and maintenance of relationships.

COS 210 Writing for Communication and Social Interaction  
3 credits  Spring Semester  
Principles of writing, reviewing literature, and synthesizing research for communication studies and the social sciences.  
PREREQUISITE: COM 110.

COS 211 Public Speaking  
3 credits  Fall & Spring Semester & First & Second Summer Session  
Introduction to effective audience communication including theory and extensive practice in oral presentations.
COS304 Intercollegiate Debate Theory and Practice
1 credit Fall & Spring Semester
A course designed to teach students how to compete successfully in intercollegiate debate, and to reinforce training through practice and competition.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

COS316 Small Group Communication
3 credits Offered By Announcement Only
Techniques of discussion applied to goal-oriented, small group situations. Consideration is given to research methods, leadership, and conflict resolution. Theory is applied to active classroom participation.

COS318 Nonverbal Communication
3 credits Offered By Announcement Only
Theory and application of selected areas of research in nonverbal communication is addressed. Discussion of environment, space, body movement, posture, eye contact, facial expression, vocal cues, and physical appearance is included.

COS324 Health Communication
3 credits Fall & Spring Semester
This course is designed to provide a broad introduction to human communication in a health-care context. Emphasis will be on issues of social support, patient-health professional/caregiver interaction, organizational culture, planning health promotion campaigns, and cultural conceptions of health and illness.

COS333 Business Communication
3 credits Fall & Spring Semester & First & Second Summer Session
Study and practice in the major forms of spoken and written communication in the context of businesses and other professional organizational settings.
PREREQUISITE: JUNIOR STANDING.

COS336 Political Communication
3 credits Offered By Announcement Only
Uses and functions of communication in American and international politics. Communication during political events and campaigns is also addressed.

COS343 Introduction to Intercultural Communication
3 credits Offered By Announcement Only
Introduction to communication among people from diverse cultures. Application of communication theory to intercultural sensitivity and cultural diversity is emphasized.

COS351 Qualitative Research Methods
3 credits Spring Semester
Course is designed to introduce students to a sample of qualitative research methods used in communication.
PREREQUISITE: COM110, COS 112, 210

COS353 Quantitative Communication Research Methods and Analyses
3 credits Fall Semester
Introduction to communication research methods. Application of quantitative measurement techniques and statistical analyses will be discussed as well as the use of microcomputer statistical programs.
PREREQUISITE: COM 110
COS377 Argumentation and Critical Thinking
3 credits
Offered By Announcement Only
Argumentation theory and practice are discussed. Rhetorical and philosophical foundations of argumentation and their application in various settings including academic debate are also covered.

COS391 Undergraduate Special Topics in Communication and Social Interaction
3 credits
Offered By Announcement Only
This course subject matter varies according to announced special topic. See class schedule for details.

COS405 Practicum in Communication and Social Interaction Research
1-3 credits
Fall & Spring Semester & First & Second Summer Session
Structured participation in programmatic research and applied practice in community.
PREREQUISITE: JUNIOR STANDING AND PERMISSION OF INSTRUCTOR.

COS418 Organizational Communication
3 credits
Offered By Announcement Only
Introduction to organizational communication theory. Consideration of structure, function, and effects of communication in organizations are analyzed. Emphasis is placed on principles needed for decision making and effective management of organizational communication processes.

COS445 Intercultural Communications: International Perspective
3 credits
Offered By Announcement Only
Effects of cultural attitudes, beliefs, and attributions on meaning assignment.
Effects of language on the structure of thought. Ethics and process of the diffusion of cultural innovations are analyzed.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR

COS446 Intercultural Communication: Domestic Perspectives
3 credits
Offered By Announcement Only
Effects of cultural attitudes, beliefs, and attributions on meaning assignment
Diffusion of cultural innovations, prejudice, discrimination, and equality are discussed. Emphasis is placed on intercultural interactions within the United States.
PREREQUISITE: JUNIOR LEVEL STANDING OR PERMISSION OF INSTRUCTOR

COS455 Advanced Research Methods in Communication
3 credits
Spring Semester
Advanced Research Methods in Communication is designed to provide students with continued instruction in research methods beyond the introductory quantitative course. Special attention is paid to (a) measurement problems, (b) complex research designs, and (c) statistical analysis of data.
PREREQUISITE: COM 110, COS353

COS472 Persuasion
3 credits
Offered By Announcement Only
A review of theory, research, and practice of the intentional use of symbols to influence others' attitudes, beliefs, and actions.
COS479 Capstone for Communication Studies
3 credits
Spring Semester
Capstone course designed for communication studies majors. Provides students with the opportunity to apply knowledge of communication theory and research skills through development of capstone project.
PREREQUISITE: COM 110, COS 351, COS 353, SENIOR STANDING, OR PERMISSION OF INSTRUCTOR.

COS498 Communication and Social Interaction Internship
1-3 credits
Fall & Spring Semester & First & Second Summer Session
Prescribed study and supervised work with practitioners in organizations.
PREREQUISITE: JUNIOR STANDING AND PERMISSION OF SUPERVISOR.

COS499 Projects and Directed Research
1-3 credits
Fall & Spring Semester & First & Second Summer Session
Individual study. No more than three credits may be counted toward a Communication major or minor.
PREREQUISITE: 12 CREDITS IN COMMUNICATION STUDIES AND PERMISSION OF SUPERVISING INSTRUCTOR.

COS560 The Executive Communicator
3 credits
Offered By Announcement Only
Audience analysis, speech writing, delivery in professional presentations and theory and history of great speeches are covered. Detailed critiques of student speaking styles and performances are also included.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

COS591 Graduate Special Topics in Communication and Social Interaction
3 credits
Offered By Announcement Only
This course subject matter varies according to announced special topic. See class schedule for details.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

COS599 Advanced Projects and Directed Research
1-6 credits
Fall & Spring Semester & First & Second Summer Session
Individual study. Course may be repeated to a maximum of six credits.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ELECTRONIC MEDIA
CEM102 Introduction to Electronic Media
3 credits
Fall & Spring Semester
Technology, history, economics, regulation and social roles of radio, television, cable, satellite, online, and other electronic-media.

CEM201 Writing for the Electronic Media
3 credits
Fall & Spring Semester
Principles of writing for radio and television. Communicating in the aural and visual modes in persuasive, informational, and dramatic contexts is emphasized.
PREREQUISITE: CEM 102, ENG 105

CEM206 Special Topics in Electronic Media I
3 credits
Fall Semester
This course subject matter varies according to announced special topics. See class schedule for details.
PREREQUISITE: PERMISSION OF INSTRUCTOR OR PROGRAM DIRECTOR
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Semester</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>CEM233</td>
<td>Television Performance</td>
<td>3</td>
<td>Fall &amp; Spring</td>
<td>Introduction to communication concepts and skills involved in typical on-camera duties such as interviewing, commercials, characterizations, and ad-libbing. PREREQUISITE: CEM 102, OR NON-MAJORS, PERMISSION OF INSTRUCTOR</td>
</tr>
<tr>
<td>CEM235</td>
<td>Radio Production Performance</td>
<td>3</td>
<td>Fall</td>
<td>Introduction to equipment and procedures of radio. Production of radio programs and formats, editing, announcing, sequencing program elements, and designing program formulas are discussed. PREREQUISITE: CEM 102</td>
</tr>
<tr>
<td>CEM245</td>
<td>Introduction to Electronic Media Production</td>
<td>3</td>
<td>Fall &amp; Spring</td>
<td>Introduction to the theory, process, and procedure of electronic media production. Lecture and laboratory are included. PREREQUISITE: CEM 102 OR SOPHOMORE STANDING</td>
</tr>
<tr>
<td>CEM301</td>
<td>Measurement and Analysis of Electronic Media Audiences</td>
<td>3</td>
<td>Fall &amp; Spring Semester &amp; Second Summer Session</td>
<td>Survey of methods used and results obtained in qualitative and quantitative measurements, and analysis of broadcast, cable, and online audiences. The course addresses the use of audience data by policy makers, managers, programmers, producers, and advertisers. Practice in conducting small-scale audience measurement is included. PREREQUISITE: CEM 102, 201, OR CNJ111</td>
</tr>
<tr>
<td>CEM302</td>
<td>Electronic Media Law</td>
<td>3</td>
<td>Fall &amp; Spring</td>
<td>Course provides analysis of laws and other forces that influence broadcasting, cable, and online media operations. Examines the application of the First Amendment to media operations with a focus on press law. PREREQUISITE: COM 101, CEM 102 AND SOPHOMORE STANDING. STUDENTS MAY NOT TAKE BOTH CEM 302 AND CNJ 303 FOR CREDIT.</td>
</tr>
<tr>
<td>CEM306</td>
<td>Special Topics in Electronic Media II</td>
<td>3</td>
<td>Fall</td>
<td>This course subject matter varies according to announced special topics. See class schedule for details. PREREQUISITE: PERMISSION OF INSTRUCTOR AND PROGRAM DIRECTOR</td>
</tr>
<tr>
<td>CEM313</td>
<td>Electronic Media Sales</td>
<td>3</td>
<td>Fall</td>
<td>Operation of sales departments at radio, television, and cable outlets. Course includes the preparation and delivery of sales presentations, and use of audience research reports. Online and print media sales are examined in context. PREREQUISITE: CEM 102</td>
</tr>
<tr>
<td>CEM314</td>
<td>Broadcast and Cable Programming</td>
<td>3</td>
<td>Fall</td>
<td>Course covers categories and sources for selecting program materials used in radio, television, and cable television program services. Strategies employed in devising program services are also covered.</td>
</tr>
</tbody>
</table>
CEM315 Acting for the Camera
3 credits  Fall Semester
Dramatic performance techniques for television and motion pictures. Lecture and laboratory are included.
PREREQUISITE: CEM 233, FOR NON-MAJORS, PERMISSION OF INSTRUCTOR.

CEM317 Broadcast Journalism
3 credits  Fall Semester
Preparation of materials for presentation through the broadcast/cable media with emphasis on newswriting for oral presentation, by studio anchors and field reporters. Course examines issues facing the profession of broadcast journalism, radio and TV reporting techniques, and news program formats.
PREREQUISITE: CNJ 111, 216

CEM345 Intermediate Electronic Media Production
3 credits  Fall Semester
Planning and execution of complex field, studio, and multi media production in a variety of lengths and formats. High level skills in television control room situations and non-linear editing will be used to produce audio, video, and online content.
PREREQUISITE: CEM 245

CEM402 Media Management
3 credits  Spring Semester
Managing decision-making in broadcast, cable systems, and other electronic media.
PREREQUISITE: CEM 403 AND 435 (OR PERMISSION OF INSTRUCTOR) PLUS CEM 313 OR 314

CEM403 Media Economics
3 credits  Spring Semester
Economic concepts, practices, and issues as they relate to the mass media industry.
PREREQUISITE: JUNIOR STANDING

CEM406 Special Topics in Electronic Media III
3 credits  Fall Semester
This course subject matter varies according to announced special topics. See class schedule for details.
PREREQUISITE: PERMISSION OF INSTRUCTOR OR PROGRAM DIRECTOR

CEM408 International Electronic Media Systems
3 credits  Fall Semester
Seminar on world broadcasting systems and trans-national communication-services. Discussion of contemporary issues involving electronic media systems worldwide.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR

CEM417 Advanced Broadcast Journalism
3 credits  Fall Semester
Gathering and preparation of news stories for presentation in news programs. Includes field reporting, editing; preparation of visual and aural elements, writing, producing, and performing for on-air presentation. Lecture and laboratory are included.
PREREQUISITE: CEM 245, 317
CEM427 Television Newscast  
3 credits  
Fall Semester  
Studio anchoring, newscast producing and field reporting for news and public affairs programming.  
PREREQUISITE: CEM 417

CEM435 Telecommunication Systems  
3 credits  
Fall Semester  
The convergence and interrelationship of broadcast, cable, satellite, telephone, computer, and other telecommunication technologies and industries, with emphasis on policy, effects, regulation, economics, management, and information content.  
PREREQUISITE: JUNIOR STANDING.

CEM445 Advanced Electronic Media Production  
3 credits  
Fall Semester  
The integration of the producer's role and the structure of program design as they relate to day-to-day production operations. Lecture and laboratory are included.  
PREREQUISITE: CEM 345

CEM446 Electronic Media Production Design  
3 credits  
Fall Semester  
A communication-based synthesis of the production process.  
PREREQUISITE: CEM 345

CEM491 Internship in Broadcasting and Allied Fields  
1-3 credits  
Fall Semester  
Course provides a prescribed study and supervised work with practitioners in broadcasting, broadcast journalism, and allied fields.  
PREREQUISITE: SENIOR OR JUNIOR STANDING, MAJOR IN COMMUNICATION, CUMULATIVE GPA OF 2.5 IN ALL COURSES OFFERED FOR COMMUNICATION MAJOR AND PERMISSION OF INSTRUCTOR. BROADCAST JOURNALISM MAJORS MUST HAVE COMPLETED CEM 317.

CEM499 Projects and Directed Research  
1-3 credits  
Fall Semester  
Individual study. No more than three credits may be counted toward a Communication major or minor.  
PREREQUISITE: 12 CREDITS IN COMMUNICATION AND PERMISSION OF SUPERVISING INSTRUCTOR

CEM531 Audio Production Techniques  
3 credits  
Fall Semester  
Writing, preparation, and production of material for auditory presentation, live or recorded, broadcast on open or closed circuit radio systems. Familiarization with magnetic and optical recording procedures, both double and single system sound, in television and motion picture production is discussed. Lecture and laboratory are included.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CEM534 Practicum in Communication  
3 credits  
Fall Semester  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CEM535 Telecommunication Systems  
3 credits  
Fall Semester
CEM592 Special Topics in Electronic Media
3 credits Fall Semester
This course subject matter varies according to announced special topic. See class schedule for details.
PREREQUISITE: PERMISSION OF INSTRUCTOR AND PROGRAM DIRECTOR.

CEM599 Advanced Projects and Directed Research
1-6 credits Fall Semester
Individual study. Course may be repeated for a maximum of six credits.
PREREQUISITE: PERMISSION OF SUPERVISING INSTRUCTOR.

JOURNALISM

CNJ111 Introduction to News Media Writing
3 credits Fall & Spring Semester & First & Second Summer Session
Principles and practices in journalism for the mass communication media.
PREREQUISITE: 12 COLLEGE CREDITS, PASSING SCORE ON ENGLISH-LANGUAGE SKILLS TEST, TYPING PROFICIENCY OF 25 W.P.M.

CNJ216 News Reporting and Writing
3 credits Fall & Spring Semester & First Summer Session
Practice in gathering material for and preparation of stories.
PREREQUISITE: CNJ 111. (STUDENTS TRANSFERRING CREDIT FOR CNJ 111 MUST PASS THE ENGLISH-LANGUAGE SKILLS AND TYPING TESTS REQUIRED FOR CNJ 111.)

CNJ300 Journalism Practicum
1-3 credits Fall & Spring Semester
Prescribed study and supervised work with faculty and staff of the student newspaper or related news media. Students receive first-hand knowledge and experience in a working news environment.
PREREQUISITE: PERMISSION OF THE PRACTICUM SUPERVISOR

CNJ303 Mass Media Law
3 credits Fall & Spring Semester & First Summer Session
Study of defamation, right of privacy, journalists' privilege, advertising law, constitutional guarantees, and Communications Act guarantees.
PREREQUISITE: ONE OF THE FOLLOWING: CAD 232, CNJ 216, OR CPR 232. STUDENTS MAY NOT TAKE BOTH CNJ 303 AND CBR 203 FOR CREDIT.

CNJ319 History of Journalism
3 credits Fall Semester
The development and impact of American journalism.

CNJ381 Newspaper Editing and Layout
3 credits Fall Semester
Introduction to electronic editing and development of skills in copy-editing, headline-writing, picture-editing, and newspaper-page layout.
PREREQUISITE: CNJ 216.

CNJ382 Publication Planning and Editing
3 credits Offered By Announcement Only
Procedures for designing and publishing company publications, trade, general and special interest magazines, newsletters and web sites.
PREREQUISITE: CNJ 216.
CNJ401 Editorial Interpretation of Contemporary Events
3 credits Offered By Announcement Only
Critical examination of fundamental issues in public life. Preparation of editorials and interpretive articles for mass media are included.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF THE INSTRUCTOR.

CNJ441 Business Reporting
3 credits Offered By Announcement Only
A study of the major types and styles of business news and feature stories, with emphasis on understanding business culture, values and terminology.
PREREQUISITE: CNJ 216 OR PERMISSION OF THE INSTRUCTOR.

CNJ442 Online Journalism
3 credits Fall Semester
A study of the issues, skills and practices related to the online presentation of news and information in a convergent media environment.
PREREQUISITE: CNJ 216 OR PERMISSION OF THE INSTRUCTOR.

CNJ444 Public Affairs Reporting
3 credits Fall Semester
Emphasis on reporting, writing and analysis about institutions, issues and actions of local government and their effects on society.
PREREQUISITE: CNJ 216, 303 AND JUNIOR STANDING.

CNJ445 In-depth Journalism and Media Convergence
3 credits Fall & Spring Semester
A capstone experience that requires students to use effectively their full range of journalistic knowledge and newsgathering and writing skills to prepare news and information for different media platforms.
PREREQUISITE: CNJ 216 AND CNJ 303 OR CEM 302, SENIOR STANDING, MAJOR IN PRINT, BROADCAST OR VISUAL JOURNALISM, OR PERMISSION OF THE INSTRUCTOR.

CNJ446 Travel Writing
3 credits Offered By Announcement Only
A study of the major types and styles of travel news and features stories for newspapers, magazines, newsletters and web sites.
PREREQUISITE: CNJ 216 OR PERMISSION OF THE INSTRUCTOR.

CNJ461 Seminar in News Ethics and Problems
3 credits Spring Semester
Ethical, practical, and professional problems of news communicators in society.
PREREQUISITE: SENIOR STANDING IN JOURNALISM, BROADCAST JOURNALISM, PHOTOGRAPHY OR PUBLIC RELATIONS OR PERMISSION OF INSTRUCTOR.

CNJ495 Internship in Newspaper/Magazine/Web site
1-3 credits Fall & Spring Semester & First & Second Summer Session
Prescribed study and supervised work with professionals in newspapers, magazines, web sites or related news media.
PREREQUISITE: CNJ 303, ADVANCED JUNIOR STANDING, MAJOR IN COMMUNICATION, CUMULATIVE GPA OF 2.5 IN ALL COURSES OFFERED IN COMMUNICATION, AND/OR PERMISSION OF THE INSTRUCTOR.
CNJ499 Projects and Directed Research
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Individual study. No more than three credits may be counted toward a Communication major or minor.
PREREQUISITE: 12 CREDITS IN COMMUNICATION AND PERMISSION OF SUPERVISING INSTRUCTOR.

CNJ510 Comparative Media Systems
3 credits  Offered By Announcement Only
This course deals with issues in international news gathering and distribution, giving special attention to Latin America and the Caribbean. The class takes a comparative approach, looking at media systems in the United States and other nations.
PREREQUISITE: SENIOR OR GRADUATE STANDING. SIX CREDITS IN COMMUNICATION OR LATIN AMERICAN STUDIES.

CNJ511 Global Media
3 credits  Offered By Announcement Only
An analysis of issues and practices surrounding globalization, regionalization and global/local (global) as they relate to media industries, journalism and communication.
PREREQUISITE: SENIOR OR GRADUATE STANDING

CNJ513 Computer-Assisted Reporting
3 credits  Offered By Announcement Only
Use of computer applications for newsgathering with emphasis on the World Wide Web, commercial online services, and database tools.
PREREQUISITE: CNJ 216 OR PERMISSION OF INSTRUCTOR

CNJ515 Reporting and the Internet
3 credits  Offered By Announcement Only
Overview of uses of online computer services for newsgathering and distribution with emphasis on the Internet.
PREREQUISITE: CNJ 216 OR PERMISSION OF INSTRUCTOR

CNJ523 Sports Reporting
3 credits  Offered By Announcement Only
An analysis of sports journalism that will develop students' skills in sports reporting and sports writing. Discussions range across the entire field of sports reporting, including broadcasting, but the greatest emphasis is concentrated on sports reporting and writing for newspapers and magazines.
PREREQUISITE: CNJ 216 OR PERMISSION OF INSTRUCTOR

CNJ544 Feature Writing
3 credits  Offered By Announcement Only
Analyzing and writing feature articles for magazines, newspapers, and other news media.
PREREQUISITE: CNJ 216.

CNJ595 Special Topics in Journalism
3 credits  Offered By Announcement Only
This course subject matter varies according to announced special topic. See class schedule for details.
PREREQUISITE: PERMISSION OF INSTRUCTOR OR PROGRAM DIRECTOR.
CNJ599 Advanced Projects and Directed Research  
1-6 credits  
Fall & Spring Semester & First & Second Summer Session  
Individual study. Course may be repeated to a maximum of six credits.  
PREREQUISITE: PERMISSION OF SUPERVISING INSTRUCTOR.

MOTION PICTURES

CMP103 Survey of Motion Pictures  
3 credits  
Fall & Spring Semester & First Summer Session  
Examination of the aesthetic, social, and economic aspects of the motion picture industry. Concentration on the present state of the medium with particular emphasis on future trends.

CMP126 Introduction to Scriptwriting  
3 credits  
Fall & Spring Semester & First & Second Summer Session  
Creation and formatting of narrative material for motion pictures and television.  
PREREQUISITE: CMP 103 OR CEM 102 AND ENG 106.

CMP204 History of Motion Pictures (1895-1940)  
3 credits  
Fall Semester & First Summer Session  
Examination of the origin and history of the motion picture. Narrative and non-fiction genres, in the American and world cinemas, from their inception through 1940 are discussed.

CMP205 History of Motion Pictures (1941-Present)  
3 credits  
Spring Semester  
Examination of the history of the motion picture from 1941 to the present. Narrative and non-fiction genres in the American and world cinemas are included.

CMP222 Motion Picture Techniques  
3 credits  
Fall & Spring Semester  
Lectures and laboratory work to acquaint the student with the basic techniques of motion pictures. 16 mm equipment is used to develop an understanding of the motion picture as a creative tool of communication and expression.  
PREREQUISITE: CMP 103 OR SOPHOMORE STANDING.

CMP226 Writing for Series Television  
3 credits  
Fall & Spring Semester  
An introduction to the structures and techniques of writing situation-comedy and dramatic series television.  
PREREQUISITE: CMP 126.

CMP306 What is Cinema?  
3 credits  
Fall & Spring Semester  
Combining close analysis of classic and contemporary films with selected readings, this course addresses fundamental questions about movies and their importance to us. Lectures, discussions, and screenings will focus on such topics as the theory and practice of narrative structures in film, the role of reality in the film medium, the powers and limitations of the camera, and film's evolving forms and impact on society and culture.  
PREREQUISITE: JUNIOR STANDING. CMP 204 OR 205. OPEN TO NON-MAJORS.

CMP325 Motion Picture Workshop III  
6 credits  
Spring Semester  
An intensive five week introduction to 16mm production and postproduction. (Available for incoming MFA students and others by permission of the Program Director).
<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
<th>Semester</th>
<th>Description</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMP326</td>
<td>Intermediate Scriptwriting</td>
<td>3</td>
<td>Fall &amp; Spring Semester</td>
<td>Study of and practice in writing feature length, narrative motion pictures. Development of story line in treatment form, attention to cinematic structure, the development of character, and its presentation on screen is discussed.</td>
<td>CMP 126 AND PERMISSION OF INSTRUCTOR.</td>
</tr>
<tr>
<td>CMP352</td>
<td>Intermediate Motion Picture Workshop</td>
<td>3</td>
<td>Fall &amp; Spring Semester</td>
<td>The theory and practice of scriptwriting, pre-production, production and post in the creation of a short narrative work.</td>
<td>CMP 103, 222, 126, AND 204 OR 205.</td>
</tr>
<tr>
<td>CMP356</td>
<td>Cinematography</td>
<td>3</td>
<td>Offered By Announcement Only</td>
<td>An overview of the cinematographer's process from script to film. Working with camera, lighting, grip equipment on exercises, and projects is discussed.</td>
<td>CMP 103, 222, 204 OR 205.</td>
</tr>
<tr>
<td>CMP357</td>
<td>Editing</td>
<td>3</td>
<td>Offered By Announcement Only</td>
<td>The course will develop analytic skills and an understanding of the aesthetics, theories, techniques of picture, and sound editing.</td>
<td>CMP 103, 222, 204 OR 205.</td>
</tr>
<tr>
<td>CMP394</td>
<td>Special Topics in Motion Pictures</td>
<td>3</td>
<td>Fall &amp; Spring Semester</td>
<td>This course subject matter varies according to announced special topic. See class schedule for details.</td>
<td>CMP 204, CMP 205.</td>
</tr>
<tr>
<td>CMP403</td>
<td>Film Directors</td>
<td>3</td>
<td>Spring Semester</td>
<td>The study of the ways in which film communicates. Intensive analysis and criticism of cinematic techniques exemplified through particular films is covered.</td>
<td>CMP 204 AND 205. NON-MAJORS BY PERMISSION OF INSTRUCTOR.</td>
</tr>
<tr>
<td>CMP404</td>
<td>Aspects of Contemporary Cinema</td>
<td>3</td>
<td>Fall &amp; Spring Semester</td>
<td>The study of the ways in which film communicates. Intensive analysis and criticism of cinematic techniques exemplified through particular films.</td>
<td>CMP 204 AND 205. NON-MAJORS BY PERMISSION OF INSTRUCTOR.</td>
</tr>
<tr>
<td>CMP406</td>
<td>American Movie Genres</td>
<td>3</td>
<td>Fall &amp; Spring Semester</td>
<td>Study of selected move genres from a variety of critical perspectives. Issues pertaining to selfhood, sexual differences, and other concerns of present-day criticism will be examined.</td>
<td>CMP 204 AND 205. NON-MAJORS BY PERMISSION OF INSTRUCTOR.</td>
</tr>
<tr>
<td>CMP407</td>
<td>Film, Society, and Culture.</td>
<td>3</td>
<td>Fall &amp; Spring Semester</td>
<td>Selected films from Wurope, Asia, Africa and Latin America will be studied in relation to their diverse social, political and cultural contexts.</td>
<td>CMP 204 AND 205. NON-MAJORS BY PERMISSION OF INSTRUCTOR.</td>
</tr>
</tbody>
</table>
CMP408 WOMEN, MEDIA, AND POPULAR CULTURE
3 credits
Offered By Announcement Only
Examination of film, media, and gender representation from the perspective of feminist theory and cultural studies. Students explore the many ways that women have been portrayed and how they have portrayed themselves within popular culture.
PREREQUISITE: CMP 204 OR CMP 205. NON-MAJORS AND GRADUATE STUDENTS BY PERMISSION OF INSTRUCTOR.

CMP426 Advanced Scriptwriting
3 credits
Spring Semester
A continuation of CMP 326. Study of and practice in writing feature length, narrative motion picture scripts. Attention is given to cinematic structure; the development of character; and its presentation on screen. Emphasis is placed on bringing the script to a completed draft.
PREREQUISITE: CMP 326 AND PERMISSION OF INSTRUCTOR.

CMP427 Aspects of Screenwriting
3 credits
Offered By Announcement Only
Advanced examination of one or more aspects of screenwriting from rewrites to adaptations, to character development, and related issues.
PREREQUISITE: CMP 426.

CMP429 Nonfiction Film
3 credits
Fall & Spring Semester
An examination of American and world nonfiction films.
PREREQUISITE: CMP 204 AND 205. NON-MAJORS BY PERMISSION OF INSTRUCTORS ONLY

CMP451 Advance Motion Picture Practicum I
3 credits
Fall Semester
The theory and practice of motion picture production from script to screen. Lecture and laboratory. Students will develop and produce on the following: a narrative, a documentary or an experimental work of their choice.
PREREQUISITE: CMP 352

CMP452 Advanced Motion Picture Practicum II
3 credits
Spring Semester
The theory and practice of motion picture production from script to screen. Lecture and laboratory. Students will develop and produce one of the following: a narrative, a documentary or an experimental work of their choice. Students may also complete work begun in CMP 451 with the approval of the instructor.

CMP453 Sound Design and Post Production Editing
3 credits
Spring Semester
Sound design is a seminar/workshop that provides a practical and theoretical introduction to sound and its function in the narrative moving image process. The course explores the process from production recording through to the final mix.
PREREQUISITE: CMP 352 AND PERMISSION OF INSTRUCTOR.

CMP455 Producing the Motion Picture.
3 credits
Spring Semester
A practical examination of the development, production and marketing responsibilities involved in producing theatrical feature films. Focus is placed on the process including the ethical considerations that confront the producer.
PREREQUISITE: JUNIOR STANDING AND 12 MOTION PICTURE CREDITS.
CMP458 Documentary Production
3 credits \hspace{1cm} Fall & Spring Semester & First Summer Session
Students produce two short digital documentaries and explore various approaches
to the documentary film.
PREREQUISITE: CMP 222 OR PERMISSION OF INSTRUCTOR.

CMP459 Fundamentals of Motion Graphics, Compositing and Animation.
3 credits \hspace{1cm} Fall Semester
This course is an introduction to 2D animation, motion graphics and composting
techniques. All essential technical and aesthetic possibilities are explored in
a series of projects. All projects are designed to provide the student with a
thorough grounding in contemporary professional practices.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CMP460 Advanced Motion Graphics, Compositing and Animation
3 credits \hspace{1cm} Fall & Spring Semester
This is an advanced animation, compositing and motion graphics workshop in which
students will design a three to five minute production from script to final product.
PREREQUISITE: CMP 459 OR EEN 596, EEN 596 OR PERMISSION OF INSTRUCTOR.

CMP486 Online Screenwriting
3 credits \hspace{1cm} Fall & Spring Semester & First & Second Summer Session
The student will prepare and complete the first act of a feature-length screenplay
or the student will prepare and commence the rewrite of an existing screenplay.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CMP489 Projects in Screenwriting
3 credits \hspace{1cm} Fall & Spring Semester
Individual study. This course and CMP 499 cannot count for more than three credits
towards a Communication major or minor.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CMP494 Motion Picture Internship
1- 3 credits \hspace{1cm} Fall & Spring Semester & First & Second Summer Session
Prescribed study and supervised work with practitioners in motion pictures.
PREREQUISITE: SENIOR OR JUNIOR STANDING, ADMISSION TO MAJOR IN MOTION PICTURES,
CUMULATIVE GPA OF 2.5 IN ALL COURSES OFFERED FOR COMMUNICATION MAJOR.

CMP495 Directing Techniques I
3 credits \hspace{1cm} Spring Semester
To teach the craft of directing through exercises, screen work and readings.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

CMP496 Directing Techniques II
3 credits \hspace{1cm} Spring Semester
To build a more advanced set of professional skills and practices through scene
work, shooting and collaboration.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

CMP499 Projects and Directed Research
1- 3 credits \hspace{1cm} Fall & Spring Semester & First & Second Summer Session
Individual study. No more than three credits may be counted toward a Communication
major or minor.
PREREQUISITE: 12 CREDITS IN COMMUNICATION AND PERMISSION OF SUPERVISING INSTRUCTOR.
CMP503 Film Directors
3 credits Fall Semester
This course will address the conditions of authorship in film through an intensive
study of the films of two or more directors, whose careers will serve as case studies.
These directors will be historically important and their work will represent significant
achievements in the art of film.
PREREQUISITE: CMP 204 AND 205.

CMP504 Aspects of Contemporary Cinema
3 credits Spring Semester
The study of the ways in which film communicates. Intensive analysis and criticism
of cinematic techniques exemplified through particular films.
PREREQUISITE: JUNIOR STANDING; CMP 204 OR 205; NON-MAJORS BY PERMISSION OF PROGRAM
DIRECTOR.

CMP506 American Movie Genres
3 credits Fall Semester
A study of selected movie genres from a variety of critical perspectives. Issues
pertaining to selfhood, sexual difference, and other concerns of present-day film
criticism will be examined.
PREREQUISITE: CMP 204 AND 205. NON-MAJORS BY PERMISSION OF INSTRUCTOR.

CMP507 Film, Society, and Culture
3 credits Spring Semester
Selected films from Europe, Asia, Africa and Latin America will be studied in relation
to their diverse social/political and cultural contexts.
PREREQUISITE: CMP 204 AND 205. NON-MAJORS BY PERMISSION OF INSTRUCTOR.

CMP509 Legal Aspects of Motion Pictures
3 credits Spring Semester
The law, contracts, and negotiating techniques of the business affairs aspects
of the production of motion pictures.
PREREQUISITE: MOTION PICTURE GRADUATE OR SENIOR UNDERGRADUATE STANDING. NON- MOTION
PICTURE GRADUATES OR UNDERGRADUATES BY WRITTEN PERMISSION OF THE DIRECTOR
OF THE MOTION PICTURE PROGRAM.

CMP529 Nonfiction Film
3 credits Fall & Spring Semester
An examination of American and world nonfiction films.
PREREQUISITE: NON-MAJORS BY PERMISSION OF INSTRUCTOR.

CMP550 Motion Graphics and Compositing
3 credits Spring Semester
Methods, techniques and aesthetics of 2D computer animation and compositing including
animated text, title design and green screen.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CMP551 Advanced Motion Graphics and Compositing
3 credits Spring Semester
Extend the 2D skills of students who have taken CMP 550 to 3D motion graphics and
animation. Emphasis on title design and animation.
PREREQUISITE: CMP 550
CMP552 Motion Picture Marketing and Distribution
3 credits  
Fall & Spring Semester
Economic and marketing considerations in the production and distribution of motion pictures.
PREREQUISITE: JUNIOR STANDING AND 12 COMMUNICATION- MOTION PICTURES CREDITS.

CMP553 Advanced Motion Picture Marketing
3 credits  
Fall & Spring Semester
Advanced marketing considerations in the distribution of motion pictures.
PREREQUISITE: JUNIOR STANDING AND CMP 552.

CMP555 Producing the Motion Picture
3 credits  
Fall Semester
A practical examination of the development, production, and marketing responsibilities involved in producing theatrical feature films. Focus is placed on the processes involved including the ethical considerations that confront the producer.
PREREQUISITE: JUNIOR STANDING AND 12 CMP CREDITS.

CMP558 Documentary Production
3 credits  
Offered By Announcement Only
An introduction to the documentary genre including the production of a documentary from start to finish.
PREREQUISITE: CMP 103, 222, 204 OR 205 FOR UNDERGRADUATES; PERMISSION OF INSTRUCTOR FOR GRADUATE STUDENTS.

CMP565 The Structure of Dramatic Art
3 credits  
Offered By Announcement Only
An investigation into structural forms widely employed by screenwriters with emphasis on Syd Field's three-act paradigm and Joseph Campbell's hero monomyth.
PREREQUISITE: GRADUATE STATUS

CMP566 Character and Dialogue
3 credits  
Offered By Announcement Only
An examination of the craft and techniques of creating original characters and dialogue.
PREREQUISITE: MFA SCREENWRITING STATUS OR CMP 126 AND 326.

CMP586 Online Screenwriting
3 credits  
Fall & Spring Semester & First & Second Summer Session
The student will prepare and complete the first act of a feature-length screenplay or the student will prepare and commence the rewrite of an existing screenplay.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CMP594 Special Topics in Motion Picture
3 credits  
Offered By Announcement Only
This course subject matter varies according to announced special topic. See class schedule for details.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CMP599 Advanced Projects and Directed Research
1-6 credits  
Fall & Spring Semester & First & Second Summer Session
Individual study. May be repeated for a maximum of six credits.
PREREQUISITE: PERMISSION OF SUPERVISING INSTRUCTOR.
CPR116 Introduction to Public Relations in Society
3 credits  Fall & Spring Semester & First Summer Session
History, organization and role of public relations in American society.

CPR202 Graphic Design for Promotional Media
3 credits  Fall & Spring Semester & First Summer Session
Selection, preparation and study of production processes for type, photography, and artwork. Introduction to promotional publication design.
PREREQUISITE: CPR 116 OR PERMISSION OF INSTRUCTOR

CPR232 Writing for Public Relations
3 credits  Fall & Spring Semester & Second Summer Session
Principles, techniques in the development of creative strategies and concepts and writing effective public relations messages for all types of media.

CPR311 Research Methods for Public Relations
3 credits  Fall & Spring Semester & First Summer Session
Public relations research techniques focusing on applications to strategic planning, message evaluation, opinion research, and theory testing of public relations programs. Emphasis on qualitative and quantitative methods and data analysis.
PREREQUISITE: ADMISSION TO MAJOR OR PERMISSION OF INSTRUCTOR.

CPR346 Advanced Public Relations Writing and Design
3 credits  Fall & Spring Semester & First Summer Session
Preparation, execution, and production of visual messages for public relations media.
PREREQUISITE: ADMISSION TO MAJOR, ART 109 OR CAD 202 OR CPR 202 OR PERMISSION OF INSTRUCTOR.

CPR380 Public Relations Internship
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Supervised activities in public relations. Course may be repeated up to 3 credits.
PREREQUISITE: ADMISSION TO MAJOR AND PERMISSION OF PROGRAM DIRECTOR; JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

CPR416 Public Relations Ethics and Decision Making
3 credits  Fall & Spring Semester
Ethical concepts and issues pertaining to individuals and society with application to advertising and public relations. Case studies focus on professional and personal ethics based on traditional teaching, modern codes and other guidelines.
PREREQUISITE: ADMISSION TO MAJOR, PERMISSION OF INSTRUCTOR.

CPR436 Public Relations Campaigns
3 credits  Fall & Spring Semester & First Summer Session
Planning, execution and evaluation of communications designed to influence attitudes of specialized publics. Case studies of public relations programs of business firms and other institutions are included.
PREREQUISITE: ADMISSION TO MAJOR; 311, 346 OR PERMISSION OF INSTRUCTOR.

CPR438 Public Relations Practicum
3 credits  Fall & Spring Semester & First & Second Summer Session
Function as a public relations account executive in a professional environment.
PREREQUISITE: ADMISSION TO MAJOR; SENIOR STANDING; CUMULATIVE GPA OR 2.75 AND MAJOR GPA OF 2.75, PERMISSION OF INSTRUCTOR AND PROGRAM DIRECTOR.
CPR490 Special Topics in Public Relations
3 credits  Fall & Spring Semester
This course subject matter varies according to announced special topic. See class schedule for details.
PREREQUISITE: ADMISSION TO MAJOR; JUNIOR STANDING; PERMISSION OF INSTRUCTOR AND PROGRAM DIRECTOR.

CPR499 Projects and Directed Research in Public Relations
1-3 credits  Fall Semester
Individual study. No more than three credits may be counted toward a Communication major or minor.
PREREQUISITE: ADMISSION TO MAJOR; JUNIOR STANDING; PERMISSION OF INSTRUCTOR AND PROGRAM DIRECTOR.

CPR517 Media Relations
3 credits  Fall & Spring Semester & First Summer Session
The practice of media relations within the public relations milieu.
PREREQUISITE: ADMISSION TO MAJOR, CPR 311, SENIOR STANDING OR PERMISSION OF INSTRUCTOR

CPR582 International Public Relations
3 credits  Fall & Spring Semester
History, theory, and practice of public relations in a global, multi-cultural environment.
PREREQUISITE: ADMISSION TO MAJOR; SENIOR STANDING OR PERMISSION OF INSTRUCTOR

CPR584 Public Relations Management
3 credits  Fall Semester
Principles and practice of public relations management in a variety of contexts including agency, consultancy, corporate, and nonprofit.
PREREQUISITE: ADMISSION TO MAJOR, CPR 311 AND SENIOR STANDING OR PERMISSION OF INSTRUCTOR

CPR590 Special Projects: Public Relations
3 credits  Offered By Announcement Only
This course subject matter varies according to announced special topic. See class schedule for details.
PREREQUISITE: ADMISSION TO THE MAJOR, CPR 311 AND SENIOR STANDING, PERMISSION OF INSTRUCTOR AND PROGRAM DIRECTOR.

CPR599 Advanced Projects and Directed Research in Public Relations
1-6 credits  Fall & Spring Semester & First & Second Summer Session
Individual study. May be repeated to a maximum of six credits.
PREREQUISITE: ADMISSION TO MAJOR, CPR 311 AND SENIOR STANDING, PERMISSION OF SUPERVISING INSTRUCTOR AND PROGRAM DIRECTOR.

VISUAL JOURNALISM

CVJ106 Multimedia Design
3 credits  Fall & Spring Semester
This course is a project-based introduction to design. Emphasis will be placed on visual concepts and graphic design for multimedia. Students will be introduced to various software packages to design and integrate interaction into their projects. Topics covered include preparing existing content for multimedia journalism, animation, layout for interactive media, typography, photography and usability.
PREREQUISITE: NONE
CVJ209 Audio Visual Production
3 credits  Fall & Spring Semester
This course is a lab-lecture course that introduces students to the concepts of visual storytelling and teaches skills needed to gather information in the visual storytelling process. Students work in teams with still photography, video and audio-gathering devices to document community life.
PREREQUISITE: CVJ 106 OR PERMISSION OF INSTRUCTOR.  COREQUISITE: CVJ 221

CVJ221 Introduction to Photojournalism.
3 credits  Fall & Spring Semester
Introduction to photojournalism is a course designed to help you develop the skills needed to produce successful images and recognize what makes good photographs in terms of (1) content; (2) composition; and (3) technical quality. The course will help you acquire and develop the intellectual, analytical and technical skills needed to become strong visual storytellers. Students are required to have a 35 mm camera.
PREREQUISITE: CVJ 106 OR PERMISSION OF INSTRUCTOR. COREQUISITE: CVJ 209

CVJ309 Database Journalism.
3 credits  Spring Semester
This course teaches data analysis and interactive deployment of data of the World Wide Web and other digital platforms. Students will learn to analyze data for journalistic work and will be expected to create and deploy database-driven applications.
PREREQUISITE: CVJ 106, 209, 221, 341 OR PERMISSION OF INSTRUCTOR.

CVJ331 Infographics
3 credits  Spring Semester
This is an introduction to informal graphic procedures and practices as they pertain to print and online media. Layout and design typography and mechanical production techniques and production vocabulary will be an integral part of the course of study.
PREREQUISITE: CVJ 106, 209, 221, 341.

CVJ341 Web Desing.
3 credits  Fall & Spring Semester
This course covers the basic aspects of interaction design and web development focusing on production processes. It provides an overview of web design concepts, including usability, accessibility, information architecture, basic animation, and graphic design; all discussed in the context of the web environment. This course further offers an introduction to fundamental and emerging web trends.
PREREQUISITE: CVJ 106, 209, 221 OR PERMISSION OF INSTRUCTOR.

CVJ361 Advanced Photojournalism
3 credits  Fall & Spring Semester
Advanced Photojournalism is a class designed to improve the visual storytelling, newsgathering, and photographic technical skills introduced in the Intro to Photojournalism class. Students will be expected to integrate into the community to make contacts and develop story ideas worthy of visual documentation. The class will explore how quality photojournalism has the potential to affect change in a community, a country and beyond.
PREREQUISITE: CVJ 209, CVJ 309
CVJ396 Special Topics in Visual Journalism

3 credits
Fall & Spring Semester
This course subject matter varies according to announced special topic. See class schedule for details.
PREREQUISITE: PERMISSION OF INSTRUCTOR

CVJ409 Advance Feature Design.

3 credits
Fall Semester
Advance newspaper, magazine, and electronic design. The students will develop the skills necessary to produce strong visual packages combining type, photography, artwork and white space. The course will cover advanced design and traditional reproduction techniques for art and copywriting as well as on-line presentations.
PREREQUISITE: CVJ 106, 209, 221, 341, 331.

CVJ419 Information Graphics

3 credits
Fall & Spring Semester
This is an introduction to informational graphic procedures and practices as they pertain to print and on-line media. Layout and design typography and mechanical production techniques and production vocabulary will be an integral part of the course of study.
PREREQUISITE: CVJ 331,341,409 AND/OR PERMISSION OF INSTRUCTOR.

CVJ422 Programming for Interactivity

3 credits
Fall & Spring Semester
This course is a Multimedia class that will teach the fundamental programming skills required to create compelling online multimedia stories. Programming taught in this class caters specifically for non-programmers who want to learn how to present their work online in an interactive manner.
PREREQUISITE: CVJ 209,341,419 OR PERMISSION OF INSTRUCTOR.

CVJ435 Video Journalism

3 credits
Fall Semester
An advanced visual journalism course to develop skills in video pre-production production and post-production with special emphasis on documentary approaches for on-line media.
PREREQUISITE: CVJ 209,106, 221, 341, 361

CVJ496 Internship in Visual Journalism

1- 3 credits
Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: JUNIOR STANDING AND PERMISSION OF INSTRUCTOR.

CVJ499 Projects and Directed Research

1- 3 credits
Fall & Spring Semester
PREREQUISITE: SENIOR STANDING AND PERMISSION OF INSTRUCTOR.

CVJ519 Interactive Storytelling

3 credits
Fall & Spring Semester
Digitization allows us to merge several forms of media that were not connected in the past. This course is intended as an exploration of how storytelling is re-inventing itself utilizing the new digital communication tools available to us today. This course will cover linear and non-linear storytelling techniques and production processes.
PREREQUISITE: CVJ 209, 341, 419, AND 422 OR PERMISSION OF INSTRUCTOR.
CVJ521 Seminar in Visual Story-Telling
3 credits                                                    Fall & Spring Semester
An advanced seminar class designed to enhance the knowledge and practice of the visual story telling narrative. This seminar stresses the importance of converging media, still images, video and sound. Particular emphasis will be placed upon the creation of multimedia portfolio.
PREREQUISITE: CVJ 209,309,361 AND 435 OR PERMISSION OF INSTRUCTOR

CVJ522 Design Portfolio Seminar
3 credits                                                           Spring Semester
The course will require an advance use of typography, architecture of design and creative style for layout and design for the print or on line media. This is a portfolio design class. Each student will concentrate on an area of specialty within print or electric design. All portfolios will be reviewed by outside art and design directors.
PREREQUISITE: CVJ 209,331, 342, 409, 419 OR PERMISSION OF INSTRUCTOR

CVJ596 Special Topics in Visual Journalism (1-6 credits)
1- 6 credits                                                        Fall Semester
This course subject matter varies according to announced special topic. See class schedule for details.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CVJ599 Advanced Projects and Directed Research
3 credits                                                             Fall Semester
PREREQUISITE: PERMISSION OF SUPERVISING INSTRUCTOR
EPS201 Psychosocial Change and Well-being
3 credits  Fall & Spring Semester
Explores the integration of individual, organizational, and community approaches
to the promotion of health and well-being. Emphasis will be placed on real-life
applications in multiple settings such as schools, workplaces, government, and
non-government institutions.

EPS270 Lifespan Human Development
3 credits  Fall & Spring Semester
Processes and theories of human development from birth to old age are explored.
Areas to be covered include: physical development, cognitive development, social
and personality development, moral development, and language development. Emphasis
is placed on development as a life-long process and its importance in understanding
human behavior.

EPS280 Introduction to Family Studies: Dating, Coupling, Parenting
3 credits  Fall & Spring Semester
Theory and practice of romantic relationships and parent-child relationships, including
discussion and skills building. Research based information on how to maximize the
quality of these interpersonal relationships will be examined.

EPS291 Character and Community Development
3 credits  Spring Semester
The course covers moral and psychological dimensions pertaining to character development
as it occurs in communities. Topics include contemporary theory and research regarding
perspectives on virtue and morality, states of character, ethical decision making,
and character development. The reciprocal relationships between character and community
will be a central theme in exploring ethical issues that arise in working with
individuals, institutions, and communities. Theory and research will be linked
to relevant applications.

EPS301 Personal Growth and Wellness
3 credits  Offered By Announcement Only
Increasing one's personal wellness and growth opportunities through hands-on learning
as based on the research literature of positive psychology, self-actualization,
and wellness.

EPS305 Career Development and Planning
3 credits  Offered By Announcement Only
Exploration and planning of careers based on three knowledge domains: cognitive
and social foundations, the occupational world and work behavior, career choice,
development in individuals and organizations.

EPS310 Interdisciplinary Introduction to Sport in America: Psychosocial Theories and P
3 credits  Offered By Announcement Only
Uses an ecological model to integrate societal, cultural, group dynamics, media,
interpersonal, and intrapersonal aspects of sport. Students will learn how to understand
and analyze one topic (sport) through various theoretical lenses, in this case,
physiological, psychosocial, sociological, and communication. Topics range from
exercise physiology to legal and ethical issues.
PREREQUISITE: SOPHOMORE STANDING OR HIGHER.
EPS311 Group Processes and Development

3 credits  
Spring Semester

Research findings concerning the nature of small groups and patterns of behavior associated with them are explored. Students experience an ongoing group process to which theories and concepts can be applied. Emphasis is placed on learning to be a participant observer of group behavior and processes, learning about one's own behavior in groups, and developing skills to be a more effective member and leader in task groups.

EPS321 Understanding Human Service Organizations

3 credits  
Fall Semester

Focus on unique role of community-based human service organizations in society with an overview and history of community organizations, which provide services, support, advocacy, and organizing in today's communities. Review of the systems, cultures, structures, and processes of community organizations with a special emphasis on promoting well-being in communities.

PREREQUISITE: EPS 201 OR PERMISSION BY INSTRUCTOR.

EPS340 Psychology and Sociology of Sexual Identity

3 credits  
Fall & Spring Semester

History, psychology, and sociology of gay, lesbian, and transgendered populations.

PREREQUISITE: PSY 110 OR SOC 101.

EPS351 Introduction to Statistics and Research Design

3 credits  
Fall Semester

The course will cover basic statistics relevant to the social sciences (e.g., central tendency, variation, t-tests, correlations), with emphasis on real world applications employing commonly used research designs. Students will acquire the tools necessary to interpret elementary statistical analyses and a foundation in the basic analytic methods used in conducting quantitative research in the behavioral sciences.

PREREQUISITE: EPS 201, MTH 101.

EPS360 Educational Psychology

3 credits  
Fall & Spring Semester & First & Second Summer Session

A review of basic educational psychology principles including cognitive and language development, personal, social and moral development, learning theories, and motivation. A review of basic concepts that contribute to effective learning and other aspects of education.

PREREQUISITE: SOPHOMORE STANDING OR PSY 110.

EPS361 Community Psychology & Development

3 credits  
Fall Semester

Community psychology is about the prevention of psychosocial problems and the promotion of mental health and well being through the creation of equitable and just social settings, neighborhoods, communities, and societies. Course topics include: stress & social support; oppression and human diversity; primary prevention, social intervention and health promotion; self-help; mediating structures; community mental health; alternative settings; community development and social change.

PREREQUISITE: EPS 201 OR PERMISSION OF THE INSTRUCTOR.
EPS362 Introduction to Multiple Intelligence
3 credits  First & Second Summer Session
Students will be provided with an awareness of both the Multiple Intelligence Model and Brain Based Learning, through lectures, discussions, and exercises. The student will identify their learning styles in order to discuss strengths and deficits. Activities will be provided to enhance teaching and learning experiences. Creative writing exercises will be provided.

EPS381 Romantic Relationships: Theory, Research, and Practice
3 credits  Offered By Announcement Only
An introduction to the psychological science of romantic relationships, covering current theories that explain how relationships flourish. The course also covers the practical aspects of romantic relationships. Local and national resources for fostering strong relationships provide a third focus of the course.
PREREQUISITE: SIX CREDITS OF SOCIAL SCIENCE.

EPS420 Introduction to Counseling and Psychotherapy
3 credits  Fall Semester
This course is a survey of the theories and practical applications of counseling and psychotherapy. Students will acquire an understanding of a variety of theories of psychotherapy, the basic requirements and skills for effective, ethical counseling, and an appreciation for the role of values and human differences in counseling and psychotherapy. This course does not prepare students for practice in mental health professions.
PREREQUISITE: PSY 110 OR EPS 201

EPS428 Field Experience in Community Services
3 credits  Fall & Spring Semester
This course is intended to be the capstone of the EPS minor in Family and Human Services. The student will spend a minimum of 3 hours per week in a supervised field placement in a community setting and will meeting weekly in on-campus supervision.
PREREQUISITE: JUNIOR STANDING, EPS 270 OR PSY 203 AND EPS 280. EPS 420 IS A PREREQUISITE OR CO-REQUISITE.

EPS493 Workshop in Education: Small Group Behavior
3 credits  Fall Semester
Research findings concerning the nature of small groups and the patterns of behavior associated with them are explored. Students experience an ongoing group process to which the theories and concepts can be applied. Emphasis is placed on learning to be participant observer of group behavior and processes, learning about one's own behavior in groups, and developing skills to be a more effective member and leader in task group.
PREREQUISITE: PSY 110 (OR SOME OTHER INTRODUCTORY PSYCHOLOGY COURSE)

EPS499 INDIVIDUAL STUDY
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Individual work on a special project under faculty guidance.
PREREQUISITE: PERMISSION OF DIRECTING FACULTY MEMBER AND DEPARTMENT CHAIRMAN.

EPS505 Lifespan Human Development
3 credits  Fall Semester
Theories and research relating to the biophysical, cognitive, and psychosocial domains of human lifespan development.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR
EPS506 Foundations of Mental Health Counseling
3 credits
Offered By Announcement Only
Students will learn basic concepts and skills for mental health counselors in a multicultural world.
PREREQUISITE: ADVANCED UNDERGRADUATE OR GRADUATE STANDING.

EPS509 Field Studies in Education
1-6 credits
Fall & Spring Semester
Individual study of a school or school system, identifying its strengths and weaknesses, and making positive recommendations.
PREREQUISITE: APPROVAL OF ADVISOR.

EPS510 Professional, Legal and Ethical Issues in Counseling
3 credits
First Summer Session
Professional, legal, ethical, and licensing issues in the counseling profession.
PREREQUISITE: GRADUATE STANDING IN THE COUNSELING PROGRAM.

EPS511 Lifestyle and Career Counseling
3 credits
Spring Semester
An introductory course in career development and career counseling, focusing on theories of career development, counseling tools, strategies, and sociological, economic, and psychological influences on the American worker.
PREREQUISITE: EPS 513 OR PERMISSION OF INSTRUCTOR.

EPS512 Assessment Strategies for Counselors I
3 credits
Spring Semester
This course places emphasis on diagnosis, appraisal, assessment, and testing for individual and interpersonal disorders. It addresses statistical procedures and psychometric principles necessary for responsible test use and exposes the student to a variety of test and non-test assessment techniques in marriage and family, and mental health counseling.
PREREQUISITE: GRADUATE STANDING IN COUNSELING PROGRAM.

EPS513 Counseling Process and Practice
3 credits
Fall Semester
The development of basic communication and clinical skills necessary for establishing the counseling relationship and conducting therapy.
PREREQUISITE: GRADUATE STANDING IN COUNSELING PROGRAM.

EPS514 Psychosocial Bases of Social and Cultural Diversity
3 credits
Fall Semester
Interrelationship between psychology and sociology in understanding development of diversity in human social systems. Implications for counseling and therapy.
PREREQUISITE: EPS 505 OR EQUIVALENT OR PERMISSION OF INSTRUCTOR.

EPS515 Dynamics of Marriage and Family Systems
3 credits
Fall Semester
Introduction to the history and development of marriage and family systems theory as a method for understanding individuals' behavior and functioning. Introduction to several modes of family therapy. Throughout the course, lectures will also be integrated with other topics including race, culture, gender, sexual orientation, ability.
PREREQUISITE: GRADUATE STANDING IN COUNSELING PROGRAM OR PERMISSION OF INSTRUCTOR.
EPS526 Counseling in Community Settings
3 credits Fall Semester
Exploration of a variety of perspectives on community services relevant to mental health counselors. Topics include: the variety of community settings; community, national, and international diversity in mental health services; diversity of clients (e.g., cultures, religions, GLBT, elderly, social classes, disabilities); mental health funding; the role of politics, policy, advocacy, and research; interviewing across cultures.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR

EPS531 Organization Development
3 credits Offered By Announcement Only
Techniques, strategies, and models of Organizational Development as they relate to various kinds of institutions. Simulations and actual interventions are stressed.

EPS533 Organization and Administration of Higher Education I
3 credits Fall Semester
Theoretical approaches from organizational analysis. Applications to problems, processes, and patterns of higher education institutions. Consideration given to legal status, governance patterns, and external relations. Administrator, faculty, trustee, and student roles are also explored.

EPS534 Theories of Supervision
3 credits Offered By Announcement Only
Examination of the elements of human behavior involved in successful supervision of instruction. Survey of current supervisory practices in the schools. Consideration of leadership theory.

EPS539 Effective Teaching and Learning in the Community College
3 credits Offered By Announcement Only
Preparation for community college teachers in classroom issues using a theoretical base. Items covered will include teaching performance, teaching and learning styles, motivating learners, educational factors relating to cultural and ethnic variables, and discovery of instructional resources.

EPS543 The Community College
3 credits Offered By Announcement Only
An overview of American community colleges including historical evolution, purposes and functions, characteristics of students and faculty, organization and administration, curricula, current issues, and trends.

EPS544 Assessing Learning in the Community College
3 credits Offered By Announcement Only
Assessment and analysis of learning processes and outcomes in higher education. Formative and summative assessment, data analysis and interpretation are included. Class activities include: lectures, group projects, collaborative learning experiences, reports, participation in assessment strategies, role playing, and demonstration of assessment techniques.

EPS545 Administration of Student Affairs
3 credits First Summer Session
History and philosophy of student affairs will be addressed as well as principles and organization of student affairs administration, current problems, procedures, and recent developments.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
EPS550 Educational Measurement and Evaluation
3 credits  Offered By Announcement Only
Basic principles of measurement as they apply to the construction of teacher-made tests and the selection and use of standardized tests. Attention is also given to the use of measurement instruments in connection with both formative and summative evaluation. Behavioral objectives are considered in the context of criterion-referenced and mastery tests.
PREREQUISITE: TAL 260 OR PERMISSION OF INSTRUCTOR.

EPS553 Introductory Statistics
3 credits  Fall Semester & Second Summer Session
Basic Statistical procedures will be discussed including measures of central tendency, variability and relationship, sampling, and basic tests of statistical significance.

EPS554 Essentials of Research in Social and Behavioral Sciences
3 credits  Fall Semester
Study of the standards methods and techniques of research in the behavioral and social sciences. Brief orientation to quantitative and qualitative procedures used in the analysis and interpretation of research data are emphasized.

EPS565 Family Therapy with Ethnic Minority Families
3 credits  Offered By Announcement Only
A course in special issues and strategies in family therapy with minority populations focusing on African American and Hispanic clients.
PREREQUISITE: EPS 280 OR 515 OR 612 OR PERMISSION OF INSTRUCTOR.

EPS568 Computer Applications in Educational and Behavioral Science Research
3 credits  Offered By Announcement Only
An introduction to the use of microcomputer statistical packages in social science research, with emphasis given to SPSS for Windows. Course content will cover a broad range of activities encountered in the data analytic process including planning and creating a database, data coding, file manipulation tasks, data screening, and statistical analysis.
PREREQUISITE: EPS 553 OR EQUIVALENT WITH PERMISSION OF INSTRUCTOR

EPS570 Basic skills in Counseling and Interviewing
3 credits  Spring Semester
Introductory course on essential skills used in counseling and interviewing. Through lectures, discussions, and small group exercises, students will explore their natural style of helping and learn effective listening and communication skills. This course is not intended to train students to become a professional counselor.
PREREQUISITE: ADMISSION IN THE HIGHER EDUCATION PROGRAM OR PERMISSION OF INSTRUCTOR

EPS590 Workshop in Education
1-3 credits  Offered By Announcement Only
Study in special interest areas in education.

EPS591 Workshop in Education
1-3 credits  Offered By Announcement Only
Study in special interest areas in education.

EPS592 Workshop in Education
1-3 credits  Offered By Announcement Only
Study in special interest areas in education.
EPS593 Workshop in Education
1-3 credits
Offered By Announcement Only
Study in special interest areas in education.

EPS594 Workshop in Education
1-3 credits
Offered By Announcement Only
Study in special interest areas in education.

EPS595 Workshop in Education
1-3 credits
Offered By Announcement Only
Study in special interest areas in education.

EPS596 Workshop in Education
1-3 credits
Offered By Announcement Only
Study in special interest areas in education.

EPS597 Workshop in Education
1-3 credits
Offered By Announcement Only
Study in special interest areas in education.

EPS598 Workshop in Education
1-3 credits
Offered By Announcement Only
Study in special interest areas in education.

EPS599 Workshop in Education
1-3 credits
Offered By Announcement Only
Study in special interest areas in education.

EXERCISE & SPORT SCIENCES

ESS100 Leadership, Management, and Ethics in Sports
3 credits Fall Semester
Students will gain an understanding of skills and philosophies of leadership, management, and ethic necessary for a position in the sport industry.
PREREQUISITE: SUMMER SCHOLAR STUDENTS ONLY.

ESS105 Introduction to Athletic Training and Sports Medicine
3 credits Second Summer Session
In this practical, hands-on course, the students will learn to identify basic sport injuries that afflict the major joints of the body, and review basic methods to treat these injuries. The student will also learn how nutrition, improper biomechanics, and poor training can all impact sport performance. Plus, participants will be given the opportunity to learn and practice techniques or procedures (such as athletic taping or bracing) that may be useful in minimizing the incidence of injury.

ESS110 Explorations in Sports Medicine
3 credits First Summer Session
This class will consist of an introduction to the field of Sports Medicine and Exercise Science. Basic information relevant to appropriate exercise prescription, proper nutritional habits, implications on health, longevity and performance will be addressed. Hands-on practical experiences will supplement theoretical concepts learned in the classroom setting.

ESS120 Tennis
2 credits Fall & Spring Semester
Theory, knowledge, skills, and practice in tennis. There is a $25.00 fee for balls, racquets and equipment associated with this class. For credit only.
ESS123 Swimming and Lifeguard Training
2 credits                                                    Fall & Spring Semester
Theory and practice in teaching techniques in swimming and professional lifeguarding, including First Aid and CPR. Upon successful completion, students will be eligible for an American Red Cross Lifeguarding Certificate. There is a $60.00 fee associated with this class for American Red Cross Certification, books, and equipment. Credit only.
PREREQUISITE: PASS SWIMMING PRE-TEST. CREDIT ONLY.

ESS124 Scuba
3 credits                                                    Fall & Spring Semester
Basic scuba and open water "I" certification. Includes theory, practical instruction, open water dives, and NAUI certification. For credit only. There is a $65.00 scuba rental fee associated with this class.
PREREQUISITE: ESS 123 OR EQUIVALENT.

ESS140 Introduction to Athletic Training
2 credits                                                             Fall Semester
Introduction to clinical athletic training for first year athletic training majors. Emphasis will be on the clinical education components. University of Miami athletic training staff, policies and procedures as used in the clinic/athletic training room, entry level taping skills, and interaction with various community and university agencies. Students must be additionally enrolled in ESS 141.
PREREQUISITE: STUDENTS MUSHT HAVE A SOPHOMORE STATUS.

ESS141 Introduction to Athletic Training Lab
1 credit                                                              Fall Semester
Introduction to clinical athletic training for the first year athletic training major. Hands on experience for the entry level athletic training student. Students will be required to complete a competencies check list with a passing grade. Clinical hours in the athletic training room will give the student the opportunity to use the knowledge, skills, and techniques learned in this course. The student must complete 70 clinical hours which are required for the application process to the Athletic Training Education Program. Student must be additionally enrolled in ESS 140. Fee $65.00 required for Lab.

ESS145 Responding to Emergencies
2 credits                                                             Fall Semester
Students will become familiar with accident, injury, and illness situations, techniques for immediate first aid, and legal parameters involved when administering emergency care. Certification in adult CPR will be obtained. A $40 lab fee will be required for this class.

ESS150 General Nutrition for Health and Performance
3 credits                                                    Fall & Spring Semester
Fundamentals and theories of nutrition with a specific focus on nutrition for both sports and fitness.
PREREQUISITE: FOR NON-SCIENCE MAJORS ONLY.

ESS155 Biological and Health Related Bases of Exercise
3 credits                                                             Fall Semester
This course prepares students to perform exercise prescription for aerobic and resistance training programs according to sound physiological principles. Students will learn how to quantify work and power output during exercise and its implications for improving one's health, longevity, and activities of daily living.
ESS156 Laboratory Applications to Exercise Physiology
1 credit  
Fall Semester
This laboratory will incorporate clinical testing for fitness evaluations, strength assessment, and risk assessment. Students will have the opportunity to perform hands-on testing and assessment using sophisticated laboratory equipment with guidance for analysis and interpretation of results.
PREREQUISITE: ESS 155.

ESS184 Athletic and Sports Injuries
3 credits  
Fall Semester
Athletic injuries in sports that occur over the principal joints in the body and the inclusion of anatomical structures that are frequently damaged. Operational treatments and rehabilitation programs after surgery.

ESS200 Survey of Sports Administration
3 credits  
Fall Semester
Students will examine the employment opportunities and skills needed in professional, collegiate, and amateur sports as well as the health and fitness industry.
PREREQUISITE: SUMMER SCHOLAR STUDENTS ONLY.

ESS201 Introduction to Sport Administration
3 credits  
Fall Semester
Basic overview of sports management.

ESS202 Applied Nutrition for Health and Performance
3 credits  
Fall & Spring Semester
The study of nutrition, diet analysis, biochemical processes in energy metabolism, nutrition and health problems, and nutrition as it relates to physical performance. The class will have 3 sections: 1) nutritional links to chronic disease; 2) nutrition before, during and after exercise bout; and 3) nutritional supplements for health and performance.
PREREQUISITE: FOR SCIENCE MAJORS ONLY

ESS204 Sports Personnel/Career Management
3 credits  
Fall Semester
This course will expose students to the employment opportunities in the sport industry through the following modalities: lecture, videos, speakers and visitation. Students will also learn the techniques of resume writing and the job interview.
PREREQUISITE: OPEN ONLY TO SPAD MAJORS AND MINORS. MUST HAVE TAKEN ESS 201 AND EARNED A C+ OR BETTER.

ESS206 Sport Facilities and Event Management
3 credits  
Fall Semester
This course is an overview of the policy and procedures necessary to organize and develop sport events and facilities. In depth review of all programs, functions and procedures necessary for the operation of events and facilities are examined.
PREREQUISITE: OPEN ONLY TO SPAD MAJORS AND MINORS. MUST HAVE TAKEN ESS 201 AND EARNED A C+ OR BETTER.
ESS210 Foundations in Athletic Training
2 credits  
Spring Semester
Introduction to Sports Medicine/Athletic Training with emphasis on study of the sports medicine team, legal concerns, nutrition, and pre-participation physicals. Course will discuss the basic principles of injury prevention including the role of conditioning, equipment, and protective padding. Additionally, students will be introduced to the study of etiology and mechanisms of injury, pathology, and recognition of clinical signs and symptoms of athletic injury. The student must complete 50 clinical observation hours, which are required for the retention process of the Athletic Training Education Program. Prerequisite: Must have sophomore status.
PREREQUISITE: MUST HAVE SOPHOMORE STATUS.

ESS212 Elements of Sports Psychology
3 credits  
Fall & Spring Semester
Introduction to the field of sport and exercise psychology by examination of psychological theories and research related to sport and exercise behavior.
PREREQUISITE: ESS 201 OR PERMISSION

ESS221 Bioenergetics and Skeletal Muscle Physiology
3 credits  
Fall Semester
This course discusses the structure and function of human skeletal muscle as a biological machine, biological energy systems as they function during exercise, fatigue and recovery, the contractile process in skeletal muscle, and the specific changes resulting from variations in the training stimulus.

ESS222 Exercise Physiology Laboratory: Neuromuscular
2 credits  
Fall Semester
This course examines the nature of data collection in exercise physiology. Students will receive information on collection theory and its application to the measurement of a number of physiological systems during exercise. The course is designed to establish a clear linkage between the chronic and acute changes that occur during exercise and the laboratory methods that are used to assess those changes. Corequisite: ESS 221.
PREREQUISITE: COREQUISITE: ESS 221.

ESS230 Medical Terminology and Documentation
1 credit  
Fall & Spring Semester
Terminology, note writing, and documentation techniques in sports medicine. A treatment cycle model will be introduced.
PREREQUISITE: OPEN ONLY TO ATHT MAJORS. MUST HAVE COMPLETED ESS 140 AND 141 AND EARNED A GRADE OF B OR BETTER FOR BOTH COURSES.

ESS232 Basic Human Physiology
3 credits  
Spring Semester
This course presents a general overview of the major systems of the human organism with an examination of how they function in the human body.

ESS235 Personal and Community Health
2 credits  
Fall Semester
Overview of current strategies and practices for healthy living, including health maintenance and disease prevention.
PREREQUISITE: OPEN ONLY TO ATHT MAJORS. MUST HAVE COMPLETED ESS 140 AND 141 AND EARNED A GRADE OF B OR BETTER FOR BOTH COURSES.
ESS 245 Kinesiology
3 credits  
Fall & Spring Semester
Study of the structure and function of the skeletal, joint, and muscular systems. Emphasis is placed on the mechanics of the movement of the human body and its relationship to sport and physical performance.

ESS 246 Gross Anatomy
3 credits  
Spring Semester
The essentials of Myology, Osteology, and Arthrology. Major nerves and arteries are also dissected. Many of the dissection areas are injury sites in sports, such as the knee, shoulder, elbow, neck, and spinal nerves. There is a laboratory fee requirement for this course ($100.00).

ESS 250 Orthopedic Assessment: Lower Extremity
3 credits  
Fall Semester
Common types of orthopedic/sports dysfunctions to lower extremity will be discussed. Injuries will be discussed from the following viewpoints: etiology and mechanism of injury, pathology, recognition and valuation techniques, protocols, and prevention. Corequisite: ESS 251.
PREREQUISITE: ESS 246. OPEN ONLY TO ATHT MAJORS. MUST HAVE COMPLETED ESS 140 AND 141 AND EARNED A GRADE OF B OR BETTER IN BOTH COURSES. COREQUISITE: ESS 251.

ESS 251 Orthopedic Assessment: Lower Extremity Lab
1 credit  
Fall Semester
Techniques used to evaluate orthopedic and sports injuries occurring to the lower extremity. The student must complete 100 clinical education hours, which apply toward the graduation requirement of 1000 hours. Clinical education hours will emphasize lower extremity orthopedic assessment, goniometry, manual muscle testing techniques, and gait evaluations. Student must be additonally enrolled in ESS 250.
PREREQUISITE: STUDENT MUST BE ADDITIONALLY ENROLLED IN ESS 250.

ESS 260 Orthopedic Assessment: Upper Extremity
3 credits  
Offered By Announcement Only
Common types of orthopedic/sports dysfunctions to the upper extremity will be discussed. Injuries will be discussed from the following viewpoints: etiology and mechanism of injury, pathology, recognition and evaluation techniques, protocols, and prevention. Corequisite: ESS 261.
PREREQUISITE: ESS 246. OPEN ONLY TO ATHT MAJORS. MUST HAVE COMPLETED ESS 140 AND 141 AND EARNED A GRADE OF B OR BETTER FOR BOTH. COREQUISITE: ESS 261.

ESS 261 Orthopedic Assessment: Upper Extremity Lab
1 credit  
Spring Semester
Techniques used to evaluate orthopedic and sports injuries occurring to the upper extremity. The student must complete 100 clinical education hours, which apply toward the graduation requirement of 1000 hours. Clinical education hours will emphasize upper extremity orthopedic assessment, goniometry, and manual muscle testing techniques. Students must be additionally enrolled in ESS 260.
PREREQUISITE: NONE. COREQUISITE: ESS 260
ESS264 General Medical Conditions Evaluation
1 credit  
This class is the study of the clinical signs and symptoms of General Medical conditions that will present to the Certified Athletic Trainer. Emphasis will be placed on the techniques and instrumentation used for performing appropriate evaluation procedures. 
PREREQUISITE: ATHLETIC TRAINING MAJORS ONLY. ESS 235, 245, 246.

ESS302 Sport Marketing
3 credits  
This course is designed as a marketing course that deals exclusively with Sport Marketing. Students are expected to develop comprehensive marketing and sponsorship plans. This course will require moderate to heavy computer knowledge. This course is designed to maximize the practical applications of marketing theory to the sport business environment. 
PREREQUISITE: OPEN ONLY TO SPAD MAJORS AND MINORS. MUST HAVE TAKEN ESS 201 AND EARNED A C+ OR BETTER.

ESS306 Essential Leadership in Sports and the Professions
3 credits  
A variety of leadership and management skills will be examined, including communication, problem solving, conflict management, group dynamics, and leadership theory. Practical application to sport and allied professions will be included. Self-assessment opportunities and exercises will be utilized. 
PREREQUISITE: OPEN ONLY TO SPAD MAJORS AND MINORS. MUST HAVE TAKEN ESS 201 AND EARNED A C+ OR BETTER.

ESS307 Motivational Strategies in Sport and the Professions
3 credits  
This course will examine the concepts of motivation as it pertains to sport and leadership responsibilities in work environments. Principles of extrinsic and intrinsic motivation, peak performance, goal setting, motivation strategies, and theories will be integrated.

ESS308 Ethical Decision Making in Sport and the Professions
3 credits  
This course will examine ethical dilemmas in decision-making and other contemporary issues in sports management and campus and community environment. Real and hypothetical situations will be utilized. 
PREREQUISITE: OPEN ONLY TO SPAD MAJORS AND MINORS. MUST HAVE TAKEN ESS 201 AND EARNED A C+ OR BETTER.

ESS321 Introduction to Systemic Exercise Physiology
3 credits  
The structure, function, and training of the cardiorespiratory system. Special emphasis on structural changes in the systems with exercise and their influence on cardiovascular performance, body composition, exercise efficiency and health. 
PREREQUISITE: ESS 221 OR PERMISSION OF THE INSTRUCTOR.

ESS322 Exercise Physiology Laboratory: Cardiorespiratory
2 credits  
This course concentrates on collection of cardiorespiratory data. In addition, the application of these data to exercise prescription for specific athletic and non-athletic populations will be covered. Corequisite: ESS 321. 
PREREQUISITE: COREQUISITE ESS 321.
ESS340 Strength and Conditioning
3 credits  Fall & Spring Semester
An introductory class to strength and conditioning.
PREREQUISITE: ESS 245 OR ESS 246

ESS365 Principles of Exercise Prescription: Cardiovascular
3 credits  Spring Semester
This class is the study of the theory and principles behind the development of exercise programs. Students will learn how to accurately evaluate and develop individual exercise prescription based upon sound scientific research. Exercise prescriptions will be developed in accordance with the guidelines set forth by the National Strength and Conditioning Association and the American College of Sports Medicine.
PREREQUISITE: ONE YEAR OF BIOLOGY.

ESS366 Exercise Physiology Laboratory: Assessment
1-3 credits  Fall & Spring Semester

ESS401 Legal Aspects of Sport
3 credits  Fall & Spring Semester
This course will focus on legal issues applicable to sport administration, including tort law, risk management, negligence, and constitutional law. Relevant legal cases and concepts will be incorporated.
PREREQUISITE: OPEN ONLY TO SPAD MAJORS AND MINORS. MUST HAVE TAKEN ESS 201 AND EARNED A C+ OR BETTER.

ESS403 Sport Information Management
3 credits  Fall Semester
This course centers upon the development of those skills that are necessary for Sport Information Directors. Specifically, these traditionally include marketing, media, promotion, and public relations. This course hopes to provide detailed knowledge to allow the student to participate in these activities in a professional manner.
PREREQUISITE: OPEN ONLY TO SPAD MAJORS AND MINORS. MUST HAVE TAKEN ESS 201 AND EARNED A C+ OR BETTER.

ESS405 Finance and Budget in Sport Administration
3 credits  Fall Semester
This course seeks to develop those financial skills necessary to understand a wide variety of financial concepts that impact sport managers. Such topics would include but not be limited to: Sport franchise value/valuations; economic impact of sport; risk-return models; financial statement analysis, and budgeting.
PREREQUISITE: FIN 300, ESS 201, ACC 211. OPEN ONLY TO SPAD MAJORS AND MINORS. MUST HAVE TAKEN ESS 201 AND EARNED A C+ OR BETTER.

ESS408 Recreational Sport Programming
3 credits  Spring Semester
This course will cover the organization and administration of recreational sports including the programming, services, and delivery required at high schools, colleges and/or health/fitness industry.
PREREQUISITE: ESS 303, 401, 405.
ESS410 Problems and Issues in Sport Administration
3 credits
Fall Semester
This course is designed as a seminar course. Topical issues in high school, collegiate
and professional sport are presented and discussed in detail. A number of student-centered
activities are introduced to aid in the development of the student.
PREREQUISITE: SENIOR STANDING. OPEN ONLY TO SPAD MAJORS. MUST HAVE TAKEN ESS 201
AND EARNED A C+ OR BETTER.

ESS421 Advanced Systemic Exercise Physiology
3 credits
Spring Semester
This course examines the short and long term physical responses to exercise and
provides a general overview of the field of exercise physiology with reference
to the latest trends in modern physiological research.
PREREQUISITE: ESS 232.

ESS431 Lab Experiences in Systemic Exercise Physiology
2 credits
Fall Semester
This class will present laboratory experiences relevant to theory and exercise
physiology information presented in class. The laboratory experiences will sequentially
follow lecture material presented in the classroom. Corequisite: ESS 421.
PREREQUISITE: COREQUISITE: ESS 421.

ESS443 Clinical Athletic Training Lab I
2 credits
Fall & Spring Semester
The application of athletic training practices in selected clinical education settings.
The student must complete 150 hours of documented clinical educational hours, which
apply toward the graduation requirement of 1000 hours. Clinical education hours
will emphasize emergency procedures, first aid, and protective equipment. Successful
completion of the retention process and formal admittance into the clinical portion
of the Athletic Training Program.
PREREQUISITE: SUCCESSFUL COMPLETION OF THE RETENTION PROCESS AND FORMAL ADMITTANCE
INTO THE CLINICAL PORTION OF THE ATHLETIC TRAINING EDUCATIONAL PROGRAM.

ESS444 Clinical Athletic Training Lab II
2 credits
Spring Semester
The application of athletic training practices in selected clinical and educational
settings. The student must complete 150 hours of documented clinical education
hours, which apply toward the graduation requirement of 1000 hours. Clinical
education hours will emphasize general medical conditions, nutritional issues,psychosocial
intervention, and injury prevention and risk management. Prerequisite: A grade
of "B" or better in ESS 443.
PREREQUISITE: A GRADE OF "B" OR BETTER IN ESS 443

ESS455 Clinical Athletic Training Lab III
2 credits
Fall Semester
The application of athletic training practices in selected clinical and educational
settings. The student must complete 180 hours of documented clinical education
hours, which apply toward the graduation requirement of 1000 hours. Clinical
education hours will emphasize acute care of injuries and illnesses, lower extremity
orthopedic assessment, and risk management and injury prevention. Prerequisite:
A grade of "B" or better in ESS 443 and 444.
PREREQUISITE: A GRADE OF "B" OR BETTER IN ESS 443 AND ESS 444.
ESS456 Clinical Athletic Training Lab IV
2 credits  
Spring Semester
The application of athletic training practices in selected clinical and educational settings. The student must complete 180 hours of documented clinical education hours, which apply toward the graduation requirement of 1000 hours. Clinical education hours will emphasize upper extremity orthopedic assessment, conditioning and rehabilitation, and therapeutic, and therapeutic modalities. Prerequisite: A grade of "B" or better in ESS 443, 444, and 455.

PREREQUISITE: A GRADE "B" OR BETTER IN ESS 443, 444, AND 455.

ESS457 Clinical Internship in Exercise and Sport Sciences
3 credits  
Fall & Spring Semester & First & Second Summer Session
A comprehensive program of observation and supervised experience under the direction of a professional in the field for one semester. Supervised by University faculty.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRPERSON.

ESS458 Clinical Internship in Exercise and Sports Sciences
3 credits  
Fall & Spring Semester
A comprehensive program of supervised experience conducted under the direction of a professional in the field. Must culminate in research or hands-on experience conducted in the exercise science field.
PREREQUISITE: ESS 221, 321. OPEN TO ALL HONORS PROGRAM STUDENTS OR OTHER STUDENTS RECEIVING SPECIAL PERMISSION OF THE INSTRUCTOR.

ESS461 Therapeutic Modalities
2 credits  
Fall Semester
Students will acquire the theoretical knowledge necessary for the clinical application of therapeutic modalities. Principles of electrophysics and biophysics, specific physiological effects and therapeutic indications and contraindications associated with cryotherapy, paraffin, ultrasound, electrotherapeutic and hydrotherapeutic modalities, intermittent compression, massage, and other contemporary modalities will be discussed. Prerequisite: Open only to ATHT majors. Must have completed ESS 140 and 141 and earned a grade of B or better for both courses. Corequisite: ESS 462.

PREREQUISITE: OPEN ONLY TO ATHT MAJORS. MUST HAVE COMPLETED ESS 140 AND 141 AND EARNED A GRADE OF B OR BETTER FOR BOTH COURSES. COREQUISITE: ESS 462.

ESS462 Therapeutic Modalities Laboratory
1 credit  
Fall Semester
This laboratory will help students apply the techniques and clinical skills related to the application of therapeutic modalities. Clinical education hours will give the student the opportunity to use the knowledge, skills, and techniques learned in this course. Students must complete 40 hours of documented clinical education hours, which apply toward the graduation requirement of 1000 hours. Students must be additionally enrolled in ESS 461.
PREREQUISITE: STUDENTS MUST BE ADDITIONALLY ENROLLED IN ESS 461.

ESS463 Therapeutic Rehabilitation
2 credits  
Spring Semester
This course enables students to acquire the theoretical knowledge for the clinical application of a rehabilitation program, physical examination, principles of therapeutic exercise, open and closed chain exercise, muscle re-education, and special therapeutic techniques such as aquatic therapy.
PREREQUISITE: OPEN ONLY TO ATHT MAJORS. MUST HAVE COMPLETED ESS 140 AND ESS 141 AND EARNED A GRADE OF B OR BETTER FOR BOTH COURSES.
ESS464 Therapeutic Rehabilitation Laboratory
1 credit Fall Semester
This laboratory will place emphasis on the techniques and clinical skills relating to the rehabilitation of athletic injuries. Clinical education hours in a therapeutic rehabilitation facility will give the students the opportunity to use the knowledge, skills, and techniques learned in this course. The student must complete 100 hours of documented clinical education hours, which apply toward the clinical education requirement for graduation. Students must be additionally enrolled in ESS 463. PREREQUISITE: STUDENTS MUST BE ADDITIONALLY ENROLLED IN ESS 463.

ESS465 Pharmacology
2 credits Fall Semester
Introduction to the basic principles of pharmaceutical intervention and the implications for rehabilitation as related to the Certified Athletic Trainer. PREREQUISITE: ESS 210, 230, 264. OPEN ONLY TO ATHT MAJORS. MUST HAVE COMPLETED ESS 140 AND 141 AND EARNED A GRADE OF B OR BETTER FOR BOTH COURSES.

ESS466 Principles of Exercise Prescription: Neuromuscular
3 credits Spring Semester
The study of specific techniques to enhance neuromuscular performance in sport and everyday activity. Students will examine current training strategies and understand their strengths and weaknesses as applied to specific populations. PREREQUISITE: ESS 221

ESS470 Administrative Aspects of Athletic Training
2 credits Fall Semester
Basic concepts of legal liability, budget, financial management, inventory control, facilities design and maintenance will be addressed. Additionally, the student will discuss the day to day supervision, scheduling and general administration of the athletic training room. Open only to ATHT majors. Must have completed ESS 140 and 141 and earned a grade of B or better for both courses. PREREQUISITE: OPEN ONLY TO ATHT MAJORS. ESS 140 AND ESS 141 AND EARNED A GRADE OF B OR BETTER FOR BOTH COURSES.

ESS474 Sport Medicine Modalities
3 credits Fall Semester
Emphasis upon the basic therapeutic modalities of Sports Medicine. Includes the study of anatomical structure, biomedical evaluation techniques, and treatment. PREREQUISITE: ESS 473 AND EXPERIENCE OR PERMISSION.

ESS475 Organization and Administration of Athletic Training
3 credits Fall Semester
Basic concepts of legal liability, budget, financial management, inventory control, facilities design and maintenance will be addressed. Additionally, the student will discuss the day to day supervision, scheduling and general administration of the athletic training room. PREREQUISITE: OPEN ONLY TO ATHT MAJORS. MUST HAVE COMPLETED ESS 140 AND 141 AND EARNED A GRADE OF B OR BETTER FOR BOTH COURSES.
ESS476 Seminar in Athletic Training  
2 credits  
Fall Semester  
Topics in Athletic Training with discussions covering the NATA competencies and objectives in written and oral practical formats. 
PREREQUISITE: PERMISSION OF THE INSTRUCTOR. ATHLETIC TRAINING MAJORS ONLY. OPEN ONLY TO ATHT MAJORS. MUST HAVE COMPLETED ESS 140 AND 141 AND EARNED A GRADE OF B OR BETTER FOR BOTH COURSES.

ESS477 Advanced Nutrition for Sports and Fitness  
3 credits  
Spring Semester  
This course is an in-depth study of nutritional concerns of today's athlete. From Dehydration to Classic Carbohydrate Loading and from Female Athlete Triad to Ergogenic Aids in Sports, this course provides state of the art information on the latest nutritional issues for the exercising individual and for the athlete. 
PREREQUISITE: ESS 221 OR PERMISSION OF THE INSTRUCTOR.

ESS478 Laboratory Experience in Nutrition  
2 credits  
Spring Semester  
Students will learn how to calculate hydration needs for various sports, electrolyte concentrations of various commercial drinks, classic carbohydrate menus for endurance activities. Students will learn how to enter and interpret dietary food logs and records using computerized dietary analysis systems. Students will also learn more about energy density composition of various foods so that menu plans and dietary plans can be better understood. Corequisite: ESS 477. 
PREREQUISITE: COREQUISITE: ESS 477.

ESS480 The Scientific Bases for Training Prescription: Neuromuscular  
3 credits  
Fall & Spring Semester  
An examination of the scientific bases of modern training techniques designed to optimize performance, their functional application and potential impact on performance in sport and everyday activity. 
PREREQUISITE: ESS 221

ESS490 Special Topics in Exercise and Sport Sciences  
1- 9 credits  
Fall & Spring Semester & First & Second Summer Session  
This course is designed for students wishing to focus on a specific area of study within the umbrella of the Exercise and Sport Sciences curriculum. Students will be given supervision and support in a direction relevant to their needs and interests in a structured setting.

ESS495 Individual Study  
1- 3 credits  
Fall & Spring Semester & First Summer Session  
The Application for Admission to Advanced Individual Study Form will be required. 
PREREQUISITE: APPLICATION FOR ADMISSION TO ADVANCED INDIVIDUAL STUDY FORM REQUIRED.

ESS496 Individual Study  
1- 3 credits  
Fall & Spring Semester & Second Summer Session  
The Application for Admission to Advanced Individual Study Form will be required. 
PREREQUISITE: APPLICATION FOR ADMISSION TO ADVANCED INDIVIDUAL STUDY FORM REQUIRED.
ESS497 Internship in Sport Administration
1-9 credits Fall Semester
ESS 497: Internship in Sport Administration Field Experience that requires the student to participate in the work environment.
PREREQUISITE: ESS201. MUST HAVE EARNED A GRADE OF C OR BETTER IN ESS 201. SENIOR STANDING. OPEN ONLY TO SPAD MAJORS.

ESS498 Seminar in Sport Administration
3 credits Spring Semester
Professional seminar to accompany internship in sport administration. Students will be required to interact with other internship students and supervisors on a regular basis and additionally, students will be required to submit comprehensive reports regarding their internship experiences.
PREREQUISITE: SENIOR STANDING. OPEN ONLY TO SPAD MAJORS. MUST HAVE TAKEN ESS 201 AND EARNED A C+ OR BETTER.

ESS515 Nutrition Diet and Exercise
3 credits First Summer Session
Students will learn the latest concepts in weight management, physical fitness, and healthy eating. They will be able to understand the complex interplay of carbohydrates, protein, fat, water, fiber, vitamins, and minerals in the nourishment of their body and overall well-being. They will also examine serious health issues such as the use/misuse of anabolic steroids, weight control, and eating disorders.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ESS520 Cellular Exercise Physiology
3 credits Spring Semester
The course examines Bioenergetics and Muscular Physiology in training and detraining. Topics include the energy systems and their functional application during exercise, muscle structure and function, cellular and sub-cellular modifications of organelles and contractile mechanisms as a result of training and physiological bases of training techniques.

ESS521 Systemic Exercise Physiology
3 credits Fall Semester
The study of the physiological effects of acute vs. chronic training on homeostatic function, musculoskeletal systems, energy system function, cardiovascular and the pulmonary systems. Student will be able to understand and interpret terminology and research literature published in the field.
PREREQUISITE: ONE YEAR OF UNDERGRADUATE CHEMISTRY AND ONE YEAR OF UNDERGRADUATE HUMAN BIOLOGY.

ESS522 Basic Statistics in Exercise and Sport Sciences
3 credits Fall Semester & First & Second Summer Session
Introduction to basic statistical techniques commonly used in the Exercise and Sport Sciences. Designed as a prerequisite for ESS 646.

ESS523 Athletic Training Techniques - Assessment
3 credits Fall Semester
This course will introduce the basic concepts related to injury evaluation. With this information, and with the development of basic skills, the student should be able to form an impression of the nature of most musculoskeletal injuries.
PREREQUISITE: ESS 525 AND 588.
ESS524 Athletic Training Techniques - Rehabilitation
3 credits  
Fall Semester
This course will introduce theoretical concepts that must be understood in order to be able to rehabilitate a musculoskeletal injury. Regarding actual rehabilitation techniques, the emphasis will be on therapeutic exercise with only a brief introduction to therapeutic modalities.
PREREQUISITE: ESS 525 AND 588.

ESS525 Advanced Kinesiology
3 credits  
Fall & Spring Semester
In-depth study of the human skeletal and muscular systems with a focus on the mechanics of movement as related to physical activity, sports, and athletics.
PREREQUISITE: ESS 245 OR PERMISSION OF INSTRUCTOR.

ESS530 Laboratory Techniques in Functional Evaluation of Skeletal Muscle
3 credits  
Spring Semester
This course examines the theories of data collection and collection techniques used to evaluate musculo-skeletal and neuromuscular function. The application of both computerized and non-computerized collection systems for performance evaluation is covered. The course is also designed to establish a clear linkage between the acute and chronic musculo-skeletal and neuromuscular changes that occur during exercise and the laboratory methods used to assess those changes. Collection theory, musculoskeletal and neuromuscular function, methods of strength evaluation, anaerobic power testing, electromyography, and a number of other functional parameters will be discussed.
PREREQUISITE: ESS 520.

ESS531 Laboratory Experiences in Systemic Exercise Physiology
3 credits  
Fall Semester
This course provides a laboratory assessment of physiological principles and theories learned in the classroom setting. Focus will be on systemic application to exercise as an acute or chronic stressor. Corequisite: ESS 521.
PREREQUISITE: COREQUISITE: ESS 521.

ESS532 Sports Injuries: Prevention and Treatment
3 credits  
Fall & Spring Semester
Prevention, diagnosis, treatment and rehabilitation of sports injuries. Anatomical and kinesiological applications to sports injuries.

ESS534 Contemporary Issues in Sports Medicine
3 credits  
Offered By Announcement Only
The study of special problems and contemporary issues associated with sports medicine.
PREREQUISITE: BACKGROUND AND EXPERIENCE OR PERMISSION.

ESS540 Exercise Psychobiology
3 credits  
Fall & Spring Semester
This course is designed primarily for graduate level Exercise and Sport Science students who are interested in the biochemical basis of personality as affected by exercise and sport. The course involves interdisciplinary integration and comprehensive reviews of ancient and current literature dealing with exercise, stress, emotional, personality, immune system function and neuroendocrine function.
PREREQUISITE: ESS 521.
ESS541 Neurophysiology in Exercise Science  
3 credits  
Spring Semester  
Examination of the functions of the central, peripheral, and autonomic nervous systems in regulating exercise homeostasis and the structural and functional modifications to the systems through training. NOTE: This course is a writing intensive course. This means that all examinations and papers include a critical evaluation of the student's ability to convey information using the written word. 
PREREQUISITE: ESS 520.

ESS545 Special Sport Populations  
3 credits  
Spring Semester  
This course presents an in-depth examination of chronic conditions and medical problems commonly observed in athletes. Students will learn about the etiology of the medical condition, how exercise affects the condition, and the most recent therapeutic treatments prescribed for the condition. 
PREREQUISITE: ESS 521.

ESS555 Exercise Biochemistry  
3 credits  
Fall Semester  
This course presents an in-depth examination of the biochemical basis of exercise. Topics include neural control of movement, neuro-endocrine control of metabolism, the kinetics of glucose, lactate, free fatty acids, and amino acids, and the influence of contractile activity on skeletal muscle gene expression. Both the instructor and the students will incorporate current peer-reviewed research in the field. 
PREREQUISITE: ONE YEAR OF CHEMISTRY AND BIOCHEMISTRY RECOMMENDED.

ESS561 Advanced Tests and Measurements in Exercise and Sport Sciences  
3 credits  
Fall Semester  
Advanced techniques of testing, measurement, and evaluation in exercise and sport sciences. Individual projects. 
PREREQUISITE: PERMISSION.

ESS562 Fiscal Management in Sports Administration  
3 credits  
Fall Semester  
Fiscal management as related to athletic sports administration, recreation and leisure sports administration, and physical education. 
PREREQUISITE: BACKGROUND AND EXPERIENCE IN EXERCISE SCIENCE OR PERMISSION.

ESS563 Facilities and Event Management  
3 credits  
Spring Semester  
This course is designed to introduce students to principles and practices of planning, funding and managing facilities associated with sports participation including professional sport venues, college sports, parks, recreational sport and health/fitness clubs. Students will gain an understanding of promoting, marketing, and maintaining sport facilities. 
PREREQUISITE: ESS 566.

ESS564 Principles of Sports Marketing  
3 credits  
Fall & Spring Semester  
This course will focus on the vast world of sports marketing. The basic principles of marketing and marketing management will be introduced and integrated with application of these principles to sport and sports-related organizations. 
PREREQUISITE: ESS 301 OR PERMISSION OF INSTRUCTOR.
ESS565 Legal Aspects of Sports and Exercise Science
3 credits  
Spring Semester
Legal liability, personal injury, negligence and other related legal aspects of sports and exercise science.  
PREREQUISITE: BACKGROUND AND EXPERIENCE OR PERMISSION.

ESS566 Organization and Administration of Sports Programs
3 credits  
Fall Semester
Administrative and organizational procedures and problems specific to athletic administration, recreation and leisure sports administration, and physical education.  
PREREQUISITE: BACKGROUND AND EXPERIENCE IN EXERCISE SCIENCE OR PERMISSION.

ESS567 Elements of Sports Psychology
3 credits  
Fall & Spring Semester
Introduction to the study of sport and exercise psychology including theory, current research and practical application.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ESS568 Developmental Sports Psychology
3 credits  
Offered By Announcement Only
Examination of the concept of sport psychology which includes but is not limited to performance, enhancement, student performance and academic application.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ESS571 Sport Industry in South Florida
3 credits  
Spring Semester
This course will examine the various sport based organizations/events that are part of the sport industry in South Florida. Study of these organizations/events will include (a) products/services produced, (b) organizational structure, (c) economic impact on the local community, (d) key management personnel, (e) physical facilities, and (f) internship/employment opportunities.

ESS572 Creative Approaches to Problem Solving and Conflict Management
3 credits  
Spring Semester
This hands-on course will examine the concepts of problem solving and conflict management from both personal and organizational perspectives. Students will have the opportunity to study in-depth both of these concepts (and the relationship between them) through a combination of lecture, theory, individual and group activities, readings, practical exercises, and self-assessment tools.

ESS573 Sport Governance
3 credits  
Spring Semester & Second Summer Session
This course provides the student with an examination of the governing organizations of sport at the youth, secondary, intercollegiate, professional, international, sport specific and Olympic levels. In addition, policy development in sport management will be explored.  
PREREQUISITE: GRADUATE STANDING.

ESS574 Ethical Decision Making in Sports and the Professions
3 credits  
Fall & Spring Semester
This course will examine ethical decision-making in a variety of environments with an emphasis on sport professions. Real and hypothetical situations will be utilized, and the course will combine theory with practical application. The case method in sport ethics will be incorporated.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.
ESS575 Essential Leadership in Sports and the Professions  
3 credits  
Fall & Spring Semester  
This course will examine the concept of leadership as it pertains to sports and other professions. Various leadership and management skills will be included with a focus on practical applications in a work environment. Theory and self-assessment strategies will be incorporated.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ESS576 Practical Approach to Motivation and Ethical Decision Making  
1- 3 credits  
Spring Semester  
A critical study of practical problems of professionals in Exercise and Sport Sciences.  
PREREQUISITE: BACKGROUND AND EXPERIENCE OR PERMISSION.

ESS577 Advanced Nutrition for Sports and Fitness  
3 credits  
Spring Semester  
This course presents an in-depth study of the nutritional concerns of today's recreational and competitive athlete. Topics include Dehydration, Classic Carbohydrate Loading, Protein needs, Ergogenic Aids, and more. State-of-the-art research in the field is provided. This is also a writing intensive course. Thus, writing skills will represent an integral part of one's grade.  
PREREQUISITE: ESS 155 AND 221 OR 521.

ESS578 Pharmacology for Allied Health Professionals  
3 credits  
Spring Semester  
The study of drug families and drugs in common use across spectra of age, illness, disease, and disability. Students will understand body systems treated with current pharmaceuticals over-the-counter (OTC) medications, and neutraceutials. Actions, key adverse effects, and influences on individuals undergoing physical activity will be emphasized.  
PREREQUISITE: ESS 521.

ESS579 Principles of Exercise Prescription/Assessment: Cardiovascular  
3 credits  
Spring Semester  
This course presents a comprehensive overview of the physical, physiological and metabolic responses of the human body to exercise testing and training both in health and disease. The successful student will gain an understanding of the process involved in prescribing safe and effective therapeutic exercise in healthy individuals as well as patients with heart and lung disease, diabetes and obesity. An overview of environmental and legal considerations in the prescriptive process will also be discussed.  
PREREQUISITE: ESS 521.

ESS580 Principles of Exercise Prescription: Neuromuscular  
3 credits  
Fall Semester  
An examination of the scientific bases of modern training techniques designed to optimize performance, their functional application and potential impact on performance in sport and everyday activity.  
PREREQUISITE: ESS 520 AND 521 OR PERMISSION OF THE INSTRUCTOR.

ESS585 Advanced Topics in Exercise and Sport Sciences  
3 credits  
Spring Semester & First & Second Summer Session  
This course will provide a synthesis of essential concepts in specialty subjects relevant to one's field of interest.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.
ESS586 Exercise Prescription/Assessment Laboratory
3 credits
Fall Semester
PREREQUISITE: ESS 579.

ESS587 Laboratory Experience in Sports Nutrition
3 credits
Spring Semester
This laboratory class provides case study analyses and computerized nutrient analysis systems designed to evaluate nutrition and hydration needs of the recreational and competitive athlete. From urinalysis and blood work to body composition and computerized nutrient data base systems, this laboratory provides a clinical approach to evaluating the nutrition status of the exercising individual. Corequisite: ESS 577.
PREREQUISITE: COREQUISITE: ESS 577.

ESS588 Gross Anatomy in Exercise and Sport Sciences
3 credits
Spring Semester
Human dissection of the major muscles, arteries and nerves of the body. Course is held at the University of Miami, Medical Campus, cadaver laboratory. Special consideration is given to injury sites in sports such as the knee, shoulder, elbow, neck and spinal areas. Students are required to pay a laboratory fee for this class.

ESS589 Directed Readings in Exercise and Sport Sciences
1-3 credits
Fall & Spring Semester & First & Second Summer Session
Directed Readings focusing on research and contemporary trends.
PREREQUISITE: PERMISSION OF CHAIRPERSON.

ESS590 Special Topics in Exercise and Sport Sciences
1-3 credits
Fall & Spring Semester & First & Second Summer Session
This course is designed for students wishing to focus on a specific area of study within the umbrella of the Exercise and Sport Sciences curriculum. Students will be given supervision and support in a direction relevant to their needs and interests in a structured setting.
PREREQUISITE: BACKGROUND AND EXPERIENCE OR PERMISSION.

TEACHING AND LEARNING

TAL101 Social and Technological Foundations of Education.
3 credits
Fall & Spring Semester
Interdisciplinary overview of the historical development of education in the United States. topics include history of education, schooling as a social institution, school funding, ethics, legal issues, racism, social class, sexism, homophobia and heterosexism, language-based discrimination and religion. This course emphasizes the interdependent nature of school and culture; it critically analyzes issues facing children, parents, and educators using this larger cultural framework.

TAL102 Educational Technology Laboratory
1 credit
Fall & Spring Semester
Applications of technology to education, including use of technology in instruction, assessment, and productivity. Field based. Corequisite: TAL 101.
PREREQUISITE: COREQUISITE TAL 101.
TAL103 Psychological Foundations of Education
2-3 credits  Fall & Spring Semester
Overview of major frameworks in psychology that inform teaching and learning within classroom settings. Major theories of development related to language, affect and cognition across the life span and within diverse settings. Attention is drawn to contributions from social and personality psychology, cognitive science, testing and psychometrics to promote learning through classroom instruction and assessment.

TAL107 American Sign Language I
3 credits  Fall Semester
This course is designed to allow participants to learn about Deaf Culture and be able to sign with sufficient fluency to discuss work, social, and family topics using two to four sentence responses.

TAL191 Developmental Reading for College Students
3 credits  Fall & Spring Semester
Instruction in college level reading strategies based on individual student needs. Emphasis on vocabulary, comprehension and techniques of test preparation.

TAL203 Children's Literature
3 credits  Fall & Spring Semester
History, trends, and genres of children's literature with emphasis on children's literature as a curriculum resource.

TAL204 Building Positive Relationships in Diverse Inclusive Secondary Schools.
3 credits  Fall & Spring Semester
Course is designed to assist general education teachers in meeting the needs of diverse secondary school students. Emphasis is placed on language and culture in the classroom, as well as students with disabilities.
PREREQUISITE: TAL 101.

TAL207 American Sign Language II
3 credits  Fall Semester
This course is designed to allow participants to learn about Deaf Culture and be able to sign with sufficient fluency to discuss work, social, and family topics using four to six sentence responses. Students will be able to independently participate in a signed conversation without the use of voicing.
PREREQUISITE: TAL 107 (ASL I).

TAL304 Content Area Reading and Learning Strategies
3 credits  Fall & Spring Semester
Essentials of literacy instruction in different subject areas for middle, junior, and senior high schools; instructional methods and materials for development of language arts, reading, and study skills. Emphasis is placed on selecting appropriate materials, motivating students, and helping students with exceptional needs and students who are English language learners. Field experience required.
TAL305 Classroom and Behavior Management
3 credits Fall & Spring Semester
The principles of behavior analysis and classroom management strategies, both preventative and problem solving. Special emphasis includes effective communication with students, parents and other stakeholders; meeting the needs of all learners based on individual differences, cultural and linguistic diversity; knowledge of research-based strategies that support intellectual, personal and social well-being and development of all students; planning and conducting lessons in a safe, efficient and supportive learning environment. Field experience required.
PREREQUISITE: TAL 101

TAL308 Language Development for Linguistically and Culturally Diverse Children
3 credits Fall & Spring Semester
Course provides an introduction to theories of linguistics as well as first and second language acquisition. Readings and lectures serve to highlight the development of language and language challenges faced by students for whom Standard English is a second language and/or a second dialect. Theories of linguistics are used to identify, explain and assess literacy challenges. Field experience required. This course counts as one of two required stand-alone ESOL courses.
PREREQUISITE: TAL 103

TAL320 Introduction to Literacy Assessment and Instruction in Elementary School.
3 credits Fall & Spring Semester
Multidisciplinary survey of reading and writing acquisition in the elementary school. Assessment and instruction in the major components of reading: phonological awareness, word identification and phonics, fluency, vocabulary, and comprehension.
PREREQUISITE: TAL 308 OR TAL 506; APPLICATION TO TEACHER CANDIDACY. COREQUISITE: TAL 321

TAL321 Language Arts in the Elementary School.
3 credits Fall & Spring Semester
This course focuses on competencies in reading, writing, listening, speaking, viewing and visual representation. Children's literature is infused. Emphasis on research-based practices and multicultural awareness. Field experience required.
PREREQUISITE: TAL 308 OR TAL 506; APPLICATION TO TEACHER CANDIDACY. COREQUISITE: TAL 320

TAL324 Education and the Arts
3 credits Fall & Spring Semester
Exploration of the fine and performing arts and their relation to Pre-K to 12 education. Emphasis is placed on experiential learning and methods of incorporating the arts in school curricula. The course also includes a focus on the value of the arts to the individual and society.
PREREQUISITE: SOPHOMORE STANDING AND ABOVE.

TAL330 Introduction to the Education of Exceptional Individuals
3 credits Fall & Spring Semester
A survey course providing a general orientation to Exceptional Individual Education as an integral part of the general education structure. Includes an introduction to appropriate educational programs for exceptional individuals.
TAL332 Assessment of Exceptional Students
3 credits
Spring Semester
Assessment process and techniques used in the identification, assessment, and instruction of exceptional students.
PREREQUISITE: TAL 101, 102, 202, 205, 330.

TAL341 Introduction to Models of Curriculum Development in TESOL
3 credits
Offered By Announcement Only
This course is designed to provide participants with professional training in developing multicultural curricula and instructional materials for students in the process of learning English as a new language.
PREREQUISITE: TAL 101; 102; 243 OR PERMISSION OF INSTRUCTOR.

TAL390 Topics in Education
3 credits
Spring Semester
Review of emerging policy, practice, empirical research and scholarly writing on important educational issues for which formal course title and syllabus have not been developed and formalized in the UM Bulletin. Allows for experimental instructional formats. Course number indicates appropriate student audience. See Course Notes for specific topic.

TAL422 Mathematics Instruction in the Elementary School
3 credits
Fall & Spring Semester
Principles and practices in the teaching of elementary-school mathematics. Attention is paid to infusion of technology, linguistic and cultural diversity, students with exceptionalities, and the origins of gender bias. Field experience required.
PREREQUISITE: APPLICATION TO TEACHER CANDIDACY.

TAL423 Science and Social Studies Instruction in the Elementary School
3 credits
Fall & Spring Semester
Principles and practices in the teaching of elementary-school science and social studies. Attention is paid to infusion of technology, linguistic and cultural diversity, students with exceptionalities, and the origins of gender bias. Field experience required.
PREREQUISITE: ADMISSION TO TEACHER CANDIDACY.

TAL425 Inclusive Classrooms in the Elementary School
3 credits
Fall & Spring Semester
The course prepares elementary school teachers to meet the individual needs of students with exceptionalities who have been integrated into the general education classroom. Field experience required.
PREREQUISITE: NONE. COREQUISITE: TAL 422

TAL426 Practicum in Reading
3 credits
Fall & Spring Semester
Supervised practicum in reading and writing. Emphasis is on assessment and interventions for elementary students with a range of academic, linguistic and cultural challenges in becoming proficient readers.
PREREQUISITE: TAL 320 AND 321.
TAL428 ESOL Curriculum and Methods and Assessments
3 credits  Fall & Spring Semester
The course addresses the application of TESOL theories, principles, and current research to the use of curriculum, methods, and assessment. In doing so, the course focuses on an understanding of the differences between curriculum, methods, and assessment designed for children who are native speakers of Standard English and those designed for ESOL. Specific TESOL modifications appropriate for content areas are also addressed. Field experience required. This course counts as the second of two required ESOL specific courses.
PREREQUISITE: TAL 308 OR TAL 506

TAL432 Curriculum and Instruction in Exceptional Student Education for K-6 Settings
3 credits  Fall Semester
Instructional strategies and materials appropriate for teaching students enrolled in Exceptional Student Education programs in K-6 settings. Students must be enrolled concurrently in TAL 434. 50 hours of field experience required in an assigned K-6 ESE setting.
PREREQUISITE: TAL 101, 102, 202, 205, 330, 332, AND ADMISSION TO TEACHER CANDIDACY.

TAL434 Curriculum and Instruction in Exceptional Student Education for Grades 7-12 Set
3 credits  Fall Semester
Instructional strategies and materials appropriate for teaching students enrolled in Exceptional Student Education programs in grades 7-12 settings. Students must be enrolled concurrently in TAL 432. 50 hours of field experience required in an assigned K-6 ESE setting.
PREREQUISITE: TAL 101, 102, 202, 205, 330, 332, AND ADMISSION TO TEACHER CANDIDACY.

TAL444 Instruction in Secondary Science
2-3 credits  Fall Semester
Analysis of methods, materials, and content appropriate for teaching science in the secondary school.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

TAL446 Methods of Teaching Theatre
3 credits  Offered By Announcement Only
Analysis of methods, materials, and content appropriate for teaching the theatre arts in elementary and secondary school.

TAL460 Teaching and Learning in Context
3 credits  Offered By Announcement Only
This captive course, taken just prior to Associate Teaching, provides an in-depth treatment of theories and practices in teaching and learning from cognitive and sociocultural perspectives. Includes classroom applications of modern learning theories; ethical, cultural and legal issues in teaching. The course reviews and reinforces observation skills and reflective teaching practices. The course emphasizes the relationship of theory and practice as students prepare for associate teaching.
PREREQUISITE: CO-REQUISITE: APPLICATION TO ASSOCIATE TEACHING IS PENDING.

TAL470 Associate Teaching in the Elementary School (Semester-Long)
6-9 credits  Fall & Spring Semester
A comprehensive semester-long program in observation and supervised teaching in the elementary school. The student spends full time in an elementary school participating in all activities of the teacher under the guidance of school and university personnel.
PREREQUISITE: ACCEPTANCE TO ASSOCIATE TEACHING. COREQUISITE: TAL 480
TAL471 Associate Teaching in the Elementary Schools for K-12 Areas
3- 6 credits  Fall & Spring Semester
A comprehensive program in observation and supervised teaching in the elementary school. The student spends full-time for one half a semester in an elementary school, participating in all activities of the teacher under the guidance of school and university personnel.
PREREQUISITE: APPROVAL OF THE COMMITTEE ON FIELD EXPERIENCES.

TAL473 Associate Teaching in the Secondary School for K-12 Areas
3- 6 credits  Fall & Spring Semester
A comprehensive program in observation and supervised teaching in the secondary school. The student spends full time for one half a semester in a secondary school, participating in all activities of the teacher under the guidance of school and university personnel.
PREREQUISITE: APPROVAL OF THE COMMITTEE ON FIELD EXPERIENCES.

TAL477 Field Experience in Education
1- 9 credits  Offered By Announcement Only
Placement in government agencies, medical centers, adult education centers, public and private school classrooms, community agencies, and local businesses related to academic course work or area of interest. A minimum of 30 hours per credit of supervised field experience. One hour bi-weekly integrative seminars with faculty supervisors to focus on personal meaning derived from and given to the experience, self-evaluation, group sharing, and discussion of commonalities of experiences is required.
PREREQUISITE: PERMISSION OF ADVISOR.

TAL478 Associate Teaching in Elementary School (Year-Long)
4- 8 credits  Offered By Announcement Only
A comprehensive year-long program in observation and supervised teaching in the elementary school. The student spends full time in an elementary school participating in all activities of the teacher under the guidance of school and university personnel following the calendar of the school system.
PREREQUISITE: APPROVAL OF THE COMMITTEE ON FIELD EXPERIENCES.

TAL480 Seminar on Teaching
1- 3 credits  Fall & Spring Semester
The seminar is designed to support teacher candidates during the associate teaching experience. Students receive support and assistance in completing Florida Educator Accomplished Practices (FEAP) electronic portfolios. Students share, reflect, and discuss their daily experiences in class during culminating experience in the field.
PREREQUISITE: COREQUISITE CONCURRENT WITH ASSOCIATE TEACHING.

TAL490 Advance Topics in Education
3 credits  Spring Semester
Review of emerging policy, practice, empirical research and scholarly writing on important educational issues for which formal course title and syllabus have not been developed and formalized in the UM Bulletin. Allows for experimental instructional formats. Course number indicates appropriate student audience. See Course Notes for specific topic.
TAL 495 Individual Study
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Individual work on a special project under faculty guidance. Application for Admission to Advanced Individual Study will be required.
PREREQUISITE: PERMISSION OF DIRECTING FACULTY MEMBER AND DEPARTMENT CHAIRMAN.

TAL 501 Classroom Based Assessment
3 credits  Fall & Spring Semester
Principles and classroom applications of educational measurement and assessment.

TAL 502 Classroom Based Research
3 credits  Offered By Announcement Only
Application of research principles to evaluation and improvement of teacher effectiveness. Use of scientific methods in problem solving and decision making in the classroom. Student experiences in the planning, conduct, analysis and reporting of classroom research are included.

TAL 503 Micro-Computer Applications in Education
3 credits  Spring Semester
Microcomputer applications in early childhood, elementary, and secondary English, Social Studies, Science, and Mathematics education.

TAL 504 Building Positive Relationships in Inclusive Secondary Schools
3 credits  Fall & Spring Semester
Designed to assist general education teachers in meeting the needs of diverse secondary school students. Focus on students with disabilities, language and culture in the classroom, and developing culturally competent classroom management methods.
PREREQUISITE: TAL 101

TAL 506 Issues and Strategies for ESOL
3 credits  Offered By Announcement Only
This course provides a comprehensive foundation in ESOL (English for Speakers of Other Languages) competencies based on Florida's mandates and TESOL standards. Theory and practice will be emphasized in the areas of applied linguistics, cross cultural communication and understanding, methods of teaching, assessment, and curriculum and material development.
PREREQUISITE: TAL 101 AND 204 OR PERMISSION OF INSTRUCTOR.

TAL 508 Teaching English Grammar for TESOL
3 credits  Offered By Announcement Only
This course is designed to provide participants with a knowledge of the rules of modern English grammar and an ability to teach and test application of those rules in a range of language skill contexts to students whose native language is not English. Analysis of grammar texts and tests are emphasized.

TAL 517 Curriculum, Assessment, Teaching and Learning for Physical Science
3 credits  Fall Semester
Analysis of content knowledge, pedagogy, and materials appropriate for teaching physical science in the elementary school. The course content focuses on instructional practice with an emphasis on developing teacher content knowledge in physical science, pedagogy, and student literacy in physical science.
TAL518 Curriculum, Assessment, Teaching and Learning for Number, Operations, and Algebra
3 credits Fall Semester
This course examines topics that address the mathematical ideas underlying number, operations and algebra. Related curriculum, instructional and assessment issues will be also discussed.

TAL520 Curriculum, Assessment, Teaching and Learning for Measurement and Geometry
3 credits Fall & Spring Semester & First & Second Summer Session
Topics involving measurement and geometry in the K-16 mathematics curriculum, how students learn and reason, assessment, instructional strategies.
PREREQUISITE: GRADUATE STUDENT; ADVANCED UNDERGRADUATE WITH CONSENT OF PROFESSOR.

TAL521 Curriculum, Assessment, Teaching and Learning for the Life Sciences
3 credits Fall Semester
Analysis of content knowledge, pedagogy, and materials appropriate for teaching life science in the elementary school. The course content focuses on instructional practice with an emphasis on developing teacher content knowledge in life science, pedagogy, and student literacy in life science.

TAL522 Curriculum, Assessment, Teaching and Learning in the Earth Sciences
3 credits Fall Semester
Analysis of content knowledge, pedagogy, and materials appropriate for teaching Earth science in the elementary school. The course content focuses on instructional practice with an emphasis on developing teacher content knowledge in Earth science, pedagogy, and student literacy in life science.
PREREQUISITE: ADMISSION TO THE GRADUATE SCHOOL

TAL523 Curriculum, Assessment, Teaching and Learning for Data Analysis and Probability
3 credits Fall & Spring Semester & First & Second Summer Session
Data in the elementary school: how to gather (biased and unbiased samples), store, manage, represent, analyze. Probabilistic inferences in elementary school: chance, odds, counting, related topics.
PREREQUISITE: GRADUATE STUDENT; ADVANCED UNDERGRADUATE WITH CONSENT OF PROFESSOR.

TAL524 Education and the Arts
3 credits Fall Semester
Exploration of the fine and performing arts and their relation to PreK-12 education. Emphasis is placed on experiential learning and methods of incorporating the arts in school curricula. The course also includes a focus on the value of the arts to the individual and society.

TAL526 Practicum in Reading
3 credits Fall & Spring Semester
Supervised practicum in reading and writing. Emphasis is on assessment and interventions for elementary students with a range of academic, linguistic and cultural challenges in becoming proficient readers.
PREREQUISITE: TAL 320, TAL 321

TAL527 Language and Assessment in ESOL
3 credits Offered By Announcement Only
Study of language systems with a focus on understanding and applying linguistic terms. Course prepares teachers to conduct informal and formal assessment procedures with English language learners. Field experience with English language learners is required.
PREREQUISITE: TAL 531, 550 OR 620, 603, 622.
TAL528 ESOL Curriculum, Methods, and Assessment.  
3 credits Offered By Announcement Only  
This course focuses on applying TESOL theories, principles, and current research to the development and use of instructional materials, curriculum, and methods. The course will enhance participant's knowledge of the regular English language arts curriculum in comparison with the ESOL curriculum.  
PREREQUISITE: TAL 506.

TAL531 Educating Exceptional Students  
3 credits Fall & Spring Semester  
A survey course in special education emphasizing characteristics and problems associated with various categories of exceptional learners. Policy, issues, and trends in special education will be discussed.

TAL540 Instruction and Assessment in the Secondary School.  
3 credits Fall & Spring Semester  
Research-based instructional processes in the secondary school.  
PREREQUISITE: APPLICATION TO TEACHER CANDIDACY.

TAL541 Instruction in Secondary English.  
2-3 credits Fall Semester  
Analysis of methods, materials, and content appropriate for teaching language arts in the secondary school.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

TAL542 Instruction in Secondary Mathematics.  
3 credits Offered By Announcement Only  
Analysis of methods, materials, and content appropriate for teaching mathematics in the secondary school.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

TAL543 Instruction in Secondary Science.  
3 credits Offered By Announcement Only  
Analysis of methods, materials, and content appropriate for teaching science in the secondary school.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

TAL544 Instruction in Secondary Social Studies.  
2-3 credits Fall Semester  
Analysis of methods, materials, and content appropriate for teaching the social sciences in the secondary school.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

TAL550 Language and Early Reading Instruction  
3 credits Fall Semester  
Factors related to emergent literacy with an emphasis on diverse aspects of language that influence literacy and learning; development of emergent literacy and word perception; emergent literacy curriculum development; appropriate assessment and instructional techniques. Understanding of reading as a process of student engagement in fluent decoding and construction of meaning. Writing intensive.
TAL551 Word Perception in Reading
3 credits
Offered By Announcement Only
Administration and interpretation of a standard reading inventory. An examination of the word recognition and vocabulary curriculum as well as appropriate assessment devices and instructional techniques.

TAL552 Reading Comprehension
3 credits
Spring Semester
Development of comprehension, rate, and study skills; reading in the content areas; evaluation of materials, organization of programs; issues, problems, and exceptional readers. Emphasis is placed on understanding reading as a process of student engagement in fluent decoding of words and construction of meaning.

TAL554 Literacy and Learning Strategies in the Content Area
3 credits
Fall & Spring Semester
Literacy instruction in content areas for grades 6 through 12; instructional methods and materials for development of language arts, reading, and study skills. Emphasis on appropriate materials, motivation, and support for students with exceptional needs and English language learners.

TAL570 Associate Teaching in the Elementary School.
6-9 credits
Offered By Announcement Only
A comprehensive semester-long program in observation and supervised teaching in the elementary school. The student spends full-time in an elementary school participating in all activities of the teacher under the guidance of school and university personnel. PREREQUISITE: ACCEPTANCE TO ASSOCIATE TEACHING.

TAL572 Associate Teaching in the Secondary School.
6-9 credits
Offered By Announcement Only
A comprehensive program in observation and supervised teaching in the secondary school. The student spends full-time in a secondary school participating in all activities of the teacher under the guidance of school and university personnel. PREREQUISITE: ACCEPTANCE OTO ASSOCIATE TEACHING.

TAL580 Seminar on Teaching
1-3 credits
Offered By Announcement Only
Topical seminar to accompany associate teaching

TAL584 Topics in the Professional Development and Supervision of Teachers.
3 credits
Offered By Announcement Only
Topics include the preparation of clinical teachers to induct, guide, and supervise the field experiences of students and associate teachers; techniques in the observation and supervision of in-service teachers; creation and implementation of professional development plans; reading in the research on teacher development across the career. PREREQUISITE: TEACHING EXPERIENCE.

TAL590 Topics in Education
3 credits
Spring Semester
Review of emerging policy, practice, empirical research and scholarly writing on important educational issues for which formal course title and syllabus have not been developed and formalized in the UM Bulletin. Allows for experimental instructional formats. Course number indicates appropriate student audience. See Course Notes for specific topic.
TAL591 Workshop in Education
1-6 credits  
Offered By Announcement Only
A critical study of practical problems of teachers. Significant problems are defined, literature and research are reviewed, and individual or small group projects are required.

TAL592 Seminar in Teaching English as a Foreign Language
3 credits  
Offered By Announcement Only
This course is designed to provide prospective international teachers of English as a new language with essential strategies and multiple models of teaching techniques; and the theoretical framework to apply these strategies and techniques.
PREREQUISITE: ADMISSION TO GRADUATE PROGRAM

TAL593 Workshop in Education
1-6 credits  
Offered By Announcement Only
A critical study of practical problems of teachers. Significant problems are defined, literature and research are reviewed, and individual or small group projects are required.

TAL594 Workshop in Education
1-6 credits  
Offered By Announcement Only
A critical study of practical problems of teachers. Significant problems are defined, literature and research are reviewed, and individual or small group projects are required.

TAL595 Workshop in Education
1-6 credits  
Offered By Announcement Only
A critical study of practical problems of teachers. Significant problems are defined, literature and research are reviewed, and individual or small group projects are required.

TAL596 Workshop in Education
1-6 credits  
Offered By Announcement Only
A critical study of practical problems of teachers. Significant problems are defined, literature and research are reviewed, and individual or small group projects are required.

TAL597 Workshop in Education
1-6 credits  
Offered By Announcement Only
A critical study of practical problems of teachers. Significant problems are defined, literature and research are reviewed, and individual or small group projects are required.

TAL598 Workshop in Education
1-6 credits  
Offered By Announcement Only
A critical study of practical problems of teachers. Significant problems are defined, literature and research are reviewed, and individual or small group projects are required.

TAL599 Workshop in Education
1-6 credits  
Offered By Announcement Only
A critical study of practical problems of teachers. Significant problems are defined, literature and research are reviewed, and individual or small group projects are required.
BME100 Introduction to Biomedical Engineering for Summer Scholars
3 credits  First & Second Summer Session
This introductory course is designed to expose high school students to biomedical engineering. The program is designed for the exemplary high school student interested in applied mathematics and science. The students will be provided with an understanding and some hands-on experience on topics relative to the discipline of Biomedical Engineering. The course content changes throughout the 3-week duration and includes topics on lasers, medical imaging, biomaterials, bioelectricity and biomechanics. The students will be able to understand the challenges associated with the design, testing and FDA clearance of biomedical devices and the importance of the scientific methods in engineering. The laboratory and field trip experiences will deal with the design and testing of a bioelectric device. Summer Scholar Students only.
PREREQUISITE: SUMMER SCHOLAR STUDENTS ONLY.

BME111 Introduction to Engineering I
3 credits  Fall & Spring Semester
Use of engineering tools for problem solving are discussed. Topics include the use of computer techniques for data acquisition, analysis, presentation, software design, computer aided drafting, and development of design skills through several design and building competitions. Introduction to professional ethics and intellectual property rights, the use of MATLAB, AutoCAD, and programming in C++.

BME112 Introduction to Engineering II
2 credits  Fall & Spring Semester
Introduction to biomedical engineering analysis, design, and manufacturing processes. Ethics, regulatory factors, and biomedical engineering design tools (mechanical, electrical and computer tools) are introduced. Hands on experience is provided through a project in which the students design, assemble, program, and test biomedical devices. 
PREREQUISITE: BME 111.

BME265 Medical Systems Physiology
3 credits  Spring Semester
Human physiological processes from a bioengineering and medical point of view. Pertinent aspects of anatomy, biophysics, biochemistry, and disease mechanisms are also included.
PREREQUISITE: BIL 150, 151, CHM 112.

BME301 Practical Training
1- 3 credits  Fall & Spring Semester & First & Second Summer Session
This course serves as a way to acknowledge and evaluate a student's work on a design or research project that is conducted in a non-teaching laboratory or in a corporation. The activity supplements rather than substitutes for any of the degree requirements in BME.

BME305 Biomedical Technology
3 credits  Spring Semester
Non-mathematical introduction to technical and clinical aspects of biomedical engineering. Biomedical signals and instrumentation, sensors, transducers, physiological measurements, laboratory instrumentation, implants, cardiac assist devices, radiology, ultrasound, CT, MRI, transmission, and scanning electron microscopy. Field trips to clinical and research laboratories are included. Open only to non-BME students.
PREREQUISITE: BIL 150, CHM 111.
BME310 Mathematical Analysis in Biomedical Engineering
3 credits Fall & Spring Semester
Mathematical modeling of physiological and other biomedical engineering systems and devices. Basic engineering principles and mathematical tools are covered for rigorous understanding of physiological regulation and control in biosystems.
PREREQUISITE: PHY 207, MTH 311.

BME320 The Evolution of Technology
3 credits Spring Semester
Organized and taught by an interdisciplinary team, this innovative course is designed for juniors and seniors. An experimental elective, the course uses multimedia to explore the ways in which innovation is driven by the needs of society and individuals, and nurtured by improvements in tools and production. Five broad subject areas will receive special attention: survival, communication, transportation, entertainment and medicine.
PREREQUISITE: JUNIOR STANDING OR HIGHER, OR PERMISSION OF THE INSTRUCTORS.

BME330 Foundations of Medical Imaging
3 credits Fall Semester
Physical and biological principles of medical imaging, including ultrasound, X-ray, nuclear, magnetic resonance, electrical impedance and optical imaging. Propagation and interaction of ultrasonic waves, light waves, X-ray photons, and nuclear radiation in hard and soft biological tissue. Corequisite: BME 310.
PREREQUISITE: PRE OR CO-REQUISITE: BME 310

BME335 Biomaterials
3 credits Fall & Spring Semester
Introduction to the field of Biomaterials. Review of materials science for four main types of biomaterials: ceramics, metals, polymers, and composites. Lectures on special topics given by guest lecturers who are active in their specific areas, under supervision of the instructor.
PREREQUISITE: PRE OR CO-REQUISITE: MAE 301

BME375 Biomechanics I
3 credits Fall & Spring Semester
Application of solid and fluid mechanics to describe the mechanical behavior of human motion, mechanical behavior of soft and hard biological tissues, cells and biofluids. Review of fundamental concepts and techniques of mechanics (stress, strain, constitutive relations). Focus on mechanical properties of specific tissues, including tendon, skin, smooth muscle, heart muscle, cartilage, and bone. Cellular and biofluid mechanics will be presented.

BME395 Undergraduate Research in Biomedical Engineering
1-3 credits Fall & Spring Semester & First & Second Summer Session
Research and/or design projects consisting of an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF INSTRUCTOR

BME399 Cooperative Education
1 credit Fall & Spring Semester & First & Second Summer Session
Practical application of classroom theory through alternating semester or summer employment with firms offering positions consistent with the student's field of study. May be repeated.
BME401 Senior Project I
1- 2 credits  Fall & Spring Semester
Planning Phase of an individual or group project for seniors, to be taken during the penultimate semester to graduation.
PREREQUISITE: SENIOR STANDING.

BME402 Senior Project II
1- 2 credits  Fall & Spring Semester
Completion of individual or group project for seniors, to be taken during the final semester before graduation. A total of 3 credits in this 401-402 sequence.
PREREQUISITE: BME 401

BME440 Biomedical Measurements
4 credits  Fall & Spring Semester
Introduction to the principles of measurements in physiological and biological systems, as well as a discussion of measurable parameters, transducers, sensors, signal conditioning, and processing. Laboratory experiments are conducted in parallel with the course.
PREREQUISITE: BIL 150, 151, EEN 307.

BME460 Introduction to Physiological Fluid Mechanics
3 credits  Spring Semester
The role of transport processes in biological systems, mathematical modeling of physiological fluid transport, conservation of mass and momentum rheology of blood flow in large and small vessels, approximation methods for the analysis of complex physiological flow, fluid flow in the circulation and tissue. Basic engineering principles and mathematical tools are covered for rigorous understanding of physiological fluid flow.
PREREQUISITE: PHY 207, CAE 210, MTH 311.

BME480 Biomedical Instrumentation
3 credits  Fall & Spring Semester
Analysis and design of systems and electronic circuitry in medical and biological instrumentation. Treatment of bioelectric potentials electrodes, transducers, high gain-low noise input circuits, timing and switching circuits, biotelemetry, bioelectrodes, and bioelectric systems are discussed. Corequisite: BME 440.
PREREQUISITE: EEN 307. PRE OR COREQUISITE: BME 440

BME501 Unified Medical Sciences I
3 credits  Fall Semester
Treatment of the basic biological and medical elements in physiological systems. The anatomy, physiology, biophysics, biochemistry and certain aspects of clinical medicine are unified with an emphasis on cellular and subcellular systems. Not open to BME undergraduates.
PREREQUISITE: PERMISSION OF COURSE COORDINATOR.

BME502 Unified Medical Sciences II
3 credits  Fall Semester
Treatment of the basic biological and medical elements in physiological systems. The anatomy, physiology, biophysics, biochemistry, and certain aspects of clinical medicine are unified with an emphasis on cardiovascular, renal, digestive, endocrine, and reproductive systems. Not open to BME undergraduates.
PREREQUISITE: PERMISSION OF COURSE COORDINATOR.
BME503 Unified Medical Science III
3 credits
Spring Semester
Treatment of the basic biological and medical elements in physiological systems. The anatomy, physiology, biophysics, biochemistry, and certain aspects of clinical medicine are unified with an emphasis on neural, sensory, and muscular systems. Not open to BME undergraduates.
PREREQUISITE: PERMISSION OF COURSE COORDINATOR.

BME506 ProEngineer Applications for Biomedical Engineering
1 credit
Spring Semester
Laboratory course for computer based two and three dimensional drawing and design based on ProEngineer. Parametric design, parts, features, assemblies for complex modeling. Applications in biomedical engineering design.
PREREQUISITE: BME 112, EEN 118.

BME507 LabView Applications for Biomedical Engineering
1 credit
Spring Semester
Laboratory course for computer based instrumentation and design based on Labview. Virtual instrumentation, data acquisition and display, GPIB instrument control, biomedical applications in biosignal recording, and monitoring are discussed.
PREREQUISITE: BME 112, EEN 118.

BME511 Clinical Engineering
3 credits
Offered By Announcement Only
Clinical engineering concepts, medical instrumentation and systems, patient safety, requirements and regulations for medical devices, hospital organization, accreditation requirements, and related topics are discussed.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BME512 Regulatory Control of Biomedical Devices
3 credits
Spring Semester
Regulatory agencies and requirements, Food and Drug Administration, 510(k) and premarket approval (PMA), international regulatory requirements, ISO 9000 series, CE, UL, product and process validation, quality engineering, quality improvement programs, rapid prototyping, packaging and sterilization, and project management are discussed.

BME520 Medical Imaging Systems
3 credits
Offered By Announcement Only
Engineering and scientific principles of medical imaging systems. The concepts of instrumentation and diagnostic applications of different techniques and systems are presented. Demonstrations or exhibitions of medical systems are given in the visits to clinic and research laboratories. Topics include digital image and image processing fundamentals, radiographic (X-ray, CT), magnetic resonance(MRI) and radio-isotopic (PET) systems, and associated image reconstruction techniques. Basic concepts and simulation of imaging systems are emphasized.
PREREQUISITE: EEN 118, 201, 307, BME 570 (CO-REQUISITE) OR EQUIVALENT.
BME521 Medical Imaging Applications
3 credits Fall Semester
Medical applications of imaging systems and image processing techniques. Topics include image fundamentals (resolution, format, and storage), image processing fundamentals (transformation, compression, enhancement, segmentation, registration, and reconstruction), and image analysis fundamentals (calibration, quantification, correlation, linearity and depiction). Course includes dedicated computer laboratory projects and demonstrations given in clinical and research laboratories at the medical campus. Corequisite: BME 570 or equivalent.
PREREQUISITE: EEN 118, 201, 307. COREQUISITE: BME 570 OR EQUIVALENT.

BME522 Scanning Electron Microscopy in Biomedical Devices
3 credits Fall & Spring Semester
Physics and operating principles of scanning electron microscope (SEM), transmission electron microscope (TEM), and optical light microscope. Biological tissue preparation, storage, fixation and digital image storage. Each student will learn to use the SEM in the design and/or analysis of a biomedical device.
PREREQUISITE: PERMISSION OF INSTRUCTOR

BME525 Special Problems
1- 3 credits Fall & Spring Semester & First & Second Summer Session
Research and/or design projects consisting of an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: SENIOR OR GRADUATE STANDING; PERMISSION OF INSTRUCTOR.

BME526 Special Problems
1- 3 credits Fall & Spring Semester
Research and/or design projects consisting of an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

BME527 Special Problems
1- 3 credits Fall & Spring Semester
Research and/or design projects consisting of an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

BME528 Engineering Hemodynamics
3 credits Offered By Announcement Only
Fluid mechanics of circulation with emphasis given to function of the heart and its valves, systemic circulation including arterial flow, capillary, venous flows, pulmonary circulation including alveolar sheet flow. Particular stress is placed on the modeling of physiological events related to blood flow in cardiovascular devices and prostheses.
PREREQUISITE: MEN 309 OR EQUIVALENT.

BME529 Special Problems
1- 3 credits Fall & Spring Semester & First & Second Summer Session
Research and/or design projects. Individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.
BME531 Technical Entrepreneurship I
1 credit Fall & Spring Semester
The first half of a two-semester sequence that simulates the work of a product
development team to gain experience in technical entrepreneurship. The students
propose product ideas, assess those collectively, select a few, form teams, define
the product, and perform market analysis. The course is concluded with a business
and technical development plan for the team's project. Lectures are presented on
a variety of entrepreneurial topics.
PREREQUISITE: JUNIOR OR HIGHER STANDING.

BME532 Technical Entrepreneurship II
2 credits Fall & Spring Semester
The second half of a two-semester sequence that simulates the work of a product
development team to gain experience in technical entrepreneurship. The students
complete the development of a working prototype and refine their marketing and
business plan based on experience gained during the development phase. Lectures
are presented on relevant entrepreneurial topics.
PREREQUISITE: JUNIOR OR HIGHER STANDING.

BME535 Advanced Biomaterials
3 credits Offered By Announcement Only
Applications of biomaterials in different tissue and organ systems. Relationship
between physical and chemical structure of materials and biological system response
are discussed as well as choosing, fabricating, and modifying materials for specific
biomedical applications.
PREREQUISITE: BME 335 OR PERMISSION OF INSTRUCTOR.

BME540 Microcomputer-Based Medical Instrumentation
3 credits Offered By Announcement Only
Principles and design of microcomputer-based biomedical instruments, analog and
digital signal conversion, microcomputer hardware and software design, algorithm
development for medical applications, medical signal processing with microcomputers,
software safety in life support systems, and current applications are discussed.
PREREQUISITE: EEN 304 AND 315, OR PERMISSION OF INSTRUCTOR.

BME541 Medical Electronic Systems Laboratory
2 credits Spring Semester
Laboratory course for BME 540. Design of medical instruments integrated with microcomputers
PREREQUISITE: COREQUISITE BME 540.

BME545 Biomedical Optical Instruments
3 credits Fall Semester
Introduction to geometrical optics, light sources, detectors, and fiber optics
with an emphasis on engineering aspects and medical applications. Fiber-optic delivery
systems for medical applications, optics of the eye and visual instruments, and
optical instruments used in medicine (microscopes, endoscopes, ophthalmic instruments)
are discussed. Hands-on sessions in the laboratory are included.
PREREQUISITE: PHY 207, MTH 311 OR PERMISSION OF THE INSTRUCTOR.
BME546 Medical Applications of Lasers  
3 credits  
Spring Semester  
Review of geometrical optics, fiber optics, wave optics, laser physics, and technology. Medical laser systems, optical properties of tissue, light propagation in tissue, laser-tissue interactions, and surgical applications of lasers are also covered. Hands-on sessions in the laboratory are included.  
PREREQUISITE: PHY 207, MTH 311 OR PERMISSION OF THE INSTRUCTOR.

BME550 Rehabilitation Engineering  
3 credits  
Fall Semester  
Principles of rehabilitation engineering with emphasis on currently used assistive devices for ambulation and hand motion. Human neural and muscle physiology, electromyography, functional electrical stimulation, artificial and biological sensors, control, and design aspects of active assistive devices for the active assistive devices for the handicapped are discussed.  
PREREQUISITE: EEN 305 OR PERMISSION OF INSTRUCTOR.

BME560 Biomedical Transport Phenomena  
3 credits  
Fall & Spring Semester  
Fundamentals of transport phenomena in biological systems including diffusion, osmosis, convection, electrophoresis, and transport with binding. Applications to cell electrophysiology and drug delivery. Introduction to physiological fluid flow in tissues.  
PREREQUISITE: BME 310 OR PERMISSION OF INSTRUCTOR.

BME565 Principles of Cellular and Tissue Engineering  
3 credits  
Fall Semester  
Introduction to cellular and tissue engineering. Current therapeutic approaches for lost/damaged tissue or organ function, tissue engineering strategies to replace/repair tissue or function: infusion of cells, production and delivery of tissue-inducing substances, cells placed on or within biomaterial scaffolds, examples of tissue engineering applications: skin, heart muscle, blood vessels, and blood.  
PREREQUISITE: BIL 150, BME 335 OR PERMISSION OF INSTRUCTOR.

BME570 Introduction to Biosignal Processing  
3 credits  
Fall & Spring Semester  
Course topics include quantitative description, analysis, and processing of biophysical and physiological (cardiovascular, neural, sensory, muscular, respiratory and other) signals using computers. Survey of time-frequency representations, correlation, convolution, coherence, filtering, averaging, and classification is also included.  
PREREQUISITE: EEN 118, PRE OR CO REQUISITE: BME 440 OR PERMISSION OF INSTRUCTOR.

BME571 Introduction to Biosignal Processing Lab  
1 credit  
Fall & Spring Semester  
Laboratory course in conjunction with BME 570 course. Corequisite: BME 570.  
PREREQUISITE: COREQUISITE: BME 570.

BME575 Biomechanics II  
3 credits  
Offered By Announcement Only  
Applications of linear and nonlinear viscoelastic concepts to the biomedical characteristics of biological tissues and structures at small and large deformations of blood flow, experimental methods of analysis, artificial organs, and life-support systems.  
PREREQUISITE: BME 375.
BME581 Radiation Biology and Physics  
3 credits  
*Fall Semester*  
The principles, methods, and results of radiation biology with physics applications in radiation therapy will be introduced in the course. The course will focus on mechanisms of radiation and biological system interaction, biological aspects of the foundation of radiation therapy, and mathematical models for radiobiological analysis. Corequisite or prerequisite: BME 502 or permission of instructor.  
PREREQUISITE: PREREQUISITE OR COREQUISITE: BME 502 OR PERMISSION OF THE INSTRUCTOR.

BME582 Radiation Dosimetry  
3 credits  
*Spring Semester*  
The principles and instrumentation of radiation dosimetry with focus on the applications in radiation therapy will be introduced in this course. The course will emphasize radiation dose computation algorithms and applications in treatment dose planning. The course will also cover a categorized dosimetric analysis of radiation therapy to different clinical conditions.  
PREREQUISITE: BME 310, 581.

BME585 Bioelectromagnetism  
3 credits  
*Offered By Announcement Only*  
Historical review of the discovery of the role of electric, magnetic, and electromagnetic fields in living systems. The survey of electro, magneto, and therapeutic devices are included as well as the interactions between electromagnetic fields and living tissues in both harmful and beneficial ways.  
PREREQUISITE: EITHER BME 502 OR 503, OR PERMISSION OF INSTRUCTOR.

BME586 Dynamic Analysis of Biological Tissues  
3 credits  
*Offered By Announcement Only*  
Dynamic analysis of biological tissues including characterization of viscoelastic properties of biological tissues using a Dynamic Mechanical Analyzer. Lab experiments are included.  
PREREQUISITE: BME 375, 335 OR CONSENT OF INSTRUCTOR.

BME587 Finite Element Analysis for Engineers  
3 credits  
*Fall & Spring Semester*  
Introduction to the finite-element method. Hands-on applications of FEMLAB software to the analysis of structural, thermal, chemical, electro-magnetic, optical, and fluid flow problems.  
PREREQUISITE: MTH311 OR PERMISSION OF INSTRUCTOR.

BME590 Special Topics  
1-3 credits  
*Fall & Spring Semester & First & Second Summer Session*  
Sub-titles describing the topics to be offered will be shown in parentheses in the printed class schedule following the title Special Topics.  
PREREQUISITE: JUNIOR OR HIGHER STANDING.
CAE100 Introduction to Civil, Architectural, and Environmental Engineering  
3 credits  
Second Summer Session  
This introductory course is designed to expose high school students to a variety of specific disciplines within the civil engineering arena to assist them in making informed decisions about possible college majors. The program is designed for the exemplary high school student interested in applied mathematics and science. All students enrolled in this course will gain experience in problem solving, engineering mechanics, computer simulation, and laboratory activity. The course content changes throughout the 3-week duration and includes topics on civil engineering, environmental engineering, and architectural engineering. The students will be provided with an understanding and some hands-on experience on topics relative to the disciplines of civil, architectural, and environmental engineering. Via an introduction to several case histories, the students will be able to understand the challenges associated with the design and construction and importance of the scientific methods in engineering. The laboratory and field trip experiences will deal with bridge building, material testing, water purification, and building systems. 
PREREQUISITE: SUMMER SCHOLAR STUDENTS ONLY

CAE111 Introduction to Engineering I  
3 credits  
Fall & Spring Semester  
Use of engineering tools for problem solving. Computer techniques for data acquisition, analysis and presentation, software design, and computer aided drafting are covered. Development of design skills is achieved through several design and building competitions. Introduction to professional ethics and intellectual property rights, MATLAB, AutoCAD, and programming in C++ is also included.

CAE112 Introduction to Engineering II  
2 credits  
Spring Semester  
Hands-on applications of various surveying instruments for leveling, angles and distance measurements, and other engineering applications. Hands on application of Geographic Information Systems, including ArcView and extensions. 
PREREQUISITE: CAE 111.

CAE201 Computer-Aided Drafting and Design  
2 credits  
Fall Semester  
The use of AutoCAD and MicroStation software as an aid to drafting and engineering design. 
PREREQUISITE: CAE 112

CAE210 Mechanics of Solids I  
3 credits  
Fall & Spring Semester & First Summer Session  
Vectors, force systems, equilibrium, analysis of frames, machines, trusses for internal forces, friction, centroids, moment of inertia, and shear and bending moment diagrams are discussed. 
PREREQUISITE: MTH 110 OR 111; OR COREQUISITE PHY 205; OR PERMISSION OF INSTRUCTOR

CAE211 Mechanics of Solids II  
3 credits  
Fall & Spring Semester  
Flexural, shear, principal, and torsional stresses are discussed as well as displacements and instability. An introduction to statically indeterminate analysis is also included. 
CAE212 Structural Laboratory
1 credit  Fall & Spring Semester
Laboratory techniques, tests for tension, compression, shear, bending, and torsion are discussed. Models, similitudes, buckling of columns, and review of current research are also included. Laboratory 3 hours. Corequisite: CAE 211.
PREREQUISITE: CAE210, ENG107, IEN 311. CO-REQUISITE OR PRE-REQUISITE: CAE 211

CAE213 Behavior of Structural Systems I
3 credits  Fall Semester
Design and testing of experimental models of qualitative and quantitative prediction of full scale structural behavior. Investigation of single and multi-story rectangular frames, curved structures and longspan buildings. Application of graphical and analytical techniques to determine basic system layout and preliminary dimensioning of key subsystems and members is also included.
PREREQUISITE: ARC 231.

CAE240 Environmental Pollution
3 credits  Spring Semester
Exploration of contemporary environmental issues. Introduction to engineering approaches for protecting and cleaning up the environment, techniques for assessing the impact of human activity on the environment, strategies for pollution control and implementation of environmental mitigation measures.
PREREQUISITE: SOPHOMORE STANDING.

CAE310 Structural Analysis
3 credits  Fall & Spring Semester
External reactions, normal forces, shear force, bending moments, displacements by Moment-Area, conjugate beam, Castigliano's First Theorem, and Virtual Work methods are discussed. The influence lines and indeterminate analysis by the by the method of consistent deformations, slope deflection, and moment distributions is also included.
PREREQUISITE: CAE 211.

CAE313 Behavior of Structural Systems II
3 credits  Spring Semester
Overall analysis of simple and multi-story frame structures. Consideration of flat plates, prestressed concrete flat slabs, slab and beam, joist and girder, waffle and space truss systems, columns, wall and rigid frame subsystems under vertical and horizontal loads. Application of structural model analysis to supplant or supplement mathematical analysis is included.
PREREQUISITE: CAE 213.

CAE320 Design of Concrete Structures
3 credits  Fall & Spring Semester
Course topics include design of concrete beams, columns, structural systems one-way slabs, and isolated footings by ultimate design methods.
PREREQUISITE: CAE 310.

CAE321 Design of Steel Structures
3 credits  Fall & Spring Semester
Design of tension, compression, flexural members, and beam columns using load and resistance factor design are discussed. Introduction to design and detailing of welded and bolted connections is also included.
PREREQUISITE: CAE 310.
CAE330 Fluid Mechanics
3 credits                                                    Fall & Spring Semester
Properties of fluids, gas systems, pressure distribution in static fluids, and
hydrostatic forces on plane and curved surfaces are discussed. Kinematics and dynamics
of fluid motion, dimensional analysis and similitude, flow in closed conduits,
pumps, design of water distribution systems, and an introduction to flow in open
channels is also included.
PREREQUISITE: CAE 210, PHY 206.

CAE340 Introduction to Environmental Engineering
3 credits                                                    Fall & Spring Semester
Environmental mass and energy balances, introduction to environmental chemistry,
air pollution, water pollution, sustainable solid waste management, risk assessment,
and global atmospheric change are discussed.
PREREQUISITE: MTH 112, CHM 111 OR 151 OR PERMISSION OF INSTRUCTOR.

CAE345 Environmental Laboratory
3 credits                                                             Fall Semester
Laboratory-based course focusing on the analysis of environmental samples including
water, wastewater, air, and solids. Basic analytical techniques and quality control
are also included as well as an introduction to advanced analytical measurements.
PREREQUISITE: CHM 112, CAE 340.

CAE350 Transportation Engineering I
3 credits                                                             Fall Semester
Transportation systems and organizations. Characteristics of driver, vehicles and
roads. Basic probability and statistics. Traffic studies and data collection. Signal
timing design, basic capacity and analysis. Basic geometric design and route surveying.
Highway safety. Sustainable transportation systems.
PREREQUISITE: MTH 211 (CALCULUS III) AND JUNIOR STANDING.

CAE370 Geotechnical Engineering I
3 credits                                                    Fall & Spring Semester
Soil composition and classification, excavation, grading, fill compaction, stress
distribution in soils, one-dimensional flow of water through soil, laboratory,
and field permeability, effective stress concept, calculation of consolidation,
field settlement, bearing capacity, and design and analysis of shallow foundations
are discussed.
PREREQUISITE: CAE 211. COREQUISITE: CAE 371.

CAE371 Geotechnical Laboratory
1 credit                                                     Fall & Spring Semester
Evaluation of physical and mechanical properties of soils, and preparation of reports.
Three hours.
PREREQUISITE: ENG 107, IEN 311. COREQUISITE: CAE 370.

CAE380 Electrical and Illumination Systems for Buildings
3 credits                                                           Spring Semester
Introduction to lighting and electrical system equipment, calculation procedures,
design criteria, code requirements, and basic design for building lighting and
electrical systems.
PREREQUISITE: EEN 205.
CAE395 Undergraduate Research
1-6 credits Spring Semester
Designed for the undergraduate student who wishes to engage in research. Not for graduate credit or for baccalaureate graduation credit. Subject and credit to be arranged with the instructor.
PREREQUISITE: PERMISSION OF INSTRUCTOR

CAE399 Internship
1 credit Fall & Spring Semester & First & Second Summer Session
Practical application of classroom theory through employment with firms offering positions consistent with the student's field of study. Courses may be repeated.

CAE400 Preparation for FE Exam
1 credit Spring Semester
Review of material in preparation for the Fundamentals of Engineering (FE) examination. For credit only.
PREREQUISITE: SENIOR STANDING.

CAE402 Professional Engineering Practice
3 credits Fall & Spring Semester
Principles of engineering economics and economic evaluation of engineering projects. A discussion of professional practice issues including the philosophy and methodology of engineering, professional licensure and ethics. Discussion of the business aspects of engineering including business organization, management, contracts and legal issues. Engineering leadership in the formulation of public policy.
PREREQUISITE: SENIOR STANDING.

CAE403 Senior Design Project
3 credits Fall Semester
Two-semester comprehensive design project based on the knowledge and skills acquired in earlier coursework and incorporating engineering standards and realistic constraints. The faculty coordinator and several practicing engineers/architects provide consultation, guidance, and recommendations on aspects such as problem definition, evaluation of design approaches, design development, and the preparation of construction documents.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

CAE430 Water-Resources Engineering
3 credits Fall Semester
Basic principles of open channel flow. Computation of water surface profiles, hydraulic structures, design of lined and unlined open channels, design of sanitary sewer systems, rainfall characteristics, rainfall abstractions, and calculation of stormwater runoff are discussed. Introduction to hydrology is also included.
PREREQUISITE: CAE 330.

CAE440 Design of Water Quality Control Systems
3 credits Spring Semester
Principles of domestic wastewater treatment, design of biological and chemical waste treatment processes, design and sizing of small scale treatment units, and design of water treatment processes are discussed. An introduction to industrial waste treatment.
PREREQUISITE: CAE 330, 340 OR PERMISSION OF INSTRUCTOR.
CAE450 Transportation Engineering II
3 credits  Spring Semester
Transportation system planning and design. Advanced geometric design for highway and railway/transit. Human, vehicle, and environmental factors affecting the design, operation, and safety of transportation systems. Planning and design of both landside/airside aspects of airport facilities. Water port and multi-modal facilities design.
PREREQUISITE: CAE 350.

CAE460 Construction Management
3 credits  Spring Semester
An introduction to the management of construction projects including legal considerations as well as the techniques of management science applied to construction. The course includes engineering methods of cost and time estimating, and exercises in applications of engineering economics, network planning techniques, including CPM and PERT are introduced. The management principles of time and cost control are also explored. Computer application of project management tools are included.
PREREQUISITE: SENIOR LEVEL STANDING.

CAE470 Foundations and Earth Retaining Systems
3 credits  Fall Semester
Natural soil deposits and subsoil exploration. Geotechnical analysis and design of shallow and deep foundations. Theories of lateral earth pressure. Design and analysis of earth-filled retaining systems.
PREREQUISITE: CAE 330, 370, 371; PRE OR CO-REQUISITES CAE 320 OR CAE 321

CAE480 Building Environmental Systems
3 credits  Fall Semester
Design of building environmental systems, including water supply and waste removal, space air diffusion, fans, air supply and waste removal, space air diffusion, fans, air distribution systems, building fire safety, and smoke control. Building automation and control are also included.
PREREQUISITE: CAE 330.

CAE481 Mechanical Systems for Buildings
3 credits  Fall & Spring Semester
Principles and procedures for the analysis and design of heating, ventilating, and air conditioning (HVAC) systems in buildings. Topics include moist air properties and conditioning processes, heating and cooling load calculations, building energy consumption, thermal comfort, indoor air quality, HVAC systems and component selection.
PREREQUISITE: MAE 303

CAE510 Structural Mechanics
3 credits  Offered By Announcement Only
Analysis of stress and deformation of solids. Application to systems in the elastic and inelastic range. Topics include beams of special geometry and support, stress concentrations, stresses in elastic foundations, torsion, energy methods, failure theories, and brittle fracture.
PREREQUISITE: CAE 310 AND SENIOR STANDING.

CAE511 Advanced Structural Analysis
3 credits  Fall Semester
General methods of indeterminate analysis. Elements of energy method in indeterminate analysis of axial, flexural torsional, and composite members. Basic flexural and stiffness methods and matrix development are also included.
PREREQUISITE: CAE 310.
CAE520 Advanced Design of Concrete Structures
3 credits Spring Semester
Design of reinforced concrete flat plates, flat slabs, two-way slabs, long columns, and slab-column connections are discussed. Deflections, crack widths, and background of current ACI Building Code are also included.
PREREQUISITE: CAE 320.

CAE521 Advanced Design of Steel Structures
3 credits Fall Semester
Steel framing systems, design of members and connections of braced and rigid frames, design for torsion, and design of steel-concrete composite members are discussed.
PREREQUISITE: CAE 321.

CAE522 Design of Prestressed Concrete Structures
3 credits Offered By Announcement Only
Materials and systems for prestressing, design of prestressed concrete members for flexure and shear, camber, deflection, and crack control are discussed. Design of continuous beams, compression members, two-way concrete floor systems, and the loss of prestress are also included. Prequisite: CAE 320.
PREREQUISITE: CAE 320.

CAE523 Design of Masonry Structures
3 credits Offered By Announcement Only
Masonry construction. Design of flexural and compression members, bearing walls, shear walls, diaphragms, and connections of masonry structures. Arches, vaults, and buttresses are also included.
PREREQUISITE: CAE 320.

CAE524 Design of Bridge Structures
3 credits Offered By Announcement Only
Engineering principles of analysis and design of highway bridges. Topics include load types, failure modes, and design philosophies. Computation of design force envelopes via influence lines. Design of slabs, rolled beam, plate girder, reinforced concrete, and prestressed concrete bridges.
PREREQUISITE: CAE 310, 320, 321 OR PERMISSION OF INSTRUCTOR.

CAE525 Timber Structural Systems
3 credits Offered By Announcement Only
Engineering properties of timber, design of tension, compression, and flexural members are covered. The design and detail of connections and hardware, and the design of timber systems and heavy timber construction is also included.
PREREQUISITE: CAE 310

CAE530 Water-Quality Control in Natural Systems
3 credits Spring Semester
Water quality regulations, fate and transport processes, water-quality control in rivers, lakes, wetlands, oceans, and ground water are discussed.
PREREQUISITE: CAE 430. PREREQUISITE OR COREQUISITE: CAE 440.

CAE531 Surface-Water Hydrology
3 credits Offered By Announcement Only
Rainwater characteristics, abstraction processes, surface-runoff, routing, and water-quality models. Design of stormwater-management systems, evapotranspiration, and regional water-management is also included as well as case studies.
PREREQUISITE: PREREQUISITE OR COREQUISITE: CAE 430.
CAE532 Ground-Water Hydrology
3 credits  Offered By Announcement Only
PREREQUISITE: CAE 330.

CAE540 Environmental Chemistry
3 credits  Spring Semester
Kinetics, equilibrium, acid-base, oxidation-reduction, and reaction chemistry applied to water and wastewater engineering.
PREREQUISITE: CHM 112 OR PERMISSION OF INSTRUCTOR.

CAE541 Environmental Microbiology
3 credits  Spring Semester
Classification of microorganisms. Microbial agents of infectious diseases and modes of disease transmission. Control of pathogens through water and waste treatment, food protection, and insect control. Microbial ecology and bioremediation systems. Laboratory exercises in microbiology.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE542 Solid and Hazardous Waste Engineering
3 credits  Fall Semester
Solid-waste characteristics, recycling, incineration, hazardous waste characteristics, prevention, and physical and chemical treatment are covered. Design projects are also included.
PREREQUISITE: CAE 340.

CAE543 Air Pollution Control Engineering
3 credits  Spring Semester
Fundamentals of air pollution and air quality; properties and control of particulates, volatile organic compounds, carbon monoxide, sulfur oxides, and nitrogen oxides; motor vehicle emissions; health and aesthetic effects (acid rain, visibility), laws and regulations, meteorology and pollutant transport in the atmosphere; indoor air pollution.
PREREQUISITE: MAE 303 AND CAE330 OR MAE 309 OR PERMISSION OF INSTRUCTOR.

CAE550 Advanced Highway Design
3 credits  Fall Semester
Functional classification and design volumes; Reviews of traffic, vehicle and roadway characteristics; Design controls, criteria and standards; Vertical alignments; Horizontal alignments; Compound curves; Cross sections; Climbing lanes; Earthwork computation; At-grade intersection; Interchange; Design consistency; GeoPak software implementation; Use of traffic simulation software as a design aid.
PREREQUISITE: CAE 450 OR EQUIVALENT.

CAE551 Urban Traffic Control
3 credits  Spring Semester
Traffic control devices; Detection systems; Installation and maintenance; Design of signal timing plans; Performance analysis of signalized intersections; Signal coordination; Actuated controllers; Computer simulation/optimization models; Adaptive traffic control and predictions; Ramp metering.
PREREQUISITE: CAE 450.
CAE553 Transportation Systems Planning and Demand Modeling  
3 credits  Offered By Announcement Only  
Transportation demand analysis and forecasting. Sampling techniques, collection and analysis of survey data. Disaggregate and aggregate models. Trip generation, distribution, modal split and assignment. Transportation network equilibrium. Transportation system management.  
PREREQUISITE: IEN 311 OR CONSENT OF INSTRUCTOR.

CAE560 Sustainable Construction  
3 credits  Offered By Announcement Only  
PREREQUISITE: SENIOR STANDING IN ARCHITECTURE OR ENGINEERING AND PERMISSION OF INSTRUCTOR

CAE570 Advanced Foundation Engineering  
3 credits  Spring Semester  
PREREQUISITE: CAE 470 OR PERMISSION OF INSTRUCTOR.

CAE580 Hospital and Health Care Facility Design  
3 credits  First Summer Session  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE581 Energy-Efficient Building Design  
3 credits  Offered By Announcement Only  
Concepts and methods of energy-efficient and environmentally-friendly building design. Topics include energy and sustainable design strategies, climate, passive and active solar design, passive cooling systems, day lighting, and computer simulation of energy flows in buildings. A quantitative understanding of energy fundamentals, examples from practice, and design exercises using computer simulation programs are emphasized.  
PREREQUISITE: MAE 303 OR PERMISSION OF INSTRUCTOR.

CAE590 Special Topics  
1- 3 credits  Offered By Announcement Only  
Sub-titles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Special Topics."  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE591 Special Topics  
1- 3 credits  Offered By Announcement Only  
Sub-titles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Special Topics."  
PREREQUISITE: PERMISSION OF INSTRUCTOR.
CAE592 Special Topics
1-3 credits
Offered By Announcement Only
Sub-titles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE593 Special Topics
1-3 credits
Offered By Announcement Only
Sub-titles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE594 Special Topics
1-3 credits
Offered By Announcement Only
Sub-titles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE595 Special Problems
1-4 credits
Offered By Announcement Only
Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

CAE599 Cooperative Education
1 credit
Offered By Announcement Only
Practical application of classroom theory through alternating semester or summer employment with industries offering positions consistent with the student's field of study. Course may be repeated. Periodic reports and conferences are required.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

ELECTRICAL & COMPUTER ENGINEERING

EEN100 Introduction to Electrical and Computer Engineering
3 credits
First & Second Summer Session
Introduction to Electrical and Computer Engineering (ECE) for high school students interested in science and technology. The course covers important thematic units of the discipline: electronics, digital design, computer programming and signal processing. Emphasis on hands-on experience in the use of laboratory instrumentation, circuit construction and computer simulation.
PREREQUISITE: UNIVERSITY OF MIAMI SUMMER SCHOLAR STUDENTS ONLY

EEN111 Introduction to Engineering I
3 credits
Fall & Spring Semester
Use of engineering tools and computer techniques for problem solving, data acquisition, analysis, presentation, software design, and computer aided drafting. Development of design skills through several design and building competitions is included as well as an introduction to professional ethics, intellectual property rights, the use of MATLAB, AutoCAD, and programming in C++.
EEN112 Introduction to Engineering II  
2 credits  
Spring Semester  
Course is designed to provide first-year undergraduate students with an introduction to some key electrical and computer engineering concepts and topics by discussing their roles in some of the commonly used electrical and computer engineering systems. Numerical examples, circuit simulations, and computer programming are introduced through the use of MATLAB, microcontroller programming languages, and PSpice. Hands-on experience are provided through a project where the students design, assemble, program, and test a microcontroller-based mobile robot with a variety of sensing devices. Should be taken as a freshman only; otherwise to be replaced by a technical elective.  
PREREQUISITE: EEN 111.

EEN118 Introduction to Programming  
3 credits  
Fall & Spring Semester  
Introduction to computing, problem solving, program design, C++ language fundamentals, and software engineering principles. Software design projects are included.

EEN201 Electrical Circuit Theory  
3 credits  
Fall & Spring Semester & First Summer Session  
Fundamentals of DC-AC circuit laws, including steady state and transient analysis. Lecture, 3 hours.  
PREREQUISITE: PREREQUISITE OR COREQUISITE: MTH 112.

EEN204 Electrical Circuits Laboratory  
1 credit  
Fall & Spring Semester & Second Summer Session  
Laboratory work employing the techniques of circuit theory to physical components, devices, and circuits. Use of electronic computing techniques to relate analytical and empirical investigations. Laboratory, 3 hours.  
PREREQUISITE: EEN 201.

EEN205 Principles of Electrical Engineering--I  
3 credits  
Fall & Spring Semester  
Fundamentals of DC and AC Circuits and a survey of Electrical Machinery and Electronics. Not open to students with credits in EEN 201. Lecture, 3 hours.  
PREREQUISITE: PREREQUISITE OR COREQUISITE: MTH 112.

EEN218 Intermediate Computer Programming  
3 credits  
Fall & Spring Semester  
Principles and practices used in creating interactive Internet sites. Extensive object oriented programming in Java is taught. Use of eXtensible Markup Language (XML) to provide content description. Use of GUI components and graphics to create web based applications.  
PREREQUISITE: EEN 118 OR EQUIVALENT.

EEN301 Electromagnetic Field Theory  
3 credits  
Fall Semester  
Vector analysis, static and time-varying fields, Maxwell's equations, propagation of electromagnetic waves, and transmission line theory and applications are discussed.  
EEN304 Logic Design
3 credits Fall & Spring Semester & First Summer Session
Boolean algebra and its applications in analysis and design of logic circuits. Introduction to SSI and MSI circuits as building blocks, memory elements, and analysis and synthesis of synchronous and asynchronous sequential systems are discussed. PREREQUISITE: EEN 118 OR CSC 120.

EEN305 Electronics I
3 credits Fall & Spring Semester & First Summer Session
Semiconductor physics and devices. Diodes, bipolar-junction transistors (BJT). Introduction to field-effect transistors (FETs) and Operational Amplifiers. Emphasis on dc and ac analysis of electronic circuits. Use of CAD tools such as PSpice. PREREQUISITE: EEN 201.

EEN306 Electronics II
3 credits Fall & Spring Semester & Second Summer Session

EEN307 Linear Circuits and Signals
3 credits Fall & Spring Semester & First Summer Session
Second-order transient circuit analysis, Laplace transforms, circuits and waveform analysis using Laplace transform, convolution, fourier series, and integrals are discussed. PREREQUISITE: EEN 201.

EEN308 Linear Control Systems
3 credits Fall Semester
Introduction to system theory, transfer function and state variable modeling of linear continuous time systems, root locus, Bode plot, Nyquist criterion, analysis and controller design using root locus and frequency domain techniques, proportional-integral-derivative controllers. PREREQUISITE: EEN 307, MTH 210, 311.

EEN310 Introduction to Engineering Probability
3 credits Fall & Spring Semester
Axioms of probability, discrete and continuous random variables, probability density functions. Expectation, conditioning, independence, functions of random variables, characteristic functions, multiple random variables. Sums of random variables, limit theorems, probability bounds, convergence concepts. Introduction to statistical analysis, estimation, and hypothesis testing. Cross-listed with IEN 310. PREREQUISITE: MTH 112 AND JUNIOR STANDING.

EEN311 Electronics Laboratory
1 credit Fall & Spring Semester & First Summer Session
Laboratory course in conjunction with courses EEN 305 and 306. PREREQUISITE: EEN 204. PREREQUISITE OR COREQUISITE: EEN 306.
EEN312 Microprocessor
0 credit                             Fall & Spring Semester & Second Summer Session
Architecture and operation of modern microprocessor based computer systems and microcontrollers. Assembly language and applications with hands on experience. Lecture, 3 hours; laboratory, 3 hours.
PREREQUISITE: EEN 304.

EEN315 Digital Design Laboratory
1 credit                              Fall & Spring Semester & First Summer Session
Familiarization with properties and use of logic gates, flip-flops, digital standard components, and programmable logic devices. Design and implementation of combinational and synchronous digital systems and Computer Aided Engineering (CAE) tools for design and simulation of digital systems are also included.
PREREQUISITE: EEN 304.

EEN316 Structured Digital Design
1 credit                             Fall & Spring Semester & Second Summer Session
VHDL ((VHSIC (very high speed integrated circuits) hardware description language)) introduction and syntax. Functional and behavioral models of VHDL for design, testing, and simulation of digital circuits and programmable logic devices. Design and implementation of combinational and sequential digital systems using VHDL is also included.
PREREQUISITE: PREREQUISITE OR COREQUISITE: EEN 315.

EEN318 Advanced Computer Programming
3 credits                                                           Spring Semester
Continuation of the programming sequence. Object oriented programming with C++, emphasizing the skills required of a professional programmer. Essential data structures and algorithms: trees, graphs, hash tables, parsing and text processing. Advanced sorting and data management algorithms. Advanced features of C++; effective programming with C.
PREREQUISITE: EEN 218.

EEN336 Signals and Systems
3 credits                                                             Fall Semester
Continuous and discrete-time transform analysis techniques. Linear time-invariant signals and systems, continuous and discrete-time Fourier transforms, and Z-transform are discussed. Sampling and reconstruction of signals, frequency response, transfer functions, and applications are also included.
PREREQUISITE: EEN 307.

EEN368 Internet Computing I
3 credits                                                           Spring Semester
Principles and practices used in creating interactive Internet sites. Extensive object oriented programming in Java is taught. Use of eXtensible Markup Language (XML) to provide content description. Use of GUI components and graphics to create web based applications.
PREREQUISITE: EEN 218

EEN399 Cooperative Education
1 credit                              Fall & Spring Semester & First & Second Summer Session
Practical application of classroom theory through alternating semester or summer employment with firms offering positions consistent with the student's field of study. Course may be repeated.
EEN402 Electrical Energy Conversion
3 credits  Fall Semester
Introduction to sources of energy; theory of electromechanical energy conversion, covering transformers, DC and AC rotating machines; introduction to photovoltaic energy conversion, wind energy conversion and fuel cells; and associated laboratory experiments.

EEN404 Communication Systems
3 credits  Spring Semester
Introduction to digital communication, including binary and M-ary baseband and bandpass modulation over additive white Gaussian noise channels. Optimal receivers, pulse shaping for bandlimited channels, synchronization, multiple access.
PREREQUISITE: EEN 336 AND EEN/IEN 310.

EEN405 Solid-State Electronics
3 credits  Spring Semester
Principles of semiconductor electronics, energy bands of semiconductors, Fermi level, carrier distribution, and transport mechanisms are discussed. Application of semiconductor theory to various junction and field effect devices are included.
PREREQUISITE: EEN 301 AND PHY 207.

EEN414 Computer Organization and Design
3 credits  Fall & Spring Semester
Organization and design of computers, hardware description language, instruction set architecture, control unit implementation, microprogramming, memory organization, and high speed arithmetic unit are discussed.
PREREQUISITE: EEN 312

EEN415 Senior Project I
1 credit  Fall & Spring Semester
Topics cover tasks in project planning including scheduling, documentation, communication (written and oral), financial constraints, and ethics. Students are required to present project proposals to serve as the basis for the follow-up course, EEN 416.
PREREQUISITE: SENIOR STANDING.

EEN416 Senior Project II
2 credits  Fall & Spring Semester
The capstone design course for Electrical Engineering majors. An electrical system is designed, implemented, and documented.
PREREQUISITE: EEN 415

EEN417 Embedded Microprocessor System Design
2 credits  Fall Semester
Study of microcomputer system design, scientific methods for quantifying system performance, embedded controller applications using high level languages, and debugging strategies. Lecture, 1 hour; laboratory, 3 hours.
PREREQUISITE: EEN 218, 315, AND 414.
EEN418 Senior Project Planning
1 credit                                          Fall & Spring Semester
The creative process of devising a product to meet customers needs including an overview of the design process, analysis of requirements, project planning, scheduling, evaluation, and documentation. Students are required to present project proposals to serve as the basis for the follow-up senior design project.
PREREQUISITE: SENIOR STANDING.

EEN419 Senior Project
2 credits                                        Fall & Spring Semester
The purpose of this course is to integrate the student's knowledge in hardware, software, and project management. A major digital system is designed, implemented, debugged, and documented.
PREREQUISITE: EEN 418, 417, 454.

EEN421 Introduction to 3D Computer Modeling and Animation
2 credits                                        Fall Semester
Introduction to the fundamental principles of computer animation with hands-on experience. Focus on 3D modeling, texture mapping, lighting, character animation, inverse kinematics, dynamics, rendering and compositing.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

EEN422 Advanced 3D Character Design and Motion Capture for Computer Games
2 credits                                        Spring Semester
Introduction to game development pipeline, from design, conception, modeling, texture mapping, rigging, motion capture and animation, special effects to level design and the pipeline flow control.
PREREQUISITE: EEN 421.

EEN424 UNIX Systems and Servers
3 credits                                        Fall Semester
Practical hands-on experience with UNIX systems programming and administration. Programming using shell-scripting languages. File systems features, multiprocessing, inter-process communication, and systems programming fundamentals are discussed.
PREREQUISITE: EEN 218.

EEN435 Communication Electronics
3 credits                                        Offered By Announcement Only
Design of communication circuits including oscillators, mixers, phase-locked loops, and tuned networks; AM and FM transmitters and receivers.
PREREQUISITE: EEN 306.

EEN436 Introduction to Digital Signal Processing
3 credits                                        Offered By Announcement Only
Basic principles of digital signal processing are discussed including discrete time systems and signals, z-transform, sampling, frequency response, discrete Fourier transform, Finite and Infinite Impulse Response digital filters, and applications in related fields.
PREREQUISITE: EEN 336.
EEN437 Real-Time Digital Signal Processing Laboratory
1 credit  Fall Semester
Digital signal processing hardware for real-time operation, software development tools, instruction set, and DSP experiments with audio and speech application are discussed.
PREREQUISITE: PREREQUISITE OR COREQUISITE: EEN 436.

EEN454 Digital System Design and Testing
2 credits  Spring Semester
Functional building blocks and concepts of control and timing in digital design. Descriptive techniques for digital systems and design for testability.
PREREQUISITE: EEN 316.

EEN455 Design-for-Testability Laboratory
1 credit  Fall & Spring Semester
Project laboratory demonstrating the techniques necessary to design, implement, and debug and test a large system. The process is carried through from conceptual design, implementation, integration, simulation, and synthesis on a FPGA chip.
PREREQUISITE: PREREQUISITE OR COREQUISITE: EEN 454.

EEN499 Senior-Junior Cooperative Education
1- 3 credits  Fall & Spring Semester & First & Second Summer Session
Analysis and design experience obtained in industry or government. Approved project jointly supervised and assessed by department faculty and external partner. Note: A maximum of three credits could be used to satisfy degree requirement as Technical Elective. See Bulletin for more information.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIR

EEN500 Engineering Analytical Techniques
3 credits  Offered By Announcement Only
Complex variables, analytic functions, power series, residue theorem, conformal mappings, series solution, Bessel functions, Legendre polynomials. singular value decomposition, vector, and matrix norms are discussed.
PREREQUISITE: MTH 311.

EEN502 Engineering Acoustics
3 credits  Fall Semester
Introduction to basic principles of acoustics, methods of sound measurement, physiological, psychological acoustics, the acoustics of the major classes of musical instruments and speech, fundamentals of transducers, architectural acoustics, and the effects and control of noise are covered.
PREREQUISITE: EEN 336 OR PERMISSION OF INSTRUCTOR

EEN503 Principles of Electro-optics
3 credits  Fall Semester
Principles of optics, optical fibers, electro-optics, light wave propagation in anisotropic and periodic media, guided waves, and integrated optics are discussed. Electro-optic devices including sources and detectors, optical fiber communication, and optics for medical and biomedical applications are also covered.
PREREQUISITE: PHY 206, 207 AND EEN 301 OR EQUIVALENT.
EEN504 Optics and Fiber Communication

3 credits

Spring Semester

Introduction to optics and fiber communication, light propagation in free space and waveguides, imaging, wave phenomena and diffraction, interferometer, spectrometer, holography, fiber coupling, and fiber communication are covered. Lecture, 1 1/2 hours; laboratory, 3 hours.

PREREQUISITE: EEN 301 OR PREREQUISITE OR COREQUISITE: BME 545.

EEN506 Solid-State Devices

3 credits

Offered By Announcement Only

Principles of operation, properties and applications of semiconductor devices, junction, metal-semiconductor, metal-oxide-semiconductor, optoelectronic, bulk-effect, and charge-coupled are covered.

PREREQUISITE: EEN 405 OR PHY 520.

EEN507 Active Filter Design

3 credits

Spring Semester

Active lowpass filter design, gain-tuning and passive-tuning, immittance calculations, high-frequency lowpass filters, frequency and time domain analysis of lowpass, highpass, bandpass, and bandstop filters are discussed. Classical filters and Active filter classification including gain-sensitivity limitations are also included.

PREREQUISITE: EEN 307.

EEN508 Digital Control Systems

3 credits

Offered By Announcement Only

Basic concepts relevant to the analysis and design of digital computer controlled systems. Sampling, z-transform, discrete transfer functions, discrete-time state space modeling, stability, reachability, and observability are discussed. Analysis and design in time and frequency domains, state feedback and observers, optimal control, estimation, and linear quadratic Gaussian design are also included.

PREREQUISITE: EEN 308.

EEN510 Passive Filter Design

3 credits

Offered By Announcement Only

Design of RLC passive filters, properties of positive-real functions, and Brune test are discussed. Design of driving-point and transfer immittances of RC, RL, LC, and RLC one-port and two-port networks are also covered as well as the design of Butterworth, Chebyshev, and elliptic ladder filters.

PREREQUISITE: EEN 307.

EEN511 Software Engineering

3 credits

Spring Semester

Software Development: Specification and analysis, methodologies, management and control. Advanced programming techniques: dynamic programming, fast data retrieval and sorting, enumerators, data structures, and data management. The limits of software engineering, computability and complexity analysis.

PREREQUISITE: EEN 318.

EEN512 Software Architecture

3 credits

Spring Semester

Examination of the building blocks of software systems. Design techniques to meet functional requirements. Component-based designs. Model representations. Analysis of designs for functionality, performance, reliability, reusability, and maintainability.

PREREQUISITE: EEN 318.
EEN513 Software Design and Testing  
3 credits  
Fall Semester  
PREREQUISITE: EEN 318 AND SENIOR STANDING.

EEN514 Computer Architecture  
3 credits  
Spring Semester & First Summer Session  
Computer data and instruction types, survey of existing architectures, and the interaction between hardware and software sub-systems are discussed. Advanced topics in computer architecture.  
PREREQUISITE: EEN 414.

EEN516 Analog Integrated Circuits  
3 credits  
Fall Semester  
Analysis and design of analog integrated circuits with emphasis on MOS technology. Design of operational amplifiers, comparators, sample and hold circuits, and voltage references are discussed. Fundamentals of data converters and CAD methods for analog integrated circuits are also covered.  
PREREQUISITE: EEN 306.

EEN518 Modern Control Theory  
3 credits  
Offered By Announcement Only  
State-space modeling of continuous-time systems, stability, reachability, observability, performance, robustness measures in controller design, State feedback and observers are discussed. Optimal control, estimation, and Linear quadratic Gaussian design are also included.  
PREREQUISITE: EEN 308.

EEN519 Design of Computing Languages  
3 credits  
Offered By Announcement Only  
Major features of modern programming languages with emphasis on design and software efficiency. Interaction between language design and the design of its compiler are included.  
PREREQUISITE: EEN 218.

EEN521 Computer Operating Systems  
3 credits  
Fall Semester  
The design and implementation of operating systems. Virtual memory and memory management, resource allocation, device drivers, process creation, control, communications and scheduling, file systems, data protection, security, parallel processing and time-sharing. The class includes a significant operating system implementation project.  
PREREQUISITE: EEN 318

EEN525 Antennas and Propagation  
3 credits  
Offered By Announcement Only  
Principles of electromagnetic radiation and diffraction, fundamentals of antennas, wire, loop, and micro-strip antennas, array antennas, beam-forming. propagation characteristics in the mobile and indoor environments, path loss, link budget, fading, and diversity are covered.  
PREREQUISITE: EEN 301.
EEN532 VLSI Systems
3 credits                                             Fall Semester
Fundamentals of MOS Technology in VLSI. System data, control flow, structures, design, layout, maskmaking, fabrication, packaging, and testing of VLSI chips are discussed. Highly concurrent Very Large Scale Integration computational systems are also covered.
PREREQUISITE: EEN 304 AND 305.

EEN533 Random Signals and Noise
3 credits                                             Fall Semester
Probability models, Bayes' theorem, Limit theorems of Laplace and Poisson, functions of random variables, Central limit theorem, conditional expectation and estimation, Stochastic processes, stationarity and ergodicity, cross-spectral analysis, filtering, and prediction are discussed.
PREREQUISITE: IEN 310 OR EEN 310.

EEN534 Communication Networks
3 credits                                             Fall Semester
Principles of digital communications, Local Area Networks (LANs), Wide Area Networks (WANs), Open systems Intercommunication (OSI), Internet reference models, internet architecture and protocols, packet switching and routing, and network performance are discussed.
PREREQUISITE: EEN 310 OR IEN 310.

EEN536 Digital Signal Processing
3 credits                                             Offered By Announcement Only
Fast Fourier transform, design, implementation, realization of digital filters, finite wordlength effects, decimation, interpolation, multirate signal processing, and Discrete Hilbert transform are covered.
PREREQUISITE: EEN 436.

EEN537 Principles of Artificial Intelligence
3 credits                                             Fall Semester
Search techniques, game trees, exhaustive vs. cutoff search, natural language processing, augmented transition networks, knowledge representation, cognitive aspects, semantic networks, problem-solving, expert systems, and AI machines are covered.
PREREQUISITE: EEN 218.

EEN538 Introduction to Digital Image Processing
3 credits                                             Fall Semester

EEN539 Digital Communications
3 credits                                             Offered By Announcement Only
Principles for the analysis and design of digital communications systems. Nyquist sampling, signal space representation, digital modulation techniques and optimal receiver design, ISI channels, error control coding, convolutional codes, Viterbi decoder, and wireless applications.
PREREQUISITE: EEN 404
EEN540 Digital Speech and Audio Processing
3 credits  Spring Semester
Introduction to human speech production, hearing, and perception. Digital speech and audio signal analysis in time and frequency, speech and audio coding, speech synthesis and recognition, language modeling, design of systems for human-machine interaction are also covered.
PREREQUISITE: EEN 436 OR CONSENT OF INSTRUCTOR.

EEN542 Digital Integrated Circuits
3 credits  Spring Semester
Design and operation of state-of-the art digital integrated circuits. Circuit simulation methods using CAD programs, various TTL, CMOS, ECL, and I2L families are discussed.
PREREQUISITE: EEN 304, 306.

EEN546 Reliable Digital System Design
3 credits  Offered By Announcement Only
Topics include descriptive technique for digital systems, synchronizer failure and metastability estimation, design for testability, and estimating digital system reliability. Computer-Aided Engineering (CAE) tools are also covered. Not open to students with credit in EEN 454. Offered only for Graduate students.
PREREQUISITE: EEN 316.

EEN548 Machine Learning
3 credits  Offered By Announcement Only
Fundamentals of intelligent system design and strategies of learning capability simulation. Selected case studies of learning systems for engineering applications are included.
PREREQUISITE: EEN 218 AND MTH 309 OR PERMISSION OF INSTRUCTOR.

EEN552 Power Electronics
3 credits  Fall Semester
Analysis and design of solid-state power electronic circuits including DC/DC, AC/DC and DC/AC converters, controller design, power electronics applications, and associated laboratory experiments.
PREREQUISITE: EEN 306, EEN 311

EEN553 Neural Networks
3 credits  Offered By Announcement Only
Artificial neural network algorithms and structures, learning process, perceptron, least-mean-square algorithms, multilayer perceptron, error back-propagation, radial-basis function networks, the Hopfield network, and self-organizing systems are discussed.
PREREQUISITE: IEN 310 OR EEN 310.

EEN555 Microwave Transistor Amplifier Design
3 credits  Fall Semester
Analysis and design of transistor amplifiers and oscillators at microwave frequencies. Scattering parameter methods, stability considerations, matching networks, and narrowband and broadband techniques are discussed. Computer aided design methods for microwave transistor amplifiers are also included.
PREREQUISITE: EEN 306.
EEN562 Wireless and Cellular Communication
3 credits
Fall Semester
Wireless Channel Characterization: path loss, shadowing, fading, frequency-selective channels, Doppler spread, and delay spread. Diversity techniques: frequency, time and space diversity. Multiple Antenna Systems: space-time coding, beamforming and layered space-time system. Digital Modulation: adaptive modulations and Orthogonal Frequency Division Multiplexing (OFDM). Cellular Concept: frequency reuse, co-channel interference and handoff. Multiple Access Methods: Frequency Division Multiple Access (FDMA), Time Division Multiple Access (TDMA), Code Division Multiple Access (CDMA) and random access. CDMA: spreading codes, RAKE receiver, multiuser detection and power control.
PREREQUISITE: EEN 404.

EEN563 Wireless Communication Lab
1 credit
Offered By Announcement Only
Computer simulation of path loss, shadowing and fading in wireless channels, performance of various digital modulation methods in both Gaussian and wireless channels, diversity methods, equalization methods including zero-forcing, minimum mean-square error (MMSE) and decision-feedback equalization (DFE), co-channel interfacing in cellular systems, space-time coding. Orthogonal Frequency Division Multiplexing (OFDM) systems, spreading codes for Code Division Multiple Access (CDMA) systems, and matched-filter receiver and multiuser detector for CDMA systems. Measurement of wireless signals in various environments.
PREREQUISITE: PREREQUISITE OR COREQUISITE: EEN 562.

EEN564 Wireless Networks
3 credits
Spring Semester
Introduction of wireless channels and network. Introduction of medium access control: Frequency Division Multiple Access (FDMA), Time Division Multiple Access (TDMA), Code Division Multiple Access (CDMA) and Carrier Sense Multiple Access. Wireless data networks: IEEE 802.11 (WiFi), IEEE 802.16 (WiMax) and Bluetooth. Wireless network layer: mobile IP and mobile ad-hoc networks. Wireless transport layer: mobile TCP. Wireless Cellular systems: network structure and call processing of GSM and CDMA systems.
PREREQUISITE: EEN 534 OR 575 OR PERMISSION OF THE INSTRUCTOR

EEN565 Introduction to Information Theory and Coding
3 credits
Offered By Announcement Only
Entropy, conditional entropy, mutual information, source coding, Huffman code arithmetic code, channels and channel capacity, error detection, error correction, and Hamming codes are discussed. An introduction to linear block codes and cyclic codes is included.
PREREQUISITE: IEN 310 OR EEN 310.

EEN567 Database Design and Management
3 credits
Spring Semester
Database systems design, modeling, implementation, management methodologies, and techniques. Different database systems are addressed including relational, object-oriented, object-relational, and distributed database systems. Internet (WWW) technology, data warehousing, and online analytical processing applications of database management systems and hands-on experience with commercial database systems is also included.
PREREQUISITE: EEN 218
EEN568 Internet Computing II  
3 credits  
Fall Semester  
Java programming for client/server networking, multi-threading, database connectivity, and servlets. Principles and practices used for accessing back-end databases through web applications. Use of eXtensible Markup Language (XML) for processing.  
PREREQUISITE: EEN 368.

EEN570 Network Client-Server Programming  
3 credits  
Spring Semester  
Introduction to server-client systems and programming. Advanced server-client design and implementation based on distributed component object model in Windows and UNIX.  
PREREQUISITE: EEN 218 OR EQUIVALENT.

EEN571 Interactive Multimedia Computing  
3 credits  
Spring Semester  
Multimedia fundamentals including hardware, software, standards, concepts and issues, compression, decompression, user interface design, query by content and multimedia indexing are discussed.  
PREREQUISITE: EEN 318

EEN572 Object-Oriented and Distributed Database Management Systems  
3 credits  
Offered By Announcement Only  
PREREQUISITE: EEN 567 OR EQUIVALENT.

EEN573 Network Computing  
3 credits  
Spring Semester  
PREREQUISITE: EEN 368 AND 567.

EEN574 Agent Technology  
3 credits  
Offered By Announcement Only  
Agent definition and applications, agent modeling, theories, agent representation using KIF (Knowledge Interchange Format), agent behavior, ethical and emotional agents, agent communication languages (KQML (Knowledge Query and Manipulation Language)), agent development environments and tools, agent systems (cooperative agents, interface agents, information agents, learning agents, believable agents, agents for workgroups, mobile agents), and agent case studies are covered.  
PREREQUISITE: EEN 537 OR EQUIVALENT.
EEN575 Data Network Design and Management
3 credits Spring Semester
Networking fundamentals and current technologies. Data network planning, analysis, design, and management techniques. Different network technologies are addressed and contrasted in terms of topology, performance, and scope of real applications. Network management systems are investigated including fault, configuration, security, and performance management. Network management information bases, protocols, and hands-on experience with network equipment and network management systems are also included.
PREREQUISITE: EEN 310 OR IEN 310.

EEN576 Internet and Intranet Security
3 credits Fall Semester
Security issues and applications for securing internet and intranet-based information exchange. Secure information models, security tools, security services, security protocols, electronic commerce, virtual private networks, firewalls, and security versus cost tradeoffs are covered.
PREREQUISITE: EEN 368.

EEN577 Data Mining
3 credits Offered By Announcement Only
Introduction to the general principles of inferring useful knowledge from large data sets. Data mining algorithms, including inferring rules, linear regression, decision trees, association rules, and predictive models. Evaluation of data mining algorithms, including training, testing, prediction, comparison, cost, and cross-validation. Data mining applications.
PREREQUISITE: EEN 567 OR EQUIVALENT.

EEN578 E-Commerce Technology
3 credits Offered By Announcement Only
Tools and techniques providing the foundation for the design, implementation, and deployment of e-commerce systems. Search engines, information retrieval for e-commerce, e-commerce interfacing design, and e-commerce systems case studies are also included.
PREREQUISITE: EEN 368

EEN579 Mobile Computing
3 credits Offered By Announcement Only
Mobile computing and proxy architectures, mobile web protocols, mobile user interfaces, applications, systems-ware adaptations, mobile databases, transactions, data synchronization, privacy, authentication, and security are covered.
PREREQUISITE: EEN 368.

EEN580 Electrical and Computer Engineering Internship
1-3 credits Fall & Spring Semester
Analysis, design, and research experience obtained at an operating and recognized industry. Approved project jointly supervised and assessed by departmental faculty and industrial partner.
PREREQUISITE: PERMISSION OF ADVISOR.

EEN581 Special Problems
1-3 credits Fall Semester
Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.
EEN582 Special Problems
1- 3 credits  
Spring Semester
Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.  
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

EEN583 Special Problems
1- 3 credits  
First Summer Session
Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.  
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

EEN584 Special Problems
1- 3 credits  
Second Summer Session
Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.  
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

EEN585 Special Problems
1- 3 credits  
Offered By Announcement Only
Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.  
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

EEN586 Multimedia Networking
3 credits  
Fall Semester
PREREQUISITE: EEN 534 OR 575.

EEN587 Multimedia Databases
1- 3 credits  
Fall Semester
Introduction to the fundamental concepts and techniques pertinent to multimedia databases. Introduction to a variety of techniques and emerging innovative solutions to represent, store, index, retrieve, integrate, and manipulate data in various media type(s) to construct multimedia databases.  
PREREQUISITE: EEN 567 OR PERMISSION OF INSTRUCTOR. PREREQUISITE OR COREQUISITE: EEN 571.

EEN590 Special Topics in Information Technology
1- 3 credits  
Offered By Announcement Only
Lecture courses in selected areas of specialization within Information Technology.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN591 Special Topics in Information Technology
1- 3 credits  
Offered By Announcement Only
Lecture courses in selected areas of specialization within Information Technology.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN592 Special Topics in Audio Engineering
1- 3 credits  
Offered By Announcement Only
Lecture courses in selected areas of specialization within Audio Engineering.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.
EEN593 Special Topics in Audio Engineering
1-3 credits  Offered By Announcement Only
Lecture courses in selected areas of specialization within Audio Engineering.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN594 Special Topics in Computer Engineering
1-3 credits  Offered By Announcement Only
Lecture courses in selected areas of specialization within Computer Engineering.
PREREQUISITE: PERMISSION OF INSTRUCTOR - 1 COUPON

EEN595 Special Topics in Computer Engineering
1-3 credits  Offered By Announcement Only
Lecture courses in selected areas of specialization within Computer Engineering.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN596 Special Topics in Computer Engineering
1-3 credits  Offered By Announcement Only
Lecture courses in selected areas of specialization within Computer Engineering.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN597 Special Topics in Electrical Engineering
1-3 credits  Offered By Announcement Only
Lecture courses in selected areas of specialization within Electrical Engineering.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN598 Special Topics in Electrical Engineering
1-3 credits  Offered By Announcement Only
Lecture courses in selected areas of specialization within Electrical Engineering.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN599 Special Topics in Electrical Engineering
1-3 credits  Offered By Announcement Only
Lecture courses in selected areas of specialization within Electrical Engineering.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

INDUSTRIAL ENGINEERING
IEN100 Introduction to Industrial Engineering
1 credit  First & Second Summer Session
This introductory course is designed to expose high school students to a variety of specific disciplines within the industrial engineering arena to assist them in making informed decisions about possible college majors. The program is designed for the exemplary high school student interested in applied mathematics and science. All students enrolled in this course will gain experience in problem solving, engineering mechanics, computer simulation, and laboratory activity. The course content changes throughout the 3-week duration and includes topics on methods analysis, time studies, engineering financial analysis, energy conservation, human factors engineering, and ergonomics. The students will be provided with an understanding and some hands-on experience on topics relative to the discipline of industrial engineering. Via an introduction to several case histories, the students will be able to understand the challenges associated with the desiging of systems and processes within different industries and importance of the scientific methods in engineering. The laboratory and field trip experiences will deal with a manufacturing processes, biomechanics analysis, simulation, energy conservation, and supply chain processes. Summer Scholar Students only.
PREREQUISITE: SUMMER SCHOLAR STUDENTS ONLY.
IEN111 Introduction to Engineering I
3 credits  Fall & Spring Semester
Use of engineering tools and computer techniques for problem solving, data acquisition, analysis, presentation, software design, and computer aided drafting. Development of design skills through several design and building competitions. Introduction to professional ethics, intellectual property rights, and an introduction to use of MATLAB, AutoCAD, and programming in C++.

IEN112 Introduction to Engineering II
2 credits  Spring Semester
Continuation of IEN 111. An overview of Industrial Engineering concepts and issues important to the design and operation of industrial and service systems. Students will learn the use of software tools developed to enhance the Industrial Engineer's ability such as database management, high level programming languages, electronic spreadsheets, and computer graphics. PREREQUISITE: IEN 111.

IEN201 Methods Analysis and Project Management
3 credits  Fall Semester
Design of improved methods for doing work based on effective human effort. Time standardization of productive operations by work measurement, predetermined time systems, and activity sampling are discussed. Introduction to project management concepts and the use of Microsoft Project software. PREREQUISITE: IEN 111 OR PERMISSION OF INSTRUCTOR.

IEN306 Manufacturing Processes
3 credits  Fall Semester
Basic and applied sciences in processing of materials. Effects of processing on the manufactured parts, selection of processing methods, and their relation with material properties. Contemporary and non-traditional processes used in manufacturing are also covered. PREREQUISITE: CHM 151 AND PHY 205.

IEN310 Introduction to Engineering Probability
3 credits  Fall & Spring Semester
Axioms of probability, discrete and continuous random variables, probability density functions, cumulative distribution function, expectation, conditioning, independence, functions of random variables, multiple random variables, sums of random variables, introduction to statistical analysis, estimation, and hypothesis testing. Cross-listed with EEN 310. PREREQUISITE: (MTH 112 OR EQUIVALENT) AND JUNIOR STANDING.

IEN311 Applied Probability and Statistics
3 credits  Fall & Spring Semester
Descriptive statistics, basic probability and distribution theory, point and interval estimation, testing hypothesis, simple linear regression, correlation, and quality control charts are discussed. Examples are drawn from various disciplines. Cross-listed with MAS 311. PREREQUISITE: PREREQUISITE OR COREQUISITE: MTH 112 OR 132.

IEN312 Applied Statistical Methods
3 credits  Spring Semester
Linear regression, multiple regression, analysis of variance, and design of experiments are discussed. Cross-listed with MAS 312. PREREQUISITE: IEN 310 (EEN 310) OR IEN 311 (MAS 311) OR EQUIVALENT.
IEN320 Entrepreneurship for Engineers
3 credits Offered By Announcement Only
Entrepreneurship as it affects engineering students. How to identify business opportunities, how to obtain financing and sustain a business, and how to take charge of the individual's entrepreneurial goals are covered.

IEN351 Industrial Safety Engineering
3 credits Fall Semester
Basic principles of accident prevention and safety engineering approach to the design of mechanical equipment, facilities, and manufacturing processes. Analysis and design of fire prevention procedures and accident control procedures in industry are included.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

IEN360 Productivity Engineering
3 credits Spring Semester
Definitions and scope of productivity engineering and management. The productivity cycle. Productivity measurement, evaluation, improvement--discussion and examples. Productivity planning and improvement through the application of industrial and systems engineering techniques. Discussion of individual techniques with examples. Application potential of the course in real life situations.
PREREQUISITE: MTH 112 OR EQUIVALENT.

IEN361 Industrial Cost Analysis
3 credits Spring Semester
Analysis of financial statements and cost factors in manufacturing and service systems. Cost accounting methods, job order costing and process costing approaches. Deterministic and probabilistic estimates of cost.
PREREQUISITE: MTH 112 OR EQUIVALENT

IEN380 Engineering Economy
3 credits Fall Semester
Engineering Economy Fundamentals. Interest and money-time relationship, methods of making economic decisions, risk and uncertainty, sensitivity analysis, selections among multiple alternatives, depreciation, benefit-cost analysis, replacement studies, minimum cost analysis, and related topics.
PREREQUISITE: MTH 112 OR EQUIVALENT.

IEN399 Internship
1 credit Fall & Spring Semester & First & Second Summer Session
Practical application of classroom theory through employment with firms offering positions consistent with the student's field of study. Course may be repeated.

IEN406 Computer-Aided Manufacturing
3 credits Spring Semester
A comprehensive view of manufacturing with a focus on design, automation, and the use of computers in manufacturing. The topics include computer-aided design, communications, programmable logic controllers, CNC machining, industrial robots, process planning, and computer-integrated manufacturing. Laboratory projects are an integral part of the course.
PREREQUISITE: IEN 306.
IEN407 Product Design for Manufacturing  
3 credits  Spring Semester  
The different phases of engineering design process. Guided Iteration Methodology for product design. Topics include design for manufacturing (DFM), best practices of product realization, solid modeling using SolidWorks, quality in design, issues in patents, liability and ethics. Engineering design specifications, evaluation methods for design alternatives.  
PREREQUISITE: IEN 306.

IEN441 Deterministic Models in Operations Research  
3 credits  Fall Semester  
Introduction to deterministic mathematical models with applications to operational problems. Topics include the methodology of operations research, mathematical programming, game theory, network flow-theory, and dynamic programming. Cross-listed with MAS 441.  

IEN442 Stochastic Models in Operations Research  
3 credits  Spring Semester  
Probabilistic models in operations research. Topics include probabilistic inventory models, queuing theory, Markov chains, and probabilistic dynamic programming. Cross-listed with MAS 442.  
PREREQUISITE: (IEN 310 (EEN 310) OR IEN 311 (MAS 311)) AND IEN 441 (MAS 441).

IEN462 Production Systems Design  
3 credits  Offered By Announcement Only  
Recent advances in design and manufacturing including concurrent engineering, design for manufacturability, robust design - Tauchii methods, computer integrated manufacturing, integrated production control, Just-in-Time production systems, group technology, focused factories, flexible manufacturing systems, and agile manufacturing.  
PREREQUISITE: IEN 310 (EEN 310) OR IEN 311 (MAS 311).

IEN465 Production and Inventory Control  
3 credits  Fall Semester  
Production and inventory management techniques such as forecasting methods, inventory control subject to both known and uncertain demand, aggregate planning, introduction to scheduling, materials requirement planning (MRP), Just-in-Time (JIT) manufacturing, and introduction to scheduling are covered.  
PREREQUISITE: IEN 310 (EEN 310) OR IEN 311 (MAS 311).

IEN470 Engineering Professionalism  
3 credits  Offered By Announcement Only  
Engineering design and configuration management, product warranties and safety, environmental responsibilities, ethics, professionalism, proposal preparation, contracts, execution, project scheduling, engineering economic analysis including present value, net present value, depreciation methods, costs, and financial statements are covered.  
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

IEN490 Undergraduate Research  
1-3 credits  Fall Semester  
Research projects. Individual investigation of current problems
IEN494 Senior Project
3 credits
Fall & Spring Semester
Integration of Industrial Engineering principles and techniques in the design and improvement of production and service systems. Course includes preparation of project proposal, data collection, analysis, reporting, and formal presentations.
PREREQUISITE: SENIOR STANDING.

IEN501 Manufacturing Analysis and Design I
3 credits
Offered By Announcement Only
Analysis of Production Systems stressing diagnosis of problems associated with work measurement, manufacturing methodologies, and their interaction with cost factors.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

IEN502 Manufacturing Analysis and Design II
3 credits
Offered By Announcement Only
Analysis of production systems stressing diagnosis of problems of quality and production control, utilizing quantitative techniques and analytical methods.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

IEN505 Robotics
3 credits
Fall Semester
Fundamentals of robotics including kinematics and dynamics, trajectory planning, sensors and actuators, robotic vision, and case studies. Building your own robot is an integral part of hands-on laboratory exercises. Matlab control toolbox and image analysis toolbox will be extensively used for design and analysis.
PREREQUISITE: IEN 306 OR PERMISSION OF INSTRUCTOR.

IEN507 Design of Manufacturing Systems
3 credits
Spring Semester
State-of-the-art techniques and tools relevant to the design, analysis, and control of modern manufacturing systems. Topics include modeling of manufacturing systems, tools for manufacturing system analysis, manufacturing system planning and scheduling, and lean manufacturing systems.
PREREQUISITE: IEN 465 OR PERMISSION OF INSTRUCTOR.

IEN509 Automated Assembly
3 credits
Fall Semester
Fundamentals of automated assembly including parts transfer systems and feeders, parts orientation and grasping techniques, product design for automated assembly (DFA), assembly robots, and performance and economics of assembly systems.
PREREQUISITE: IEN 406 OR PERMISSION OF INSTRUCTOR.

IEN512 Statistical Quality Control and Quality Management
3 credits
Fall Semester
Principles and practices of quality control in industry. Engineering and administrative aspects of quality control programs, process control, and acceptance sampling. Application of quantitative methods to the design and evaluation of engineering and industrial systems and processes are discussed as well as concepts of Total Quality Management.
PREREQUISITE: IEN 311 (MAS 311) OR IEN 312 (MAS 312).
IEN513 Quality Management in Service Organizations
3 credits Fall Semester
Course examines the issues of quality and productivity management in the service sector. Topics covered include the development and use of questionnaires, service industry applications of quality such as in banking, insurance, healthcare, transportation, government, public utilities, and retail trade.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

IEN524 Decision Support Systems in Industrial Engineering
3 credits Spring Semester
Theory and application of decision support systems in industrial engineering. Topics include the study of model-based, data-based, knowledge-based, and communication-based decision support systems. Emphasis is placed on the selection process of the appropriate systems for various decision problems in industrial environments.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

IEN547 Computer Simulation Systems
3 credits Spring Semester
Computer simulation and the development of simulation models. Application of discrete and continuous system simulation languages to systems studies is also included.
PREREQUISITE: IEN 442 (MAS 442) OR PERMISSION OF INSTRUCTOR.

IEN551 Accident Prevention Systems
3 credits Spring Semester
Introduction to the basic principles of accident prevention and how to apply the safety engineering approach to the design of industrial accident prevention systems.
PREREQUISITE: IEN 351 OR PERMISSION OF INSTRUCTOR.

IEN557 Ergonomics and Human Factors Engineering
3 credits Fall Semester
The study of human capacities and limitations with emphasis on human performance in system design. Topics include design of displays and controls, workload, job design, human information processing, anthropometry, workplace design, biomechanics, task analysis, and research techniques in human factors engineering. Lecture, 3 hours.
PREREQUISITE: IEN 312 (MAS 312) OR PERMISSION OF INSTRUCTOR.

IEN558 Industrial Hygiene I
3 credits Fall Semester
Recognition of occupational chemical health hazards. Evaluation methods and analytical procedures used to determine level of exposure to chemical and toxic hazards. Control measures and compliance with OHSA requirements with special emphasis on industrial ventilation, and other methods of control are included.
PREREQUISITE: ((CHM 111 OR 151) AND SENIOR STANDING) OR PERMISSION OF INSTRUCTOR.

IEN559 Industrial Hygiene II
3 credits Spring Semester
Recognition of physical occupational health hazards and evaluation methods and instruments used in measuring exposure levels with special emphasis on physical hazards. Protective measures and compliance with OHSA requirements is also included. Lecture, 3 hours.
PREREQUISITE: ((CHM 111 OR 151) AND SENIOR STANDING) OR PERMISSION OF INSTRUCTOR.
IEN565 Design of Integrated Manufacturing Systems
3 credits
Offered By Announcement Only
The design of integrated manufacturing systems including concepts of production planning and control, forecasting techniques, inventory systems, production planning and scheduling methods, material requirement planning, plant layout and facility location, design principles of material handling, new trends in batch, and discrete-parts are discussed.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

IEN568 Materials Handling and Facilities Planning
3 credits
Spring Semester
Analysis and design of production and service facilities, emphasis on material handling requirements. Capacity requirements, facility location, layout, storage systems and warehousing are discussed.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

IEN570 Engineering Management
3 credits
Spring Semester
Integrating engineering discipline into the social and economic considerations of managing systems. Tools and techniques used by engineering managers including engineering project life cycle, role playing, communication, decision-making in engineering management, and managing change in engineering organizations are discussed.
PREREQUISITE: IEN 311 (MAS 311) OR IEN 312 (MAS 312) OR PERMISSION OF INSTRUCTOR.

IEN571 Engineering Entrepreneurship
3 credits
Spring Semester
The conversion of technological know-how and engineering theories into business enterprises. The role of technology in creating wealth, connecting technology with market, the role and characteristics of entrepreneurs, starting a business and the business plan, innovation, industrial and service organizations, and the new business environment.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

IEN572 Management of Technology
3 credits
Fall Semester & Second Summer Session
Engineering, Science and Management Principles contributing to the development of a successful framework for Managing technology within an organization, nationally, or internationally. The process of technological innovations, technological planning and forecasting, and socio-economic changes.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

IEN590 Special Topics in Industrial Engineering
1- 3 credits
Offered By Announcement Only
Sub-titles describing the topics are shown in parentheses in the class schedule, following the title "Special Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.

IEN591 Dean's Seminar: Entrepreneurship
1 credit
Offered By Announcement Only
Weekly seminar given by guest speakers on topics including process of management, marketing, planning, R & D, financing, taxation, governmental regulations, and international commerce.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
IEN594 Master's Capstone Design Project
3 credits
Fall Semester
A capstone design project for students in the five-year BSIE/MSIE program. Integration of Industrial Engineering principles and techniques in the design and improvement of production and service systems is emphasized. Offered for students in this program only.
PREREQUISITE: METHODS ANALYSIS, APPLIED PROBABILITY AND STATISTICS AND SENIOR STANDING.

IEN595 Special Problems
1-3 credits
Offered By Announcement Only
Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

IEN596 Special Problems
1-3 credits
Offered By Announcement Only
Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

IEN599 Cooperative Education
1 credit
Offered By Announcement Only
Practical application of classroom theory through alternating semester or summer employment with industries offering positions consistent with the student's field of study. Course may be repeated. Periodic reports and conferences are required.

MECHANICAL & AEROSPACE ENGINEERING

MAE100 Introduction to Mechanical and Aerospace Engineering
3 credits
Fall Semester
Basic principles of automobile engines and engine efficiency. Introduction to robots and controls. Basic concepts of solar engineering and solar energy utilization. Principles of fuel cells and hydrogen energy. Introduction to aerospace engineering encluding the aspects of aerodynamics, propulsion and flight dynamics. Introduction to Aerodynamics of air planes and rockets.
PREREQUISITE: SUMMER SCHOLAR STUDENTS ONLY

MAE111 Introduction to Engineering I
3 credits
Fall & Spring Semester
Use of engineering tools and computer techniques for problem solving. Data acquisition, analysis, presentation, software design, and computer aided drafting are covered. Development of design skills through several design and building competitions. Introduction to professional ethics and intellectual property rights. Introduction to use of MATLAB, AutoCAD, and programming in C++.

MAE112 Introduction to Engineering II
2 credits
Fall & Spring Semester
Introduction to engineering design and the design process. Course topics include safety, reliability, human and environmental factors, economic analysis, and cost estimation. Professional ethics, product liability, solid modeling, machine shop orientation, and practice are also included. Group design projects.
PREREQUISITE: MAE 111.
MAE119 Energy and Environment
3 credits  
Fall Semester
Conventional energy systems; environmental problems caused by energy carriers and energy consumption; the greenhouse effect, acid rain, and pollution; need for cleaner energy sources; environmental and other characteristics of unconventional energy sources; synthetic energy carriers and their environmental characteristics; possible solutions to energy available and related environmental problems; solar-hydrogen energy system.
PREREQUISITE: FRESHMAN STANDING.

MAE202 Dynamics
3 credits  
Fall & Spring Semester
Discussion of motion description and analysis, application of Newton's laws, energy, and momentum principles to mechanical systems. Introduction to mechanical vibrations. Corequisite: PHY 205.

MAE207 Mechanics of Solids II
3 credits  
Fall & Spring Semester
Discussion of displacements, instability, flexural, shear, torsional, and principal stresses. Introduction to statically indeterminate analysis.

MAE241 Measurements Laboratory
3 credits  
Spring Semester
Introduction to experimental mechanical engineering. Basic principles of measurement, data interpretation, and uncertainty analysis are covered. Laboratory exercises in mechanical engineering areas are included. Corequisite: EEN 201 or 205.
PREREQUISITE: MAE 207, IEN 311, ENG 107. COREQUISITE: EEN 201 OR 205.

MAE301 Engineering Materials Science
3 credits  
Fall & Spring Semester & First Summer Session
Introduction to the physics and chemistry of the solid state including the structure and properties of metals, polymers, and ceramics. Corequisite: PHY 207.
PREREQUISITE: CHM 111 OR 151. COREQUISITE: PHY 207.

MAE302 Mechanical Behavior of Materials
3 credits  
Fall Semester
Application of metallurgy and mechanics to the study of the plastic deformation and fracture of metals, ceramics, and plastics. Lecture, 2 hours; laboratory, 3 hours.
PREREQUISITE: MAE 207.

MAE303 Thermodynamics I
3 credits  
Fall & Spring Semester & First Summer Session
Thermodynamic properties of materials; the first and second laws of thermodynamics; application to thermodynamic processes; introduction to heat transfer.
PREREQUISITE: PHY 206, MTH 112 OR 132.

MAE304 Kinematic Design
3 credits  
Spring Semester
Fundamentals of kinematic analysis and design of motion of linkages, cams, and gears are discussed. Analysis of forces in linkages, cams and gears is also included.
MAE308 Thermodynamics II
3 credits
Spring Semester
Course topics include cycle irreversibility, availability of energy, power and refrigeration cycles, behavior of mixtures and solutions, chemical thermodynamics, and compressible fluids.
PREREQUISITE: MAE 303.

MAE309 Fluid Mechanics
3 credits
Fall & Spring Semester & First Summer Session
Course topics include fluid statics, fluid flow concepts, dynamics of inviscid and viscous fluids, closed and open channel flow, and compressibility effects.
PREREQUISITE: CAE 210, PHY 206.

MAE310 Heat Transfer
3 credits
Fall & Spring Semester
Application of elementary methods of solution to heat transfer problems involving steady and unsteady state conduction, radiation, and convection. Introduction of meaningful experimental data is also included.
PREREQUISITE: MAE 303.

MAE311 Mass Transfer I
3 credits
Offered By Announcement Only
Introduction to mass transfer phenomena and mass transfer operations in gas-liquid systems. Derivation and application of mass transfer rate equations and simultaneous heat and mass transfer phenomena are also included.
PREREQUISITE: MAE 303, 309.

MAE341 Mechanical Design I
3 credits
Fall Semester
Concepts and software for kinematics, solid modeling, and project management. Fundamentals of mechanical design; stresses in and failure of mechanical elements. Individual and group design projects.
PREREQUISITE: MAE 202, 207.

MAE342 Mechanical Design II
3 credits
Spring Semester
Review of the design process and creativity in design. Topics include design and reliability oars, shafts, etc. Individual and group design projects are included.
PREREQUISITE: MAE 341.

MAE351 Mechanics Laboratory
2 credits
Spring Semester
Exercises in the experimental determination of the mechanical properties of materials and the static and dynamic characteristics of mechanical and structural elements. Lecture, 1 hour; laboratory, 3 hours.

MAE362 Computer Analysis of Mechanical and Aerospace Engineering Problems
3 credits
Spring Semester
Exploration of physical systems behavior using discrete models. Topics include numerical analysis, solid modeling, and software evaluation. Students solve engineering problems using student-developed and existing software. Corequisite: MAE 310.
PREREQUISITE: MAE 111, 341 AND MTH 211. COREQUISITE: MAE 310.
MAE371 Aerodynamics
3 credits
Spring Semester
Course discusses the history of flight. Topics include fundamental variables, the atmosphere, basic equations, their approximations, compressibility, viscosity, flow regimes potential flow, and aerodynamics of airfoil and wing.
PREREQUISITE: MAE 309.

MAE399 Cooperative Education
1 credit
Fall & Spring Semester & First & Second Summer Session
Practical application of classroom theory through alternating semester or summer employment with firms offering positions consistent with the student's field of study. Course may be repeated.

MAE404 Experimental Engineering Laboratory
2 credits
Fall Semester
Experimental analysis of problems in fluid mechanics, thermodynamics, and other areas of engineering. Lecture, 1 hour; laboratory, 3 hours.
PREREQUISITE: MAE 303, 309, 310.

MAE405 Thermal Environmental Engineering
3 credits
Fall Semester
An extension of basic thermodynamics to the design of engineering systems exposed to various thermal environments. Topics include fundamentals of air conditioning, special refrigeration systems, solar radiation, and thermal analysis of engineering components.
PREREQUISITE: PREREQUISITE OR COREQUISITE: MAE 308, 310.

MAE408 Heating, Ventilating, and Air Conditioning
3 credits
Spring Semester
Principles and procedures for the analysis and design of heating, ventilating and air conditioning (HVAC) systems, including moist air properties and conditioning processes, heating and cooling load calculations, building energy consumption, thermal comfort, and indoor air quality. Not available for students having taken MAE 405.
PREREQUISITE: MAE 303.

MAE410 Engineering Administration
2 credits
Fall Semester
Course topics include engineering economics, cost determination, legal phases of engineering, and engineering procedures. Lecture, 2 hours.
PREREQUISITE: IEN 311 AND JUNIOR STANDING.

MAE412 System Dynamics
3 credits
Fall Semester
Course topics include dynamic modeling of mechanical and thermo-fluid systems. Laplace transforms, transfer functions, energy concepts, causality, linearity, linear graph models, energy transducing system elements, frequency domain methods.
PREREQUISITE: EEN 201 OR 205, MAE 202, 309.
MAE415 Automatic Control
3 credits
Spring Semester
Introduction to system theory, transfer functions, and state space modeling of physical systems. Course topics include stability, analysis and design of PID, Lead/Lag, other forms of controllers in time and frequency domains, root locus Bode diagrams, gain and phase margins, Nichols chart, Nyquist criterion, and systems with time delay.
PREREQUISITE: SENIOR STANDING

MAE420 Applied Thermodynamics
3 credits
Spring Semester
PREREQUISITE: MAE 303.

MAE441 Design of Fluid and Thermal Systems
3 credits
Fall & Spring Semester
Course topics include thermal and fluid systems design fundamentals, piping systems, selection of pumps, piping system design practices, classification of heat exchanges. Basic design methods of heat exchange equipment is also included.
PREREQUISITE: MAE 309, 310.

MAE442 Capstone Design Project-I
1 credit
Fall & Spring Semester
Lectures and classroom discussions cover (i) legal, ethical, and societal responsibilities of engineers, (ii) design factors such as product safety, reliability, life cycle costs, and manufacturability, and (iii) other aspects such as global market, contemporary issues, and continuous learning process. Students are required to select group design projects from the breadth of mechanical engineering activity and present project to serve as the basis for MAE 443.
PREREQUISITE: SENIOR STANDING IN MECHANICAL ENGINEERING.

MAE443 Capstone Design Project-II
2 credits
Fall & Spring Semester
Continuation of the Capstone Design Project-I course. A mechanical system is designed, implemented, documented, and presented.
PREREQUISITE: MAE 442.

MAE444 Capstone Aerospace Design Project-I
1 credit
Fall & Spring Semester
Lectures and classroom discussions cover (i) legal, ethical and societal responsibilities of engineers, (ii) design factors such as product safety, reliability, life cycle costs and manufacturability, and (iii) other aspects such as global market, contemporary issues and continuous learning process. Students are required to select group design projects from the breadth of aerospace engineering activity and present project proposals to serve as the basis for MAE 445.
PREREQUISITE: SENIOR STANDING IN AEROSPACE ENGINEERING.

MAE445 Capstone Aerospace Design Project-II
2 credits
Fall & Spring Semester
Continuation of the Capstone Aerospace Design Project-I course. An aerospace system/subsystem is designed, implemented, documented and presented.
PREREQUISITE: MAE 444.
MAE446 Aircraft Design
3 credits Fall Semester
Concepts of aircraft design emphasizing on design layout including the airfoil geometry selection, propulsion integration, configuration layout, payload and landing gear system. Corequisite: MAE 471.
PREREQUISITE: PRE- OR CO-REQUISITE MAE 471

MAE470 Introduction to Aerospace Structures
3 credits Spring Semester
Course topics include mechanics of thin-walled aerospace structures, load analysis, virtual work, energy principles, stability of aerostructures, and finite element methods.
PREREQUISITE: MAE 207.

MAE471 Flight Dynamics
3 credits Fall Semester
Course topics include aerodynamic performance, stability, control, propulsion systems, and structures. Case Studies of Aerospace Systems are also included.
PREREQUISITE: MAE 371.

MAE472 Design of Aerospace Structures
3 credits Fall Semester
Design Philosophy and principles of aerospace structures. Detailed design of wing box structure, fuselage, landing gear mechanism, fasteners and structural joints. Application of composite materials.
PREREQUISITE: MAE 470.

MAE490 Undergraduate Research
1- 3 credits Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: PERMISSION OF THE INSTRUCTOR

MAE501 Methods of Engineering Analysis
3 credits Fall Semester
Analysis of engineering systems in equilibrium and motion. Examples considered from mechanical, electrical, thermal and fluids engineering. Mathematical theory and computer methods for obtaining numerical solutions are developed for various cases involving discrete and continuous systems. Lecture, 3 hours.
PREREQUISITE: MAE 412, MTH 311 OR PERMISSION OF THE INSTRUCTOR.

MAE502 Vibrations
3 credits Fall Semester
Basic theory of free and forced vibrations of mechanical systems with and without damping. Applications to systems with one and several degrees of freedom are included.
PREREQUISITE: MAE 202, 207, 412 OR PERMISSION OF INSTRUCTOR.

MAE503 Internal Combustion Engines
3 credits Fall Semester
Course discusses engine types, characteristics, and operation. Topics include performance factors, fuel combustion, power cycles, knock and engine variables, exhaust emissions, fuel metering, compressors, and turbines.
PREREQUISITE: MAE 303, SENIOR STANDING, OR PERMISSION OF INSTRUCTOR.
MAE505 Design for Manufacturability
3 credits  Fall Semester
Manufacturing concerns at design stage. Design theory and methodology. Statistical considerations in geometric dimensioning, tolerances, reliability-based design, and quality control. Producibility, design for assembly, and value engineering. Life cycle costs and optimum design using nonlinear programming and Taguchi approaches. Hands on projects on machine tools.
PREREQUISITE: MAE 341 AND 342 OR CONSENT OF INSTRUCTOR.

MAE506 Nuclear Engineering
3 credits  Offered By Announcement Only
Course topics include a review of neutron physics, chain reactions, reactor theory, steady state operation, and reactor kinetics. Control, long term reactivity changes, materials, heat transfer, and shielding are also included. Lecture, 3 hours.
PREREQUISITE: SENIOR STANDING IN MECHANICAL AND AEROSPACE ENGINEERING OR PERMISSION OF INSTRUCTOR.

MAE507 Advanced Mechanics of Solids
3 credits  Spring Semester
Courses discusses the basic elements of elasticity, plasticity, and viscoelasticity. Application to mechanical systems at rest and in motion are included.
PREREQUISITE: MAE 202, 207, SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

MAE508 Intermediate Heat Transfer
3 credits  Spring Semester
Course discusses steady and unsteady heat transfer by conduction, convective heat transfer in laminar and turbulent fluid flow, natural convection, and heat transfer by radiation.
PREREQUISITE: MAE 310.

MAE509 Hydrogen Energy
3 credits  Fall Semester
Evaluation of new energy sources, need for an intermediary system, hydrogen energy system, hydrogen as energy carrier, hydrogen production methods, hydrogen storage and distribution, utilization of hydrogen by residential, commercial, transportation, and industrial sectors are discussed as well as environmental, safety, and economical considerations.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

MAE510 Fundamentals of Solar Energy Utilization
3 credits  Spring Semester
Fundamentals basic to the design and performance analysis of thermal systems for the capture and utilization of Solar Energy.
PREREQUISITE: MAE 303, MTH 211 AND PHY 207.

MAE511 Engineering Fracture Mechanics
3 credits  Offered By Announcement Only
Course addresses the consequence of fracture including some illustrative applications of fracture mechanics, Griffith's fracture theory, review of relevant results from solid mechanics, the three basic modes of fracture, stress intensity factor, introduction to elasto-plastic and dynamic fracture, fatigue crack propagation, fracture and non-destructive evaluation procedures.
PREREQUISITE: MAE 207, SENIOR STANDING OR PERMISSION OF INSTRUCTOR.
MAE512 Intermediate Fluid Mechanics
3 credits  Fall Semester
Course topics include conservation of mass, momentum, and energy, potential flow, viscous laminar and turbulent flows, the Reynolds analogy, and Boundary-layer approximations. Gas dynamics are also discussed.
PREREQUISITE: MAE 309.

MAE513 Kinematics for Robotics
3 credits  Offered By Announcement Only
Geometry of unconstrained plane motion with applications to linkage design. Topics include type and number synthesis, introduction to 3-D mechanism with applications to robotics, graphical, analytical, and computer techniques, including the use of analysis software.
PREREQUISITE: MAE 202, SENIOR STANDING, OR PERMISSION OF INSTRUCTOR.

MAE514 Advanced Internal Combustion Engines Experimental Studies
3 credits  Spring Semester
Experimental mechanical engineering as it pertains to internal combustion engines. The principal measurements necessary to analyze the operation of an internal combustion engine are covered. Emphasis is placed on experiment planning, data interpretation, and error analysis.
PREREQUISITE: MAE 503 OR PERMISSION OF INSTRUCTOR.

MAE516 Introduction to Composite Materials
3 credits  Offered By Announcement Only
Course provides an introduction to composite materials and terminology. Topics include advantages offered by composite materials, current aerospace, automotive, and bio-mechanics applications, experimental results, analytical models, and effects of impact and fatigue loads. The environment's impact on composite materials' performance and design procedures are discussed. Case studies examining composite materials as efficient replacements are also included.
PREREQUISITE: MAE 207, SENIOR STANDING, OR PERMISSION OF INSTRUCTOR.

MAE517 CAD Applications Using Interactive Computer Graphics
3 credits  Offered By Announcement Only
Computer methods and graphics in the engineering design process. Introduction to available engineering analysis codes, principles of computer graphics, and interactive graphical methods in problem solving. Mathematics for 2-D and 3-D graphical manipulation. Programming project work is required.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

MAE518 Chemical and Process Engineering A
3 credits  Offered By Announcement Only
Course analyzes single and multi-stage concentration processes in the liquid-solid systems such as crystallization and drying. Processes apart from equilibrium, controlled diffusion, mathematical treatment, and equipment design are also discussed.
PREREQUISITE: MAE 310, 311. COREQUISITE: MAE 508.

MAE519 Chemical and Process Engineering B
3 credits  Offered By Announcement Only
Stagewise equilibrium separation processes in liquid-liquid systems such as distillation, rectification, absorption, and extraction. Application of phase equilibria and balance equations, mathematical treatment, and equipment design.
PREREQUISITE: MAE 310, 311, 308.
MAE520 Air Pollution
3 credits
Spring Semester
Course topics include fundamentals of air pollution, air quality, properties of
air pollutants, effect of pollutants on the environment, analysis and modeling,
diffusion of pollutants, and air pollution control.
PREREQUISITE: MAE 303, 309/CAE 330 OR PERMISSION OF INSTRUCTOR.

MAE521 Exhaust Emission Control
3 credits
Spring Semester
Course topics include automotive emissions, air pollution, combustion of homogeneous
mixtures, emission control systems, Federal emission standards, and emission instrumentation
and measurement. Lecture, 2 hours; Laboratory, 3 hours.
PREREQUISITE: SENIOR ENGINEERING STANDING OR PERMISSION OF INSTRUCTOR.

MAE538 Computer-Aided Air Conditioning Design and Energy Management
3 credits
Offered By Announcement Only
Course topics include equipment and components, air conditioning system, all-air
systems, air-and-water systems, all water systems, heat recovery systems, cogeneration
systems, heat pump systems, central heating and cooling, energy management, and
computer applications.
PREREQUISITE: MAE 405 OR 408 OR PERMISSION OF INSTRUCTOR.

MAE539 Heating, Ventilating and Air Conditioning System Design
3 credits
Fall Semester
Course topics include basic HVAC systems, multizone systems, dual-duct systems,
terminal reheat systems, variable air volume systems, induction and induction
reheat systems, special applications, hydronic systems, unitary and heat pump systems,
hydronic heat recovery systems, cooling and heating load calculation duct and piping
design, overall system design, and integration.
PREREQUISITE: MAE 405 OR 408 OR PERMISSION OF INSTRUCTOR.

MAE540 Energy Conversion
3 credits
Spring Semester
Course topics include energy conversion, utilization, present and projected consumption
of energy, thermodynamic principles, nuclear energy, fission and fusion reactions,
hydroelectric power, and solar energy. Alternative energy sources, the hydrogen
economy, and the energy-environment-economy system are also discussed.
PREREQUISITE: SENIOR STANDING IN MECHANICAL AND AEROSPACE ENGINEERING OR PERMISSION
OF INSTRUCTOR.

MAE541 Two-Phase Flow Fundamentals and Design
3 credits
Offered By Announcement Only
Course topics include two-phase flow fundamentals for thermal design, heat transfer,
pressure drop analysis of two-phase flows in tube and around tube bundles, heat
transfer design correlations in boiling, evaporation, and condensation. Classifications
of heat vapor generation and vapor condensation, heat exchangers for air-conditioning
and refrigeration, enhancement of boiling, condensation, evaporation heat transfer,
and fouling of heat exchangers are also discussed. Design examples are included.
PREREQUISITE: MAE 303 AND 310 OR PERMISSION OF INSTRUCTOR.
MAE550 Product Safety Engineering

3 credits

Offered By Announcement Only

Product safety for the designer and the design review process. Topics include hazard analysis of products including use of regulatory and voluntary standards and analytical tools such as fault tree analysis. Constraints imposed by product liability law, design techniques, and process requirements to minimize hazards are also discussed.

PREREQUISITE: SENIOR STANDING IN ENGINEERING OR PERMISSION OF INSTRUCTOR.

MAE551 Special Problems

1-3 credits

Fall & Spring Semester & First & Second Summer Session

Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.

PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

MAE552 Special Problems

1-3 credits

Fall & Spring Semester & First & Second Summer Session

Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.

PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

MAE570 Aero Propulsion

3 credits

Fall Semester

Definition of the atmosphere, propulsion basics, rocket fundamentals, turbine fundamentals, gas turbine cycles, component matching, math and computer models, aircraft missions, cycle section, reliability, and durability are analyzed.

PREREQUISITE: MAE 303, 309.

MAE571 Introduction to Aerospace Control

3 credits

Spring Semester

Course topics include modeling of Aerospace systems, properties of state space realizations, coordinate transforms solution of state equations, controllability, observability, equivalent realizations, model reduction, stability, optimal control, and estimation.

PREREQUISITE: MAE 415 OR PERMISSION OF INSTRUCTOR.

MAE590 Special Topics

1-4 credits

Fall Semester

Subtitles describing the topics will be shown in parentheses in the class schedule, following the "Special Topics."

PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE591 Special Topics

1-4 credits

Offered By Announcement Only

Subtitles describing the topics will be shown in parentheses in the class schedule, following the "Special Topics."

PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE592 Special Topics

1-4 credits

Offered By Announcement Only

Subtitles describing the topics will be shown in parentheses in the class schedule, following the "Special Topics."

PREREQUISITE: PERMISSION OF INSTRUCTOR.
MAE593 Special Topics
1-4 credits Offered By Announcement Only
Subtitles describing the topics will be shown in parentheses in the class schedule, following the "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE594 Special Topics
1-4 credits Offered By Announcement Only
Subtitles describing the topics will be shown in parentheses in the class schedule, following the "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE595 Special Topics
1-4 credits Offered By Announcement Only
Subtitles describing the topics will be shown in parentheses in the class schedule, following the "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE596 Special Topics
1-4 credits Offered By Announcement Only
Subtitles describing the topics will be shown in parentheses in the class schedule, following the "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE597 Special Topics
1-4 credits Offered By Announcement Only
Subtitles describing the topics will be shown in parentheses in the class schedule, following the "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE598 Special Topics
1-4 credits Offered By Announcement Only
Subtitles describing the topics will be shown in parentheses in the class schedule, following the "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE599 Cooperative Education
1 credit Fall & Spring Semester & First & Second Summer Session
Practical application of classroom theory through alternating semester or summer employment with industries offering positions consistent with the student's field of study. Course may be repeated. Periodic reports and conferences are required.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.
AMP402 Introduction to Ocean Engineering
3 credits Fall Semester
History and development of major fields within Ocean Engineering. Introduction
to analytical and experimental techniques in coastal and harbor engineering, offshore
structures, ships and ship dynamics, underwater technology, and underwater acoustics.
Lectures will be supplemented by films.
PREREQUISITE: MTH 311, OR PERMISSION.

AMP509 Coastal Physics and Engineering
3 credits Spring Semester
Course addresses linear wave theory, wave statistics, wave generation, tides, wind-driven
currents, nearshore circulation, sediment transport by waves and currents, bedforms,
bedload, and suspended load. Other topics include longshore and cross-shore transport,
equilibrium beach profiles, coastal processes models, Pelnard-Considere model for
shoreline change, and Escoffier model for inlet stability.
PREREQUISITE: CAE 330 OR AMP 575.

AMP515 Environmental Hydrology
3 credits Fall Semester
An introduction to the physical processes of hydrological science. The principles
of evapotranspiration, precipitation, infiltration, groundwater flow, seepage,
overland flow, and stream flow are expounded. Areas of interrelation with environmental,
marine, and geophysical sciences are emphasized. Measurement techniques for hydrological
variables and the statistical analysis of hydrological data time series for runs
and extremes are also described.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

AMP531 Ocean Measurements
3 credits Spring Semester
Course topics include instrumentation, automatic data acquisition and analysis,
time series analysis, signals and noise, filtering, and applied statistics.
PREREQUISITE: MTH 311.

AMP535 Introduction to Underwater Acoustics
3 credits Spring Semester
Course topics include sound waves and pulses, harmonic analysis, sound propagation
in the ocean, sonar systems, scattering and absorption, acoustic measurement of
marine life and sea-floor properties, sound transmission in waveguides, ambient
noise, transducers, and hydrophones.
PREREQUISITE: MTH 311.

AMP542 Physics of Remote Sensing
3 credits Offered By Announcement Only
This course discusses basic physical principles of remote sensing. The main topics
are (1) Introduction, (2) Sampling issues, (3) Fundamental laws of electromagnetic
waves, (4) Passive sensing, (5) Active sensing, and (6) Brief survey of satellite
sensors.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

AMP551 Special Topics
1- 3 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Applied
Marine Physics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
AMP552 Special Topics
1-3 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Applied Marine Physics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

AMP553 Special Topics
1-3 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Applied Marine Physics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

AMP554 Special Topics
1-3 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Applied Marine Physics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

AMP555 Special Topics
1-3 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Applied Marine Physics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

AMP575 Applied Ocean Hydrodynamics
3 credits Fall Semester
The equations governing the dynamics of homogeneous fluids are derived. The concepts of deformation rates, vorticity, stream function, and ideal fluid flow are introduced and demonstrated in applications describing flows in the marine environment. Semi-empirical methods for analyzing viscous flows, boundary layers, and turbulence are presented. Eddy viscosity and more advanced turbulence closure schemes are discussed in the context of coastal circulation, bottom boundary layers and sediment transport.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

AMP576 Wave Propagation in the Ocean Environment
3 credits Fall Semester
Wave equation models, acoustic and other elastic waves, surface gravity waves, boundary conditions, ray tracing, dispersion, diffraction, reflection attenuation, and radiation transport laws are discussed.
PREREQUISITE: MTH 311.

AMP577 Marine Soil Mechanics
3 credits Spring Semester
Course topics include principles of soil and rock mechanics and dynamics, theories of poro-elasticity, sea-seabed and interactions, and measurement methods of physical properties of sediments. An introduction to wave propagation through porous media is included.
PREREQUISITE: AMP 576 AND 575 OR PERMISSION OF INSTRUCTOR.
AMP590 Sustainable Fisheries - Assessment and Conservation
3 credits
Spring Semester
This is the second of a three course series. This course will focus on advanced stock assessment techniques using acoustics and optics. It will cover, for example:
- History of sampling fish stocks - "from catching to measuring fish" - Measuring with underwater sound and light - Sounds and echoes in marine ecosystem - Survey of fish stocks and their habitat.
PREREQUISITE: MSC 471, OR EQUIVALENT.

MARINE AFFAIRS & POLICY
MAF501 Political Ecology of Marine Management
3 credits
Spring Semester
Course provides a grounding in political ecology as an important theoretical approach to resource policy and management. The social analysis of resource use, social change, and development are discussed. Models of development and concepts of nature relate to resource use and policy formation are also included. Within this framework, ethnicity, class, and the politics of conservation are explored.
PREREQUISITE: MAF 505.

MAF502 Economics of Natural Resources
3 credits
Fall Semester
Course brings together the approaches of natural resource and environmental economics to provide a comprehensive overview of the economics of national, international, and global environmental problems. A unifying theme throughout the course is the concept of sustainable development, defined as maximizing the net benefit to economic development while maintaining the services and quality of natural resources over time. Economic reasoning is used to examine the causes and consequences of environmental and resource problems and measures for dealing with them.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAF503 Marine Resource Economics
3 credits
Offered By Announcement Only
This course surveys the economics of international and global marine resource problems, with particular emphasis on biodiversity loss and climate change. The mainstream economics focus on efficiency--getting the most welfare out a given endowment of resources--in complemented with a range of social science and natural science interdisciplinary linkages. Three themes stand out. First, economic efficiency may not be the only or even dominant concern in the provision of environmental assets. Issues of fairness and access to those assets, both within a time frame period and over time, may be of greater importance to both individuals and societies. Second, if habitats and their non-human occupants have some form of "intrinsic" value unrelated to human preferences, then we face the problem of how to account for those values. Third, economics lacks a "sustainability" theorem that would ensure whatever economy we might devise would be ecologically sustainable. To be sure of sustainability, economic models must have sustainability conditions build into them.
PREREQUISITE: MAF 502, ECO 345, OR PERMISSION OF INSTRUCTOR.
MAF504 Fieldwork in Coastal Management

3 credits
Spring Semester
The field portion of this course will occur in Bocas del Toro, Panama, on the northwest Caribbean coast of Panama where the University of Miami has been involved in the development of a Coastal Management plan since 2004. The Bocas del Toro Archipelago of over 20 nearshore islands boasts a rich diversity of cultures, as well as high quality coastal environments. The region is currently experiencing rapid tourist growth, as well as residential development projects for foreigners. The cultural and biological diversities of the region, as well as the development pressures they face, provide an excellent opportunity to study the socio-economic and environmental impacts of tourist development; regional attempts to create land use and coastal plans; conflicts among different uses and users; and various cultural perspectives on the current and evolving situation. The course allows students to develop projects tailored to their interests and skills.
PREREQUISITE: MAF 518 IS HIGHLY RECOMMENDED

MAF505 Fieldwork in Coastal Cultures

3 credits
Spring Semester
Field course in which the student participates in a social and economic analysis of a coastal culture (i.e., stone crab fishermen in Everglades City, spiny lobster fishermen in Key West, boat builders and commercial divers in the Abacos, Bahamas). Preliminary lectures and reading introduce the theory and method which the student then practices during a week-long field trip.
PREREQUISITE: MSC 310 OR PERMISSION OF INSTRUCTOR.

MAF506 Advance Fieldwork in Coastal Cultures

3 credits
Spring Semester
Advanced field course in which the students participate in the social and economic analysis of a coastal culture (e.g. Louisiana bayou fishermen, Abacos boat builders, Tarpon Spring spongers). Students utilize field research techniques learned in MAF 505 and develop skills in framing a research problem. Students examine a coastal issue from an anthropological perspective, structuring a field research paper.
PREREQUISITE: MAF 505.

MAF510 Environmental Planning and the Environmental Impact Statement

3 credits
Spring Semester
Course takes a broad view of environmental planning and analysis while focusing specifically on the preparation of environmental impact statements. Statutory requirements and procedures at the federal level are examined. Judicial opinions are studied that reflect environmental disputes and controversies. The course also considers some of the substantive requirements of environmental impact analyses such as the assessment of physical and biological environment and socioeconomic impacts.

MAF512 Aquaculture Management

3 credits
Fall Semester
Course examines the various strategies of resource exploitation and utilization in developing aquaculture projects. Resources include environmental, technological, social, economical, and administrative aspects encountered in commercial aquaculture development. The course covers all stages of planning and development, with emphasis on determining the technical and economic feasibility of aquaculture projects.
MAF513 Aquaculture Management II
3 credits
Spring Semester
Course is a complement to Aquaculture Management (MAF 512) and examines advanced aquaculture management techniques and strategies with emphasis on commercial operations. Course requires a background in either aquaculture or business. Prerequisite: MAF 512 or permission of instructor.
PREREQUISITE: MAF 512 OR PERMISSION OF INSTRUCTOR.

MAF514 Field Techniques in Prehistoric Underwater Archaeological Excavation
3 credits
First Summer Session
An introduction to specialized techniques of underwater excavation applicable to the excavation of Little Salt Spring (LSS), a prehistoric site owned and operated by Rosenstiel School of Marine and Atmospheric Science. All students participate in a one-week intensive lecture course in the prehistory of Florida and general techniques of underwater excavation. The field course begins after that. All students must be present for all of the field course in order to complete the basic requirements. Activities include daily underwater excavation in depths of 10-30 feet of water, as well as surface support activities relating to diving and the recording and basic conservation of recovered ecofacts and artifacts dating before 9,000 radiocarbon years before present.
PREREQUISITE: STUDENTS WHO INTEND TO DIVE (NOT REQUIRED) MUST HAVE ALREADY BEEN QUALIFIED AS RSMAS SCIENTIFIC DIVERS (BASIC), UNDER GUIDELINES ESTABLISHED BY THE AMERICAN ACADEMY OF UNDERWATER SCIENCES (AAUS) IN ORDER TO PARTICIPATE IN COURSE-RELATED SCUBA-DIVING ACTIVITIES.

MAF515 Techniques of Marine Archaeological Survey and Recording
3 credits
Offered By Announcement Only
The location and study of underwater archaeological sites is undergoing fundamental changes because of application of advanced technologies developed for other fields, notably remote sensing, and the general availability of computer power for individual users. This course introduces the student to the latest techniques of survey and recording, focusing on hardware and software that can greatly increase the efficiency of any underwater excavation.
PREREQUISITE: PREVIOUS COURSES IN ARCHAEOLOGY OR MARINE ARCHAEOLOGY OR PERMISSION OF INSTRUCTOR.

MAF516 Ocean Policy and Development and Analysis
3 credits
Fall Semester
Ocean policy development and analysis of issues such as: offshore oil drilling, fisheries resource conflicts, marine mammal protection, ocean dumping and incineration, multiple use conflicts in marine protected areas, pollution from land based sources, and oil spill contingency planning.

MAF517 Aquaculture and the Law
3 credits
Offered By Announcement Only
This course examines the substantive legal issues concerning Aquaculture and the Coastal Zone. Legal aspects of Aquaculture related to ownership and boundaries in the coastal zone, legal and regulatory constraints, international consideration private and public rights, risks and incentives. Fish and shellfish as personal property and conservation laws affecting the fish farmer.
MAF518 Coastal Zone Management
3 credits  Fall Semester
Development of a framework for formulation and assessment of coastal zone policy. Analysis of issues and conflicts in coastal zone management (CZM), such as: zoning and planning, coastal and beach protection, ecosystem protection, the federal flood insurance program, adaptations to sea level rise, coastal pollution from land-based sources, and tourism impacts.

MAF519 Aquaculture Management III (Fieldwork)
3 credits  First Summer Session
Students will conduct fieldwork on environmental, technological, social, economical, and administrative aspects encountered in commercial aquaculture operations. This fieldcourse will complement Aquaculture Management I and II. Students will be able to apply most of the topics taught in MAF 512 and MAF 513. They will participate in all stages of the production process, including maturation, spawning, larval husbandry, nursery and growout techniques, as well as harvesting, processing and exporting. Students will visit several large commercial hatcheries, farms and processing plants currently producing processing, packing and exporting shrimp and fish (both marine and freshwater) for US and European and Asian markets.
PREREQUISITE: MAF 512, 513 OR PERMISSION FROM THE INSTRUCTOR.

MAF520 Environmental Law
3 credits  Fall Semester
An introductory course focusing on environmental problems. The study of Regulatory legislation, common law, and administrative law. Topics include toxic substances, air and water pollution, and habitat and species protection.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAF525 Fisheries Socioeconomics and Management
3 credits  Fall Semester
This course applies microeconomic theory to fisheries resource problems and policies. Economic models with the value of production as their objective, will contrast economists' and biologists' definitions of maximum yield and show why an unregulated fishery will not operate at either level. We will use economic reasoning to examine causes and consequences of fisheries problems and measures for dealing with them.

MAF526 Marine Cultural Resource Management
3 credits  Spring Semester
Submerged archaeological sites as exhaustible resources of a country's cultural heritage. Policies and procedures for their protection or mitigation will be surveyed using as examples the statutes and regulations of foreign states, the federal government, and the US states.
PREREQUISITE: APY 340.

MAF530 Port Operations and Policy
3 credits  Offered By Announcement Only
The course will include: Introduction to ports; port geography; port operations; port administration; Federal port policy; free ports/free zones; port investment/tariffs; port marketing; Coastal Zone Management and ports; case studies, CZM; fostering economic development; and Port planning and development.
PREREQUISITE: JUNIOR STANDING.
MAF560 Introduction to Marine Geographic Information Systems
3 credits  Fall Semester
Marine Geographic Information Systems are emerging as a distinct subset of GIS, due to fundamental differences between terrestrial and underwater spatial information (2-D vs. 3-D, multiresolution, synoptic data collection, time depth (4-D) modeling). Approximately the first half of this course is a brief review of basic GIS, and the second half concentrates on aspects of marine data acquisition and manipulation in the GIS context.

MAF561 Introduction to Marine Geographic Information Systems - Laboratory
1 credit  Fall Semester & First Summer Session
Introduction to Marine Geographic Information Systems - Laboratory introduces students the basic methods and technology in Marine Geographic Information Systems. The course is taught with hands-on laboratory exercises following the evolution of Marine Geographic Information Systems, from basic cartography to topological and network modeling to internet access and application.

MAF562 Spatial Analysis: Intermediate Course in Marine GIS
3 credits  Spring Semester
Course provides a general survey of available quantitative methods for spatial analysis using Geographic Information Systems (GIS). Although GIS has been widely used for mapping and database management, this course is focused on the functionality of GIS as an effective tool for modeling and analyzing complex spatial relationships. Quantitative methods suitable for analyzing different features types are discussed. Applications for such methods are also presented.
PREREQUISITE: MAF 560, 561 OR PERMISSION OF THE INSTRUCTOR.

MAF570 Conservation and Management of Large Marine Vertebrates
3 credits  Fall Semester
This course emphasizes on the notion that proper conservation and management of large marine vertebrates (i.e., marine mammals, sea turtles, sharks and rays) require the understanding and integration of some important aspects of the (comparative) biology and ecology of these groups of animals with the multifaceted nature (e.g., social, economical, ethical and cultural dimensions) of these concerns.

MAF576 Special Topics
1- 4 credits  Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to marine affairs.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAF577 Special Topics
1- 4 credits  Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to marine affairs. Prerequisite: Permission of instructor.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAF578 Special Topics
1- 4 credits  Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to marine affairs.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MAF579 Special Topics
1-4 credits  Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to marine affairs.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAF580 Special Topics
1-4 credits  Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to marine affairs.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MARINE & ATMOSPHERIC CHEMISTRY
MAC503 Principles of Marine and Atmospheric Chemistry
3 credits  Fall Semester
Introduction to the chemical aspects of the sea and atmosphere chemical composition, physico-chemical properties and relationships, methodology of study, fundamental aspects of marine and atmospheric chemistry.
PREREQUISITE: CHM 111 OR PERMISSION OF INSTRUCTOR.

MAC504 Analytical Methods in Marine and Atmospheric Chemistry
1 credit  Fall Semester
A survey of analytical methods as applied to oceanographic and atmospheric chemistry. Course is taught in a multi-instructor format. Topics include trace organic analysis by HPLC, GC, and GC-MS, laser induced fluorescence detection of gas phase atoms, differential absorption detection of atmospheric species, aerosol sampling, ion chromatography, photochemical techniques, oceanographic tracers, microbiological techniques, and computational resources. Course is designed to be taught in conjunction with MAC 503.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAC510 Biogeochemical Exploration of the Major Ocean Basins
3 credits  Fall Semester
This course will have students explore the basic hydrography and biochemistry of the major ocean basins through use of several publicly available global ocean data sets. Each ocean basin will be assessed for biogeochemical features that are unique to that system. By the end of the course, students will have the skills necessary to investigate and interpret marine biogeochemical processes throughout the global ocean.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAC560 Tropospheric Chemistry I
3 credits  Spring Semester
Process-Oriented lower atmospheric chemistry. Topics include photochemical oxidant formation, nighttime chemistry, air-sea exchange, cloud droplet and aerosol reactions, physical properties of aerosols, and transport properties of the troposphere.
PREREQUISITE: MPO 552 OR AN UNDERGRADUATE METEOROLOGY COURSE, OR PERMISSION OF INSTRUCTOR.

MAC581 Special Topics in Marine and Atmospheric Chemistry
1-4 credits  Offered By Announcement Only
Lectures, research projects or direct readings in special topics of marine and atmospheric chemistry.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MARINE & ATMOSPHERIC SCIENCE

MAC582 Special Topics in Marine and Atmospheric Chemistry
1-4 credits Offered By Announcement Only
Lectures, research projects or direct readings in special topics of marine and atmospheric chemistry.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAC583 Special Topics in Marine and Atmospheric Chemistry
1-4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics of marine and atmospheric chemistry.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAC584 Special Topics
1-4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics of Marine and Atmospheric Chemistry.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAC585 Special Topics in Marine and Atmospheric Chemistry
1-4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics of marine and atmospheric chemistry.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MARINE BIOLOGY & FISHERIES

MBF508 Biometrics in Marine Science
3 credits Fall Semester
Applied statistical analysis in marine biology and biological oceanography. Descriptive statistics, probability distributions, and hypothesis testing are discussed. Concepts of analysis of variance, simple linear regression, and computer statistical distribution-free methods are also included as well as principles and procedures with computer statistical packages for data analysis. Lecture and laboratory.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MBF511 Aquaculture
3 credits Offered By Announcement Only
Focus on techniques to culture marine organisms. The growth and physiology of early life stages, the culture of food organisms for larval stages, food requirements of larval and juvenile stages, water quality measurement, disease control, tank design, grow out, composition of artificial feeds and artificial spawning are discussed in detail. Applications of these techniques in commercial aquaculture, culture of animals for research, and for stock enhancement programs are examined. Practical examples are presented for laboratory and hands on rearing of fish larvae. Commercial aquaculture facilities are visited in field trips during the laboratory. Lecture, 2 hours; laboratory, 2 hours.

MBF512 Aquaculture Laboratory
2 credits Offered By Announcement Only
Determining and monitoring water quality, culturing food organisms, larval rearing of shrimp and fish, feeding techniques, identifying parasites and diseases, and avoiding causes of mortality are discussed. Visits to local fish and shrimp hatcheries and farms is included. Corequisite: MBF 511.
PREREQUISITE: COREQUISITE MBF 511.
MBF513 Biology and Ecology of Mangroves
3 credits
Spring Semester
Recent research advances in the study of mangroves as a dynamic interface between terrestrial and marine systems. Topics include taxonomy, biogeography, morphology and physiognomy, water relations and mineral nutrition, and physiology and reproduction with emphasis on how mangroves modify tropical coastal environments and how they are affected by external stressors including global climate change. Lecture, 2 hours; field trips, 1 hour; field and laboratory work, minimum 2 hours.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MBF514 Tropical Marine Biology: A Field Course
3 credits
Spring Semester
General survey of marine flora and fauna of tropical marine ecosystems. Inhabitants and communities of the sandy shore, rocky shore, seagrass meadows, mangrove shoreline, coral and artificial reefs are collected, identified, maintained. Life histories of representatives are presented. Concepts of island biology and geology such as shore zonation local reef formation and the geological history of the lagoon are also discussed. The 10 day course involves 90 contact hours and approximately 40 hours of formal lectures. Grades are based on a laboratory practicum and written final exam. The course is given in its entirety at the University's field station at Bimini, Bahamas.
PREREQUISITE: BY PERMISSION OF INSTRUCTOR.

MBF515 Tropical Marine Ecology
3 credits
Offered By Announcement Only
Marine ecology with emphasis on tropical ecosystems and local habitats. Physical environmental and biotic adaptations, population, and community ecology are discussed. Field exercises in mangrove, sea grass, and coral reef ecosystems are also included.
PREREQUISITE: INVERTEBRATE ZOOLOGY AND ECOLOGY OR PERMISSION OF INSTRUCTOR.

MBF518 Ecology and Physiology of Coral Reef Systems
3 credits
Offered By Announcement Only
Coral reefs as integrated systems are examined from geological, ecological, and biological perspectives. The roles of global and local environmental fluctuations, physical disturbance, and biotic interactions in controlling reef formation and community structure is emphasized. The physiology of scleractinian corals and their algal symbionts is described and the prevalence of algal-invertebrate symbiosis on coral reefs related to nutrient cycling, productivity, and food webs on coral reefs.
PREREQUISITE: PERMISSION OF INSTRUCTORS.

MBF519 Tropical Marine Ecology Lab
1 credit
Offered By Announcement Only
Combined field-laboratory exercises in mangrove, sea grass, and coral reef ecosystems.
MBF520 Tropical Marine Ecology: A Short Course
2 credits Spring Semester
This tropical Marine Biology course established primarily for Florida high school marine biology teachers is taught from an interactive point of view where students are afforded the opportunity to both learn in the conventional way of classroom lectures, and more importantly to learn by involvement and participation. Students are exposed to the major marine communities found in Bimini and South Florida such as: 1) coral reef; 2) artificial reef; 3) mangrove; 4) seagrass flats; and intertidal zones. Students learn about the uniqueness of each of these ecosystems and the plants and animals which inhabit them. Lectures are divided up by habitat and are given in the morning. In the afternoon students go into the field and traverse on foot or snorkel in each ecosystem. Specimens are collected and identified at night and students are required to learn and identify 50 organisms found in six ecosystems. Field guides are used as reference material. A written exam and laboratory practical is given on the last day of class.
PREREQUISITE: COLLEGE BIOLOGY.

MBF525 Biology of Elasmobranch Fishes: A Field Course
2 credits Offered By Announcement Only
Course discusses the first aspects of elasmobranch biology including systematics of the major taxa, paleontology, and the evolutionary history of sharks as well as anatomical aspects. Course also addresses the physiology and biochemistry of sharks, circulatory, respirative, developmental, skeletal, and sensory systems involving behavior, ecology, and life history strategies. Factors such as feeding, reproduction, and social and swimming behavior are also discussed. The relation between man and shark: overexploitation as it affects shark conservation, survival, and biodiversity is included. Course is given in its entirety at Bimini, Bahamas.
PREREQUISITE: By permission of instructor.

MBF531 Plankton
3 credits Spring Semester
Course topics include the drifting organisms, their central role in the economy of the sea, the influence of the environment, and their adaptations to it. The dynamic and productivity of the plant and animal plankton, the ecology and physiology of animal plankton, especially in connection with special distribution and nutrition, and an introduction to the taxonomy, and quantitative enumeration of the animal plankton is included. Lecture, 3 hours.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

MBF540 Introduction to Ecological Modeling
3 credits Offered By Announcement Only
An introduction to conceptual and mathematical model building methods for ecological processes at population, community, ecosystem, and landscape/seascape- level scales. Other topics include mathematical foundations, numerical modeling, holistic and structured population models, demography, density-independent and -dependent models, linear and nonlinear systems, community composition, competition, succession, and ecosystem structure and function are discussed. Gap-phase, process-based, compartmental, and coupled biological-physical ecosystem models at landscape scales are also examined.
PREREQUISITE: CALCULUS AND PERMISSION OF INSTRUCTOR.
MBF550 Analytical Techniques in Marine Biology
2 credits Offered By Announcement Only
Theory and applications of selected analytical techniques necessary to conduct quantitative research in marine biology (e.g., electrophoresis, metabolite assays, enzyme assays, radioisotope methodology). One hour lecture followed by three hour laboratory per week.

MBF570 Special Topics
1-4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine Biology and Fisheries.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MBF571 Special Topics
1-4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine Biology and Fisheries.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MBF572 Special Topics
1-4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine Biology and Fisheries.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MBF573 Special Topics
1-4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine Biology and Fisheries.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MBF574 Special Topics
1-4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine Biology and Fisheries.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MBF575 Current Applications of Ecological Theory
3 credits Offered By Announcement Only
Course examines current applications of ecological theory. Topics include issues of stress ecology, methodologies for evaluating stress responses, methodologies for ecological risk assessment, general systems theory, and human/environmental interactions. Lecture, 3 hours.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

MBF576 Diseases of Marine Organisms
3 credits Offered By Announcement Only
Infectious, genetic, and environmentally induced diseases of marine fishes and invertebrates as well as diagnostic methods, cellular, and molecular pathology. Lecture, 3 hours.
PREREQUISITE: GRADUATE STANDING, OR BIL 150, 160, 255 AND PERMISSION OF THE INSTRUCTOR.
MBF578 Evolutionary Genetics
3 credits
Fall Semester
A Graduate course that presents and overview from "New Evolutionary Synthesis" (1900) to Evolutionary Genomics. The critical points to emphasize is the importance of standing genetic variation, the role of neutral evolutionary process versus evolution by natural selection and how a evolution perspective provides meaning insights into the biology.

MBF586 Environmental Biology of Fishes
3 credits
Offered By Announcement Only
Ecology, dispersal, and modes of life of fishes. Adaptations by larvae and adults to various habitats are covered as well as the effects of man on fish faunas and the importance of fishes to various ecological systems. Lecture, 3 hours.

MBF590 Sustainable Fisheries - Assessment and Conservation
3 credits
Spring Semester
This is the second of a three course series. This course will focus on advanced stock assessment techniques using acoustics and optics. It will cover, for example: - History of sampling fish stocks - "from catching to measuring fish" - Measuring with underwater sound and light - Sounds and echoes in marine ecosystem - Survey of fish stocks and their habitat.
PREREQUISITE: MSC 471, OR EQUIVALENT.

MARINE GEOLOGY & GEOPHYSICS
MGG501 Oceanography I (Geological)
2 credits
Fall Semester
The first section of the core course curriculum designed as an integrated and multidisciplinary view of ocean processes, covering the major disciplines of marine science and their applications to the study of the marine environment. To be taken in sequence with Oceanography II - Physical (MPO 502), Oceanography III - Chemical (MAC 501), and Oceanography IV - Biological (MBF 502). This course is for non-MGG majors only.
PREREQUISITE: UNDERGRADUATES REQUIRE PERMISSION OF INSTRUCTOR.

MGG511 Earth Surface Systems
3 credits
Fall Semester
An introduction to the elements of the earth surface environment and their interactions with an emphasis on the application to understanding the geologic record. Course includes discussions of the processes and agents that influence and shape the character of the earth's surface, the attributes of the resultant sedimentary features, and the use of these features to unravel geologic and geomorphic history. Focus is placed on systems dynamics and interactions among sedimentologic, geomorphic, biotic, and hydrologic processes.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG512 Marine Micropaleontology
3 credits
Fall Semester
An introduction to the field of marine micropaleontology with an emphasis on applications in biostratigraphy, biochronology, paleoecology, and paleoceanography. Topics include morphology, taxonomy, ecology, and geologic record of the major microfossil groups, methods of environmental inference, and stable isotope and trace element geochemical studies. Lab work includes a survey of the most important taxonomic groups. Lecture, 3 hours; laboratory, 2 hours.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MGG513 Introductory Geochemistry  
3 credits  Fall Semester  
Fundamentals of atomic structure and quantum mechanics applied to Chemistry. Topics include origin and distribution of the elements, chemical bonding and substitution, basic thermodynamics of solids, liquids, and gases. Applications of these concepts to such geochemical processes as magmatic differentiation, rock-water interactions, low temperature aqueous geochemistry, and the geochemical cycling of the elements is also included.

MGG514 Geophysics  
3 credits  Fall Semester  
Course topics include seismology, gravity, heat flow, thermal history, geomagnetism, plate tectonics, and their importance in understanding the Earth's crust, mantle, and core.  
PREREQUISITE: ONE YEAR OF CALCULUS AND ONE YEAR OF PHYSICS.

MGG515 Environmental Hydrology  
3 credits  Fall Semester  
Course offers an introduction to the physical processes of hydrological science. The mechanisms of evaporation, condensation, precipitation, infiltration, groundwater flow, overland flow, and stream flow are described. Areas of interrelation with environmental science, marine science, and geophysical science is emphasized. Description of appropriate measurement techniques and data interpretation methods are important parts of the course.  
PREREQUISITE: PHYSICS.

MGG520 Igneous Petrology  
3 credits  Fall Semester  
Origin and differentiation of magmas in oceanic and continental settings. Igneous systems traced from the mantle and magma chambers to the eruptive stage. What we can tell from textures and mineralogy of igneous rocks. Use of trace-element and isotopes to understand igneous processes and magma source compositions. Magma types and plate-tectonic cycle. Magmatism when the Earth was young. Extra-terrestrial igneous rocks.

MGG525 Applied Environmental Geophysics  
3 credits  Offered By Announcement Only  
Application of subsurface geophysical tools to environmental problems. Course includes the theory and application of shallow refraction and reflection seismology, conducting field experiments and processing both marine and land seismic data, other marine survey techniques such as side-scan sonar surveying, potential field techniques (gravity, magnetics, EM), ground penetrating radar, and borehole geophysics.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG533 Environmental Geology  
3 credits  Offered By Announcement Only  
MGG541 Field Evaluation of Fossil Platforms, Margins, and Basins
2 credits Offered By Announcement Only
Field investigation of classic rock sequences formed within ancient platform, margin, and basin environments. The use of ancient exposures as a guide to the interpretation of modern marine environments.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG550 Mathematical Methods for Geoscientists
3 credits Fall Semester
Background mathematics needed to solve problems in the geosciences. Applications in tectonics, geodynamics, structural geology, seismology, and hydrology. Topics include linear inverse problems, least squares, linear algebra, matrix theory, vectors, dimensional analysis, probability and scientific inference, continuum mechanics, transform and numerical methods to solve differential, and partial differential equations.
PREREQUISITE: ONE YEAR OF CALCULUS AND ONE YEAR OF PHYSICS.

MGG570 Continental Tectonics
3 credits Spring Semester
Reviews major research techniques used in the study of the structure and evolution of continental crust and topical discoveries, with an emphasis on the Neogene to Recent time. The course begins with brief introductions to the fields of structural geology, seismology, and geodesy as they relate to continental tectonics. New research in areas such as the rheology of the lithosphere, plate motion models, deformation of continental crust in plate boundary zones, oblique subduction, and earthquake hazard assessment are also discussed.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG579 Plate Tectonics
3 credits Fall & Spring Semester
The theory of plate tectonics, sea floor spreading, and continental drift. Mathematical description of plate motions, finite and instantaneous rotation poles, consequences of plate tectonics, mountain building, rifting, erosion, and recycling of continental materials are also discussed.
PREREQUISITE: PERMISSION OF INSTRUCTOR

MGG580 Geological and Environmental Remote Sensing
3 credits Spring Semester
This one semester course will cover major remote sensing techniques used in the geological and environmental sciences. The course will begin with an introduction to the basic physics of remote sensing, followed by a review of major remote sensing techniques used in aircraft and satellite platforms, including IR and near IR, optical and microwave systems. We will then discuss specific terrestrial and coastal applications using a case history approach, including geologic, soil and biomass mapping, environmental monitoring, and natural hazard assessment. The course is aimed at graduate students and senior undergraduates with some background in math and physics. Grades are based on problems sets (a minimum of three), a mid-term test, and a report or lab exercise involving image processing, due at the end of the semester.
PREREQUISITE: CALCULUS AND PHYSICS.
MGG581 Image Analysis and Interpretation

3 credits  Offered By Announcement Only
Course provides a hands-on approach to learning how to use aerial photography, satellite imagery, and other remotely sensed data to derive information about the physical environment. This course enables the student to process, interpret, and analyze remotely sensed data for use in environmental research. Image Analysis and Interpretation complements the course, MGG 580.

MGG583 Scanning Electron Microscopy

2 credits  Spring Semester
Theory and practical application of the SEM and the electron probe to research problems. Lectures and laboratory with emphasis on independent operation of the SEM, special preparation techniques, and interpretation of results are included. Course is designed to provide students with a broad and thorough background in scanning electron microscopy.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG584 Special Topics

1-4 credits  Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine Geology and Geophysics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG585 Special Topics

1-4 credits  Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine Geology and Geophysics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG586 Special Topics

1-4 credits  Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine Geology and Geophysics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG587 Special Topics

1-4 credits  Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine Geology and Geophysics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG588 Special Topics

1-4 credits  Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine Geology and Geophysics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MPO502 Oceanography II (Physical)  
2 credits  
Fall Semester  
The second section of the course core curriculum designed as an integrated and multidisciplinary view of ocean processes, covering the major disciplines of marine science and their applications to the study of the marine environment. To be taken in sequence with Oceanography I - Geological (MGG 501), Oceanography III - Chemical (MAC 501), and Oceanography IV - Biological (MBF 502). This course is for non-MPO majors only.  
PREREQUISITE: UNDERGRADUATES REQUIRE PERMISSION OF INSTRUCTOR.

MPO503 Physical Oceanography  
3 credits  
Fall Semester  
Introduction to properties of seawater, instruments and methods, heat budget, general ocean circulation, formation of water masses, dynamics of circulation, regional oceanography, waves, tides, and sea level. A mathematical and problem solving course for majors in MPO.  
PREREQUISITE: PHY 202 OR 206, MTH 310 OR 311, OR PERMISSION OF INSTRUCTOR.

MPO511 Geophysical Fluid Dynamics I  
3 credits  
Fall Semester  
The basic equations of state, continuity, and motion. Topics include wave motions, group velocity, theory of stratified fluids and internal waves turbulence.  
PREREQUISITE: MPO 551, OR PERMISSION OF INSTRUCTOR.

MPO518 Remote Sensing of the Atmosphere  
3 credits  
Offered By Announcement Only  
Methods and techniques for remote sensing of the earth's atmosphere. Absorption and scattering of radiation by atmospheric constituents, molecular line or band absorption, and radiative transfer equation are discussed. Application to microwave radar, laser, and optical radar, ground and satellite and optical radar and radiometry, scattering of acoustic waves by turbulence, and to acoustic echo sounding methods are also included.  
PREREQUISITE: EEN 533 AND/OR PERMISSION OF INSTRUCTOR.

MPO531 Physical Meteorology  
3 credits  
Offered By Announcement Only  
Electromagnetic and acoustic wave propagation, absorption, and emission. Application to remote sensing, basic physics of dry aerosols, clouds and precipitation, fundamentals of atmospheric electricity, charge separation processes, and electrical field effects are also discussed. Other topics include air pollution physics, dispersal, and removal of particulate and gaseous materials from natural and anthropogenic sources.  
PREREQUISITE: BASIC CALCULUS AND ORDINARY DIFFERENTIAL EQUATIONS.

MPO542 Physics of Remote Sensing  
3 credits  
Spring Semester  
Course discusses basic physical principles of remote sensing. Topics include an introduction, sampling issues, fundamental laws of electromagnetic waves, passive sensing, active sensing, and a brief survey of satellite sensors.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MPO551 Introduction to Atmospheric Science  
3 credits  
Fall Semester  
Thermodynamics of dry and moist processes; elementary dynamical meteorology; description of weather systems and phenomena on all scales; structure and mechanics of the general circulation. Corequisite: MPO 552. 
PREREQUISITE: PHY 206, MTH 310 OR 311, OR PERMISSION OF INSTRUCTOR.

MPO552 Synoptic Meteorological Laboratory  
1 credit  
Fall Semester  
Analysis of the structure of atmospheric systems. 
PREREQUISITE: PHY 206, MTH 310 OR 311, OR PERMISSION OF INSTRUCTOR.

MPO561 Tropical Meteorology  
3 credits  
Spring Semester  
Observed structure of large-scale tropical circulations, including the Trades, the Intertropical Convergence Zone, the Walker circulation, and equatorial wave disturbances. An overview of tropical climate, including El Nino/Southern Oscillation, and tropical monsoons is included as well as the formation, structure, and dynamics of tropical cyclone interactions between tropical convection and large-scale circulations, equatorial waves, and flow instabilities. 
PREREQUISITE: MPO 511, 551, OR PERMISSION OF INSTRUCTOR.

MPO562 Synoptic Scale Meteorology  
3 credits  
Offered By Announcement Only  
Course topics include the structure and behavior of cyclones, anticyclones, and other temperate latitude synoptic scale disturbances. Objective analysis of synoptic observations, perturbation, stability analysis of large scale synoptic motions, and barotropic and baroclinic waves are also analyzed. 
PREREQUISITE: MSC 405 OR MPO 551 AND PERMISSION OF INSTRUCTOR.

MPO563 Mesoscale Meteorology and Severe Storms  
3 credits  
Offered By Announcement Only  
Course topics include the structure and dynamics of clouds, thunderstorms, and mesoscale convective systems, radar and satellite observations of clouds and precipitation, severe storm forecasting, mesoscale disturbances, frontal and orographic clouds, and precipitation. 
PREREQUISITE: MSC 405 OR MPO 551 AND PERMISSION OF INSTRUCTOR.

MPO581 Special Topics  
1-4 credits  
Offered By Announcement Only  
Lectures, research projects or directed readings in special topics related to Meteorology and Physical Oceanography. 
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MPO582 Special Topics  
1-4 credits  
Offered By Announcement Only  
Lectures, research projects or directed readings in special topics related to Meteorology and Physical Oceanography. 
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MPO583 Special Topics  
1-4 credits  
Offered By Announcement Only  
Lectures, research projects or directed readings in special topics related to Meteorology and Physical Oceanography. 
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MPO584 Special Topics
1-4 credits  Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Meteorology and Physical Oceanography.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MPO585 Special Topics
1-4 credits  Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Meteorology and Physical Oceanography.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MARINE SCIENCE
MSC100 Ecology of Fishes
2 credits  Fall Semester
Ecology and population dynamics of the major zooplankton groups in open ocean and coastal habitats. Lecture, lab and field trip.

MSC101 Survey of Oceanography
3 credits  Fall & Spring Semester & First Summer Session
Introduction to the oceans and their significance to mankind, encompassing geological, physical, chemical, and biological processes; man’s role in and on the sea, including fisheries, pollution, and ocean management. Not for major or minor.

MSC102 Introduction to Weather and Climate
3 credits  Spring Semester
The structure, physics, dynamics and thermodynamics of the atmosphere. Weather, weather forecasting, climate and climate change.

MSC103 Survey of Modern Meteorology
3 credits  Fall Semester
Dynamics and thermodynamics of the atmosphere as they relate to contemporary issues in meteorology. Overview of numerical weather prediction techniques and new technologies for monitoring weather and climate. Open to majors or minors with permission of instructor.
PREREQUISITE: MTH 108.

MSC104 Current Issues in Atmospheric Chemistry
3 credits  Offered By Announcement Only
Topics include: basic composition and chemistry of the atmosphere; chemical processes involved in regional air pollution and acid rain; health effects of air pollution; global change in the composition and climate of the atmosphere; stratospheric ozone, and global warming. The treatment will only utilize basic pre-calculus mathematics and high-school level chemistry.
PREREQUISITE: PRE-CALCULUS MATH, HIGH SCHOOL CHEMISTRY OR PERMISSION FROM INSTRUCTOR.

MSC105 Introduction to Aquaculture
1 credit  Fall Semester
The laboratory explores the basic tools and techniques of aquaculture; selection of species, water quality, life cycles and growth dynamics. Practical projects and data presentation required.
MSC106 Hurricanes and Society  
3 credits  
Fall & Spring Semester  
An interdisciplinary course on the meteorology of hurricanes, a review of historically-significant storms, forecasting methods, and the societal and economic impact of the storms.  
PREREQUISITE: MSC 102 OR MSC 103

MSC111 Introduction to Marine Science  
3 credits  
Fall Semester  
Geological, physical, chemical and biological processes of the world's oceans.  
The role of the oceans in global dynamics and man's role in and on the sea, including fisheries, pollution and ocean management. This course replaces MSC 115 and MSC 116. Enrollment limited to Marine Science/Marine Affairs majors. Lecture and discussion, 3 hours. Field trips.

MSC115 Marine Environments of South Florida  
2 credits  
Offered By Announcement Only  
A field and lecture study of selected marine environments around South Florida, with emphasis on the interaction between organisms and the geological substrate. Field trips. Fee required.  
PREREQUISITE: SUMMER SCHOLARS PROGRAM

MSC118 Current Weather Topics  
1 credit  
Spring Semester  
Weather-and Climate-related phenomena such as hurricanes, severe storms, global warming, and acid rain. (Notes and analysis materials provided)

MSC120 Topics in Broadcast Meteorology  
1 credit  
Fall Semester  
Broadcast Meteorology, including the production of weather briefings and weather news for TV, radio and print media.  
PREREQUISITE: MSC 103 AND 118; COREQUISITE: MSC 243.

MSC200 Environmental Statistics.  
3 credits  
Fall Semester  
Descriptive and inferential statistics applied to ecological and environmental data. Probability, probability distributions, data description and presentation, hypothesis testing, decision making and experimental design. (Not open to students with credit in MTH 224, PSY 204 or equivalent).  
PREREQUISITE: MTH 103 AND 6 CREDITS IN MSC OR ECS

MSC201 Introduction to Research Diving Laboratory  
2 credits  
Fall Semester  
Skills required for using SCUBA as a tool for research. Introduction to biological, geological, archaeological and physical oceanography methods for underwater data collection.  
PREREQUISITE: RECREATIONAL SCUBA CERTIFICATION, ABILITY TO PASS A DIVING PHYSICAL EXAMINATION AND SWIMMING TEST. MSC 101 OR 111.

MSC215 Chemical Oceanography  
3 credits  
Spring Semester  
An introduction to the chemistry of the oceans. Descriptive chemical oceanography of the components of ocean waters (metals, gases, organic compounds and nutrients). Biogeochemical cycles in oceanic systems.  
PREREQUISITE: CHM 111 AND 112. COREQ: MSC 216.
MSC216 Chemical Oceanography Laboratory
1 credit
Spring Semester
Chemical and physical methods in chemical oceanography. Analytical and instrumental techniques used to determine density, salinity, chlorinity, dissolved oxygen, nutrients and components of the carbonate system. Corequisite: MSC 215.
PREREQUISITE: COREQUISITE MSC 215.

MSC220 Climate and Global Change
3 credits
Fall Semester
The Earth's climate system and the role of natural and anthropogenic processes in shaping climate change.
PREREQUISITE: 3 CREDITS IN NATURAL SCIENCE

MSC230 Introduction to Marine Biology
3 credits
Fall Semester
PREREQUISITE: ONE YEAR OF BIOLOGY AND CHEMISTRY WITH LABORATORIES.

MSC232 Introduction to Marine Biology Laboratory
1 credit
Fall Semester
Ecology, physiology, and behavior of marine organisms in south Florida marine habitats. Laboratory Techniques.
PREREQUISITE: ONE YEAR OF BIOLOGY AND CHEMISTRY WITH LABORATORIES. COREQUISITE: MSC 230.

MSC243 Weather Forecasting
3 credits
Fall Semester
Application of physical principles to weather forecasting. Use and interpretation of computer-generated forecast guidance products of the U.S. Weather Service.
PREREQUISITE: MSC 103; MTH 108.

MSC300 Water Resources: History, Management, and Policy
3 credits
Fall Semester
This course is intended to develop an overview of the issues and problems surrounding the management of aquatic resources in the broadest sense including water quality of natural waters, drinking water, water pollution, water quantity and supply issues, watershed management, wetland protection, and coastal management. We will explore the available strategies to wisely manage the various aquatic resources, policy options and their socio-economic aspects, legal frameworks, and institutional arrangements. The examples and cases discussed in the course will largely come from China, Vietnam, and the US.

MSC301 Introduction to Physical Oceanography
3 credits
Spring Semester
Application of the laws of physics to the study of the properties and circulation of the world's oceans and atmosphere.

MSC303 Meteorological Instrumentation
3 credits
Spring Semester
Techniques for measuring meteorological variables at the ground and in the free atmosphere. (Selected readings)
PREREQUISITE: MSC 103; PHY 101 OR 205.
MSC305 Atmospheric Thermodynamics
3 credits  Fall Semester
Equation of State; water vapor and moist air thermodynamics; phase changes and latent heat; buoyancy and atmospheric convection; thermodynamic diagrams.
PREREQUISITE: MTH 310 AND PHY 206.

MSC306 Advanced Principles in Broadcast Meteorology
3 credits  Fall & Spring Semester
Broadcast meteorology including the production of professional weather briefings and weather news for on camera delivery. Emphasis on accurately communicating complex meteorological concepts, use of computer graphics, and on-camera delivery.
PREREQUISITE: MSC120 OR PERMISSION OF INSTRUCTOR

MSC307 Introduction to the physics of climate
3 credits  Fall Semester
The physical mechanisms which govern the earth's climate and climate variability.
PREREQUISITE: PRE: MSC 305

MSC310 Living Resources of the Ocean
3 credits  Spring Semester
Marine fish and shellfish of major commercial and recreational value: biology, techniques of harvesting, and resource management.
PREREQUISITE: MSC 230.

MSC313 Coastal Law
3 credits  Fall Semester
Basic doctrines and public policy related to the use and regulation of the United States coastal zone and seabed.
PREREQUISITE: JUNIOR STANDING.

MSC314 Ocean Law
3 credits  Spring Semester
The principles of international ocean law regarding ocean management; ocean delimitation and issues of environmental ocean regulation within international legal framework.
PREREQUISITE: JUNIOR STANDING.

MSC315 Marine Biota and Biogeochemical Cycles
3 credits  Spring Semester
The distribution of dissolved and particulate materials in the sea is not uniform in time and space. This variability reflects the diverse sources, transformations, and sinks of chemical constituents in the sea. This course focuses on the role of marine organisms in marine biogeochemical cycling and the marine carbon cycle and its interaction with the terrestrial biosphere and atmosphere.
PREREQUISITE: MSC 230

MSC321 Scientific Programming in the Atmospheric Sciences
3 credits  Fall Semester
An introduction to scientific programming in a linux environment using the FORTRAN 90/95 language with specific applications to Meteorology.
PREREQUISITE: (MSC 103 OR CSC 120), MTH 112, AND MTH 210.
MSC325 Biological Oceanographic Techniques  
3 credits  
**Spring Semester**  
Field sampling for plankton biomass and productivity; benthic biomass, and of selected physical parameters. Applications of molecular techniques and remote sensing to oceanographic problems.  
PREREQUISITE: MSC 230.

MSC340 Ocean Policy  
3 credits  
**Spring Semester**  
Analysis of ocean policy issues in US fisheries, marine conservation and marine protected areas, marine pollution, coastal management and regulation of offshore oil and gas activities.  
PREREQUISITE: MSC 111 OR PERMISSION OF INSTRUCTOR.

MSC350 Survey of Marine Mammals  
3 credits  
**Fall Semester**  
The evolution and ecology of the cetaceans, pinnipeds, manatees, and allies: Natural history, zoogeography, physiology, husbandry, and biomedical aspects.  
PREREQUISITE: BIL 150, MSC 230.

MSC364 Life in Moving Fluids  
3 credits  
**Fall Semester**  
The physical characteristics of air and water are described in relation to various flow phenomena that play a part in life functions. Adaptations of form and function reflect the very different properties of the media (air and water) of terrestrial and aquatic life. Energy conversion and transfer limit form and function and enable a wide variety of survival strategies.  
PREREQUISITE: PHY 101, MSC 230, OR BIL 265.

MSC371 Readings in Marine Science  
1-2 credits  
**Fall & Spring Semester & First & Second Summer Session**  
Library research with faculty supervision. Bibliography to be submitted in preparation for laboratory and/or field research project.

MSC400 Water Quality Assessment and Environmental Forensics  
3 credits  
**Fall Semester**  
This course is intended to provide the scientific basis for understanding water quality issues and how water pollution can adversely affect the health of humans and ecosystems. Following basic introduction to the scientific concepts we will investigate numerous case studies using a forensic approach to unravel the mystery surrounding "how, why, and who" was responsible for specific water pollution cases that caused adverse human and/or ecological health effects. The course will have a capstone research project that will involve both laboratory and field investigations into a specific pollution problem.

MSC405 Atmospheric Dynamics I  
3 credits  
**Spring Semester**  
Derivation and scaling of the equations of atmospheric motion; hydrostatic and geostrophic balance; circulation and vorticity.  
PREREQUISITE: MSC 305. PREREQUISITE OR COREQUISITE: MTH 513.
MSC406 Atmospheric Dynamics II  
3 credits  
Fall Semester  
Baroclinic and barotropic instability; boundary layer dynamics; mathematical principles of numerical weather prediction; maintenance of the general circulation.  
PREREQUISITE: MSC 405, MTH 311

MSC407 Weather Analysis  
4 credits  
Spring Semester  
Three-dimensional analysis of synoptic-scale weather systems; application of the fundamental laws of atmospheric dynamics to observed weather patterns; practical questions of worldwide data exchange and display.  
PREREQUISITE: MSC 305.

MSC409 Physical Meteorology  
3 credits  
Spring Semester  
Atmospheric radiation; absorption and scattering principles of remote sensing of the atmosphere; cloud microphysics; nucleation, coalescence, ice crystal growth, atmospheric electricity and lightning.  
PREREQUISITE: MSC 305.

MSC410 Marine Conservation Science  
3 credits  
Offered By Announcement Only  
Nature of marine biodiversity, what threatens it, and what can be done to recover the biological integrity of estuaries, coastal seas, and oceans. Topics include: distinctive aspects of marine populations and ecosystems; threats to marine biological diversity, singly and in combination; place-based management of marine ecosystems; and the human dimensions of marine conservation.  
PREREQUISITE: MSC 230.

MSC411 Projects in Marine Science  
1-3 credits  
Fall & Spring Semester & First & Second Summer Session  
Individual, independent research projects with faculty supervision. A formal written report is required.  
PREREQUISITE: MSC 371, AND PERMISSION OF THE COORDINATOR DURING THE SEMESTER PRECEEDING REGISTRATION.

MSC412 Advanced Meteorological Instrumentation  
1 credit  
Fall & Spring Semester & First & Second Summer Session  
Includes lectures and labs involving field experience during a one-week cruise on the Royal Caribbean Explorer of the Seas.  
PREREQUISITE: MSC 303, PHY 205.

MSC415 Coral Reef Science and Management  
3 credits  
Fall Semester  
The interdisciplinary nature of coral reef science and management: biological, environmental, ecological and socioeconomic aspects of coral reef science, coral reef management problems and approaches at local to global scales, and the implications of climate change for coral reef science and management.  
PREREQUISITE: MSC 230.
MSC416 Environmental Analysis  
3 credits  Offered By Announcement Only  
A laboratory course using the Environmental Protection Agency's methods of sampling, sample preparation, and analysis for priority pollutants; methods of ultra-micro chemical analysis; Quality Assurance and Quality Control.  
PREREQUISITE: CHM 203.

MSC460 Spatial Applications in Marine Science  
3 credits  Fall & Spring Semester  
The concepts and marine applications of Geographic Information Systems. Every class period will entail short class lectures and hands on computer based GIS exercise on marine science related issues. Students will learn how to use ArcGIS 9.2 and create simple GIS models primarily using vector data.  
PREREQUISITE: JUNIOR LEVE STATUS

MSC490 Special Studies in Marine Science  
1-3 credits  Fall Semester  
Interdisciplinary capstone course in Marine Science. Content of course will vary by semester. Content in any semester will be expressed in parentheses following "Special Studies" in the class schedule.  
PREREQUISITE: JUNIOR OR SENIOR STANDING AND PERMISSION OF INSTRUCTOR.

MSC491 Special Studies in Marine Science  
1-3 credits  Fall Semester  
Interdisciplinary capstone course in Marine Science. Content of course will vary by semester. Content in any semester will be expressed in parentheses following "Special Studies" in the class schedule.  
PREREQUISITE: JUNIOR OR SENIOR STANDING AND PERMISSION OF INSTRUCTOR.

RSMAS-GENERAL  
RSM500 Research Diving Techniques  
3 credits  Offered By Announcement Only  
This course is designed to introduce students to the practices and policies of scientific diving. The object is to prepare students to use SCUBA as a research tool for the marine sciences. The course content will qualify students as RESEARCH DIVERS under the UM/RSMAS Scientific Diving Program and will meet the standards set by the American Academy of Underwater Sciences (AAUS).

RSM510 Environmental Ethics  
3 credits  Fall Semester  
This course will introduce students to a variety of key issues and concepts in environmental ethics. The course will be a joint scientific and philosophic collaboration, exploring the ethical dimensions of controversial and emerging issues in biotechnology and the environment. After students are exposed to the scientific background of various actual case studies focusing on current environmental and social impact, the ethical and philosophical issues raised by the discussions will be explored using the tools and methods of analytic philosophy. The course will develop the student's ability to construct and evaluate philosophical arguments in the field of environmental ethics, and to reason philosophically on numerous questions in contemporary applied ethics.  
PREREQUISITE: ALTHOUGH THERE ARE NO PHILOSOPHY PREREQUISITES FOR THIS COURSE, PERMISSION OF INSTRUCTOR IS REQUIRED.
RSM520 Climate and Society  
3 credits  
Spring Semester  
This course is designed to provide students from different disciplinary backgrounds with an overview of physical processes, general concepts and policy debates surrounding climate issues.

RSM560 Investigating Nature through Science Teacher Active Research (INSTAR)  
2 credits  
First & Second Summer Session  
This is a graduate level marine science course that provides a hands-on approach to education focused on geological and meteorological research in South Florida environment. The course provides training in marine science content, field techniques, state-of-the-art field, computer technology, and science educational reform measures. Participants work collaboratively with marine and atmospheric scientists to bring cutting edge marine science content and research to the classroom focusing on the following coastal themes: geology, hydrology and meteorology. The course will be applicable to all graduate and qualified undergraduate marine science students, per-service teachers in colleges of education, and in-service teachers in school systems throughout the country.

RSM561 INSTAR for Physical Sciences Follow-up  
1 credit  
First & Second Summer Session  
This is a follow-up course for participants in MGG 560 and is designed to test the application of the methods learned in MGG 560 to the teaching of high school students. Participants are expected to show evidence of teaching material learned in MGG 560.  
PREREQUISITE: RSM 560.

RSM562 Investigating Nature through Science Teacher Active Research in Biological Sci  
2 credits  
First & Second Summer Session  
This is a graduate level marine science course that provides a hands-on approach to education focused on marine science research and technology in South Florida coastal environments. The course provides training in marine science content, field techniques, state-of-the-art field and computer technology, and science educational reform measures. Participants work collaboratively with marine scientists to bring cutting edge marine science content and research to the classroom focusing on the following coastal themes: coral reefs and marine fisheries. The course will be applicable to all graduate and qualified undergraduate marine science students, per-service teachers in colleges of education, and in-service teachers in school systems throughout the country.

RSM563 INSTAR Biological Sciences Follow-up  
1 credit  
First & Second Summer Session  
This is a follow-up course for participants in RSM 562 and is designed to test the application of the methods learned in RSM 562 to the teaching of high school students. Participants are expected to show evidence of teaching material learned in RSM 562.  
PREREQUISITE: RSM 562.

RSM571 Special Topics  
1-4 credits  
Offered By Announcement Only  
Lectures and research projects in special topics related to Marine and Atmospheric Science.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.
RSM572 Special Topics

1-4 credits          Fall & Spring Semester & First & Second Summer Session

Lectures and research projects in special topics related to Marine and Atmospheric Science.

PREREQUISITE: PERMISSION OF INSTRUCTOR.
DAN101 Aerobic Dance
1 credit
Fall & Spring Semester
The use of dance movement as a cardiovascular fitness activity.

DAN102 Stretching and Body Work
1 credit
Fall & Spring Semester & First & Second Summer Session
Stretching techniques and examination of various body therapy concepts.

DAN103 Fitness Dance: Low Weight/High Rep
1 credit
Fall & Spring Semester & First Summer Session
Use of wrist and ankle weights and high repetition through dance movements to increase muscular strength.

DAN104 Fitness Dance Level 2
1 credit
Fall & Spring Semester
A Personal approach to fitness through the use of low impact aerobic dance movements to condition, tone, and shape the body.

DAN111 Modern Dance, Level One
2 credits
Fall & Spring Semester & First & Second Summer Session
Introduction to the discipline of modern dance designed to develop understanding and skill in the basic vocabulary. Open to all students. (Repeatable up to four times).

DAN121 Ballet, Level One
2 credits
Fall & Spring Semester
Introduction to the discipline of classical ballet designed to develop understanding and skill in the basic vocabulary. Open to all students. (Repeatable up to four times).

DAN130 Orientation to Dance
2 credits
Offered By Announcement Only
Introduction to dance as an art form for those interested in career opportunities in dance education. Required for prospective dance minors. Open to all students.

DAN140 Theatre Dance Forms
2 credits
Fall Semester
Introduction to movement skills and stylistic elements of theatrical forms of dance. (Repeatable).

DAN190 Improvisation
2 credits
Offered By Announcement Only
Experience in selective and basic processes of movement involvement both individual and group. Course may be repeated.

DAN211 Modern Dance, Level Two
3 credits
Fall & Spring Semester & First & Second Summer Session
Continuing exploration of modern dance techniques and theoretical concepts. Open to all students. Course may be repeated up to 4 times.

DAN221 Ballet, Level Two
3 credits
Fall & Spring Semester
Study of ballet designed to extend technical skill and prepare student for advanced level work. Open to all students. Course may be repeated up to 4 times.
DAN235 Folk Dance
2 credits 
Fall & Spring Semester
Beginning study of folk and ethnic dance forms.

DAN240 Cultural Dance Forms
2 credits 
Fall & Spring Semester
Introduction to movement skills and stylistic elements of dance forms from various cultures. Course may be repeated.

DAN250 World History of the Dance
3 credits 
Fall & Spring Semester & First & Second Summer Session
Introductory exploration of dance history in relation to life, thought, and culture.

DAN285 Creative Dance for Children
2 credits 
Fall Semester
Introduction to theories and methods of teaching dance to children of elementary school age.

DAN286 Teaching Dance to Children
2 credits 
Spring Semester
Theory and practice of teaching dance to preschool and school age children.

DAN290 Introduction to Dance-Movement Therapy
2 credits 
Spring Semester
Introduction to dance-movement therapy theory and practice.

DAN311 Modern Dance, Level Three
3 credits 
Fall & Spring Semester & First & Second Summer Session
Study of modern dance techniques and theoretical concepts. Course may be repeated for credit.

DAN321 Ballet Level Three
3 credits 
Fall & Spring Semester
Study of classical ballet at intermediate/advanced level. Open to all students. Course may be repeated for credit.
PREREQUISITE: DAN 221 OR PERMISSION.

DAN335 Folk and Ethnic Dances: Forms and Teaching Methods
2 credits 
Fall & Spring Semester
Beginning study of folk and ethnic dance forms and teaching methods.

DAN340 Specialized Ballet Forms
2 credits 
Fall & Spring Semester
Introduction to movement skills and stylistic elements of specialized ballet forms. Course may be repeated.
PREREQUISITE: CONSENT OF INSTRUCTOR.

DAN385 Methods of Teaching Dance (K-12)
3 credits 
Fall & Spring Semester
Content for teaching dance in a variety of settings including public school grades K-12.
PREREQUISITE: PERMISSION.
DAN 411 Modern Dance; Level Four  
3 credits                                                    Fall & Spring Semester  
Study of modern dance technique and theoretical concepts. Open to dance minors and by permission.  
PREREQUISITE: DAN 311 OR PERMISSION.

DAN 421 Ballet, Level Four  
3 credits                                                    Fall & Spring Semester  
Study of classical ballet at an advanced level. Course may be repeated for credit.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

DAN 450 History of Modern Dance  
3 credits                                              Offered By Announcement Only  
Study of development, philosophies, and theories of American and European modern dance.  
PREREQUISITE: DAN 250.

DAN 550 Women in Theatrical Dance  
3 credits                                              Offered By Announcement Only  
Women in Dance; the most prominent dancers and choreographers from the 19th and 20th centuries who helped shape western theatrical dance art.  
PREREQUISITE: DAN 250 OR 450 OR GRADUATE STUDENT.

DAN 585 Methods of Teaching Dance K-12 (Advanced)  
3 credits                                              Offered By Announcement Only  
An advanced study of the Dance curriculum content in a variety of settings including public schools, grades K-12.  
PREREQUISITE: DAN 411 OR 450 AND PERMISSION.

DAN 593 Special Topics Dance  
1-3 credits                                                  Fall & Spring Semester & First & Second Summer Session  
Supervised topics and other activities in specific areas of Dance  
PREREQUISITE: NONE

INSTRUMENTAL PERFORMANCE

MIPBAA Bassoon  
1-4 credits                                                Fall & Spring Semester  
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Method Books by Giampieri, Jancourt, Milde (Vol. 1). Repertoire: Vivaldi Concerto, Bourdeau - Premier solo, Galliard, Handel, Marcello, Nino Rota Procaccini.  
PREREQUISITE: AUDITION FOR LEVEL A. SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPBAB Bassoon  
1-4 credits                                                Fall & Spring Semester  
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Method Books by Giampieri, Jancourt, Milde (Vol. 1). Repertoire: Vivaldi Concerto, Bourdeau - Premier solo, Galliard, Handel, Marcello, Nino Rota Procaccini.  
PREREQUISITE: AUDITION FOR LEVEL A. SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.
SCHOOL OF MUSIC

INSTRUMENTAL PERFORMANCE

MIPBAC Bassoon
1- 4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Method Books by Giampieri, Jancourt, Milde (Vol. 1). Repertoire: Bourdeau - Second Solo, David, Domenico, Dubois, Fasch, Kozeluh, Pierne, Telemann, Vivaldi.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPBAD Bassoon
1- 4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Method Books by Giampieri, Jancourt, Milde (Vol. 1). Repertoire: Bourdeau - Second Solo, David, Domenico, Dubois, Fasch, Kozeluh, Pierne, Telemann, Vivaldi.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPBAE Bassoon
1- 4 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPBAF Bassoon
1- 4 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPBAG Bassoon
1- 4 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPBAH Bassoon
1- 4 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MIPBHA Baritone Horn
1- 4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, and articulation. Appropriate major and minor scales. Repertoire: Arban, Concone, Schlossberg, Barat, Presser.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPBHB Baritone Horn
1- 4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, and articulation. Appropriate major and minor scales. Repertoire: Arban, Concone, Schlossberg, Barat, Presser.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPBHC Baritone Horn
1- 4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, and articulation. Appropriate major and minor scales. Repertoire: Bordogni-Rochut, Peters, Jones, Vivaldi.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPBHD Baritone Horn
1- 4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, and articulation. Appropriate major and minor scales. Repertoire: Bordogni-Rochut, Peters, Jones, Vivaldi.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPBHE Baritone Horn
1- 4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, and articulation. Appropriate major and minor scales. Repertoire: Fink Stevens, Maxime-Alphones, Jacob, Hartley.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPBHF Baritone Horn
1- 4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, and articulation. Appropriate major and minor scales. Repertoire: Fink Stevens, Maxime-Alphones, Jacob, Hartley.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MIPBHG Baritone Horn
1- 4 credits Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, and articulation. Appropriate major and minor scales. Repertoire: Charlier, Bozza, Uber, Horovitz Bellstedt; band and orchestral excerpts. PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPBHH Baritone Horn
1- 4 credits Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, and articulation. Appropriate major and minor scales. Repertoire: Charlier, Bozza, Uber, Horovitz Bellstedt; band and orchestral excerpts. PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPCDA Conducting
1- 4 credits Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPCDB Conducting
1- 4 credits Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPCDC Conducting
1- 4 credits Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPCDD Conducting
1- 4 credits Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPCDE Conducting
1- 4 credits Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPCDF Conducting
1- 4 credits Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MIPCDG Conducting
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPCDH Conducting
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPCLA Clarinet
1-4 credits
Fall & Spring Semester
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPCLB Clarinet
1-4 credits
Fall & Spring Semester
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPCLC Clarinet
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Same as previous semesters as well as Cavillini Caprices, and Opperman Intermediate Velocity Studies. Repertoire: Weber, Hindemith, Burgmuller.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPCLD Clarinet
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Same as previous semesters as well as Cavillini Caprices, and Opperman Intermediate Velocity Studies. Repertoire: Weber, Hindemith, Burgmuller.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPCLE Clarinet
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Same as previous semesters as well as Jean Jean 16 or 18 Etudes, and Opperman Advanced Velocity Studies. Repertoire: Poulenc, Stravinsky, Bernstein, Brahms.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
SCHOOL OF MUSIC
INSTRUMENTAL PERFORMANCE

MIPCLF Clarinet
1- 4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Same as previous semesters as well as Jean Jean 16 or 18 Etudes, and Opperman Advanced Velocity Studies. Repertoire: Poulenc, Stravinsky, Bernstein, Brahms.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPCLG Clarinet
1- 4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Same as previous semesters as well as Opperman Virtuoso Velocity Studies. Repertoire: Debussy, Rozsa, Muczynski, Berg.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPCLH Clarinet
1- 4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Same as previous semesters as well as Opperman Virtuoso Velocity Studies. Repertoire: Debussy, Rozsa, Muczynski, Berg.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPDBA Double Bass
1- 4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPDBB Double Bass
1- 4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPDBC Double Bass
1- 4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPDBD Double Bass
1- 4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPDBE Double Bass
1- 4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: UNDERGRADUATE LEVEL MIP DBD.
MIPDBF Double Bass
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPDBG Double Bass
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPDBH Double Bass
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPFHA French Horn
1-4 credits  Fall & Spring Semester
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPFHB French Horn
1-4 credits  Fall & Spring Semester
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPFHC French Horn
1-4 credits  Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPFHD French Horn
1-4 credits  Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MIPFHE French Horn
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Continued transposition study, further skills development, scales and arpeggios. Studies by Bach, Maxime-Alphonse, Gallay; Belloli; orchestral repertoire. Repertoire: Mozart, Strauss, Hindemith, Dukas, Chabier.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPFHF French Horn
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Continued transposition study, further skills development, scales and arpeggios. Studies by Bach, Maxime-Alphonse, Gallay; Belloli; orchestral repertoire. Repertoire: Mozart, Strauss, Hindemith, Dukas, Chabier.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPFHG French Horn
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Further skills development to the highest attainable level. Studies by Reynolds, Hackelman, Neuling, Barboteo, Bach. Orchestral repertoire. Repertoire: Bozza, Gliere, Strauss, Haydn.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPFHH French Horn
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Further skills development to the highest attainable level. Studies by Reynolds, Hackelman, Neuling, Barboteo, Bach. Orchestral repertoire. Repertoire: Bozza, Gliere, Strauss, Haydn.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPFLA Flute
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Taffanel - Gaubert 17 Daily Exercises, Berbiguer - 18 Etudes, Andersen Little Caprices. All major and minor scales, two octaves; Moyse - De la Sonorite, 24 Petite Melodies Vol. I. Repertoire: Handel Sonatas, Godard Allegretto.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPFLB Flute
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Taffanel - Gaubert 17 Daily Exercises, Berbiguer - 18 Etudes, Andersen Little Caprices. All major and minor scales, two octaves; Moyse - De la Sonorite, 24 Petite Melodies Vol. I. Repertoire: Handel Sonatas, Godard Allegretto.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.
MIPFLC Flute
1- 4 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPFLD Flute
1- 4 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPFLE Flute
1- 4 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPFLF Flute
1- 4 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPFLG Flute
1- 4 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPFLH Flute
1- 4 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MIPGUA Guitar
1- 4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPGUB Guitar
1- 4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPGUC Guitar
1- 4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPGUD Guitar
1- 4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPGUE Guitar
1- 4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPGUF Guitar
1- 4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPGUG Guitar
1- 4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPGUH Guitar
1- 4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MIPHAA Harp
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPHAB Harp
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPHAC Harp
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPHAD Harp
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPHAE Harp
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPHAF Harp
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPHAG Harp
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPHAH Harp
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MIPOBA Oboe
1-4 credits  
Fall & Spring Semester
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPOBB Oboe
1-4 credits  
Fall & Spring Semester
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPOBC Oboe
1-4 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPOBD Oboe
1-4 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPOBE Oboe
1-4 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPOBF Oboe
1-4 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MIPOBG Oboe
1- 4 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPOBH Oboe
1- 4 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPPEA Percussion
1- 4 credits  
Fall & Spring Semester
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPPEB Percussion
1- 4 credits  
Fall & Spring Semester
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPPEC Percussion
1- 4 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPPED Percussion
1- 4 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MIPPEE Percussion
1-4 credits
Fall & Spring Semester

PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPPEF Percussion
1-4 credits
Fall & Spring Semester

PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPPEG Percussion
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of advanced repertory and preparation for the final recital. Etudes and works on marimba, vibraphone, snare drum, timpani, multi-percussion, and orchestral excerpts. At least one piece at the final concert has to be a concerto-like composition performed with piano or percussion ensemble.

PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPPEH Percussion
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of advanced repertory and preparation for the final recital. Etudes and works on marimba, vibraphone, snare drum, timpani, multi-percussion, and orchestral excerpts. At least one piece at the final concert has to be a concerto-like composition performed with piano or percussion ensemble.

PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPSAA Saxophone
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.

PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPSAB Saxophone
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.

PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.
SCHOOL OF MUSIC

INSTRUMENTAL PERFORMANCE

MIPSAC Saxophone
1- 4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPSAD Saxophone
1- 4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPSAE Saxophone
1- 4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPSAF Saxophone
1- 4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPSAG Saxophone
1- 4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPSAH Saxophone
1- 4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPTBA Trombone
1- 4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, articulation, sound, and slide technique. Appropriate major and minor scales. Works by Arban, Blazhevich, Pares, Rochut, Tyrell, and others. Solo literature as appropriate for the student's abilities.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPTBB Trombone
1- 4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, articulation, sound, and slide technique. Appropriate major and minor scales. Works by Arban, Blazhevich, Pares, Rochut, Tyrell, and others. Solo literature as appropriate for the student's abilities.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.
MIPTBC Trombone
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Continuation of previous aspects of technical development. Works as previously listed, followed by Blume, and solo literature as appropriate for the student's abilities. Introduction of orchestral excerpts as both literature and as an aid to technical and musical development.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPTBD Trombone
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Continuation of previous aspects of technical development. Works as previously listed, followed by Blume, and solo literature as appropriate for the student's abilities. Introduction of orchestral excerpts as both literature and as an aid to technical and musical development.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPTBE Trombone
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Continuation of technical development including upper register, advanced slide technique, and refined articulation. Works as previously listed, followed by Masson and Bitsch. Solo literature as appropriate for the student's abilities, and continuation of selected orchestral excerpts.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPTBF Trombone
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Continuation of technical development including upper register, advanced slide technique, and refined articulation. Works as previously listed, followed by Masson and Bitsch. Solo literature as appropriate for the student's abilities, and continuation of selected orchestral excerpts.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPTBG Trombone
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Further development of all technical aspects of performance. Works by Masson and Bitsch, and solo literature geared towards recital performance.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPTBH Trombone
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Further development of all technical aspects of performance. Works by Masson and Bitsch, and solo literature geared towards recital performance.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MIPTPA Trumpet
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, and articulation. Appropriate major and minor scales. Repertoire: Arban, Clarke, Hering, Schlossberg; orchestral excerpts.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPTPB Trumpet
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, and articulation. Appropriate major and minor scales. Repertoire: Arban, Clarke, Hering, Schlossberg; orchestral excerpts.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPTPC Trumpet
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPTPD Trumpet
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPTPE Trumpet
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPTPF Trumpet
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPTPG Trumpet
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPTPH Trumpet
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MIPTUA Tuba
1- 4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, and articulation. Appropriate major and minor scales. Repertoire: Concone, Arban, Bordogni, Haddad, Hartley.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPTUB Tuba
1- 4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, and articulation. Appropriate major and minor scales. Repertoire: Concone, Arban, Bordogni, Haddad, Hartley.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPTUC Tuba
1- 4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, and articulation. Appropriate major and minor scales. Repertoire: Vasiliev, Kopprash, Gallay, Frankenpohl, Nelhybel, Bernstein.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPTUD Tuba
1- 4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, and articulation. Appropriate major and minor scales. Repertoire: Vasiliev, Kopprash, Gallay, Frankenpohl, Nelhybel, Bernstein.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPTUE Tuba
1- 4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, and articulation. Appropriate major and minor scales. Repertoire: Bach/Bobo Ostrander, Kotsier, Hindemith, Wilder.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPTUF Tuba
1- 4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, and articulation. Appropriate major and minor scales. Repertoire: Bach/Bobo Ostrander, Kotsier, Hindemith, Wilder.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MIPTUG Tuba
1-4 credits Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, and articulation. Appropriate major and minor scales. Repertoire: Cimera, Maenz, Broughton, Persichetti, orchestral excerpts.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPTUH Tuba
1-4 credits Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of embouchure, breathing, and articulation. Appropriate major and minor scales. Repertoire: Cimera, Maenz, Broughton, Persichetti, orchestral excerpts.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPVAA Viola
1-4 credits Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Right hand and left hand position evaluation and adjustment if necessary. Scales and etudes as assigned. Repertoire: Solo literature appropriate for level and major.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPVAB Viola
1-4 credits Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Right hand and left hand position evaluation and adjustment if necessary. Scales and etudes as assigned. Repertoire: Solo literature appropriate for level and major.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPVAC Viola
1-4 credits Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Scales and etudes as assigned. Repertoire: Solo literature appropriate for level and major. Solo literature appropriate for level and major.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPVAD Viola
1-4 credits Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Scales and etudes as assigned. Repertoire: Solo literature appropriate for level and major. Solo literature appropriate for level and major.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MIPVAE Viola

1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Scales and etudes as assigned. Repertoire: Solo literature appropriate for level and major. Solo literature appropriate for level and major.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPVAF Viola

1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Scales and etudes as assigned. Repertoire: Solo literature appropriate for level and major. Solo literature appropriate for level and major.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPVAG Viola

1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Scales and etudes as assigned. Repertoire: Solo literature appropriate for level and major. Solo literature appropriate for level and major.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPVAH Viola

1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Scales and etudes as assigned. Repertoire: Solo literature appropriate for level and major. Solo literature appropriate for level and major.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPVCA Violoncello

1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of basic bow strokes, vibrato, and position changes. Appropriate major scales and arpeggios. Etudes as needed. Repertoire: Vivaldi Sonatas, Saint-Saens Concerto, Hayden C Major Concerto, Beethoven Sonata 1 or 2, Bach Suite 1 or 2.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPVCB Violoncello

1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Development of basic bow strokes, vibrato, and position changes. Appropriate major scales and arpeggios. Etudes as needed. Repertoire: Vivaldi Sonatas, Saint-Saens Concerto, Hayden C Major Concerto, Beethoven Sonata 1 or 2, Bach Suite 1 or 2.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.
MIPVCC Violoncello
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: All major and minor scales and arpeggios. Etudes as needed. Repertoire: Lalo Concerto, Boccherini B-flat, Beethoven or Brahms Sonatas, Bach Suite No. 3.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPVCD Violoncello
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: All major and minor scales and arpeggios. Etudes as needed. Repertoire: Lalo Concerto, Boccherini B-flat, Beethoven or Brahms Sonatas, Bach Suite No. 3.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPVCE Violoncello
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Popper etudes, Duport etudes. Repertoire: Dvorak Concerto, Hayden D Major Concerto, Shostakovitch Sonata, Bach Suite No. 4.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPVCF Violoncello
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Popper etudes, Duport etudes. Repertoire: Dvorak Concerto, Hayden D Major Concerto, Shostakovitch Sonata, Bach Suite No. 4.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPVCG Violoncello
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Popper etudes, Piatti etudes. Repertoire: Schumann Concerto, Bach Suites No. 5 or No. 6.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPVCH Violoncello
1-4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Popper etudes, Piatti etudes. Repertoire: Schumann Concerto, Bach Suites No. 5 or No. 6.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPVNA Violin
1-4 credits
Fall & Spring Semester
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.
MIPVNB Violin
1-4 credits  Fall & Spring Semester
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MIPVNC Violin
1-4 credits  Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPVND Violin
1-4 credits  Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPVNE Violin
1-4 credits  Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPVNF Violin
1-4 credits  Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIPVNG Violin
1-4 credits  Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
SCHOOL OF MUSIC

INSTRUMENTAL PERFORMANCE

MIPVNH Violin
1-4 credits
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MIP001 Brass Forum
0 credit
Fall & Spring Semester
An informal recital setting and performance class for brass principals and majors with guest and faculty presentations.

MIP002 Guitar Forum
0 credit
Fall & Spring Semester
An informal recital setting and performance class for guitar principals and majors with guest and faculty presentations.

MIP005 Percussion Forum
0 credit
Fall & Spring Semester
An informal recital setting and performance class for Percussion principals and majors with guest and faculty presentations.

MIP007 String Forum
0 credit
Fall & Spring Semester
An informal recital setting and performance class for string principals and majors with guest and faculty presentations.

MIP009 Woodwind Forum
0 credit
Fall & Spring Semester
An informal recital setting and performance class for woodwind principals and majors with guest and faculty presentations.

MIP120 Class Guitar I for Non-Music Majors
1 credit
Fall & Spring Semester

MIP121 Class Guitar I for Jazz Majors
1 credit
Fall & Spring Semester
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MIP130 Afro-Caribbean Hand Drumming, Level I
1 credit
Fall & Spring Semester
The study of hand drumming techniques used to perform the music of Africa and the new world African music that originated in the islands of the Caribbean and the countries of Central and Latin America. This class is taught in a workshop format.
PREREQUISITE: AUDITION

MIP131 Afro-Caribbean Hand Drumming, Level II
1 credit
Fall & Spring Semester
The study of hand drumming techniques used to perform the music of Africa and the new world African music that originated in the islands of the Caribbean and the countries of Central and Latin America. Level II is a performance ensemble.
PREREQUISITE: MIP 130 OR AUDITION.
MIP132 Brazilian Batteria
1 credit                     Fall & Spring Semester
Brazilian Batteria workshop is a study of the rhythmic aspects of the popular music of Brazil and the percussion instruments which produce many of the unique sounds which characterize this music. Study is made of the performance techniques of the pure Batteria and the incorporation of these techniques into a contemporary rhythm section.
PREREQUISITE: BY AUDITION.

MIP133 Cuban Conjunto
1 credit                     Fall & Spring Semester
Cuban Conjunto workshop is a study of the Spanish and Afro traditions which meld together to form much of the Cuban folk repertory. Indigenous percussion instruments are studied together with the dance forms which make up much of this music.
PREREQUISITE: BY AUDITION.

MIP134 Steel Band/Trinidad
1 credit                     Offered By Announcement Only
Steel Band/Trinidad reflects the broad musical heritage of the West Indies. Steel Drums (Pans) are combined with other indigenous instruments in the performance of both folk music and transcriptions of standard classical repertory in the tradition of the Trinidad carnival celebration. Level one of this class is taught as a workshop, level two is taught as a performance ensemble.
PREREQUISITE: BY AUDITION.

MIP135 Percussion Ensemble
1 credit                     Fall & Spring Semester
Percussion ensemble is a performance ensemble for percussion and majors. A wide variety of music is studied and performed in both the classical and popular idioms. Several sections of this ensemble are offered each semester to accommodate students of varying skill levels.
PREREQUISITE: BY AUDITION.

MIP136 Marimba Ensemble
1 credit                     Fall & Spring Semester
Marimba ensemble is a performance ensemble for percussionists with a medium to high level of mallet/keyboard skills. Transcriptions and original music in both classical and popular idioms are performed.
PREREQUISITE: BY AUDITION.

MIP137 Mallet Ensemble
1 credit                     Fall & Spring Semester
Mallet ensemble is a workshop for students with beginning mallet/keyboard skills. It serves as a prerequisite for PEC. Areas covered include mallet manipulation and performance of scales, chords, sight reading, and prepared etudes.
PREREQUISITE: BY AUDITION.

MIP138 Trombone Choir
1 credit                     Fall & Spring Semester
The study and performance of literature for small and large trombone ensembles.
PREREQUISITE: BY AUDITION.
MIP139 Brass Chamber Music  
1 credit  
Fall & Spring Semester  
The study and performance of literature for small ensembles of similar or mixed brass instruments.  
PREREQUISITE: BY AUDITION.  

MIP140 Flute Choir  
1 credit  
Fall & Spring Semester  
Reading, rehearsing, and performing the flute choir repertoire (duets, trios, quartets, quintets).  
PREREQUISITE: BY AUDITION.  

MIP141 Saxophone Ensemble  
1 credit  
Fall & Spring Semester  
The study and performance of classical and jazz literature for small saxophone ensembles.  
PREREQUISITE: BY AUDITION.  

MIP143 Woodwind Chamber Music  
1 credit  
Fall & Spring Semester  
Exploring the woodwind chamber music repertoire as represented by various combinations of instruments.  
PREREQUISITE: BY AUDITION.  

MIP144 Woodwind Chamber Ensemble  
1 credit  
Fall & Spring Semester  
Woodwind chamber ensemble is designed to give students knowledge of the most important literature for woodwinds through practice, rehearsal, and performance of major works for woodwind chamber ensemble.  
PREREQUISITE: BY AUDITION.  

MIP145 String-Keyboard Chamber Music  
1 credit  
Fall & Spring Semester  
The study and performance of literature from the Baroque Period through the 20th Century for two or more players for string instrumentalists and strings with keyboard.  
PREREQUISITE: BY AUDITION.  

MIP170 Marching Band  
1 credit  
Fall Semester  
The "Band of the Hour" Marching Band is open to all qualified undergraduate and graduate students, regardless of major. The band performs at all home Miami Hurricane football games and selected away games.  
PREREQUISITE: AUDITION.  

MIP171 Symphonic Winds  
1 credit  
Spring Semester  
Symphonic Band is a large wind band that performs significant repertoire for wind and percussion instruments. It is open to all qualified undergraduate and graduate students, regardless of major.  
PREREQUISITE: AUDITION.
MIP172 University Band
1 credit  
Spring Semester
University Band is a large ensemble offering students the opportunity to play standard repertoire of the wind band. This group is open to all wind and permission players throughout the university, regardless of major.
PREREQUISITE: NO AUDITION REQUIRED.

MIP174 Brass Choir
1 credit  
Fall & Spring Semester
Major works for Brass Choir are studied. Special emphasis is given to orchestral repertoire.
PREREQUISITE: BY AUDITION.

MIP176 Wind Ensemble
1 credit  
Fall & Spring Semester
This course offers performance opportunities for qualified wind and percussion players. Repertoire includes significant literature written for the small and large wind band.
PREREQUISITE: AUDITION.

MIP180 Symphony Orchestra
1 credit  
Fall & Spring Semester
The Symphony Orchestra performs significant repertoire for large orchestra. It is open to all qualified undergraduate students by audition.
PREREQUISITE: BY AUDITION.

MIP181 Instrumental Conducting I
1 credit  
Fall Semester
This course provides practical procedures and materials for beginning instrumental conducting students. Students demonstrate basic conducting patterns, preparations, and releases in all meters.
PREREQUISITE: MTC 112 AND 122 OR EQUIVALENT AND MED MAJOR.

MIP182 Instrumental Conducting II
1 credit  
Spring Semester
This course provides practical procedures and materials for advancing instrumental conducting students. Students demonstrate refined skill in conducting musical styles and independence of gestures.
PREREQUISITE: MIP 181.

MIP183 Greater Miami Symphonic Band
1 credit  
Fall & Spring Semester
A community instrumental ensemble with university and community personnel.
PREREQUISITE: BY AUDITION ONLY.

MIP191 Tuba Ensemble
1 credit  
Fall & Spring Semester
The study and performance of compositions and/or transcriptions written for an ensemble of tubas and/or euphoniums.
PREREQUISITE: BY AUDITION.
MIP192 Classical Guitar Ensemble
1 credit Fall & Spring Semester
This course focuses on sightreading, rhythm recognition, and ensemble performance through the study of exercises, scales, and diverse repertoire.
PREREQUISITE: BY AUDITION.

MIP199 Contemporary Music Ensemble
1 credit Fall & Spring Semester
An in-depth study and performance of new and standard classical music of the 20th century.
PREREQUISITE: BY AUDITION.

MIP220 Class Guitar II for Non-music Majors
1 credit Fall & Spring Semester

MIP221 Class Guitar II for Jazz Majors
1 credit Fall & Spring Semester
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MIP281 Instrumental Conducting III
1 credit Fall Semester
This course provides a synthesis of the skills demonstrated in Instrumental Conducting I and II while developing error detection skills in common performance errors.
PREREQUISITE: MIP 182.

MIP282 Instrumental Conducting IV
1 credit Spring Semester
Students demonstrate knowledge of instruments, instrumentation of the wind band and orchestra, and analyze scores for conception, interpretation, rehearsal, and performance.
PREREQUISITE: MIP 281.

MIP317 Basic Conducting
1 credit Fall & Spring Semester
A study of the basic techniques of all rhythms, patterns, subdivisions of beats, dynamics, starting, stopping, and giving cues. Course provides an elementary study of scores as to form and harmonic intent.
PREREQUISITE: MTC 211.

MIP381 Seminar on Electronic Percussion
2 credits Fall Semester
The study of current practices in the composition and performance using analog and digital machines which produce percussion sounds.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MIP399 Junior Recital
1 credit Fall & Spring Semester
A public recital of one half-hour or more. Course is required of all instrumental performance majors.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
SCHOOL OF MUSIC

INSTRUMENTAL PERFORMANCE

MIP418 Instrumental Conducting
1 credit  
Spring Semester
Course covers Baton technique, score reading, and interpretation. Actual experience in rehearsing instrumental ensembles is included.
PREREQUISITE: MIP 317.

MIP490 Senior Honors Thesis I
3 credits  
Fall & Spring Semester
Development and completion of a senior Honors Thesis to fulfill requirements for University Honors of Magna or Summa Cum Laude.

MIP491 Senior Honors Thesis II
3 credits  
Fall & Spring Semester
Development and completion of a senior Honors Thesis to fulfill requirements for University Honors of Magna or Summa Cum Laude.

MIP493 Special Projects
1-3 credits  
Fall & Spring Semester
Supervised readings and other activities in specific areas of Instrumental Performance.
PREREQUISITE: UNDERGRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MIP499 Senior Recital
1 credit  
Fall & Spring Semester
A public recital of one hour or more. Required of all performance majors.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MIP539 Brass Chamber Music Institute
2 credits  
Offered By Announcement Only
Institute offers opportunities for brass players to perform in all forms of chamber music--from trios to Brass Choir. Included are master classes on each instrument plus the availability of private instruction from an excellent faculty. The material covered spans the musical periods including recent brass publications.

MIP541 Bassoon Repertoire and Pedagogy
1-2 credits  
Fall Semester
Solo and small ensemble literature of the bassoon since 1600.
PREREQUISITE: ADVANCED STANDING IN MUSIC AND PERMISSION OF INSTRUCTOR.

MIP542 Clarinet Repertoire and Pedagogy
1-2 credits  
Fall Semester
Solo and small ensemble literature of the clarinet since 1600.
PREREQUISITE: ADVANCED STANDING IN MUSIC AND PERMISSION OF INSTRUCTOR.

MIP543 Flute Repertoire and Pedagogy
1-2 credits  
Fall Semester
Solo and small ensemble literature of the flute since 1600.
PREREQUISITE: ADVANCED STANDING IN MUSIC AND PERMISSION OF INSTRUCTOR.

MIP544 Oboe Repertoire and Pedagogy
1-2 credits  
Fall Semester
Solo and small ensemble literature of the oboe since 1600.
PREREQUISITE: ADVANCED STANDING IN MUSIC AND PERMISSION OF INSTRUCTOR.
SCHOOL OF MUSIC

INSTRUMENTAL PERFORMANCE

MIP545 Brass Repertoire and Pedagogy
1- 2 credits  Fall Semester
Solo and small ensemble literature of brass instruments since 1600.
PREREQUISITE: ADVANCED STANDING IN MUSIC AND PERMISSION OF INSTRUCTOR.

MIP546 Percussion Repertoire and Pedagogy
1- 2 credits  Fall Semester
Solo and small ensemble literature of percussion instruments since 1600.
PREREQUISITE: ADVANCED STANDING IN MUSIC AND PERMISSION OF INSTRUCTOR.

MIP547 Saxophone Repertoire and Pedagogy
1- 2 credits  Fall Semester
Solo and small ensemble literature of the saxophone since 1600.
PREREQUISITE: ADVANCED STANDING IN MUSIC AND PERMISSION OF INSTRUCTOR.

MIP548 Guitar Repertoire and Pedagogy
1- 2 credits  Fall Semester
Solo and small ensemble literature of the guitar since 1600.
PREREQUISITE: ADVANCED STANDING IN MUSIC AND PERMISSION OF INSTRUCTOR.

MIP549 String Repertoire and Pedagogy
1- 2 credits  Fall Semester
An exploration of teaching string playing. Areas covered include problem-solving and communication techniques, and practical considerations in establishing a teaching studio. Students participate in hands-on teaching opportunities. Prerequisite: Advanced standing in Music and permission of instructor.
PREREQUISITE: ADVANCED STANDING IN MUSIC AND PERMISSION OF INSTRUCTOR.

MIP550 Bach Cello Suites
1 credit  Fall Semester
The study and performance of the six suites for unaccompanied cello of Johann Sebastian Bach.

MIP580 Orchestral Audition Preparation
1 credit  Fall & Spring Semester
The study of the more difficult excerpts from the orchestral literature for violin, viola, violoncello, or double bass. Course may be repeated for credit.

MIP593 Special Topics MIP
1- 3 credits  Fall & Spring Semester & First & Second Summer Session
Supervised topics and other activities in specific areas of Instrumental Performance.
PREREQUISITE: PERMISSION OF THE DEAN.

MIP599 Practicum in Music
0 credit  Fall Semester
Practical professional experience.
PREREQUISITE: MUSIC MAJORS ONLY.

KEYBOARD PERFORMANCE

MKPHCA Harpsichord
1- 4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.
MKPHCB Harpsichord
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MKPHCC Harpsichord
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MKPHCD Harpsichord
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MKPHCE Harpsichord
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MKPHCF Harpsichord
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MKPHCG Harpsichord
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MKPHCH Harpsichord
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MKPORA Organ
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Gleason, Method of Organ Playing: selected exercises from Manual Technique and Pedal Technique. Repertoire: Gleason, Method of Organ Playing: Compositions for Manuals, Studies and Compositions for Manuals and Pedal; selected chorale preludes and smaller-scale preludes and fugues by Bach, Buxtehude, Brahms, and others; basics of hymn playing.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.
MKPORB Organ
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Gleason, Method of Organ Playing: selected exercises from Manual Technique and Pedal Technique. Repertoire: Gleason, Method of Organ Playing: Compositions for Manuals, Studies and Compositions for Manuals and Pedal; selected chorale preludes and smaller-scale preludes and fugues by Bach, Buxtehude, Brahms, and others; basics of hymn playing.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MKPORC Organ
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Gleason, Method of Organ Playing: selected exercises from Manual Technique, Pedal Exercises and Scales. Repertoire: Gleason, Method of Organ Playing: selected Compositions for Manuals and Pedals; intermediate-level works by Bach, Mendelssohn, Franck, and others; Additional hymn playing techniques.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MKPORD Organ
1-4 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Gleason, Method of Organ Playing: selected exercises from Manual Technique, Pedal Exercises and Scales. Repertoire: Gleason, Method of Organ Playing: selected Compositions for Manuals and Pedals; intermediate-level works by Bach, Mendelssohn, Franck, and others; Additional hymn playing techniques.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MKPORE Organ
1-4 credits  Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MKPORF Organ
1-4 credits  Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MKPORG Organ
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Nilson, A System of Technical Studies in Pedal Playing for the Organ; selected exercises. Repertoire: Selected works by composers from all style periods, with an emphasis on the French Romantic and Modern French schools. Advanced service-playing techniques.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MKPORH Organ
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Nilson, A System of Technical Studies in Pedal Playing for the Organ; selected exercises. Repertoire: Selected works by composers from all style periods, with an emphasis on the French Romantic and Modern French schools. Advanced service-playing techniques.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MKPPIA Piano
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: To show a comprehensive foundation in basic/advanced keyboard skills. Repertoire: Appropriate repertoire as required.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MKPPIB Piano
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: To show a comprehensive foundation in basic/advanced keyboard skills. Repertoire: Appropriate repertoire as required.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MKPPIC Piano
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: To show a comprehensive foundation in basic/advanced keyboard skills. Repertoire: Appropriate repertoire as required.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MKPID Piano
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: To show a comprehensive foundation in basic/advanced keyboard skills. Repertoire: Appropriate repertoire as required.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MKPIE Piano
1-4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Complete Junior Recital as required. Repertoire: Appropriate repertoire as required.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MKPPIF Piano
1- 4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Complete Junior Recital as required.
Repertoire: Appropriate repertoire as required.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MKPPIG Piano
1- 4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Complete Senior Recital as required.
Repertoire: Appropriate repertoire as required.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MKPPIH Piano
1- 4 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-4 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Complete Senior Recital as required.
Repertoire: Appropriate repertoire as required.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MKP006 Piano Forum
0 credit  
Fall & Spring Semester
A non-credit performance class for all piano majors and principals. Majors are required to perform once each semester with the approval of the applied teacher.

MKP101 Class Piano I
1 credit  
Fall & Spring Semester
Students enrolling in MKP 101 must not have any previous keyboard experience. MKP 101 begins with basic keyboard skills including locating notes on the keyboard, whole and half steps on the keyboard and all major and minor 5-finger patterns. Students in MKP 101 also learn beginning repertoire, major scales and arpeggios, a basic chord progression, four types of triads, dominant seventh chords and inversions, beginning sight reading, harmonization, and improvisation skills. A minimum grade of C is required before a student can progress to MKP 102.
PREREQUISITE: OPEN TO MUSIC MAJORS ONLY.

MKP102 Class Piano II
1 credit  
Fall & Spring Semester
After a thorough review of concepts presented in MKP 101, students in MKP 102 learn minor scales and arpeggios, modal scales, five types of seventh chords and inversions, and work more extensively with chord progressions. Study of repertoire and the development of sight reading, harmonization, and improvisation skills are continued. A minimum grade of C is required before a student can progress to MKP 103.
PREREQUISITE: OPEN TO MUSIC MAJORS ONLY. MKP 101 OR PLACEMENT AUDITION.

MKP103 Class Piano III
1 credit  
Fall & Spring Semester
After a thorough review of concepts presented in MKP 102, students in MKP 103 learn dominant seventh arpeggios, secondary dominants, and work more extensively with chord progressions. Study of repertoire and the development of sight reading, harmonization, and improvisation skills are continued. As a final project, students create and perform a theme and two variations. A minimum grade of C is required before a student can progress to MKP 104.
PREREQUISITE: OPEN TO MUSIC MAJORS ONLY. MKP 102 OR PLACEMENT AUDITION.
MKP104 Class Piano IV
1 credit Fall & Spring Semester
After a thorough review of concepts presented in MKP 103, students in MKP 104 learn diminished seventh arpeggios, augmented and Neapolitan sixth chords, and learn a variety of chord progressions that modulate. Study of repertoire and the development of sight reading, harmonization, and improvisation skills are continued. The final exam in MKP 104 is the Secondary Piano Proficiency Exam. Every student who is required to take class piano must pass this exam in order to fulfill the class piano requirement. If a student does not pass the exam, they must repeat MKP 104 and take the proficiency exam again. Students must pass the exam in order to receive a passing grade in the class.
PREREQUISITE: OPEN TO MUSIC MAJORS ONLY. MKP 103 OR PLACEMENT AUDITION.

MKP111 Non-Major Class Piano I
1 credit Fall & Spring Semester
This course is designed for the adult beginner who has an interest in playing keyboard instruments for pleasure. Students with no previous musical or keyboard experience learn the fundamentals of music theory and apply them to playing the keyboard at the beginning level.

MKP112 Non-Major Class Piano II
1 credit Fall & Spring Semester
Designed for the adult beginner who has an interest in playing keyboard instruments for pleasure, this course builds on the concepts introduced in MKP 111. Students continue to learn the fundamentals of music theory and apply them to playing the keyboard.
PREREQUISITE: MKP 111 OR AUDITION.

MKP121 Class Piano/MTR Majors Only (Level I)
1 credit Fall Semester
Students enrolling in 121 must not have any previous keyboard experience. MKP 121 begins with basic keyboard skills including locating notes on the keyboard, whole and half steps on the keyboard, and all major and minor 5-finger patterns. Students in 121 also learn beginning repertoire, major scales and arpeggios, a basic chord progression, four types of triads, dominant seventh chords and inversions, beginning sight reading, harmonization, and improvisation skills. A minimum grade of C is required before a student can progress to MKP 122.
PREREQUISITE: MUSICAL THEATRE MAJORS ONLY.

MKP122 Class Piano/MTR Majors Only (Level II)
1 credit Spring Semester
After a thorough review of concepts presented in 121, students in 122 learn minor scales and arpeggios, modal scales, five types of seventh chords and inversions, and work more extensively with chord progressions. Study of repertoire and the development of sight reading, harmonization, and improvisation skills are continued. A minimum grade of C is required before a student can progress to MKP 123.
PREREQUISITE: MUSICAL THEATRE MAJORS ONLY.
MKP123 Class Piano/MTR Majors Only (Level III)
1 credit  Fall Semester
After a thorough review of concepts presented in 122, students in 123 learn dominant seventh arpeggios, secondary dominants, and work more extensively with chord progressions. Study of repertoire and the development of sight reading, harmonization, and improvisation skills are continued. As a final project, students create and perform a theme and two variations. A minimum grade of C is required before a student can progress to MKP 124.
PREREQUISITE: MUSICAL THEATRE MAJORS ONLY.

MKP124 Class Piano/MTR Majors Only (Level IV)
1 credit  Spring Semester
After a thorough review of concepts presented in 123, students in 124 learn diminished seventh arpeggios, augmented and Neapolitan sixth chords, and a variety of chord progressions that modulate. Study of repertoire and the development of sight reading, harmonization, and improvisation skills are continued. The final exam in 124 is the Secondary Piano Proficiency Exam. Every student who is required to take class piano must pass this exam in order to fulfill the class piano requirement. If a student does not pass the exam they must repeat 124 and take the proficiency exam again. Students must pass the exam in order to receive a passing grade in the class.
PREREQUISITE: MUSICAL THEATRE MAJORS ONLY.

MKP185 Musical Theatre Accompanying
1 credit  Fall & Spring Semester
A class designed to improve the skills of pianists with a particular interest in musical theatre piano accompaniment. Students will study in a classroom setting.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MKP186 Vocal Accompanying I
1 credit  Fall Semester
Pianists will attend seminars where the principles of accompanying classical and musical theatre singers are addressed. Students are assigned to accompany applied voice lessons and ensembles.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MKP187 Vocal Accompanying II
1 credit  Fall & Spring Semester
Pianists attend seminars where the principles of accompanying classical and musical theatre singers are addressed. Students are assigned to accompany applied voice lessons and ensembles.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MKP189 Accompanying, Level I
1 credit  Fall & Spring Semester
Development of sightreading skills and score preparation.
PREREQUISITE: AUDITION/PERMISSION OF INSTRUCTOR.

MKP190 Accompanying, Level II
1 credit  Fall & Spring Semester
Progressive development of individual vocal/instrumental and ensemble accompanying, sightreading, score reading, and improvising from a lead sheet.
PREREQUISITE: MKP 189 OR PERMISSION OF INSTRUCTOR.
MKP191 Accompanying, Level III
1 credit  Fall & Spring Semester
Progressive development of all types of accompaniment skills including; clef and score reading, transposition; possible recital, opera theater, choral ensemble, and/or orchestral accompanying.
PREREQUISITE: MKP 190/690 OR PERMISSION OF INSTRUCTOR.

MKP220 Computers, Keyboards, and Music
2 credits  Fall & Spring Semester
An introduction to basic computing skills for the musician that explores computers, keyboards, and other MIDI- (Musical Instrument Digital Interface) related instruments as tools for the musician. Topics include electronic keyboards, computer hardware and software, MIDI sequencing, computer-assisted musical notation, and teaching strategies using new technologies. Students gain hands-on experience while completing projects in each of the above areas.
PREREQUISITE: MKP 102.

MKP399 Junior Recital
1 credit  Fall & Spring Semester
A public recital of one half-hour or more. Course is required of all performance majors.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MKP490 Senior Honors Thesis I
3 credits  Fall & Spring Semester
Development and completion of a senior Honors Thesis to fulfill requirements for University Honors of Magna or Summa Cum Laude.

MKP491 Senior Honors Thesis II
3 credits  Fall & Spring Semester
Development and completion of a senior Honors Thesis to fulfill requirements for University Honors of Magna or Summa Cum Laude.

MKP493 Special Projects
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Supervised readings and other activities in specific areas of Keyboard Performance.
PREREQUISITE: UNDERGRADUATE MUSIC STUDENTS ONLY. DEAN’S APPROVAL AND SIGNATURE REQUIRED.

MKP499 Senior Recital
1 credit  Fall & Spring Semester
A public recital of one hour or more. Course is required of all performance majors.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MKP547 Keyboard Pedagogy
1-2 credits  Fall Semester
Methods and materials for teaching keyboard instruments with a focus on private lesson instruction. Topics include teacher profile, general teaching considerations, the business of teaching, the beginning student, second- and third-year students, teaching materials, and an introduction to new technology in piano teaching.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MKP589 Keyboard Accompanying Program in Salzburg, Austria
2-4 credits  Spring Semester
Course is conducted at Salzburg College, Austria. Students receive comprehensive
and intensive coaching in piano and accompanying from Dr. Posnak and other internationally
acclaimed guest artists. Piano students study piano (2 cr.) and accompanying (1 cr.).
PREREQUISITE: BY AUDITION ONLY.

MKP593 Special Topics MKP
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Supervised topics and other activities in specific areas of Keyboard Performance.
PREREQUISITE: PERMISSION OF THE DEAN.

MKP599 Practicum in Music
0 credit  Fall & Spring Semester & First & Second Summer Session
Practical professional experience.
PREREQUISITE: MUSIC MAJORS ONLY

MUSIC EDUCATION & THERAPY
MED010 Music Therapy Forum
0 credit  Fall & Spring Semester
The course provides a weekly forum for sharing information about issues, current
developments, and other matters related to music therapy as a field of study and
as a profession.

MED015 Music Education Forum
0 credit  Fall & Spring Semester
The course provides a weekly forum for sharing information about issues, current
developments, and other matters related to music education as a field of study
and as a profession. The course is required for all undergraduate MED majors during
each semester, except during the semester of the internship.

MED149 Functional Techniques in Music Therapy I
1 credit  Fall & Spring Semester
Students acquire functional guitar and piano skills while learning repertoire and
techniques for leading and accompanying music therapy experiences.
PREREQUISITE: MKP 104, MED 245; MUSIC THERAPY MAJORS ONLY.

MED159 Introduction to Music Therapy
2 credits  Fall Semester
An overview of the field of music therapy, including history, theory and clinical
practice. Includes field observations.
PREREQUISITE: NONE - OPEN TO ALL MAJORS.

MED240 Woodwind Techniques
1 credit  Fall & Spring Semester
Course provides group instruction in woodwind instruments with emphasis on basic
skills of performance as well as the appropriate teaching techniques, methods,
and materials necessary for public school pedagogy. Course may be repeated for
credit.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MED241 Brass Techniques
1 credit  Fall & Spring Semester
Group instruction in brass instruments with emphasis upon basic skills of performance as well as the appropriate teaching techniques, methods, and materials necessary for public school pedagogy. Course may be repeated for credit.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MED242 Percussion Techniques
1 credit  Spring Semester
Group instruction in percussion (snare drum, mallet-keyboard percussion, timpani, drum set, and small accessory instruments) with emphasis upon basic skills of performance as well as the appropriate teaching techniques, methods, and materials necessary for public school pedagogy. Course may be repeated for credit.

MED243 String Techniques
1 credit  Fall & Spring Semester
The study of stringed instruments (violin, viola, cello, bass) in a heterogeneous class with emphasis on general principles of string playing and teaching methods for use in beginning and intermediate instruction in the schools. Course may be repeated for credit.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MED244 Vocal Techniques
1 credit  Fall & Spring Semester
Class instruction in fundamentals of singing, breath control, tone production, and solo singing for music majors.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MED245 Functional Music Techniques
1 credit  Fall & Spring Semester
Group instruction in the functional use of the guitar, autoharp, and recorder for classroom or music therapy uses. Functional skills, teaching methods, and materials are emphasized.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MED249 Functional Techniques in Music Therapy II
1 credit  Offered By Announcement Only
Students acquire functional piano skills while learning repertoire and techniques for leading and accompanying music therapy experiences. Vocal skills are also emphasized.
PREREQUISITE: MKP 104, MED 149, 245; MUSIC THERAPY MAJORS ONLY.

MED252 Percussion Instrument Survey
1 credit  Fall Semester
This course will provide percussion principals and majors with a survey of the techniques and performance practices of available percussion instruments.
PREREQUISITE: OPEN TO PERCUSSION PRINCIPALS AND MAJORS OR TO OTHERS BY PERMISSION OF THE INSTRUCTOR.

MED259 Music Therapy Pre-Practicum
2 credits  Spring Semester
Students will learn a treatment-planning model for clinical practice. Topics include: assessment, goal setting, intervention design and data collection.
PREREQUISITE: MED 159.
MED340 Marching Band Fundamentals
1 credit  Fall Semester
A study of all types of marching band activities and methods of presentation.
PREREQUISITE: JUNIOR STANDING.

MED359 Clinical Orientation in Music Therapy
1 credit  Fall & Spring Semester
Structured clinical experience in music therapy under supervision of a music therapist in varying health-related settings. Course is required each semester for Music Therapy Majors, except during the freshman year.
PREREQUISITE: MED 259; MUSIC THERAPY MAJORS ONLY.

MED430 Teaching Jazz/Popular Music in Secondary Schools
2 credits  Fall Semester
A survey of materials, methods, and techniques for instructing jazz and popular music in secondary schools. Review of standard literature, program organization, and in-class performance is emphasized. Designed specifically for music education majors.
PREREQUISITE: SENIOR STANDING IN MED PROGRAM.

MED433 Senior Seminar in Music Education
1 credit  Fall & Spring Semester
Discussion of teaching, rehearsal techniques, and the organization and presentation of music materials related to the internship experiences. Course is required of all Music Education majors. To be taken in conjunction with Internship, MED 471.

MED450 Introduction to Research Methods in Music
3 credits  Offered By Announcement Only
This course is designed to help undergraduate students integrate research findings into their clinical and/or educational practice, implement research techniques into their work (e.g. through data collection or scholarly writing) and gain exposure to research if needed for future graduate students.
PREREQUISITE: MED 562.

MED471 Associate Teaching in Elementary School Music
6 credits  Fall & Spring Semester
A comprehensive program in observation and supervised teaching in elementary school music. The student spends full time for one half a semester in an elementary school, participating in all activities of the music teacher under the guidance of school and university personnel.
PREREQUISITE: ADMISSION TO TEACHER CANDIDACY AND APPROVAL OF THE COMMITTEE ON FIELD EXPERIENCES.

MED473 Associate Teaching in Secondary School Music
6 credits  Fall & Spring Semester
A comprehensive program in observation and supervised teaching in secondary school music. The student spends full time for one half a semester in a secondary school, participating in all activities of the music teacher under the guidance of school and university personnel.
PREREQUISITE: ADMISSION TO TEACHER CANDIDACY AND APPROVAL OF THE COMMITTEE ON FIELD EXPERIENCES.
MED490 Senior Honors Thesis I  
3 credits  
Fall & Spring Semester  
Development and completion of a senior Honors Thesis to fulfill requirements for University Honors of Magna or Summa Cum Laude.

MED491 Senior Honors Thesis II  
3 credits  
Fall & Spring Semester  
Development and completion of a senior Honors Thesis to fulfill requirements for University Honors of Magna or Summa Cum Laude.

MED493 Special Projects  
1-3 credits  
Fall & Spring Semester & First & Second Summer Session  
Supervised readings and other activities in specific areas of Music Education.  
PREREQUISITE: UNDERGRADUATE MUSIC STUDENTS ONLY. DEAN’S APPROVAL AND SIGNATURE REQUIRED.

MED540 Band Workshop  
2 credits  
Spring Semester  
A workshop designed specifically for instrumental conductors. Sessions are devoted to a survey of skills necessary for teacher effectiveness in ensembles, including diagnosing and correcting problems in instrumental performance. Conducting and score analysis is emphasized.

MED541 Musical Instrument Maintenance  
1 credit  
Fall Semester & First Summer Session  
Mechanical development, care, and maintenance of musical instruments. Separate sections for wind, percussion, string, and keyboard instruments.  
PREREQUISITE: ADVANCED STANDING IN THE DEPARTMENT AND PERMISSION OF THE INSTRUCTOR.

MED542 Teaching Elementary General Music (K-5)  
3 credits  
Fall Semester  
Curriculum, methods, and materials designed for elementary music, K-6. Observation, planning, and teaching experience are emphasized.  
PREREQUISITE: JUNIOR STANDING IN MED PROGRAM.

MED543 Teaching Elementary and Secondary Instrumental Music  
3 credits  
Spring Semester  
A study of elementary and secondary instrumental music instruction including program organization, teaching techniques, materials, and field experiences of music instruction in schools.  
PREREQUISITE: JUNIOR STANDING IN MED PROGRAM.

MED544 Teaching Secondary General Music (7-12)  
3 credits  
Spring Semester  
Curriculum, methods, and materials designed for junior/senior high school general music programs.  
PREREQUISITE: JUNIOR STANDING IN MED PROGRAM.

MED545 Music in Rehabilitation  
3 credits  
Spring Semester  
Review of development and functioning for neurologically-based sensorimotor behavior. Survey of disabilities and diseases that typically result in sensorimotor deficits is included. Demonstration and practice of therapeutic techniques for sensorimotor deficits are also covered.  
PREREQUISITE: MUSIC THERAPY MAJORS ONLY.
MED546 Music Psychotherapy
3 credits  
Spring Semester
Survey and practical application of music as therapy in the treatment of psychiatric disorders and in promoting mental health.  
PREREQUISITE: MUSIC THERAPY MAJORS ONLY.

MED548 Music for Special Learners
2-3 credits  
Fall Semester & First & Second Summer Session
This course is designed for music educators who will be working in schools with children and youth who have various disabilities. The purpose of MED 548 is to acquaint students with the characteristics of children and youth with disabilities, and introduce adaptive strategies in music education, K-12, for instructing children and youth with disabilities.

MED549 Teaching Secondary Choral Music
3 credits  
Fall Semester
Course covers curriculum, vocal/rehearsal techniques, and literature. Teaching music in secondary schools through the medium of choral performance.  
PREREQUISITE: JUNIOR STANDING IN MED PROGRAM.

MED555 Elementary Music Workshop
3 credits  
First Summer Session
Course is designed for in-service elementary school classroom teachers and music supervisors. Survey and experience with contemporary methodology and materials in elementary school music education is emphasized.

MED556 Secondary General Music Workshop
3 credits  
First Summer Session
Course is designed for teachers of general music classes in middle, junior high, and senior high schools. Practical experience with methods and materials designed for non-performance music classes, grades 7-12 is emphasized.

MED557 Choral Music Workshop
2 credits  
Fall Semester
Course is designed for teachers, and covers a wide variety of topics related to the choral music experience, such as choral tone, diction, vocal health, and new literature for all voicings helpful for various age levels, elementary through high school. Technical aspects of conducting and performance include the conducting gesture, musical style, and sightreading in the choral rehearsal, utilizing appropriate literature. Each summer, guest artists are featured with a specific focus for the week-long course.

MED559 Internship in Music Therapy
3 credits  
Fall & Spring Semester
Course provides students with a six month opportunity as a music therapy intern in an approved training facility.  
PREREQUISITE: COMPLETION OF ALL OTHER COURSEWORK REQUIREMENTS FOR MUSIC THERAPY CERTIFICATION.

MED560 Internship in Music Therapy II
0 credit  
Fall & Spring Semester
PREREQUISITE: MED 559.
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SCHOOL OF MUSIC
MUSIC EDUCATION & THERAPY

MED562 Psychology of Music I
3 credits  
Spring Semester & Second Summer Session
Psychological foundations of music with an emphasis on problems of perception, experimental esthetics, functional music, and measurement and diagnosis of musical ability and achievement. Related literature of experimental investigation is reviewed.

MED570 Technology in Music Education
3 credits  
Fall Semester
Overview of technology in music teaching. Topics include approaches to computer-aided instruction, the internet, business software uses for music teachers, music printing, sequencing and sampling in performance and teaching, authoring systems and webpage design, and the design of studio and lab environments. Students complete an original research-based or application-based music teaching technology project.

MED571 Computer Applications in Music Education I
2 credits  
First Summer Session
Introduction to music software for personal computers. Hands on experience with CAI software as well as other software for program and instructional management is included.

MED572 Computer Applications in Music Education II
2 credits  
Spring Semester
Incorporation of computer software into curricular management and instruction. Course is project oriented and may involve computer in development of administrative systems, instructional programs, grading, testing, and other aspects of music education. PREREQUISITE: MED 571 OR PERMISSION OF INSTRUCTOR.

MED573 Teaching Music of World Cultures
2- 3 credits  
Spring Semester
The purpose of this course is to acquaint the student with the musical life and culture of the Middle East, India, China, Japan, Africa, and a few of the cultures in the Caribbean Islands; to emphasize the elements of music (melody, rhythm, texture, form, timbre, and dynamics), and familiarize the student with the musical instruments characteristic to the musical life of the countries under discussion; and to select materials and develop strategies appropriate for elementary and secondary school music programs. PREREQUISITE: PERMISSION OF INSTRUCTOR.

MED575 Preschool Music Workshop
1- 3 credits  
First Summer Session
Workshop is designed to prepare class members to initiate, administer, and teach music programs for preschool children. Materials which address the teacher, the child, and the parent are used. The daily schedule includes demonstration classes with children, lectures, and active participation of and discussion with class members. Emphasis is placed on working with a planning guide for teachers which offers articles on the major areas of the curriculum and clear, succinct statements focusing on the central issues of each lesson. PREREQUISITE: PERMISSION OF INSTRUCTOR.
University of Miami Bulletin, 2009-2010  
Undergraduate Course Listing  
SCHOOL OF MUSIC  
MUSIC EDUCATION & THERAPY

**MED576 Music and Development**  
3 credits  
*Fall Semester*  
Review of development in cognitive, communication, and musical domains. Survey of developmental disabilities most commonly found in child populations is included as well as demonstration and practice of therapeutic techniques for cognitive and communication deficits.  
PREREQUISITE: MUSIC THERAPY MAJORS ONLY.

**MED578 Suzuki Institute**  
2 credits  
*Spring Semester*  
Institute brings certified and master teachers from the tradition, philosophy, and teaching of the celebrated Japanese pedagogue, Shinichi Suzuki, to work with both children and teachers. Children may study violin, viola, cello, and piano. Teachers receive instruction in techniques of Suzuki pedagogy.

**MED581 Teaching Classroom Guitar I**  
2 credits  
*First Summer Session*  
This class is designed for students and teachers, guitarist or non-guitarist, who wish to initiate, enhance, and teach guitar in a multi-level classroom setting. The course includes demonstration classes with elementary and secondary students. Topics include organization and teaching performance materials in a hands-on setting.

**MED593 Special Topics MED**  
1-3 credits  
*Fall & Spring Semester & First & Second Summer Session*  
Supervised topics and other activities in specific areas of Music Education.  
PREREQUISITE: PERMISSION OF THE DEAN.

**MED599 Practicum in Music**  
0 credit  
*Fall Semester*  
Practical professional experience.  
PREREQUISITE: MUSIC MAJORS ONLY.

**MUSIC MEDIA & INDUSTRY**

**MMICBA Contemporary Bass**  
1-2 credits  
*Fall & Spring Semester*  
1 hour lesson for students enrolled for 2 credits; 1/2 hour lesson for students enrolled for 1 credit. Technical Requirements: Basic grooves and bassline construction. Analysis of different styles of rock, pop, rhythm & blues, and funk music. Introduction to acoustic, six-string electric, and fretless electric basses. Knowledge of beginning functional harmony and sight-reading skills will also be addressed.  
PREREQUISITE: AUDITION FOR LEVEL A

**MMICBB Contemporary Bass**  
1-2 credits  
*Fall & Spring Semester*  
One hour lesson for students enrolled for 2 credits, 1/2 hour less for students enrolled for 1 credit. Technical requirements: Basic grooves and bassline construction. Analysis of different styles of rock, pop, rhythm & blues, and funk music. Introduction to acoustic, six-string electric and fretless electric basses. Knowledge of beginning functional harmony and sight-reading skills will also be addressed.  
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MMICBC Contemporary Bass
1- 2 credits
Fall & Spring Semester
One hour lesson for students enrolled for 2 credits, 1/2 hour less for students enrolled for 1 credit. Technical requirements: Analysis of important bass players and styles, including Carol Kaye, James Jamerson, Larry Graham, Jack Bruce and others. Studies in intermediate harmony and introduction to standard American popular repertoire. Sight-reading, chart reading, and basic rhythm section arranging.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICBD Contemporary Bass
1- 2 credits
Fall & Spring Semester
One hour lesson for students enrolled for 2 credits, 1/2 hour less for students enrolled for 1 credit. Technical requirements: Analysis of important bass players and styles, including Carol Kaye, James Jamerson, Larry Graham, Jack Bruce and others. Studies in intermediate harmony and introduction to standard American popular repertoire. Sight-reading, chart reading, and basic rhythm section arranging.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS

MMICBE Contemporary Bass
1- 2 credits
Fall & Spring Semester
One hour lesson for students enrolled for 2 credits, 1/2 hour less for students enrolled for 1 credit. Technical requirements: Analysis of classic rhythm sections recorded throughout the last 50 years, including concentration on important and influential drummers in different styles of rock, pop, R&B, funk, Latin, and jazz idioms. Live performance skills and studio techniques. Studies in jazz and modal harmony. Introduction to improvisation.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICBF Contemporary Bass
1- 2 credits
Fall & Spring Semester
One hour lesson for students enrolled for 2 credits, 1/2 hour less for students enrolled for 1 credit. Technical requirements: Analysis of classic rhythm sections recorded throughout the last 50 years, including concentration on important and influential drummers in different styles of rock, pop, R&B, funk, Latin, and jazz idioms. Live performance skills and studio techniques. Studies in jazz and modal harmony. Introduction to improvisation.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICBG Contemporary Bass
1- 2 credits
Fall & Spring Semester
One hour lesson for students enrolled for 2 credits, 1/2 hour less for students enrolled for 1 credit. Technical requirements: Advanced jazz harmony and improvisation. Advanced concepts of recording and performance, including starting and working within the context of an original band project. Elements of professionalism in the music business.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY
MMICBH Contemporary Bass
1- 2 credits  
Fall & Spring Semester
One hour lesson for students enrolled for 2 credits, 1/2 hour less for students enrolled for 1 credit. Technical requirements: Advanced jazz harmony and improvisation. World music and odd meter studies, including non-traditional styles and grooves. Advanced concepts of recording and performance, including starting and working within the context of an original band project. Elements of professionalism in the music business.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICDA Contemporary Drumset
1- 2 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Sticking techniques, basic hand/foot patterns. Analysis of rock, pop, rhythm and blues, Latin and jazz styles. Basic chart reading.
PREREQUISITE: AUDITION FOR LEVEL A

MMICDB Contemporary Drumset
1- 2 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Sticking techniques, basic hand/foot patterns. Analysis of rock, pop, rhythm and blues, Latin and jazz styles. Basic chart reading.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICDC Contemprary Drumset
1- 2 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Advanced sticking techniques, advanced hand/food patterns. Transcription/analysis of important drumset artists in major styles. Advanced chart reading.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICDD Contemporary Drumset
1- 2 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Advanced sticking techniques, advanced hand/food patterns. Transcription/analysis of important drumset artists in major styles. Advanced chart reading.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICDE Contemporary Drumset
1- 2 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Tools to enhance soloing and executing grooves. Transcription/analysis of important drumset artists in major styles. Basic studio performance techniques, and relationship to singer/songwriter. Basic jazz performance elements. Basic world music rhythms.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY
MMICDF Contemporary Drumset
1- 2 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Tools to enhance soloing and executing grooves. Transcription/analysis of important drumset artists in major styles. Basic studio performance techniques, and relationship to singer/songwriter. Basic jazz performance elements. Basic world music rhythms.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICDG Contemporary Drumset
1- 2 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Tools to enhance soloing and executing grooves. Transcription/analysis of important drumset artists in major styles. Basic studio performance techniques, and relationship to singer/songwriter. Basic jazz performance elements. Basic world music rhythms.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICDH Contemporary Drumset
1- 2 credits
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICGA Contemporary Guitar
1- 2 credits
Fall & Spring Semester
PREREQUISITE: AUDITION FOR LEVEL A

MMICGB Contemporary Guitar
1- 2 credits
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICGC Contemporary Guitar
1- 2 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Advanced harmony. Advanced accompanying. Transcription/analysis of important guitar artists in major styles. Advanced chart reading and capoing techniques. Beginning alternate tunings.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY
MMICGD Contemporary Guitar
1-2 credits
1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Advanced harmony. Advanced accompanying. Transcription/analysis of important guitar artists in major styles. Advanced chart reading and capoing techniques. Beginning alternate tunings. Successful completion of Level D to move to Level E.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICGE Contemporary Guitar
1-2 credits
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICGF Contemporary Guitar
1-2 credits
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICGG Contemporary Guitar
1-2 credits
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICGH Contemporary Guitar
1-2 credits
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY
MMICKA Contemporary Keyboard
1 - 2 credits  
1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Beginning Gospel harmony (triads in all inversions), basic add-nine pop harmony. Beginning accompanying. Analysis of rock, pop, rhythm and blues, Latin, and jazz styles. Basic chart reading. 
PREREQUISITE: AUDITION FOR LEVEL A

MMICKB Contemporary Keyboard
1 - 2 credits  
1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Beginning Gospel harmony (triads in all inversions), basic add-nine pop harmony. Beginning accompanying. Analysis of rock, pop, rhythm and blues, Latin, and jazz styles. Basic chart reading. 
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICKC Contemporary Keyboard
1 - 2 credits  
1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Advanced Gospel harmony. Advanced accompanying. Transcription/analysis of important keyboard artists in major styles. Advanced chart reading. 
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICKD Contemporary Keyboard
1 - 2 credits  
1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Advanced Gospel harmony. Advanced accompanying. Transcription/analysis of important keyboard artists in major styles. Advanced chart reading. 
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICKE Contemporary Keyboard
1 - 2 credits  
1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Beginning pop improv. Beginning functional jazz harmony (thirds and sevenths). Basic jazz performance elements. Transcription/analysis of important keyboard artists in major styles. Basic studio performance techniques and relationship to singer/songwriter. Keyboard equipment, maintenance, patch libraries and sound editors. 
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICKF Contemporary Keyboard
1 - 2 credits  
1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Beginning pop improv. Beginning functional jazz harmony (thirds and sevenths). Basic jazz performance elements. Transcription/analysis of important keyboard artists in major styles. Basic studio performance techniques and relationship to singer/songwriter. Keyboard equipment, maintenance, patch libraries and sound editors. 
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY
MMICKG Contemporary Keyboard
1 - 2 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICKH Contemporary Keyboard
1 - 2 credits  
Fall & Spring Semester
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICVA Contemporary Voice
1 - 2 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Warm-ups, Cool downs and introductory exercises for breath management. Attack in phonation, registration, resonance, articulation, coordination, microphone technique, key selection and vocal hygiene and maintenance. Beginning chart writing. Repertoire of original and contemporary songs in various styles as prescribed by the voice teacher.
PREREQUISITE: AUDITION FOR LEVEL A

MMICVB Contemporary Voice
1 - 2 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Warm-ups, Cool downs and introductory exercises for breath management. Attack in phonation, registration, resonance, articulation, coordination, microphone technique, key selection and vocal hygiene and maintenance. Beginning chart writing. Repertoire of original and contemporary songs in various styles as prescribed by the voice teacher.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICVC Contemporary Voice
1 - 2 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Basic knowledge of musical styles and historical periods of contemporary music, effective communication of songs in a variety of contemporary styles. Intermediate chart writing. Beginning improvisation and ornamentation. Repertoire of original and contemporary songs in various styles as prescribed by the voice teacher.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY
MMICVD Contemporary Voice

1- 2 credits  
Fall & Spring Semester

1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Basic knowledge of musical styles and historical periods of contemporary music, effective communication of songs in a variety of contemporary styles. Intermediate chart writing. Beginning improvisation and ornamentation. Repertoire of original and contemporary songs in various styles as prescribed by the voice teacher.

PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICVE Contemporary Voice

1- 2 credits  
Fall & Spring Semester

1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Demonstrate evidence of upper range extension with fully supported sound and appropriate modification of resonators, ability to self-prepare a song, advance knowledge of music styles and historical periods of contemporary music, effective communication of original songs. Advanced chart writing. Intermediate improvisation and ornamentation. Repertoire of original and contemporary songs in various styles as prescribed by the voice teacher.

PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICVF Contemporary Voice

1- 2 credits  
Fall & Spring Semester

1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Demonstrate evidence of upper range extension with fully supported sound and appropriate modification of resonators, ability to self-prepare a song, advance knowledge of music styles and historical periods of contemporary music, effective communication of original songs. Advanced chart writing. Intermediate improvisation and ornamentation. Repertoire of original and contemporary songs in various styles as prescribed by the voice teacher.

PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICVG Contemporary Voice

1- 2 credits  
Fall & Spring Semester

1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Demonstrate perfect facility in required contemporary styles, ability to evaluate performances critically and coherently, facility with register changes in upper range, polished and artistic performance with accuracy in pitch, rhythm, good posture, breath management, phonation, resonance, and microphone technique. Advanced chart writing and studio vocal arranging techniques. Advanced improvisation and ornamentation. Repertoire of original and contemporary songs in various styles as prescribed by the voice teacher.

PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY

MMICVH Contemporary Voice

1- 2 credits  
Fall & Spring Semester

1-hour lesson for students enrolled for 2 credits, 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Demonstrate perfect facility in required contemporary styles, ability to evaluate performances critically and coherently, facility with register changes in upper range, polished and artistic performance with accuracy in pitch, rhythm, good posture, breath management, phonation, resonance, and microphone technique. Advanced chart writing and studio vocal arranging techniques. Advanced improvisation and ornamentation. Repertoire of original and contemporary songs in various styles as prescribed by the voice teacher.

PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVELS OF STUDY
MMI013 Music Engineering Forum
0 credit                                                     Fall & Spring Semester
A weekly forum for all Music Engineering Technology and Audio Engineering majors, both undergraduate and graduate. Presentations include faculty lectures, guest lectures by industry professionals, as well as dissemination of information pertaining to audio studios and laboratories.

MMI014 Music Industry Forum
0 credit                                                     Fall & Spring Semester
A weekly forum for all Music Industry majors, both graduate and undergraduate, for the purpose of updating current teaching material with the latest developments, presentations of guest speakers from the industry, lectures, and reports from faculty on current employment opportunities.

MMI102 Record Company Practicum
1 credit                                                     Fall & Spring Semester
The course focuses on practical techniques and procedures employed by record companies. PREREQUISITE: INSTRUCTOR APPROVAL

MMI103 Introduction to Film Sound Recording
1 credit                                               Offered By Announcement Only
Introduction to the concepts and technologies involved with audio production for visual media. PREREQUISITE: NONE/SUMMER SCHOLAR PROGRAM ONLY.

MMI140 Audio Workshop I
1 credit                                                               Fall Semester
Introduction to recording studio techniques. Demonstrations and projects study microphone type and placement, console operation, digital multitrack recording, and stereo mixdown. PREREQUISITE: MMI 150. INSTRUCTOR'S PERMISSION REQUIRED.

MMI141 Audio Workshop II
1 credit                                                            Spring Semester
Hands-on study of advanced recording techniques. Topics include signal processing, automated mixdown, synchronization, and hard disk recording. Open to EAN Majors only. PREREQUISITE: MMI 140.

MMI150 Recording Studio Workshop
1 credit                                                               Fall Semester
Introduction to the recording studio. Projects cover microphone technique, signal flow, console architecture, multitrack recording, overdubs, and mixdown. PREREQUISITE: OPEN TO MUE AND MEC MAJORS ONLY.

MMI151 Desktop Audio Production
1 credit                                                            Spring Semester
Introduction to MIDI technology and computer based tools for music production. PREREQUISITE: MUE MAJORS ONLY.
MMI160 Ensemble Recording Workshop I
1 credit Fall Semester
Assisting recording and sound reinforcement engineers in the assigned performance ensemble in both rehearsal and performance. Students also perform in a studio ensemble where they act as both recording engineer and musician.
PREREQUISITE: OPEN TO MUE AND MEC MAJORS ONLY.

MMI161 Ensemble Recording Workshop II
1 credit Spring Semester
Students are responsible for the audio needs of an assigned ensemble in both rehearsal and performance. Lectures address audio equipment and practices. Students also perform in a studio ensemble where they act as the recording engineer and musician.
Open to MUE majors only.
PREREQUISITE: MMI 160.

MMI162 Ensemble Recording Workshop III
1 credit Fall Semester
Computer-based editing of digital audio and digital signal processing. Projects involve sampling, editing, and synchronization of digital media. In addition, students work in the recording studio, engineering digital multitrack recordings and mixdowns of advanced jazz and composition ensembles. Open to MUE and MEC Majors only.
PREREQUISITE: MMI 161. OPEN TO MUE AND MEC MAJORS ONLY.

MMI163 Ensemble Recording Workshop IV
1 credit Spring Semester
Hardware and software aspects of MIDI studio technology. Projects involve computer-based sequencer control of synthesizers and signal processors. In addition, students work in the recording studio, engineering digital multitrack recordings and mixdowns of advanced jazz and composition ensembles. Open to MUE Majors only.
PREREQUISITE: MMI 162.

MMI170 Audio Design Workshop I
1 credit Offered By Announcement Only
Fundamentals of audio system design and architecture including basic audio signal analysis and theory, electronics fundamentals, equipment specifications, and studio installation techniques. Students will design and troubleshoot audio projects including audio adapters, direct-injection devices, and passive audio circuits. Open to MUE Majors only.

MMI171 Audio Design Workshop II
1 credit Fall Semester
Analog audio system design and architecture including dynamics processing, amplifier and filter theory, balanced and single-ended systems, circuits, and advanced equipment specifications. Students design and troubleshoot audio projects including microphone pre-amps, equalizers, noise-gates, and power amplifiers. Open to MUE and MEC Majors only.
PREREQUISITE: EEN 201. OPEN TO MUE AND MEC MAJORS ONLY.
MMI172 Audio Design Workshop III
1 credit Spring Semester
Digital audio system design and architecture including analog-digital conversion, digital I/O hardware specifications, audio effects processors and digital audio recorder alignment techniques. Students design and troubleshoot audio projects including A/D converters, S/PDIF I/O, and DAT recorders. Open to MUE and EAN Majors only.
PREREQUISITE: MMI 171.

MMI173 Multinational Recorded Music Industry
3 credits Spring Semester
An introductory course presenting a structural overview of the music business and entertainment industries and the Music Industry Program. Historical development of music as a business and the development of the market place for both music and musicians. Emphasis is placed on contemporary music business practices. Topics include songwriting, publishing, musical instrument sales, artist management, arts management, professional organizations, copyright law, record industry, unions and guilds, and career development.

MMI201 Introduction to Music Recording
3 credits Fall Semester
An overview study of the theory and practice of music recording, with emphasis on modern recording studio practices. Topics include physics of sound, psychoacoustics, studio design, microphones, loudspeakers, consoles, signal processing, digital audio, MIDI, and synchronization.
PREREQUISITE: OPEN TO MUE AND MEC MAJORS ONLY.

MMI207 African-American Song Workshop
1 credit Fall Semester
A learning ensemble focusing on the various African American song traditions from early plantations songs, shouts, hollers, and spirituals, to the development of blues traditions, to gospel. Students will develop a portfolio of original works in traditional African-American styles.
PREREQUISITE: BY AUDITION ONLY. CO-REQUISITE: MCY 211

MMI208 Anglo-American Song Workshop
1 credit Spring Semester
A learning ensemble focusing on the various Anglo-American song traditions from English and Irish folk ballads, to shape-note and Sacred Harp hymnody, to early folk, country and bluegrass. Students will develop a portfolio of original works in traditional Anglo-American styles.
PREREQUISITE: BY AUDITION ONLY. CO-REQUISITE: MCY 212

MMI273 Artist Management and the Live Entertainment Industry
2 credits Spring Semester
Views of the live entertainment industry from the perspective of the performing artist, artist manager, talent agent, attorney, and concert promoter. Consideration is given to the interpersonal, business, and contractual relationships and their impact on the performing artist's career. Strategies for career development are addressed and the ground rules of publicity, public relations, and promotion explored and applied in practical situations through special individual and team projects.
MMI274 Introduction to Music Copyright Law
2 credits  Spring Semester
A study of essential provisions of the 1976 Copyright Act and the Protection of Intellectual Property, covering the principles and practices of modern music publishing and international co-publishing. Students examine the complexities of copyright right law as it relates to the music industry.

MMI275 Record Company Marketing
1 credit  Fall Semester
The course focuses on marketing techniques unique to the record industry by providing the students with practical interactive experience. Aspects of regional and niche marketing are explored extensively. Students market specific products.
PREREQUISITE: MBEI MAJORS ONLY.

MMI301 Audio for Film and Video
3 credits  Offered By Announcement Only
Course provides fundamentals of audio control, recording, microphone use, transducer theory, signal modification, audio aspects of videotape and film, location recording, synchronization, and principles of digital audio.
PREREQUISITE: PERMISSION OF FILM DEPARTMENT.

MMI307 Modern American Pop Workshop I
1 credit  Fall Semester
A learning ensemble focusing on American Popular Music from the late-1950s to the late-1970s. Students will develop a portfolio of original songs in modern American styles.
PREREQUISITE: BY AUDITION ONLY. CO-REQUISITE: MCY 311

MMI308 Modern American Pop Workshop II
1 credit  Spring Semester
A learning ensemble focusing on American Popular Music from the 1980s to the present. Students will develop a portfolio of original songs in modern American styles.
PREREQUISITE: BY AUDITION ONLY. CO-REQUISITE: MCY 312

MMI361 Acoustics
3 credits  Spring Semester
A study of the theoretical principles of acoustics. Principle topics include basic properties, acoustical phenomena, superposition, Fourier Theorem, symmetry, vibrating strings and columns, and musical instruments; a study of architectural acoustics such as growth and decay, absorption coefficients, normal modes, diffusion, isolation, and mass law; design applications such as structural techniques and materials, live end-dead end, room geometry, tuning, TDS and other measurement techniques.
PREREQUISITE: MTH 112 AND PHY 102 OR 205.

MMI374 Record Company Promotion
1 credit  Fall Semester
The course provides practical experience in the promotion of a recorded music product. The interaction that occurs between the marketing and promotion departments of a record label is investigated along with personnel responsibilities as they relate to a specific product. Consideration is given to the use of print, radio and television media. Students market specific products.
PREREQUISITE: MBEI MAJORS ONLY.
MMI375 Record Company Management  
1 credit  
Spring Semester  
The study of management techniques applicable to the record industry and the decision making process. Practical experience is gained in the planning and budgeting of a recorded music product. Coordination problems are covered extensively. Students oversee the release schedules of specific products.  
PREREQUISITE: MBEI MAJORS ONLY.

MMI376 Networking in the Entertainment Industry  
1 credit  
Fall Semester  
The students become familiar with various ways to explore opportunities in the entertainment industry and the value of networking.  
PREREQUISITE: MBEI MAJORS ONLY.

MMI377 Royalties in the Music Publishing Industry  
1 credit  
Spring Semester  
A practical study of royalty payment formulas and procedures used in the music publishing industry.  
PREREQUISITE: MBEI MAJORS ONLY.

MMI378 Entertainment Industry Contract Basics  
3 credits  
Fall Semester  
Business relations between the record company, artist, producer and licensees, both domestic and foreign. Analysis of actual contracts between parties, implications of newer technology on the industry.  
PREREQUISITE: OPEN MBEI MAJORS, MBEI MINORS AND MBEM MAJORS ONLY. PREREQUISITE: MMI 274

MMI401 Audio Electronics  
3 credits  
Offered By Announcement Only  
An introductory course in audio electronics theory and professional audio applications such as recording studio equipment and audio effects design. Coursework includes basic electronic components and theories, passive filtering, transformers, operational amplifiers, vacuum tubes, non-linear elements including diodes and JFETs, graphic, parametric and shelving equalizers, compressors, limiters, gates, microphone preamps, analog effects including reverb, flanging, and chorusing. Students will design custom audio circuits and use computer simulations to understand theory of operation.  
PREREQUISITE: MMI 201. COREQUISITE: EEN 201. OPEN TO MUE AND MEC MAJORS ONLY.

MMI436 Audio Postproduction  
3 credits  
Fall Semester  
Basic audio for video and film postproduction, including the study of time code, synchronization, electronic editing, video and film transports, dolby stereo, equipment interfacing, and future developments.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MMI445 Senior Project/Portfolio  
1 credit  
Spring Semester  
This course is the capstone of the Creative American Music Program. Students will develop a portfolio of recordings of original songs. Students will also be required a public performance of their original songs.  
PREREQUISITE: PERMISSION FROM INSTRUCTOR.
MMI454 Entertainment Industry Practicum
1 credit  
Fall & Spring Semester
Practical experience in an entertainment industry organization.

MMI455 Internship in Entertainment Industry
3 credits  
Fall & Spring Semester & First & Second Summer Session
Practical experience in different areas of the entertainment industry under the supervision of professional firms and the faculty advisor.
PREREQUISITE: MMI 376; MBEI MAJORS ONLY.

MMI456 Internship in Entertainment Industries II
0 credit  
First & Second Summer Session
Continuation of MMI 455.
PREREQUISITE: MMI 455.

MMI460 Recital Recording and Sound Reinforcement
1 credit  
Fall & Spring Semester
Practical experience in live concert recording, editing and mastering, and sound reinforcement, under supervision of professional on-campus engineers.
PREREQUISITE: OPEN ONLY TO MUE AND MEC MAJORS ONLY.

MMI465 Internship in Music Engineering
1-3 credits  
Fall Semester
Practical experience in the music engineering industry such as work in a recording studio, broadcast company, hardware or software manufacturer, under professional supervision.
PREREQUISITE: OPEN ONLY TO MUE AND MEC MAJORS ONLY.

MMI490 Senior Honors Thesis I
3 credits  
Fall & Spring Semester
Development and completion of a senior Honors Thesis to fulfill requirements for University Honors of Magna or Summa Cum Laude.

MMI491 Senior Honors Thesis II
3 credits  
Fall & Spring Semester
Development and completion of a senior Honors Thesis to fulfill requirements for University Honors of Magna or Summa Cum Laude.

MMI493 Special Projects
1-3 credits  
Fall & Spring Semester & First & Second Summer Session
Supervised readings and other activities in specific areas of Music Media and Industry.
PREREQUISITE: UNDERGRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MMI501 Transducer Theory
3 credits  
Spring Semester
Course covers the fundamentals of electromagnetism and audio transducer theory including loudspeaker and microphone systems. Classical electro-acoustical analysis of transducers including acoustic suspension, bass-reflex, transmission line, electrostatic and horn loudspeakers, dynamic, ribbon and condenser pressure, and pressure-gradient microphones. Students use computer-aided design programs and Thiele-Small parameterization to model loudspeakers and measure loudspeaker responses. Open to MUE and EAN Majors only.
PREREQUISITE: EEN 201, PHY 102 OR PHY 205.
MMI502 Digital Audio I
3 credits  Fall Semester
A study of the theory and practice of digital audio topics including discrete time sampling, quantization, dithering, PCM, A/D and D/A conversion, digital filtering, oversampling, modulation codes, timebase, error correction codes, magnetic storage, DAT, and optical storage.
PREREQUISITE: MMI 501.

MMI503 Digital Audio II
3 credits  Spring Semester
A study of the theory and practice of digital audio topics including fiber optics and networks, compact disc, interconnection, psychoacoustics, low bit-rate perceptual coding, MPEG, digital audio broadcasting, sigma-delta conversion, noise shaping, digital video, and emerging technologies. Open to MUE and EAN Majors only.
PREREQUISITE: MMI 502.

MMI504 Audio Analysis and Synthesis
3 credits  Fall Semester
Theory, design, and development of computer audio synthesizers and analyzers. Students implement software synthesizers including analog and physical modeling, wave-table, wave-shaping, and FM designs. Classical and modern theories of timbre and time-frequency analysis are included.
PREREQUISITE: MMI 503, OPEN TO MUE AND MEC MAJORS ONLY.

MMI505 Advanced Audio Signal Processing
3 credits  Spring Semester
Theory, design and development of audio signal processing techniques. Topics include DSP architectures, systems design, algorithm development, and applications. DSP development tools used to write, debug, and test programs including time-domain based effects such as reverb, chorus, flanging, and digital delay as well as frequency-domain projects such as FIR, IIR, and FFT filters and vocoders.
PREREQUISITE: MMI 504, OPEN TO MUE MAJORS ONLY.

MMI507 Introduction to the Internet
2 credits  Spring Semester
A hands-on introduction to the history, structure, and applications of the Internet. Topics include electronic mail, file transfer (FTP), remote computer access (telnet) file, database retrieval (Archie, WAIS, WWW, Gopher), and discussion groups (USENET, BITNET).

MMI520 Audio Technology for Musicians
2-3 credits  Fall Semester
Introduction and overview of audio technology with emphasis on music recording, production equipment, and techniques. Topics include microphones, loudspeakers, mixing consoles, interconnection, amplifiers, digital processing, time code, and surround sound. Open to non-MUE majors.
PREREQUISITE: JUNIOR STANDING AND PERMISSION OF INSTRUCTOR.
MMI530 Entrepreneurship for Musicians

3 credits Offered By Announcement Only
Course explores a wide range of options for musicians who want to pursue music business careers in their regional music markets. Students examine opportunities in performance, recording, composition, education, and more. Emphasis is placed on the packaging of musical skills in the marketplace and on the financial management of a small proprietary music business. As a result, the student musician will be prepared to make career decisions with foresight and planning.

MMI537 Recorded Music Operations

3 credits Offered By Announcement Only
A study of the activities involved in commercially exploiting recorded music. Includes an analysis of activities involved in the production, manufacturing, distribution, and marketing of a recorded music product; as well as related royalty accounting, mechanical licensing and master-use licensing activities.
PREREQUISITE: MMI 274 AND MMI 378; OPEN TO MBEI MAJORS, MBEI MINORS AND MBEM MAJORS ONLY.

MMI573 International Music Publishing

2 credits Fall Semester
An in-depth study of the international publishing industry with an emphasis on catalog development and exploitation.
PREREQUISITE: MMI 173; MBEI MAJORS AND MINORS ONLY.

MMI574 A & R Administration and Music Licensing

3 credits Spring Semester
An in-depth study of the budgeting and administrative procedures employed in the music industry. Topics include artist and repertoire administration, session budgeting, compilation albums, release schedules, master license agreement, business affairs, and industry ethics. Preproduction, production, and postproduction responsibilities are also included and special consideration is given to the artist recording contract.
PREREQUISITE: MMI 173; JUNIOR STANDING; MBEI MAJORS AND MINORS ONLY.

MMI575 Entertainment Industry Contract Basics

3 credits Fall Semester
Business relations between the record company, artist, producer and licensees, both domestic and foreign. Analysis of actual contracts between parties, implication of newer technology on the industry.
PREREQUISITE: MMI 173; SENIOR STANDING; MBEI MAJORS AND MINORS ONLY.

MMI578 Royalties in the Recorded Music Industry

1 credit Spring Semester
A practical study of royalty payment formulas and procedures used in the recorded music industry.
PREREQUISITE: MBEI MAJORS ONLY.

MMI593 Special Topics MMI

1-3 credits Fall & Spring Semester & First & Second Summer Session
Supervised topics and other activities in specific areas of Music Media and Industry.
PREREQUISITE: PERMISSION OF THE DEAN.

MMI599 Practicum in Music

0 credit Fall & Spring Semester & First & Second Summer Session
Practical professional experience.
PREREQUISITE: MUSIC MAJORS ONLY.
MTC012 Composition Forum
0 credit  
Fall & Spring Semester
A weekly forum for all Music Theory/Composition majors, both undergraduate and graduate. Course involves guest lectures by visiting composers and performers, presentations of faculty compositions, and group discussions of important compositional and theoretical issues.

MTC015 Media Writing and Production Forum
0 credit  
Fall & Spring Semester
This course provides a weekly forum for sharing information about issues, current developments, and other matters related to commercial music composition and production as a field of study and as a profession. The course is required for all undergraduate MWP majors during each semester.

MTC101 Composition I
2 credits  
Fall Semester
Course covers elementary principles of composition; class performance of composition projects is also included. Required of theory-composition majors.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MTC102 Composition II
2 credits  
Spring Semester
Continuation of MTC 101.
PREREQUISITE: MTC 101.

MTC105 Rudimentary Aural and Sightsinging Skills
1 credit  
Fall & Spring Semester
The rudiments of major/minor melodic sightsinging and rhythmic reading are introduced and drilled. Simple melodic and rhythmic dictation and error detection will be included.

MTC110 Fundamentals of Music
3 credits  
Fall & Spring Semester
Course is designed for students deficient in the knowledge of the basic fundamentals of music. Includes the study of notation, keys, scales, and chord construction. Credits do not count toward music degree requirements.

MTC111 Music Theory I
2 credits  
Fall & Spring Semester & First Summer Session
Introduction to basic concepts of melody, harmony, rhythm, and formal structure through analysis and writing. Topics include intervals, scales, elementary melodic and four-part writing, phrase structure and cadences, and diatonic harmony. Laboratory: MTC 121.
PREREQUISITE: MTC 110 OR EQUIVALENT.

MTC112 Music Theory II
2 credits  
Fall & Spring Semester & First Summer Session
Continuation of MTC 111. Topics include chord extensions, altered chords, intermediate melodic and four-part writing, binary and ternary structures, and tonality changes. Laboratory: MTC 122.
PREREQUISITE: MTC 111.
MTC121 Music Theory Laboratory I
1 credit
Laboratory for aural and singing skills. Topics include interval and chord structure recognition, harmonic progressions, dictation-transcription (melody, rhythm, harmony), and error dictation.
PREREQUISITE: MTC 110 OR EQUIVALENT.

MTC122 Music Theory Laboratory II
1 credit
Laboratory for aural and singing skills. Continuation of MTC 121.
PREREQUISITE: MTC 121.

MTC125 The Nature of Music
3 credits
A study of sound, pitch, rhythm, meter, melody, scales, intervals, tempo, expression terms, and highlights of music in history. Enrollment is limited to honors students who are non-music majors.
PREREQUISITE: ADMISSION TO HONORS PROGRAM.

MTC148 Electronic Music Ensemble
1 credit
PREREQUISITE: BY AUDITION.

MTC182 Composition Workshop
1 credit
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

MTC197 Studio Rhythm Section
1 credit
PREREQUISITE: BY AUDITION.

MTC199 The Other Music Ensemble
1 credit
An in-depth study and performance of 20th century music.
PREREQUISITE: BY AUDITION.

MTC201 Composition III
2 credits
Principles of composition with special emphasis on stylistic considerations.
PREREQUISITE: MTC 102.

MTC202 Composition IV
2 credits
Continuation of MTC 201.
PREREQUISITE: MTC 201.

MTC203 Pop Composition I
2 credits
Introduces students to the concept of form in commercial music through a survey of representative past and current works. Emphasis is placed on acoustic repertoire. Assignments include leadsheet transcriptions and an introduction to the 3, 4, and 5-piece rhythm section.
PREREQUISITE: MTC 102, 162, OR PERMISSION OF INSTRUCTOR.
MTC204 Pop Composition II  
2 credits  
Spring Semester  
Continuation of MTC 203. Survey of lyrics from different pop genres. Compositional assignments are for rhythm section and vocalist, and include the writing and setting of lyrics.  
PREREQUISITE: MCT 203 AND 251; CO-REQUISITE: MTC 252.

MTC211 Music Theory III  
2 credits  
Fall & Spring Semester & First & Second Summer Session  
Continuation of MTC 112. Emphasis is placed on chromatic harmony, enriched tonal resources, and larger formal structures. Laboratory: MTC 221.  
PREREQUISITE: MTC 112.

MTC212 Music Theory IV  
2 credits  
Fall & Spring Semester & First & Second Summer Session  
Continuation of MTC 211. Continued study of chromatic harmony and large instrumental forms. Analysis of late nineteenth century music and the works of Debussy are included.  
PREREQUISITE: MTC 211.

MTC213 Music Notation  
1 credit  
Fall Semester  
Principles, techniques, and skills of automated and manual music notation.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MTC221 Music Theory Laboratory III  
1 credit  
Fall & Spring Semester & First & Second Summer Session  
Laboratory for aural and singing skills. Continuation of MTC 122.  
PREREQUISITE: MTC 122.

MTC222 Music Theory Laboratory IV  
1 credit  
Fall & Spring Semester & First & Second Summer Session  
Laboratory for aural and singing skills. Continuation of MTC 221.  
PREREQUISITE: MTC 221.

MTC251 Audio, Computers, and MIDI I  
1 credit  
Fall Semester  
Combination lecture and laboratory course designed to familiarize students with audio signal flow concepts and the use of the patch bay, various sound modules, music-related computer hardware, sequencing software, and basic MIDI theory. Some individual lab time is used to realize assignments from MTC 203.

MTC252 Audio, Computers, and MIDI II  
1 credit  
Spring Semester  
Continuation of MTC 251. Combination lecture and laboratory course with a focus on audio/video synchronization and more advanced MIDI applications.  
PREREQUISITE: MTC 203 AND 251; CO-REQUISITE: MTC 204.

MTC261 Honors Music Theory III  
3 credits  
Fall Semester  
Conclusion of Honors theory core curriculum. Topics include review of chromatic harmony, introduction to larger instrumental forms, advanced nineteenth-century harmony, and advanced eartraining. This course replaces MTC 212.  
PREREQUISITE: MTC 162 OR PERMISSION OF THE INSTRUCTOR AND ADMISSION TO THE HONORS PROGRAM.
MTC301 Composition V
3 credits                                                    Fall & Spring Semester
Individual compositional projects with an emphasis on smaller formal structure.

MTC302 Composition VI
3 credits                                                    Fall & Spring Semester
Individual compositional projects including all media with an emphasis on extended formal structures.
PREREQUISITE: MTC 301.

MTC303 Media Composition I
2 credits                                                             Fall Semester
Introduces the student to the 30 and 60-second music format. Addresses psychoacoustic issues as well as stylistic and instrumentation considerations. Compositional assignments include the musicalization of radio commercials, station IDs, TVG themes, and other media applications.
PREREQUISITE: MTC 204, 252, OR PERMISSION OF INSTRUCTOR; CO-REQUISITE: MTC 351.

MTC304 Media Composition II
2 credits                                                           Spring Semester
Continuation of MTC 303. Introduces the student to longer and more complex musical forms. Examines the use of orchestral forces, hybrid (electronic + acoustic) ensembles, and unusual instrumental combinations in contemporary commercial applications. Compositional assignments include television program themes, background music, and short underscoring exercises. Student projects are realized during the course of the semester. Co-requisite: enrollment in MIP 320 for 0-credits.
PREREQUISITE: MTC 303 AND 416. CO-REQUISITE: ENROLLMENT IN MIP 320 FOR 0-CREDITS.

MTC311 Analysis and Exper
3 credits                             Fall & Spring Semester & First Summer Session
Musical analysis and its relationship to listening and performance. An introduction to musical aesthetics is also included.
PREREQUISITE: MTC 212.

MTC312 Twentieth Century Techniques
3 credits                             Fall & Spring Semester & Second Summer Session
Analysis of twentieth century compositional resources. Topics include Impressionism, expanded tonal resources, Neo-classicism, serialism, post-serialism, aleatoric procedures, minimalism, and other recent trends.
PREREQUISITE: MTC 212.

MTC313 18th Century Counterpoint
3 credits                             Fall & Spring Semester & First Summer Session
Two-part keyboard counterpoint in the style of J. S. Bach, beginning with a modified species approach and including composition of dance-suite movements and inventions. Introduction to three-part writing is also included.
PREREQUISITE: MTC 211.

MTC318 Band Arranging and Instrumentation
3 credits                             Spring Semester
Techniques of arranging and writing for various wind-percussion ensembles with a study of instrumentation.
PREREQUISITE: MTC 211.
MTC351 Media Composition Lab
1 credit
Offered By Announcement Only
Laboratory component to MTC 303. Course can only be taken concurrently with MTC 303.

MTC401 Composition VII
3 credits
Fall & Spring Semester
Individual compositional projects including all media with an emphasis on advanced problems in composition.
PREREQUISITE: MTC 302.

MTC402 Composition VIII
1-3 credits
Fall & Spring Semester
Advanced Composition. Continuation of MTC 401.
PREREQUISITE: MTC 401 OR CONSENT OF INSTRUCTOR.

MTC403 Media Production Project I
2 credits
Fall Semester
Course is designed to provide students with information on subsidiary areas of music production. Topics include aspects of project-based planning such as choice of talent, facilities, budgeting and scheduling considerations, and other related pre-production issues. Course also addresses the multiple roles and responsibilities of the producer. Students demonstrate their understanding of these issues through written assignments and the development of specific projects.
PREREQUISITE: PERMISSION OF INSTRUCTOR. OPEN ONLY TO MAJORS FOLLOWING THIS TRACK.

MTC404 Media Production Project II
1 credit
Spring Semester
Focus is on audio mixing techniques and other post-production issues. Application of these concepts (as well as those presented in MTC 403) is achieved through the planning and execution of two (2) separate musical production projects, both from inception to completion. The specific scope and goals of each project are defined by both the student and the instructor at the beginning of the semester. Due to the production-intensive requirements of this course, greater credit-hour weight is given to the co-requisite laboratory than to the lecture component.
PREREQUISITE: MTC 403 AND MMI 436; COREQUISITE: MTC 452. OPEN ONLY TO MAJORS FOLLOWING THIS TRACK.

MTC416 Orchestration
3 credits
Fall & Spring Semester & Second Summer Session
The uses and possibilities of orchestral instruments as well as scoring for various instrumental groups, including the symphony orchestra.
PREREQUISITE: MTC 211 OR PERMISSION OF INSTRUCTOR.

MTC452 Media Production Project Lab
2 credits
Offered By Announcement Only
Laboratory component to MTC 404. Course can only be taken concurrently with MTC 404.

MTC490 Senior Honors Thesis I
3 credits
Fall & Spring Semester
Development and completion of a senior Honors Thesis to fulfill requirements for University Honors of Magna or Summa Cum Laude.
MTC491 Senior Honors Thesis II
3 credits  Fall & Spring Semester
Development and completion of a senior Honors Thesis to fulfill requirements for University Honors of Magna or Summa Cum Laude.

MTC493 Special Projects
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Supervised reading, composition, and other activities in specific areas.
PREREQUISITE: UNDERGRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MTC499 Senior Recital
1 credit  Fall & Spring Semester
A public recital of original compositions required of all Music Composition majors.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MTC501 The Aesthetics of Music
3 credits  Offered By Announcement Only
Survey of thought and discourse about the nature, roles, values, experiences, and meanings of music. Variety of perspectives, including those of the listener, performer, and composer are addressed. Application to musical interpretation and criticism is included.
PREREQUISITE: MTC 311 OR 312 OR GRADUATE STANDING.

MTC505 Electronic Music Studio
2 credits  Fall & Spring Semester
Introduction to electroacoustic music and the digital electronic music studio. Computer and MIDI based applications in performance and composition including sequencing, music notation, and electronic orchestration are addressed. Theoretical and aesthetic issues relating to music technology, study of important figures and works. Lectures, reading, listening, and studio assignments leading to individual projects are also included.
PREREQUISITE: MTC 211 OR PERMISSION OF INSTRUCTOR.

MTC506 MIDI and Control Processing
2 credits  Fall Semester
Computers as control devices for music synthesis. Topics include interfacing microcomputers and synthesizers, programming of controllers, sequencers, patch librarians, sound editors, and other applications. Computer assisted composition and performance techniques, lectures, reading, listening, and studio assignments leading to individual projects are also included.
PREREQUISITE: MTC 505 OR PERMISSION OF INSTRUCTOR.

MTC507 Digital Sound Synthesis and Processing
2 credits  Spring Semester
Software-based techniques of digital audio recording and editing, sound synthesis/design, audio signal processing, and sound analysis. Lectures, reading, listening, and studio assignments leading to individual projects in synthesis, composition, performance, or programming are included.
PREREQUISITE: MTC 506 OR PERMISSION OF INSTRUCTOR.
MTC511 Film Scoring I
2 credits  Fall Semester
Seminar in the aesthetics and psychology of mood music, sound-film synchronization, timing techniques, and scoring procedures. Analysis and performance of student projects is included.
PREREQUISITE: MTC 302 OR PERMISSION OF INSTRUCTOR.

MTC512 Film Scoring II
2 credits  Spring Semester
Adaptation of previous semester's techniques to television scripts and performed music. Pre-recording, direct recording, and dubbing procedures are included as well as preparation and performance of complete film cues. Each student is required to conduct his/her project.
PREREQUISITE: MTC 511.

MTC513 16th Century Counterpoint
3 credits  Fall Semester
Two- and three-voice vocal counterpoint based on Palestrina's style, beginning with studies of strict species and including composition of two- and three-voice texted motets.
PREREQUISITE: MTC 211.

MTC515 Choral Arranging
3 credits  Spring Semester
Arranging for choir and vocal groups with and without instrumental accompaniment in all styles.
PREREQUISITE: MTC 212.

MTC516 Advanced Orchestration
3 credits  Spring Semester
Scoring for the symphonic orchestra with an emphasis on recent techniques.
PREREQUISITE: MTC 416 OR PERMISSION OF INSTRUCTOR.

MTC517 Analysis of Popular Music Since 1950
3 credits  Fall Semester
Course examines popular music in the second half of the Twentieth Century from a music analytical perspective. Critical skills needed for this analysis are identified and developed. Analytical techniques for understanding the determination and utilization of musical elements and structures in contemporary popular music are applied. Various contemporary genres and some precursors are examined and particular stylistic determinants of their compositional and performance models are discussed.
PREREQUISITE: GRADUATE STANDING OR MTC 311 OR 312, OR PERMISSION OF THE INSTRUCTOR.

MTC518 Advanced Counterpoint
3 credits  Fall Semester
Three-voice fugal writing in Bach's style, followed by compositional projects in a variety of twentieth-century contrapuntal styles.
PREREQUISITE: MTC 313 OR PERMISSION OF INSTRUCTOR.
MTC521 Multimedia for Musicians
3 credits
Offered By Announcement Only
Presents an overview and introduction to the creation of multimedia projects for presentation on the Web. Focus is placed on building websites, and the creation of multimedia content for online delivery. Software tools for the manipulation of digital media, including audio and video, are utilized in the realization of course projects.
PREREQUISITE: MTC 212 AND MKP 220, OR GRADUATE STANDING OR PERMISSION OF THE INSTRUCTOR.

MTC567 Electronic and Computer Music Seminar
1-3 credits
Fall & Spring Semester
Advanced techniques and applications in electronic and computer music. Topics may include electronic projects in composition, performance, research, programming, or other as approved by instructor.
PREREQUISITE: MTC 505, 506, 507, OR CONSENT OF THE INSTRUCTOR.

MTC593 Special Topics MTC
1-3 credits
Fall & Spring Semester & First & Second Summer Session
Supervised topics and other activities in specific areas of Music Theory-Composition.
PREREQUISITE: PERMISSION OF THE DEAN.

MTC599 Practicum in Music
0 credit
Fall & Spring Semester & First & Second Summer Session
Practical professional experience.
PREREQUISITE: MUSIC MAJORS ONLY.

MUSICOLOGY
MCY016 Musicology Forum
0 credit
Offered By Announcement Only
A weekly forum for all Musicology majors. This course involves guest lectures by local and visiting scholars, presentations of student and faculty research, and group discussions centered on principal ideas, methods, and approaches in the field.

MCY101 The World of Music and its Powers
1 credit
Fall Semester
For all new music majors, a novel introduction to music now and then, here and there; its ideas, its relations to other arts, and its role in human life.
PREREQUISITE: FRESHMAN MUSIC MAJOR STATUS.

MCY124 The Evolution of Jazz
3 credits
Fall & Spring Semester & First Summer Session
A study of the origin, development, and styles of jazz music and its exponents.

MCY127 Evolution of Rock
3 credits
Fall & Spring Semester & Second Summer Session
Rock music from its sources to the present. Aural recognition of rock styles and selected performing artists are included.

MCY131 The Understanding and Enjoyment of Music I
3 credits
Fall Semester & First Summer Session
A non-technical introduction to the language, genres, media, and forms of music, utilizing lectures, films, recordings, and live performances.
MCY132 The Understanding and Enjoyment of Music II
3 credits  
*Spring Semester & Second Summer Session*
A non-technical introduction to the history of music, from ancient times to the present day, including classical music, folk music and jazz, utilizing lectures, films, recordings, and live performances.

MCY211 African-American Song Traditions
3 credits  
*Fall Semester*
A study of the origins, development, and styles of African American song traditions from early plantation songs, shouts, hollers, and spirituals, to the development of blues traditions, to gospel. Areas to be explored include the development of an African American cultural consciousness and the political and socio-economic influences on the content and musical styles.
PREREQUISITE: NONE

MCY212 Anglo-American Song Traditions
3 credits  
*Spring Semester*
A study of the origins, development, and styles of Anglo-American song traditions from English and Irish folk ballads, to shape-note and Sacred Harp hymnody, to early folk, country and bluegrass. Areas to be explored include the development of an American cultural identity and the political and socio-economic influences on the content and musical styles.
PREREQUISITE: NONE

MCY311 Modern American Pop Music I
3 credits  
*Fall Semester*
A study of the development and styles of American Popular Music from the late-1950s to the late-1970s. Areas to be explored include influential songwriters and performers and stylistic development in their political and socio-economic context.
PREREQUISITE: NONE

MCY312 Modern American Pop Music II
3 credits  
*Spring Semester*
A study of the development and styles of American Popular Music from the early-1980s to the present. Areas to be explored include influential songwriters and performers and stylistic development in their political and socio-economic context.
PREREQUISITE: NONE

MCY324 Music in Hebrew Culture
3 credits  
*Spring Semester*
A study of the folk, traditional, liturgical, and art music of the Jews. Particular attention is given to music on Jewish subjects, music employing traditional Jewish resources, and music by contemporary Jewish and Israeli composers.

MCY325 Honors Music Masterworks
3 credits  
*Fall & Spring Semester*
A study of selected masterpieces of music drawn from significant stylistic periods of music history and representing important generic forms of musical composition. Enrollment is limited to honors students who are non-music majors.
PREREQUISITE: ADMISSION TO HONORS PROGRAM AND JUNIOR STANDING.
MCY333 Introduction to Cuban Music
3 credits  Fall & Spring Semester
A survey of Cuban Music from the early European settlement to the present. Course addresses African and Caribbean influences and the amalgamation into new national styles, as well as current musical activity on the island and in expatriate communities.

MCY490 Senior Honors Thesis I
3 credits  Fall & Spring Semester
Development and completion of a senior Honors Thesis to fulfill requirements for University Honors of Magna or Summa Cum Laude.

MCY491 Senior Honors Thesis II
3 credits  Fall & Spring Semester
Development and completion of a senior Honors Thesis to fulfill requirements for University Honors of Magna or Summa Cum Laude.

MCY493 Special Projects
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Supervised readings and other activities in specific areas of Musicology.
PREREQUISITE: UNDERGRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MCY520 History and Literature of the Wind Band
3 credits  Spring Semester
An historical survey of wind band literature, the evolution of the military band, the wind band, and the wind orchestra.
PREREQUISITE: ADVANCED STANDING.

MCY521 Symphonic Literature
3 credits  Fall Semester
A survey of orchestral music from the end of the seventeenth century to the present.

MCY522 Operatic Literature
3 credits  Spring Semester
The history and literature of opera from the end of the sixteenth century to the present.

MCY524 Contemporary Music
3 credits  Fall Semester
Music of the 20th century, with emphasis on developments since 1945.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MCY525 Art Song Literature
3 credits  Fall Semester
A survey of the solo vocal literature from the 16th century to the present, with particular emphasis on the 19th-century French and German repertoire.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MCY526 Keyboard Literature I  
3 credits  
Fall Semester  
A survey of keyboard literature from its beginning to approximately 1750 emphasizing changes in styles of writing and expression, development of techniques suited to the primary instruments in use (including the early organ, clavichord, harpsichord and fortepiano), ornamentation both specified and improvised, forms, and ideas for interpretation based on historical sources. 
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MCY527 Keyboard Literature II  
3 credits  
Spring Semester  
A survey of solo keyboard literature from approximately 1750 to the present emphasizing changes in styles of writing and expression, development of technique suited to the primary instruments in use (including the clavichord, harpsichord, fortepiano and modern piano), embellishment both specified and improvised, forms, and ideas for interpretation based on historical sources (including facsimiles, printed scores, written records and sound recordings, particularly those by the composers themselves). 
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MCY528 Music Bibliography  
3 credits  
Fall Semester  
Course presents research materials, including dictionaries, encyclopedias, historical collections, scholarly editions, complete works, books, articles, and lists dealing with specialized areas of music history and literature. 
PREREQUISITE: GRADUATE STANDING, OR PERMISSION OF INSTRUCTOR.

MCY529 Music of the Baroque Period  
3 credits  
Spring Semester  
Literature and history of music from the end of the sixteenth to the middle of the eighteenth centuries. 
PREREQUISITE: SIX CREDITS OF UNDERGRADUATE MUSIC HISTORY.

MCY530 Music of the Classical Period  
3 credits  
Fall & Spring Semester & Second Summer Session  
The musical styles which developed between the mid-eighteenth century and the nineteenth century. 
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MCY532 History of Chamber Music  
3 credits  
Spring Semester  
Styles and forms in chamber music literature from the seventeenth century to the present. 
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MCY533 Music of the Romantic Period  
3 credits  
Fall Semester  
The musical styles which developed during the nineteenth century. 
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

MCY535 Choral Literature I  
2 credits  
Fall Semester  
Choral music of the sixteenth through the eighteenth centuries. A combination of lecture-discussion and class performance. 
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MCY536 Choral Literature II
2 credits  Fall Semester
Choral music of the nineteenth and twentieth centuries. A combination of lecture-discussion and class performance.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MCY537 Music in the United States
3 credits  Spring Semester
A survey of music in the United States from colonial times to the present, with emphasis on the social, economic, and political conditions which affected it. Art music (sacred and secular), popular music in all idioms, the music industry as it evolved in the U.S., and the influence of American music on the music of other countries.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MCY539 Special Topics in Musicology
2 credits  Fall Semester
Subject matter offerings based upon student demand and availability of faculty. The topic to be announced in the class schedule. May be repeated if the Course may be repeated if the content is different.

MCY541 Music of the Mediaeval, Renaissance, and Baroque Periods
3 credits  Fall Semester & First Summer Session
A comprehensive, in-depth study of the musical styles and genres of the Mediaeval, Renaissance, and Baroque Eras. Important musical figures of these periods and analytical studies of important pieces of music from these periods are addressed.
PREREQUISITE: MUSIC MAJOR OR PERMISSION OF INSTRUCTOR.

MCY542 Music of the Classical, Romantic, and Modern Periods
3 credits  Spring Semester & Second Summer Session
A comprehensive, in-depth study of the musical styles and genres of the Classical, Romantic, and Modern Eras of important musical figures of these periods, and analytical studies of important pieces of music from these periods.
PREREQUISITE: MUSIC MAJOR OR PERMISSION OF INSTRUCTOR.

MCY553 Miami’s Musical Heritage
3 credits  Spring Semester & First Summer Session
A study of the musical traditions and practices of the various cultures that are part of Miami’s unique multi-ethnic society.

MCY554 Music Cultures of the World
3 credits  Spring Semester
A study of music culture, ranging from the music of non-literate and folk societies through Asian art music. Open to non-majors.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MCY583 History of the American Musical Theatre
3 credits  Fall & Spring Semester
An examination of the development of musical theatre from its European opera and operetta background to an indigenous American art form. The areas to be explored include the rise and fall of various genre of musical shows, integration of story, song and dance, important producers, directors, lyricists, composers, and new fields such as director-choreographer. The development of an American cultural consciousness and political and socio-economic trends of various decades that greatly influenced the content and form of musical shows is also examined.
MCY593 Special Topics MCY  
1-3 credits  
Fall & Spring Semester & First & Second Summer Session  
Supervised topics and other activities in specific areas of Musicology.

MCY599 Practicum in Music  
0 credit  
Fall & Spring Semester & First & Second Summer Session  
Practical professional experience.  
PREREQUISITE: MUSIC MAJORS ONLY.

STUDIO MUSIC & JAZZ

MSJJBA Jazz Bass  
1-3 credits  
Fall & Spring Semester  
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Basic techniques, sight-reading. Major, minor, diminished, and whole tone scales. Chord structure and analysis. Bass line construction, basis of walking lines. Voice leading for bass lines and improvisation. Etudes and studies in all styles. Repertoire: Standards and Jazz. PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MSJJBB Jazz Bass  
1-3 credits  
Fall & Spring Semester  
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Basic techniques, sight-reading. Major, minor, diminished, and whole tone scales. Chord structure and analysis. Bass line construction, basis of walking lines. Voice leading for bass lines and improvisation. Etudes and studies in all styles. Repertoire: Standards and Jazz. PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MSJJBC Jazz Bass  
1-3 credits  
Fall & Spring Semester  
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Previous materials in addition to solo bass techniques. Advanced arpeggios and scales. Pentatonic theory and applications. Improvisational vocabulary (traditional). PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJBD Jazz Bass  
1-3 credits  
Fall & Spring Semester  
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Previous materials in addition to solo bass techniques. Advanced arpeggios and scales. Pentatonic theory and applications. Improvisational vocabulary (traditional). PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJBE Jazz Bass  
1-3 credits  
Fall & Spring Semester  
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Previous materials in addition to advanced harmonic applications. Expanding traditional improvisational vocabulary. Creating original vocabulary. PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MSJJBF Jazz Bass
1- 3 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Previous materials in addition to advanced harmonic applications. Expanding traditional improvisational vocabulary. Creating original vocabulary.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJBG Jazz Bass
1- 3 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Previous materials in addition to recital preparation.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJBH Jazz Bass
1- 3 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Previous materials in addition to recital preparation.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJDA Jazz Drumset
1- 3 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Sticking technique, basic hand/foot patterns. Analysis of styles, history of drum set. Rhythm section interaction. Basic transcription, chart reading.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MSJJDB Jazz Drumset
1- 3 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Sticking technique, basic hand/foot patterns. Analysis of styles, history of drum set. Rhythm section interaction. Basic transcription, chart reading.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MSJJDC Jazz Drumset
1- 3 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Advanced analysis or major drum set artists. Advanced transcription. Soloing over form using motives, dynamics, and subdivision, comping patterns.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJDD Jazz Drumset
1- 3 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Advanced analysis or major drum set artists. Advanced transcription. Soloing over form using motives, dynamics, and subdivision, comping patterns.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MSJJDE Jazz Drumset
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Advanced jazz styles and comping, odd note groupings, advanced chart reading, advanced hand/foot patterns.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJDF Jazz Drumset
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Advanced jazz styles and comping, odd note groupings, advanced chart reading, advanced hand/foot patterns.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJDG Jazz Drumset
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Displacement, metric modulation, preparation for recital, developing an individual voice.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJDH Jazz Drumset
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Displacement, metric modulation, preparation for recital, developing an individual voice.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJGA Jazz Guitar
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Left and right hand development. Basic fretboard theory including arpeggios, voice leading (2 string studies), blues and bebop scales. Accompanying: 3-note voicings. Introduction to transcription. Application of the concepts studied to basic repertoire.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MSJJGB Jazz Guitar
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Left and right hand development. Basic fretboard theory including arpeggios, voice leading (2 string studies), blues and bebop scales. Accompanying: 3-note voicings. Introduction to transcription. Application of the concepts studied to basic repertoire.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.
MSJJGC Jazz Guitar
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Further development of repertoire and continuation of technical studies. Improvisation using arpeggios with tension substitutions. Application of major and melodic minor modes. More advanced transcriptions and refinement of time feel.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJGD Jazz Guitar
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Further development of repertoire and continuation of technical studies. Improvisation using arpeggios with tension substitutions. Application of major and melodic minor modes. More advanced transcriptions and refinement of time feel.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJGE Jazz Guitar
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Works by Bach, Galbraith and others. Building of standard/jazz repertoire including works by Arlen, Porter, Kern, Parker, Ellington, etc. Improvisation and harmonic studies based on the foregoing. Eartraining as required. Use of Jamey Aebersold play-along series.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJGF Jazz Guitar
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Works by Bach, Galbraith and others. Building of standard/jazz repertoire including works by Arlen, Porter, Kern, Parker, Ellington, etc. Improvisation and harmonic studies based on the foregoing. Eartraining as required. Use of Jamey Aebersold play-along series.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJGG Jazz Guitar
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. More advanced repertoire (works by Corea, Hancock, etc.). Continued expansion of harmonic concepts and exploration of chord voicings and applications. Use of Aebersold series. Assistance with senior recital preparation.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJGH Jazz Guitar
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. More advanced repertoire (works by Corea, Hancock, etc.). Continued expansion of harmonic concepts and exploration of chord voicings and applications. Use of Aebersold series. Assistance with senior recital preparation.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MSJJPA Jazz Piano
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technique: Major and melodic minor scales in all keys and diminished and blues scales in all keys, in both hands in at least two octaves with a swing (triplet) subdivision. Student should demonstrate the ability to solve fingering problems when ascending and descending the keyboard diatonically. Introduction to the II-V7-I chord progression in all keys as applied to tunes which have a harmonic rhythm of one change per bar such as Cherokee (Noble) and I Love You (Porter). Literature: Study of the twelve-bar blues progression, including tunes such as "Now's The Time" (Parker), Billie's Bounce (Parker), Blue Monk (Monk). Memorization of at least two tunes per lesson in their original key, at least 75% of which should be tunes in the "American standard" format featuring composers such as Berlin, Porter, Kahn, Gershwin, etc. All of the above to be performed with bass accompaniment. Introduction to the use of Aebersold recordings.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MSJJPB Jazz Piano
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technique: Major and melodic minor scales in all keys and diminished and blues scales in all keys, in both hands in at least two octaves with a swing (triplet) subdivision. Student should demonstrate the ability to solve fingering problems when ascending and descending the keyboard diatonically. Introduction to the II-V7-I chord progression in all keys as applied to tunes which have a harmonic rhythm of one change per bar such as Cherokee (Noble) and I Love You (Porter). Literature: Study of the twelve-bar blues progression, including tunes such as "Now's The Time" (Parker), Billie's Bounce (Parker), Blue Monk (Monk). Memorization of at least two tunes per lesson in their original key, at least 75% of which should be tunes in the "American standard" format featuring composers such as Berlin, Porter, Kahn, Gershwin, etc. All of the above to be performed with bass accompaniment. Introduction to the use of Aebersold recordings.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MSJJPC Jazz Piano
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technique: Arpeggiation of major, minor, diminished and augmented seventh chords, in both hands and in at least two octaves with a swing (triplet) subdivision. Introduction to melodic harmonization through practice of "Shearing Style" and "Drop Two" scaler exercises. Introduction of the II-V7-I chord progression in all keys as applied to tunes which have a harmonic rhythm of two changes per bar such as Confirmation (Parker) and in Your Own Sweet Way (Brubeck). Literature: Study of the "I Got Rhythm" chord progression. Memorization of at least two tunes per lesson in their original key, at least 75% of which should be tunes in the "American standard" format featuring composers such as Berlin, Porter, Kahn, Gershwin, etc. All of above to be performed with bass accompaniment, or in solo piano format. Study, performance and analysis of transcribed solos such as those found in the Omnibook (Parker). Introduction to solo piano format through study of transcribed pieces.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
SCHOOL OF MUSIC

STUDIO MUSIC & JAZZ

MSJJPD Jazz Piano
1-3 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technique: Arpeggiation of major, minor, diminished and augmented seventh chords, in both hands and in at least two octaves with a swing (triplet) subdivision. Introduction to melodic harmonization through practice of "Shearing Style" and "Drop Two" scaler exercises. Introduction of the ii-V7-I chord progression in all keys as applied to tunes which have a harmonic rhythm of two changes per bar such as Confirmation (Parker) and in Your Own Sweet Way (Brubeck). Literature: Study of the "I Got Rhythm" chord progression. Memorization of at least two tunes in their original key, at least 75% of which should be tunes in the "American standard" format featuring composers such as Berlin, Porter, Kahn, Gershwin, etc. All of above to be performed with bass accompaniment, or in solo piano format. Study, performance and analysis of transcribed solos such as those found in the Omnibook (Parker). Introduction to solo piano format through study of transcribed pieces.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJPE Jazz Piano
1-3 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technique: Selected exercises from the Dohnanyi or Pishna exercise books. Augmented scales and modes of major in all keys, in both hands and in at least two octaves with a swing (triplet) subdivision. Introduction to modal harmony and sideslipping through study of plateau modal compositions (tunes with long sections of the same modality.) Pentatonic scales in all keys. Literature: Blues in the stride solo piano format. Analysis and transcription of artists who played in this style such as Tatum, Johnson, Smith, and Peterson. Memorization of at least two tunes per lesson in at least three key centers, at least 75% of which should be tunes in the "American standard" format featuring composers such as Berlin, Porter, Kahn, Gershwin, etc. All of the above to be performed both with bass accompaniment and in solo piano format with sections in stride style. Introduction to the Bill Evans piano style through performance of his transcribed piano pieces.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJPF Jazz Piano
1-3 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technique: Selected exercises from the Dohnanyi or Pishna exercise books. Augmented scales and modes of major in all keys, in both hands and in at least two octaves with a swing (triplet) subdivision. Introduction to modal harmony and sideslipping through study of plateau modal compositions (tunes with long sections of the same modality.) Pentatonic scales in all keys. Literature: Blues in the stride solo piano format. Analysis and transcription of artists who played in this style such as Tatum, Johnson, Smith, and Peterson. Memorization of at least two tunes per lesson in at least three key centers, at least 75% of which should be tunes in the "American standard" format featuring composers such as Berlin, Porter, Kahn, Gershwin, etc. All of the above to be performed both with bass accompaniment and in solo piano format with sections in stride style. Introduction to the Bill Evans piano style through performance of his transcribed piano pieces.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MSJJPG Jazz Piano
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technique: Selected exercises from the Dohnanyi or Pishna exercise books. Augmented scales and modes of major in all keys, in both hands and in at least two octaves with a swing (triplet) subdivision. Introduction to modal harmony and sideslipping through study of plateau modal compositions (tunes with long sections of the same modality.) Pentatonic scales in all keys. Literature: Blues in the stride solo piano format. Analysis and transcription of artists who played in this style such as Tatum, Johnson, Smith, and Peterson. Memorization of at least two tunes per lesson in at least three key centers, at least 75% of which should be tunes in the "American standard" format featuring composers such as Berlin, Porter, Kahn, Gershwin, etc. All of the above to be performed both with bass accompaniment and in solo piano format with sections in stride style. Introduction to the Bill Evans piano style through performance of his transcribed piano pieces. PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJPH Jazz Piano
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technique: Selected exercises from the Dohnanyi or Pishna exercise books. Augmented scales and modes of major in all keys, in both hands and in at least two octaves with a swing (triplet) subdivision. Introduction to modal harmony and sideslipping through study of plateau modal compositions (tunes with long sections of the same modality.) Pentatonic scales in all keys. Literature: Blues in the stride solo piano format. Analysis and transcription of artists who played in this style such as Tatum, Johnson, Smith, and Peterson. Memorization of at least two tunes per lesson in at least three key centers, at least 75% of which should be tunes in the "American standard" format featuring composers such as Berlin, Porter, Kahn, Gershwin, etc. All of the above to be performed both with bass accompaniment and in solo piano format with sections in stride style. Introduction to the Bill Evans piano style through performance of his transcribed piano pieces. PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJSA Jazz Saxophone
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Introduction to principals of saxophone acoustics; introduction to tone production, intonation, tonal color, and blend; basic technique, chords and scale studies; jazz phrasing; establishment of a "tune list" (repertoire); study of improvised Solos through transcription; major scales full range, thirds, diatonic seventh chords in level A and in level B, melodic minor scales full range, thirds, diatonic seventh chords. PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.
MSJJSB Jazz Saxophone
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Introduction to principals of saxophone acoustics; introduction to tone production, intonation, tonal color, and blend; basic technique, chords and scale studies; jazz phrasing; establishment of a "tune list" (repertoire); study of improvised Solos through transcription; major scales full range, thirds, diatonic seventh chords in level A and in level B, melodic minor scales full range, thirds, diatonic seventh chords.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MSJJSC Jazz Saxophone
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Continuation of earlier levels as needed; diminished scales; pentatonic scales/patterns; extended range exercises; application of melodic minor/pentatonic scales; chromatic scale extensions; tritone substitutions.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJSD Jazz Saxophone
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Continuation of earlier levels as needed; diminished scales; pentatonic scales/patterns; extended range exercises; application of melodic minor/pentatonic scales; chromatic scale extensions; tritone substitutions.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJSE Jazz Saxophone
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Continuation of tone and technique as needed; augmented scale; rhythmic exercises from drum methods; continue extended range studies; a cappella improvisation; studies in melodic/rhythmic development.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJSF Jazz Saxophone
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Continuation of tone and technique as needed; augmented scale; rhythmic exercises from drum methods; continue extended range studies; a cappella improvisation; studies in melodic/rhythmic development.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MSJJSG Jazz Saxophone
1-3 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Recital Preparation. Building of repertoire; concentration on selected influential composers: Ellington, Shorter, Hancock, Miller, Silver, Jobim, Golson, Lieberman, etc. Review of teaching methods, materials. Advanced technique studies: Bozza Etudes Caprices, Lacour 8 Difficult studies. Topics of interest as decided by student in consultation w/teacher. Total 80 tunes (minimum) by end of H level.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJJSH Jazz Saxophone
1-3 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Recital Preparation. Building of repertoire; concentration on selected influential composers: Ellington, Shorter, Hancock, Miller, Silver, Jobim, Golson, Lieberman, etc. Review of teaching methods, materials. Advanced technique studies: Bozza Etudes Caprices, Lacour 8 Difficult studies. Topics of interest as decided by student in consultation w/teacher. Total 80 tunes (minimum) by end of H level.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJTBA Jazz Trombone
1-3 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Daily routine/classical etudes. Major, melodic minor, diminished scales, Dorian and Mixolydian modes, dominant 7th arpeggios, minor 7th arpeggios. All major and minor 3rds followed by respective dominant 7ths.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MSJTBB Jazz Trombone
1-3 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Daily routine/classical etudes. Major, melodic minor, diminished scales, Dorian and Mixolydian modes, dominant 7th arpeggios, minor 7th arpeggios. All major and minor 3rds followed by respective dominant 7ths.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MSJTBC Jazz Trombone
1-3 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Previous material in addition to blues and rhythm changes in 12 keys. Voice Leading (3rds and 7ths). Transcription techniques/assigned transcriptions. Standard tunes (1 per week).
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MSJTBD Jazz Trombone
1- 3 credits  
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Previous material in addition to blues and rhythm changes in 12 keys. Voice Leading (3rds and 7ths). Transcription techniques/assigned transcriptions. Standard tunes (1 per week).
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJTBE Jazz Trombone
1- 3 credits  
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Previous material, in addition to standard tunes (2 per week). 251 licks in major and minor. Diminished patterns.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJTBF Jazz Trombone
1- 3 credits  
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Previous material, in addition to standard tunes (2 per week). 251 licks in major and minor. Diminished patterns.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJTBG Jazz Trombone
1- 3 credits  
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Previous material in addition to augmented scales and patterns. Pentatonic scales and patterns. Recital preparation.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJTBH Jazz Trombone
1- 3 credits  
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Previous material in addition to augmented scales and patterns. Pentatonic scales and patterns. Recital preparation.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJTPA Jazz Trumpet
1- 3 credits  
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Concentration on basic trumpet skills, utilizing the Arbans and Clarke technical studies book. Proper breathing techniques. Major and diminished whole tone scales. Jazz tonguing. Standard jazz repertoire.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MSJTPB Jazz Trumpet
1- 3 credits  
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Concentration on basic trumpet skills, utilizing the Arbans and Clarke technical studies book. Proper breathing techniques. Major and diminished whole tone scales. Jazz tonguing. Standard jazz repertoire.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.
MSJTPC Jazz Trumpet
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Continuation of basic skills in addition to range studies utilizing the Wedge breath. Transcribing jazz trumpet solos. A cappella blues in all keys.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJTPD Jazz Trumpet
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Continuation of basic skills in addition to range studies utilizing the Wedge breath. Transcribing jazz trumpet solos. A cappella blues in all keys.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJTE Jazz Trumpet
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Continuation of range studies in addition to advanced etudes such as Bitsch and Charlier. Advanced jazz repertoire. Diminished and augments scales. Studio techniques.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJTF Jazz Trumpet
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Continuation of range studies in addition to advanced etudes such as Bitsch and Charlier. Advanced jazz repertoire. Diminished and augments scales. Studio techniques.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJTG Jazz Trumpet
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Study of advanced jazz repertoire. Recital preparation.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJTH Jazz Trumpet
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Study of advanced jazz repertoire. Recital preparation.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
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MSJVOA Jazz Voice
1-3 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirement: Warm-ups, Cool downs and introductory exercises for breath management. Attack in phonation, registration, resonance, articulation, coordination, microphone technique, key selection and vocal hygiene and maintenance. Repertoire: 25 Songs: 6 swing, 6 traditional ballad, 5 bossa/samba, 2 blues/funk, contemporary ballad, 4 student choice.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MSJVOB Jazz Voice
1-3 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirement: Warm-ups, Cool downs and introductory exercises for breath management. Attack in phonation, registration, resonance, articulation, coordination, microphone technique, key selection and vocal hygiene and maintenance. Repertoire: 25 Songs: 6 swing, 6 traditional ballad, 5 bossa/samba, 2 blues/funk, contemporary ballad, 4 student choice.
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MSJVOC Jazz Voice
1-3 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Repertoire: 24 Songs: 16 selections from Swing, Ballad, Jazz Waltz and Latin idioms. 4 Rock/Funk/R&B arrangements in coordination with MSJ 301. Mini-Concert (4 song set) Note: Sophomore proficiency.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJVOD Jazz Voice
1-3 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Repertoire: 24 Songs: 16 selections from Swing, Ballad, Jazz Waltz and Latin idioms. 4 Rock/Funk/R&B arrangements in coordination with MSJ 301. Mini-Concert (4 song set) Note: Sophomore proficiency.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJVOE Jazz Voice
1-3 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Repertoire: 15 Songs, continuation of standard repertoire at more advance and complex level, including bebop, original material, modal tunes and selections of harmonic and melodic complexity with improvisation.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJVOF Jazz Voice
1-3 credits  
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Repertoire: 15 Songs, continuation of standard repertoire at more advance and complex level, including bebop, original material, modal tunes and selections of harmonic and melodic complexity with improvisation.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
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MSJVOG Jazz Voice
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Repertoire: 15 Songs, same styles as above, Recital preparation, review of repertoire list and audition preparation.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJVOH Jazz Voice
1-3 credits  Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Repertoire: 15 Songs, same styles as above, Recital preparation, review of repertoire list and audition preparation.
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MSJ003 Jazz Forum
0 credit  Fall & Spring Semester
A weekly meeting of jazz students and faculty for performance, master classes, clinics presented by students, faculty and guest artists.

MSJ011 Saxophone Forum
0 credit  Fall & Spring Semester
Course provides a weekly forum for all saxophone principals. Student performances, guest artists, master classes, and listening to selected recordings are part of the curriculum.
PREREQUISITE: SAXOPHONE PRINCIPAL.

MSJ018 Jazz Vocal Forum
0 credit  Fall & Spring Semester
A weekly meeting of the jazz vocal students and faculty dedicated to student performances, ensemble performances, and guest artist performances and workshops.

MSJ088 Jazz Piano Forum
0 credit  Fall & Spring Semester
Jazz Piano Forum is a weekly performance venue for jazz piano principals and majors which may include guest clinicians and artists.

MSJ113 Analysis and Evolution of Jazz Styles
3 credits  Spring Semester
A study and analysis of recorded improvised solos by major jazz artists during various historical periods.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MSJ123 Survey of Jazz Literature
2 credits  Fall Semester
A survey examining jazz artists, styles, and cultural milieu with emphasis on the development of jazz concepts through the refinement of listening skills.
PREREQUISITE: MSJ MAJORS.

MSJ124 Introduction to Jazz Improvisation
3 credits  Fall Semester
Introduction to the harmonic, melodic, and rhythmic techniques of Jazz Improvisation.

MSJ125 Introduction to Jazz Improvisation/Vocal
3 credits  Offered By Announcement Only
Introduction to the harmonic, melodic, and rhythmic techniques of Jazz Improvisation.
MSJ133 Jazz Keyboard Ensemble
1 credit                                                     Fall & Spring Semester
PREREQUISITE: AUDITION; PERMISSION OF INSTRUCTOR.

MSJ134 E.C.M. Ensemble
1 credit                                                     Fall & Spring Semester
This ensemble performs music typical of the contemporary European jazz styles such as those characterized by the Edition of Contemporary Music (E.C.M.) Recording Company.
PREREQUISITE: AUDITION.

MSJ138 Vocal Recording Ensemble
1 credit                                                     Fall & Spring Semester
Weekly recording sessions and instruction in recording studio performance techniques including skill training in sight reading, vocal production, and diction applied to group and solo singing styles.
PREREQUISITE: BY AUDITION.

MSJ139 Small Jazz Vocal Ensemble
1 credit                                                     Fall & Spring Semester
PREREQUISITE: BY AUDITION.

MSJ140 Small Jazz Ensemble
1 credit                                                     Fall & Spring Semester
PREREQUISITE: BY AUDITION.

MSJ141 Small Jazz Ensemble I
1 credit                                                     Fall & Spring Semester
Group instruction in the various styles of contemporary jazz. Students will acquire improvisational skills while learning repertoire and performance techniques, and strengthen compositional and arranging skills by contributing original compositions and arrangements to the ensemble's repertoire.
PREREQUISITE: BY AUDITION.

MSJ142 Small Jazz Ensemble II
1 credit                                                     Fall & Spring Semester
This ensemble focuses on sectional playing, blend, and musical interpretation. Students will be required to perform in sections of four to eight trombones with a rhythm section. The literature also requires the student to improvise. Students are encouraged to write for the ensemble.
PREREQUISITE: BY AUDITION.

MSJ143 Small Jazz Ensemble III
1 credit                                                     Fall & Spring Semester
Group instruction in the various styles of contemporary jazz. Students will acquire improvisational skills while learning repertoire and performance techniques, and strengthen compositional and arranging skills by contributing original compositions and arrangements to the ensemble's repertoire.
PREREQUISITE: BY AUDITION.
MSJ144 Small Jazz Ensemble IV
1 credit  Fall & Spring Semester
Group instruction in the various styles of contemporary jazz. Students will acquire improvisational skills while learning repertoire and performance techniques, and strengthen compositional and arranging skills by contributing original compositions and arrangements to the ensemble's repertoire.
PREREQUISITE: BY AUDITION.

MSJ145 Small Jazz Ensemble V
1 credit  Fall & Spring Semester
Group instruction in the various styles of contemporary jazz. Students will acquire improvisational skills while learning repertoire and performance techniques, and strengthen compositional and arranging skills by contributing original compositions and arrangements to the ensemble's repertoire.
PREREQUISITE: BY AUDITION.

MSJ146 Small Jazz Ensemble VI
1 credit  Fall & Spring Semester
Freshmen level group that focuses on the music of Charlie Parker, Dizzy Gillespie, and Thelonius Monk. Issues of modern jazz harmony and rhythm as well as cultivating Bebop vocabulary for improvisation are discussed.
PREREQUISITE: BY AUDITION.

MSJ147 Small Jazz Ensemble VII
1 credit  Fall & Spring Semester
Group instruction in the various styles of contemporary jazz. Students will acquire improvisational skills while learning repertoire and performance techniques, and strengthen compositional and arranging skills by contributing original compositions and arrangements to the ensemble's repertoire.
PREREQUISITE: BY AUDITION.

MSJ148 Studio Rhythm Section
1 credit  Fall & Spring Semester
PREREQUISITE: BY AUDITION.

MSJ150 Studio Jazz Band
1 credit  Fall & Spring Semester
This ensemble performs music in the recent big band tradition, from leaders such as Duke Ellington, Count Basie, Buddy Rich, Bob Brookmeyer, and Thad Jones. The group performs on campus with an emphasis on studio recording.
PREREQUISITE: BY AUDITION.

MSJ151 Concert Jazz Band
1 credit  Fall & Spring Semester
The Concert Jazz Band is the premiere big band at the Frost School of Music. Students are required to perform at an advanced level, and work with a variety of guest artists. Requirements include the ability to sight read difficult material, and to improvise in various styles.
PREREQUISITE: BY AUDITION.
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**MSJ152 Jazz Band II**
- 1 credit
- Fall & Spring Semester
- This ensemble performs music in the recent big band tradition, from leaders such as Duke Ellington, Count Basie, Buddy Rich, Bob Brookmeyer, and Thad Jones. The group performs on campus with an emphasis on studio recording.
- PREREQUISITE: BY AUDITION.

**MSJ153 Jazz Band III**
- 1 credit
- Fall & Spring Semester
- Big Band designed for freshmen and sophomores to gain experience with classic Big Band repertoire.
- PREREQUISITE: BY AUDITION.

**MSJ155 Monk/Mingus Ensemble**
- 1 credit
- Fall Semester
- This ensemble is dedicated to the study and performance of the music of the influential jazz composers Charles Mingus and Thelonius Monk.
- PREREQUISITE: BY AUDITION.

**MSJ156 Funk/Fusion Ensemble**
- 1 credit
- Fall & Spring Semester
- Small jazz ensemble focusing on contemporary electric jazz/rock/fusion/Latin styles. Emphasis is placed on original compositions by the members of the ensemble. The most common instrumentation is bass, drums, piano/synthesizer, guitar, and saxophone.
- PREREQUISITE: AUDITION.

**MSJ157 Horace Silver Ensemble**
- 1 credit
- Spring Semester
- This ensemble is dedicated to the study and performance of the music of Horace Silver.
- PREREQUISITE: AUDITION.

**MSJ158 Bebop Ensemble**
- 1 credit
- Fall & Spring Semester
- This is the top instrumental small group and performs frequently both locally and nationally. The ensemble performs exclusively original compositions provided by the members of the group. The styles presented are varied and based on the interests of the participants, but includes bebop, blues, and world music.
- PREREQUISITE: BY AUDITION.

**MSJ159 Rock Ensemble**
- 1 credit
- Fall & Spring Semester
- Mid-level ensemble for both instrumentalists and vocalists designed to familiarize students with classic Rhythm and Blue material from the 1950s, 60s, and 70s, while preparing for a series of concerts throughout the semester. Students are guided through the process of putting a working band together and preparing it for performances and recordings, including what is expected of and from instruments, vocalists, producers, promoters, and other industry personnel.
- PREREQUISITE: BY AUDITION.
MSJ160 Avant Garde Ensemble
1 credit                                                     Fall & Spring Semester
This ensemble offers students the opportunity to develop the "free form" improvisation in either the bebop based style of Ornette Coleman or the fusion oriented style as typified by Bill Laswell.
PREREQUISITE: AUDITION.

MSJ161 Electric Bass Ensemble
1 credit                                                     Fall & Spring Semester
Ensemble that develops a thorough foundation in basic techniques and bass line creation. The fall semester concentrates on the acoustic bass and related styles. The spring semester focuses on the electric bass.
PREREQUISITE: BY AUDITION.

MSJ162 Jazz Saxophone Ensemble
1 credit                                                     Fall & Spring Semester
An intermediate level reading ensemble comprised of five saxophones and rhythm section, designed to reinforce fundamental principles of playing in the typical big band saxophone section. Skills addressed include sight-reading, blend, intonation, phrasing, rhythmic accuracy, etc. Rhythm section players gain reading experience and learn the basics of providing a foundation for big band type arrangements. Repertoire includes both published and selected original charts from student arrangers.
PREREQUISITE: BY AUDITION.

MSJ164 Contemporary Rhythm Section Techniques I
1 credit                                                     Fall & Spring Semester
Introduces students to various styles of rhythm section playing--from swing and modern Jazz through Rock, Funk, R&B, and other commercial styles of music. Concepts of sound, groove, balance and blend, repertory, and accompaniment are also discussed.
PREREQUISITE: BY AUDITION.

MSJ165 Contemporary Rhythm Section Techniques II
1 credit                                                     Fall & Spring Semester
Fundamentals of rhythm section playing for guitarists, pianists, bassists, and drummers. It covers a variety of contemporary styles within the rock, jazz, Latin, and pop idioms. Students are grouped into ensembles which perform in class weekly.
PREREQUISITE: BY AUDITION.

MSJ166 Small Jazz Ensemble Lab
0 credit                                                     Fall & Spring Semester
Performance Lab designed to work in conjunction with all of the 140 level ensembles. Provides an environment in which students are required to perform on a regular rotating schedule throughout the semester. These performances are critiqued by the institution and other faculty, as well as students, in order to nurture a critical but positive atmosphere.
PREREQUISITE: BY AUDITION.

MSJ167 Salsa Ensemble
1 credit                                                     Fall & Spring Semester
An ensemble of instrumentalists and singers performing a wide variety of Salsa and Latin jazz styles with emphasis on improvisation.
MSJ169 Jazz Guitar Ensemble I  
1 credit  
Fall & Spring Semester  
A small instrumental ensemble comprised of five electric guitars which perform with bass and drums in a wide variety of contemporary jazz styles.  
PREREQUISITE: BY AUDITION.

MSJ170 Jazz Guitar Ensemble II  
1 credit  
Fall & Spring Semester  
A small instrumental ensemble comprised of five electric guitars which perform with bass and drums in a wide variety of contemporary jazz styles.  
PREREQUISITE: BY AUDITION.

MSJ171 Jazz Guitar Ensemble III  
1 credit  
Fall & Spring Semester  
A small instrumental ensemble comprised of five electric guitars which perform with bass and drums in a wide variety of contemporary jazz styles.  
PREREQUISITE: BY AUDITION.

MSJ172 Jazz Guitar Ensemble (Workshop I)  
1 credit  
Fall & Spring Semester  
A small instrumental reading ensemble, comprised of four to eight electric guitars, which studies a variety of contemporary jazz styles.  
PREREQUISITE: BY AUDITION.

MSJ173 Jazz Guitar Ensemble (Workshop II)  
1 credit  
Fall & Spring Semester  
A small instrumental reading ensemble, comprised of four to eight electric guitars, which studies a variety of contemporary jazz styles.  
PREREQUISITE: BY AUDITION.

MSJ195 Jazz Vocal Ensemble I  
1 credit  
Fall & Spring Semester  
A choir of 12 to 16 voices, with rhythm section, which perform a wide variety of jazz and pop styles.  
PREREQUISITE: PERMISSION OF CONDUCTOR.

MSJ196 Jazz Vocal Ensemble II  
1 credit  
Fall & Spring Semester  
A choir of 12 to 16 voices, with rhythm section, which perform a wide variety of jazz and pop styles.  
PREREQUISITE: PERMISSION OF CONDUCTOR.

MSJ197 Jazz Vocal Ensemble III  
1 credit  
Fall & Spring Semester  
A choir of 12 to 16 voices, with rhythm section, which perform a wide variety of jazz and pop styles.  
PREREQUISITE: PERMISSION OF CONDUCTOR.

MSJ201 Jazz Vocal Styles I  
1 credit  
Fall & Spring Semester  
Analysis and application of singing styles and attendant skills, techniques and repertoire required in performance and recording of jazz, popular music, and other current idioms.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MSJ202 Jazz Vocal Styles II
1 credit
Fall & Spring Semester
Vocal Coaching of swing and traditional ballad styles with emphasis on communication of lyric content and phrasing.
PREREQUISITE: MSJ 201 OR PERMISSION OF INSTRUCTOR.

MSJ203 Jazz Piano Class I
1 credit
Fall & Spring Semester
This class covers the rudiments of jazz piano. Students will learn to play basic II V I progressions in major and minor. These progressions will be utilized while learning basic jazz standards.
PREREQUISITE: MKP 102 OR PLACEMENT AUDITION.

MSJ204 Jazz Piano Class II
1 credit
Fall & Spring Semester
A continuation of MSJ 203, alternate versions of the II V I progression are discussed. Students will also learn to play the "blues" and "rhythm changes" progressions with a walking bass line. Jazz standards will be played as solo melody with chordal accompaniment.
PREREQUISITE: MSJ 203 OR PLACEMENT AUDITION.

MSJ209 Jazz Guitar Theory I
2 credits
Fall Semester
A study of modern jazz harmony as related to the electric guitar.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MSJ210 Jazz Guitar Theory II
2 credits
Spring Semester
Continuation of MSJ 209.
PREREQUISITE: MSJ 209.

MSJ220 Basic Drumset Styles and Techniques (Part 1)
3 credits
Offered By Announcement Only
This course explores the basic sticking, swing, backbeat drumset techniques, basic world drumset styles, and chart reading.

MSJ226 Jazz Piano Trio Class
1 credit
Fall Semester
A format for piano, bass, and drums examining and performing the jazz piano trio literature at the advanced level.
PREREQUISITE: MSJ MAJORS OR PERMISSION OF INSTRUCTOR.

MSJ227 Jazz Rhythm Section Techniques
1 credit
Offered By Announcement Only
A jazz ensemble for piano, bass, drums, and horns that offers advanced concepts in small group interactive performance.
PREREQUISITE: MSJ MAJORS OR PERMISSION OF INSTRUCTOR.

MSJ301 Jazz Vocal Styles III
1 credit
Fall Semester
Course provides performance experience in the Rock/Funk and Rock Ballad idioms that require strong vocal projection and presentation.
PREREQUISITE: MSJ 202 OR PERMISSION OF THE INSTRUCTOR.
MSJ302 Jazz Vocal Styles IV
1 credit
Offered By Announcement Only
Advanced techniques for the Jazz/Pop Vocalist in live performance.
PREREQUISITE: MSJ 301 OR PERMISSION OF INSTRUCTOR.

MSJ305 Jazz Piano Class III
1 credit
Fall & Spring Semester
PREREQUISITE: MSJ 204 OR PLACEMENT AUDITION.

MSJ306 Jazz Piano Class IV
1 credit
Fall & Spring Semester
PREREQUISITE: MSJ 305 OR PLACEMENT AUDITION.

MSJ320 Basic Drumset Styles and Techniques (Part 2)
3 credits
Offered By Announcement Only
This course is a continuation of MSJ 220. It explores advanced sticking, swing, backbeat drumset techniques, advanced world drumset styles, and chart reading.
PREREQUISITE: MSJ 220.

MSJ371 Jazz Improvisation Theory I
3 credits
Fall Semester
Fundamentals of jazz harmony with emphasis on simple chord progressions, altered scales, and modes.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MSJ372 Improvisation II
3 credits
Spring Semester
Fundamentals of jazz harmony with emphasis on complex harmonic progressions and tunes.
PREREQUISITE: MSJ 371, OR PERMISSION OF INSTRUCTOR.

MSJ490 Senior Honors Thesis I
3 credits
Fall & Spring Semester
Development and completion of a senior Honors Thesis to fulfill requirements for University Honors of Magna or Summa Cum Laude.

MSJ491 Senior Honors Thesis II
3 credits
Fall & Spring Semester
Development and completion of a senior Honors Thesis to fulfill requirements for University Honors of Magna or Summa Cum Laude.

MSJ493 Special Projects
1- 3 credits
Fall & Spring Semester & First & Second Summer Session
Supervised readings and other activities in specific areas of Studio Music and Jazz.
PREREQUISITE: UNDERGRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MSJ499 Senior Recital
1 credit
Fall & Spring Semester
A public recital of one hour or more. Course is required of all performance majors.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
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MSJ509 Jazz Composition I
2 credits
Fall Semester
Application of advanced composition techniques to various contemporary Jazz styles making extensive use of analysis of established compositions. Emphasis is placed on small group performance.
PREREQUISITE: MTC 211 AND MSJ JPD OR PERMISSION OF INSTRUCTOR.

MSJ510 Jazz Composition II
2 credits
Spring Semester
This course is a continuation of MSJ 500 with an emphasis on melody writing, reharmonization techniques, pentatonic/blues composition, and an introduction to advanced harmonic materials.
PREREQUISITE: MSJ 509.

MSJ516 Jazz Vocal Arranging
2 credits
Fall Semester
Analysis and techniques of jazz vocal writing.
PREREQUISITE: MSJ 519.

MSJ519 Advanced Modern Arranging I
3 credits
Fall Semester
Advanced arranging and composition for the Jazz and studio ensemble.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MSJ520 Advanced Modern Arranging II
3 credits
Spring Semester
Advanced arranging and composition for the Jazz and studio ensemble.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MSJ521 Advanced Modern Arranging III
3 credits
Spring Semester
Course addresses scoring for large jazz ensemble, utilizing chord scale voicings and line writing techniques. Emphasis is placed on orchestration styles such as Duke Ellington, Gil Evans, and Thad Jones.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MSJ522 Introduction to Midi Sequencing and Digital Workstations
2 credits
Fall & Spring Semester
An introduction to Midi Sequencing with hands-on experience working with a computer sequencing workstation. Topics include sequencing, quantizing, editing, mixing, and effects processing.
PREREQUISITE: MSJ 519/520 OR PERMISSION OF INSTRUCTOR.

MSJ544 Jazz Pedagogy and Administration
3 credits
Spring Semester
The philosophy, methods, and materials of instruction pertinent to the teaching and management of a jazz and commercial curriculum at the high school and college level. Includes preparation of model curricula and supervised instruction.
PREREQUISITE: MSJ 565 AND 620 OR PERMISSION OF INSTRUCTOR.

MSJ560 Advanced Jazz Improvisation Theory
3 credits
Fall & Spring Semester
Review of fundamentals and introduction of advanced topics in jazz harmony and scale resources for improvisation.
PREREQUISITE: PLACEMENT AUDITION AND PERMISSION OF INSTRUCTOR.
MSJ565 Advanced Improvisation I
3 credits  Fall Semester
Use of stylistic nuance with emphasis on melodic development, complex harmonies, time-feel, and phrasing. Open only to senior or graduate majors in Studio Music and Jazz.
PREREQUISITE: MSJ 372 AND JPD OR PERMISSION OF INSTRUCTOR.

MSJ566 Advanced Improvisation II
3 credits  Spring Semester
Refinement of improvisation concepts leading towards the establishment of a personal style of playing. Open only to senior or graduate majors in Studio Music and Jazz.
PREREQUISITE: MSJ 565 OR PERMISSION OF INSTRUCTOR.

MSJ589 Jazz Accompanying
2 credits  Offered By Announcement Only
A comprehensive study in accompaniment concepts for pianists/guitarists reflecting contemporary and traditional jazz styles.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MSJ593 Special Topics MSJ
1- 3 credits  Fall & Spring Semester & First & Second Summer Session
Supervised topics and other activities in specific areas of Studio Music and Jazz.
PREREQUISITE: PERMISSION OF THE DEAN.

MSJ599 Practicum in Music
0 credit  Fall & Spring Semester & First & Second Summer Session
Practical professional experience.
PREREQUISITE: MUSIC MAJORS ONLY

VOCAL PERFORMANCE

MVPCDA Conducting
1- 4 credits  Fall & Spring Semester
PREREQUISITE: UNDERGRADUATE LEVEL. BY AUDITION.

MVPCDB Conducting
1- 4 credits  Fall & Spring Semester
PREREQUISITE: UNDERGRADUATE LEVEL. MVP CDA.

MVPCDC Conducting
1- 4 credits  Fall & Spring Semester
PREREQUISITE: UNDERGRADUATE LEVEL. MVP CDB.

MVPCDD Conducting
1- 4 credits  Fall & Spring Semester
PREREQUISITE: UNDERGRADUATE LEVEL. MVP CDC.

MVPCDE Conducting
1- 4 credits  Fall & Spring Semester
PREREQUISITE: UNDERGRADUATE LEVEL. MVP CDD.

MVPCDF Conducting
1- 4 credits  Fall & Spring Semester
PREREQUISITE: UNDERGRADUATE LEVEL. MVP CDE.
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MVPCDG Conducting
1- 4 credits
Fall & Spring Semester
PREREQUISITE: UNDERGRADUATE LEVEL. MVP CDF.

MVPCDH Conducting
1- 4 credits
Fall & Spring Semester
PREREQUISITE: UNDERGRADUATE LEVEL. MVP CDG.

MVPVOA Voice
1- 4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Demonstrate a beginning concept of breath management, legato connection for moderate length phrases, clear articulation and projection of vowels and consonants in English, emotional connection to and communication of text, release of vibrato in sustained singing, and jury repertoire, language, and performance requirements (See Guidelines for Voice Study).
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MVPVOB Voice
1- 4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Demonstrate a beginning concept of breath management, legato connection for moderate length phrases, clear articulation and projection of vowels and consonants in English, emotional connection to and communication of text, release of vibrato in sustained singing, and jury repertoire, language, and performance requirements (See Guidelines for Voice Study).
PREREQUISITE: AUDITION FOR LEVEL A; SUCCESSFUL COMPLETION OF LEVEL A TO MOVE TO LEVEL B.

MVPVOC Voice
1- 4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Demonstrate consistent breath support, firmly established legato line, evidence of musical phrasing, consistent vibrato, ability to execute technical exercises evenly throughout the range, and jury repertoire, language, and performing (See Guidelines for Voice Study).
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MVPVOD Voice
1- 4 credits
Fall & Spring Semester
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Demonstrate consistent breath support, firmly established legato line, evidence of musical phrasing, consistent vibrato, ability to execute technical exercises evenly throughout the range, and jury repertoire, language, and performing (See Guidelines for Voice Study).
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.
MVPVOE Voice
1-4 credits  
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Demonstrate evidence of upper range extension with fully supported sound and appropriate modification of resonators, ability to self-prepare a song, knowledge of musical styles and historical periods of music, effective communication of song literature, an established warm-up regiment and technical exercises as prescribed by the voice teacher, and jury repertoire, language, and performance requirements (See Guidelines for Voice Study).
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MVPVOF Voice
1-4 credits  
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Demonstrate evidence of upper range extension with fully supported sound and appropriate modification of resonators, ability to self-prepare a song, knowledge of musical styles and historical periods of music, effective communication of song literature, an established warm-up regiment and technical exercises as prescribed by the voice teacher, and jury repertoire, language, and performance requirements (See Guidelines for Voice Study).
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MVPVOG Voice
1-4 credits  
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Demonstrate perfect facility in required lyric languages, ability to evaluate performances critically and coherently, facility with register changes in upper range, polished and artistic performing with accuracy in pitch, rhythm, good posture, breath management, phonation, and resonance in addition to jury repertoire, language, and performance requirements (See Guidelines for Voice Study).
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MVPVOH Voice
1-4 credits  
1-hour lesson for students enrolled for 2-3 credits. 1/2-hour lesson for students enrolled for 1 credit. Technical Requirements: Demonstrate perfect facility in required lyric languages, ability to evaluate performances critically and coherently, facility with register changes in upper range, polished and artistic performing with accuracy in pitch, rhythm, good posture, breath management, phonation, and resonance in addition to jury repertoire, language, and performance requirements (See Guidelines for Voice Study).
PREREQUISITE: SUCCESSFUL COMPLETION OF PREVIOUS LEVEL OF STUDY.

MVP008 Voice Forum
0 credit  
A weekly informal recital setting and performance class for voice principals and majors with guest artists, master classes, and faculty presentations. Required for all two, three, and four credit applied voice students.

MVP101 Voice Class for Voice Principals
1-2 credits  
Class instruction for beginning voice principals. Fundamentals of singing, breath control, and tone production are taught. Appropriate solo repertoire is assigned.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MVP105 Solfege
1 credit  Fall & Spring Semester
The rudiments of major/minor melodic and rhythmic sight singing are introduced and drilled using the "moveable do" system of Solfege.
PREREQUISITE: VOICE MAJORS AND PRINCIPALS OR PERMISSION OF INSTRUCTOR.

MVP120 Freshman Studio I
1 credit  Fall Semester
First year musical theatre laboratory with strong focus on ensemble, rehearsal, and performance skills.
PREREQUISITE: OPEN ONLY TO FIRST YEAR BM MUSICAL THEATRE MAJORS.

MVP144 Vocal Techniques for Non-Majors
1 credit  Fall & Spring Semester
Class instruction in fundamentals of singing, breath control, tone production, diction, and solo singing for non-music majors. Basic music reading skills are taught.

MVP147 Men's Chorale
1 credit  Fall & Spring Semester
This ensemble is open to the entire university community. Students will work on all aspects of choral singing, including skills in basic musicianship. This ensemble presents two or three concerts per semester.
PREREQUISITE: BY AUDITION.

MVP148 Women's Chorale
1 credit  Fall & Spring Semester
This ensemble is open to the entire university community. Students will work on all aspects of choral singing, including skills in basic musicianship. This ensemble presents two or three concerts per semester.
PREREQUISITE: BY AUDITION.

MVP167 Music Theatre Workshop
1 credit  Fall & Spring Semester
Participation in a fully-staged production or supervised classwork and projects which integrate the skills of the musical theatre singer/actor.
PREREQUISITE: BY PERMISSION OF INSTRUCTOR.

MVP168 Musical Theatre Instrumental Ensemble
1 credit  Fall & Spring Semester
An instrumental ensemble for musical theatre productions.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MVP181 Choral Conducting I
1 credit  Fall Semester
This course provides practical procedures and materials for beginning conducting students. Students demonstrate basic conducting patterns, preparations, and releases in all meters.
PREREQUISITE: MTC 112, AND 122 OR EQUIVALENT.
MVP182 Choral Conducting II
1 credit  Spring Semester
This course provides practical procedures and materials for advanced conducting students. Students demonstrate refined skills in conducting musical styles and independence of gesture. A strong emphasis is placed on conducting of mixed meters.
PREREQUISITE: MVP 181 OR MIP 317.

MVP183 Civic Chorale
1 credit  Fall & Spring Semester
Open to the university community students, faculty, and community members to perform two to three concerts each semester, including one concert each semester with instrumentalists. Students work on all aspects of choral singing.
PREREQUISITE: BY AUDITION.

MVP184 Chamber Singers
1 credit  Fall & Spring Semester
An ensemble of eighteen to twenty undergraduate and graduate students, the ensemble performs challenging chamber choir repertoire from the Renaissance through the Twentieth Century.
PREREQUISITE: BY AUDITION.

MVP185 UM Chorale
1 credit  Fall & Spring Semester
This ensemble performs significant choral literature with an emphasis on music of the Twentieth-Century and on choral/orchestral works including opera. Open to all qualified undergraduate students, regardless of major.
PREREQUISITE: BY AUDITION.

MVP188 Opera Theater
1 credit  Fall & Spring Semester
The preparation and public performance of staged operatic scenes and complete operas with supplemental classes in basic acting skills, stage movement, and characterization. Three to four productions, including one with orchestra, are scheduled each academic year. Required for all voice majors; admission by audition for voice principals.
PREREQUISITE: BY AUDITION.

MVP190 Collegium Musicum
1 credit  Fall & Spring Semester
A forty voice ensemble specializing in the study and performance of Baroque and Renaissance music, the Collegium Musicum is the chorus for the Miami Bach Society. Open to undergraduate students and community singers.
PREREQUISITE: BY AUDITION.

MVP196 Singing for the Stage I-A
1 credit  Fall Semester
The selection, learning process, and performance of Musical Theatre Songs with emphasis on tone production and style.
PREREQUISITE: OPEN ONLY TO FRESHMAN B.M. MUSICAL THEATRE MAJORS.

MVP197 Singing for the Stage I-B
1 credit  Spring Semester
Continuation of MVP 196.
PREREQUISITE: MVP 196.
MVP205 Acting for Opera
2 credits     Fall Semester
This course is designed to combine acting techniques with singing, dealing specifically with challenges presented to the singing actor and including musical styles and periods, period fashion and props, movement, and stage techniques for recitative, aria and ensemble performance.
PREREQUISITE: THA 105; SOPHOMORE STATUS AS VOCAL PERFORMANCE MAJORS.

MVP206 Acting for Opera - Intermediate
2 credits     Spring Semester
Course designed to continue to develop acting and character development skills for operatic performance.
PREREQUISITE: COMPLETION OF MVP 205 OR PERMISSION OF INSTRUCTOR BY AUDITION

MVP210 Score Reading for Stage Management Majors
1 credit     Offered By Announcement Only
Course designed to teach stage managers to read a piano/vocal score in order to call light and sound cues. Students will study time signatures, rhythms, and tempo indications as well as understand the basic forms of music.
PREREQUISITE: ENROLLMENT IN STAGE MANAGEMENT PROGRAM OR PERMISSION OF INSTRUCTOR.

MVP250 English Diction for Singers
1 credit     Fall Semester
Class designed for voice majors and principals, focus on development of pronunciation skills for teaching and singing in English. International Phonetic Alphabet is presented as a learning tool.

MVP251 Italian Diction for Singers
1 credit     Spring Semester
Class designed for voice majors and principals, with a focus on the development of pronunciation skills for teaching in Italian and Latin. International Phonetic Alphabet is presented as a learning tool.
PREREQUISITE: MVP 250.

MVP252 German Diction for Singers
1 credit     Fall Semester
Class designed for voice majors and principals, with a focus on the development of pronunciation skills for teaching and singing in German. International Phonetic Alphabet is presented as a learning tool.
PREREQUISITE: MVP 250.

MVP253 French Diction for Singers
1 credit     Spring Semester
Class designed for voice majors and principals, with a focus on the development of pronunciation skills for teaching and singing in French. International Phonetic Alphabet is presented as a learning tool.
PREREQUISITE: MVP 250.

MVP281 Choral Conducting III
1 credit     Fall Semester
This course provides a synthesis of the skills demonstrated in Choral Conducting I and II, while developing error detection skills in musical scores.
PREREQUISITE: MVP 182 OR MIP 418.
SCHOOL OF MUSIC

VOCAL PERFORMANCE

MVP282 Choral Conducting IV
1 credit
Spring Semester
This course focuses on quality choral literature for middle school and high school ensembles.
PREREQUISITE: MVP 281 OR MIP 281.

MVP294 Singing for Actors
1 credit
Fall & Spring Semester
The preparation of song literature and audition material for actors (can be repeated for credit).
PREREQUISITE: OPEN TO BFA PERFORMANCE MAJORS.

MVP296 Singing for the Stage II-A
1 credit
Fall Semester
Instruction in auditioning methods and materials for American musical theatre.
PREREQUISITE: THA 197.

MVP297 Singing for the Stage II-B
1 credit
Spring Semester
Instruction in preparing vocal material for musical scenes drawn from American musical theatre.
PREREQUISITE: THA 296.

MVP300 Basic Songwriting
2 credits
Spring Semester
This class has both an analytical and a creative component. Students analyze popular song forms, with examples by Porter, Berlin, the Gershwins, Paul Simon, Joni Mitchell, Bob Dylan, and others. In addition, composers and lyricists are randomly paired up for writing assignments. After class critiques, the songs are revised and then performed at the end of the semester. This course is open to composers/lyricists; however lyricists need not be able to read music, but rudimentary knowledge is beneficial.
PREREQUISITE: WRITING SAMPLE SUBMITTED TO INSTRUCTOR.

MVP399 Junior Recital
1 credit
Fall & Spring Semester
A public recital of one half-hour or more. Course required of all Vocal Performance majors.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MVP415 Auditioning I
2 credits
Fall Semester
Students prepare three to five audition pieces, photos, and resumes. Income tax, unions, opportunity, and methods of searching for and obtaining work is included. Course culminates in a seven to ten day trip to New York attending auditions.
PREREQUISITE: SENIOR STANDING IN BACHELOR OF MUSIC, MUSICAL THEATRE DEGREE.

MVP416 Auditioning II
2 credits
Spring Semester
Continuation of MVP 415.
PREREQUISITE: MVP 415.
MVP420 Musical Theatre Studio
3 credits  
Spring Semester  
Participation in a full production to be directed, choreographed, acted and designed by faculty or students.  
PREREQUISITE: B.M. SENIOR MUSICAL THEATRE MAJORS OR PERMISSION OF INSTRUCTOR.

MVP431 Musical Theatre Styles I
3 credits  
Offered By Announcement Only  
Course topics include creating a character through song and dialogue, making transition from songs into and out of scenes, and becoming comfortable and familiar with the style and performance unique to musical theatre.  
PREREQUISITE: PERMISSION OF INSTRUCTOR FOR NON-MUSICAL THEATRE MAJORS.

MVP432 Musical Theatre Styles II
3 credits  
Fall Semester  
Continuation of MVP 431.  
PREREQUISITE: THA 431, PERMISSION OF INSTRUCTOR FOR NON-MUSICAL THEATRE MAJOR.

MVP490 Senior Honors Thesis I
3 credits  
Fall & Spring Semester  
Development and completion of a senior Honors Thesis to fulfill requirements for University Honors of Magna or Summa Cum Laude.

MVP491 Senior Honors Thesis II
3 credits  
Fall & Spring Semester  
Development and completion of a senior Honors Thesis to fulfill requirements for University Honors of Magna or Summa Cum Laude.

MVP493 Special Projects
1-3 credits  
Fall & Spring Semester & First & Second Summer Session  
Supervised readings and other activities in specific areas of Vocal Performance.  
PREREQUISITE: UNDERGRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MVP499 Senior Recital
1 credit  
Fall & Spring Semester  
A public recital of one hour or more. Course is required of all performance majors.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MVP508 Choral Score Study
2 credits  
Fall Semester  
In depth study of selected choral or choral/orchestral works related to literature being performed by university ensembles during the academic year.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MVP538 Vocal Pedagogy
2-3 credits  
Offered By Announcement Only  
Course covers methods and concepts in the teaching of singing. Emphasis is placed on psychological, physiological, and acoustical principles involved in voice production with practical application, observing and teaching individual and class voice in a supervised environment.  
PREREQUISITE: SENIOR STANDING IN MUSIC OR PERMISSION OF INSTRUCTOR.
MVP552 Vocal Performance Preparation
1 credit  Fall & Spring Semester
Musical preparation of a wide range of assigned vocal literature from all periods for performance in forums, juries, and recitals. Special emphasis is on musical values, styles, translations of texts, diction, pronunciation of Italian, German, French, and English, and memorization.
PREREQUISITE: MVP MAJOR, JUNIOR STATUS.

MVP557 Choral Music Workshop
2 credits  First Summer Session
Survey and practice through performance and discussion of choral music, recommended for inclusion in public school and church choral music curricula.

MVP588 Voice Performance in Salzburg, Austria
2- 4 credits  Spring Semester
Course is conducted at Salzburg College, Austria. Students receive comprehensive and intensive vocal training from University of Miami faculty as well as distinguished guest artists. A class in vocal repertoire is also included.
PREREQUISITE: BY AUDITION ONLY.

MVP593 Special Topics MVP
1- 3 credits  Fall & Spring Semester & First & Second Summer Session
Supervised topics and other activities in specific areas of Vocal Performance.
PREREQUISITE: PERMISSION OF THE DEAN.

MVP599 Practicum in Music
0 credit  Fall & Spring Semester & First & Second Summer Session
Practical professional experience.
PREREQUISITE: MUSIC MAJORS ONLY.
HST300 Introduction to Theory and Research
3 credits  Fall Semester
The introduction to the function of theory and research in nursing practice. Emphasis is on the development of an understanding of scientific problem solving using a multicultural perspective.

HST310 Using Research in Clinical Practice
3 credits  Fall Semester
Introduction to basic research skills for individuals interested in health research. Emphasis is on the identification of health problems, reading research articles, and research issues such as research in health, ethics of health, privacy issues and the process of informed consent.

HST312 Health Disparities Practicum
3 credits  Offered By Announcement Only
This course will focus on providing students with the required skills to conduct research projects. Students will be provided with "hands-on" experience on the management team of an El Centro study to gain practical experience in the conduct of clinical trials and basic studies.

HST313 Global Health Disparities
3 credits  Offered By Announcement Only
This course will emphasize the health disparity issues that globally impact on all populations. Content may include health disparity issues associated with gender, infection, prevention, immunizations, child welfare policy (WHO, NAFTA, etc.) WRITING COURSE

HST536 U.S. Health Care Crisis: Politics and Policies
3 credits  Spring Semester
This course will explore key health policy issues within the U.S., along with the politics and interest groups which shape them. Fundamental concerns within the health care system such as: cost, quality and access to care will be analyzed. Major topics of discussion will include: Medicare, Medicaid, private insurance, the nursing shortage, and prescription drugs. The politics and policies surrounding issues such as bioethics, globalization, and infectious disease will also be considered.

HST545 Research Project Management
3 credits  Fall Semester
The course focuses on preparing the student for coordination of all aspects of a research project including recruitment, consenting, testing, executing intervention, reliability checks, data base management and data entry. Management of project staff, maintaining the integrity of the research design will be presented. Examination of ethical issues and IRB procedures will be included.
PREREQUISITE: ALL PREVIOUS COURSES IN RESEARCH CERTIFICATE PROGRAM.

HST564 Communicating Research Findings
3 credits  Fall Semester
The course focuses on preparing individuals to present research findings related to research projects. Discussion of data interpretation, results and presentation of research for publication will be presented.
PREREQUISITE: ALL PREVIOUS COURSES IN THE RESEARCH CERTIFICATE PROGRAM OR EQUIVALENT RESEARCH EXPERIENCE.
HST595 Selected Topics
2-3 credits
Offered By Announcement Only
Sub-titles describing the topics to be offered will be shown in parentheses in
the published class schedule, following the title "Selected Topics." Also open
to continuing education student. (2-3 credits)
PREREQUISITE: PERMISSION OF INSTRUCTOR

HEALTHCARE SCIENCES

HCS205 Personal Nutrition
3 credits
Offered By Announcement Only
Principles of nutrition integrated with cultural dietary patterns across the lifespan.

HCS207 Introduction to Pharmacology
3 credits
Introduction to the basic principles of therapeutic pharmacology. Special consideration
of cultural beliefs and folk medicines included. Emphasis is on the understanding
of the different classes of drugs and their application in various health care
settings.
PREREQUISITE: BIL 150, CHM 103 OR CHM 112, HCS 212

HCS212 Human Anatomy
3 credits
Emphasis is on the understanding of the anatomical compartments of the human body
and the ability to identify the bony skeleton, musculatures, blood vessels and
internal organs of each compartment.
PREREQUISITE: BIL 150.

HCS213 Human Anatomy Laboratory
1 credit
PREREQUISITE: HCS 212.

HCS215 Principles of Systemic Physiology
3 credits
Emphasis is on the understanding of the Physiology and selected Pathophysiology
of various organs and systems.
PREREQUISITE: BIL 150, CHM 103 OR CHM 111, HCS 212

HCS216 Principles of Systemic Physiology Laboratory
1 credit
Laboratory to accompany HCS 215
PREREQUISITE: HCS 215

HCS220 Systemic Physiology
3 credits
Systemic physiology for students in allied health programs. Function of major human
systems.

HCS221 Systemic Physiology Laboratory
2 credits
Experiments illustrating the physiology of organ systems.
PREREQUISITE: PREREQUISITE OR COREQUISITE: HSC 220 AND PERMISSION OF INSTRUCTOR.
HCS301 Human Sexuality: A Healthcare Perspective
3 credits Offered By Announcement Only
The study of human sexuality via multidisciplinary theoretical perspectives and research. Students will examine the complex relationships of the physiological, psychological, cultural, gender, religious, historical, and political aspects of human sexuality. Human sexuality in the context of health disparities will form the foundation for the course. WRITING COURSE

HCS303 HIV/AIDS and Health Maintenance for Health Care Providers
3 credits Spring Semester
Definition, diagnosis, management, and care of diverse patient populations with HIV infection and AIDS. Course is presented and discussed from an interdisciplinary health care perspective.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

HCS305 Issues in Health Disparities
3 credits Offered By Announcement Only
This course will be an introduction to the general research on health systems and health disparities. Emphasis will be placed on social, biological, economic and social policy issues that impact on the health of minority populations. Concepts associated with epidemiology, poverty, racism, public policy and international politics will be explored. WRITING COURSE

HCS306 Principles of nutrition integrated with cultural dietary patterns for client ad
2 credits Fall Semester
PREREQUISITE: SOPHOMORE STANDING OR PERMISSION OF INSTRUCTOR.

HCS319 Contemporary Issues in Bioethics for Health Care
3 credits Offered By Announcement Only
This course will cover bioethical issues in the health care environment, including ethical principles, theories and decision making strategies. WRITING COURSE

HCS330 Folk and Alternative Healing
3 credits Spring Semester
Critical discussion and evaluation of alternative and complementary healing. Theoretical and scientific bases of ethnomedical systems, traditional medical systems, and contemporary alternative therapies are explored. (3) Writing Credit.
PREREQUISITE: PERMISSION OF FACULTY.

HCS408 Nursing Care in the Genomic Era
3 credits Fall Semester
Exploration of basic knowledge in genomics, understanding of social, cultural and psychological implications of genetic services, health prevention and promotion.

HCS487 International Health: Transcultural Nursing (International Clinical Experience)
3 credits Offered By Announcement Only
Collaborative clinical venture between UM/SON and an International School of Nursing. Students will exchange supervised western clinical experiences, knowledge and skills for the care of clients and families in specialty areas, including MedSurg, Surgery, ICU and/or Emergency nursing units. Students will apply and synthesize basic science knowledge and skills that foster ethical, legal and cultura specific health care.
PREREQUISITE: NUR 314, NUR 315, NUR 315 AND PERMISSION OF THE INSTRUCTOR.
HCS583 Folk and Alternative Healing
3 credits \hspace{1cm} \textit{Spring Semester}
Critical discussion and evaluation of alternative and complementary healing. Theoretical and scientific bases of ethnomedical systems, traditional medical systems, and contemporary alternative therapies are explored. (3) Writing Credit.
PREREQUISITE: PERMISSION OF FACULTY.

NURSING

NUR100 Introduction to Nursing
3 credits \hspace{1cm} \textit{Fall Semester}
This is an introductory course to explore the various roles and responsibilities of the professional nurse in American health care. Major issues within health care today will be discussed and the impact they have on professional nursing will be explored.

NUR200 Health Care: A Process of Health Promotion, Maintenance, Rehabilitation and Pre
3 credits \hspace{1cm} \textit{Spring Semester}
Course focuses on current health care issues and the health care system as well as future directions of health care.
PREREQUISITE: SUMMER SCHOLAR STUDENTS ONLY.

NUR201 Writing as a Learning Strategy
2 credits \hspace{1cm} \textit{First & Second Summer Session}
The anxiety and apprehension associated with writing can become a significant deterrent to learning. Through experiential work, students learn the mechanics of scholarly writing as well as using writing as a learning strategy. (2)

NUR205 Personal Nutrition
3 credits \hspace{1cm} \textit{Spring Semester}
Principles of nutrition integrated with cultural dietary patterns across the lifespan. Not for nursing majors or minors. (3)

NUR207 Introduction to Pharmacology
3 credits \hspace{1cm} \textit{Offered By Announcement Only}
Introduction to the basic principles of therapeutic pharmacology. Special consideration of cultural beliefs and folk medicine included. Emphasis is on the understanding of the different classes of drugs and their application in various health care settings.
PREREQUISITE: BIL 150, CHM 103 OR CHM 111, HCS 212

NUR300 Introduction to Nursing Theory and Research
3 credits \hspace{1cm} \textit{Fall & Spring Semester}
The introduction to the function of theory and research in nursing practice. Emphasis is on the development of an understanding of scientific problem solving using a multicultural perspective. (3) Writing Credit.
PREREQUISITE: STATISTICS.

NUR301 Human Sexuality: A Healthcare Perspective
3 credits \hspace{1cm} \textit{Fall Semester}
The study of human sexuality via multidisciplinary theoretical perspectives and research. Students will examine the complex relationships of the physiological, psychological, cultural, gender, religious, historical, and political aspects of human sexuality. Human sexuality in the context of health disparities will form the foundation for the course. WRITING COURSE
NUR302 Professional Concepts  
2 credits  
Fall Semester  
Historical and current trends and issues in professional nursing, health, and health care delivery with a transcultural focus. Emphasis is placed on interpersonal communication, assertiveness, and values clarification. Examination of being and the philosophy of baccalaureate nursing using the major concepts of human being, society, health, and nursing is included. (2)  
PREREQUISITE: ADMISSION TO RN-TRANSITION PROGRAM.

NUR303 HIV/AIDS and Health Maintenance for Health Care Providers  
3 credits  
Spring Semester  
Definition, diagnosis, management, and care of diverse patient populations with HIV infection and AIDS. Course is presented and discussed from an interdisciplinary health care perspective. (3)  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

NUR304 Adult Health I: Fundamentals of Nursing Practice  
6 credits  
Fall Semester  
This clinical course emphasizes the supervised application of health assessment skills, nursing process, and clinical nursing techniques in the clinical laboratory, community, and acute care settings. (4:2)

NUR305 Issues in Health Disparities  
3 credits  
Offered By Announcement Only  
This course will be an introduction to the general research on health systems and health disparities. Emphasis will be placed on social, biological, economic and social policy issues that impact on the health of minority populations. Concepts associated with epidemiology, poverty, racism, public policy and international politics will be explored. WRITING COURSE

NUR306 Principles of Nutrition  
2 credits  
Fall Semester  
Principles of nutrition integrated with cultural dietary patterns for client adaptation across the lifespan. (2)  
PREREQUISITE: SOPHOMORE STANDING OR PERMISSION OF INSTRUCTOR.

NUR307 Pharmacology  
3 credits  
Fall Semester  
Introduction to the basic principles of therapeutic pharmacology. Special consideration of cultural beliefs and folk medicine included. (3)

NUR308 Adult Health II  
8 credits  
Spring Semester  
This course focuses on the nursing management of the client throughout the adult life cycle who experiences alterations and/or adaptations in physiologic defense mechanisms. Teaching strategies to be utilized include lecture, discussion, critical thinking exercises. (5:2)

NUR310 Using Research in Clinical Practice  
3 credits  
Fall Semester  
Introduction to basic research skills for individuals interested in health research. Emphasis is on the identification of health problems, reading research articles, and research issues such as research in health, ethics of health, privacy issues and the process of informed consent.
NUR311 Theories and Concepts of Nursing
2 credits Fall Semester
An introductory nursing course explaining the philosophy of baccalaureate nursing using the major concepts of person, environment, health, and nursing with a multicultural focus. Writing Credit. (2)
PREREQUISITE: 6 CREDITS IN BEHAVIOR SCIENCES

NUR312 Health Disparities Practicum
3 credits Offered By Announcement Only
This course will focus on providing students with the required skills to conduct research projects. Students will be provided with "hands-on" experience on the management team of an El Centro study to gain practical experience in the conduct of clinical trials and basic studies.

NUR313 Global Health Disparities
3 credits Offered By Announcement Only
This course will emphasize the health disparity issues that globally impact on all populations. Content may include health disparity issues associated with gender, infection, prevention, immunizations, child welfare policy (WHO, NAFTA etc.) WRITING COURSE

NUR314 Health Assessment
3 credits Fall Semester
Introduction to health assessment using a lifespan approach. Emphasis is on the development of data collection and basic decision-making using health assessment findings.
PREREQUISITE: CHEMISTRY, ANATOMY AND PHYSIOLOGY, MICROBIOLOGY. (2:2) COREQUISITE: 6 CREDITS OF BEHAVIORAL SCIENCE

NUR315 Pathophysiology
3 credits Fall & Spring Semester
The study of the physiologic and biologic manifestations of disease and disease processes. Emphasis is placed on physiology of altered health within the context of disruptions of structure and function of the human body as a whole. (3)
PREREQUISITE: MICROBIOLOGY HUMAN ANATOMY AND PHYSIOLOGY.

NUR316 Application of Professional Concepts
5 credits Fall Semester
Conceptual view of professional nursing as it relates to clinical practice in multicultural primary care settings. Clinical focus on Health promotion and physiological health alterations in individuals across the lifespan is emphasized. (3:6)
PREREQUISITE: PREREQUISITE OR COREQUISITE: NUR 302, 314.

NUR317 Developmental Issues Across the Lifespan
2 credits Fall Semester
Application of growth and development theories through the lifespan with a case study approach to issues commonly encountered nursing practice in a variety of clinical settings. (2)
PREREQUISITE: SIX CREDITS IN BEHAVIORAL SCIENCES.
NUR318 Special Population I  
3-8 credits 
Spring Semester  
This course focuses on the nursing process in the care of pediatric clients and families, the obstetrical client and woman's health. Emphasis is on the use of the nursing process to assist clients to adapt to health alterations requiring care in secondary health care settings.  
PREREQUISITE: NUR 315, 307, 311, 314, 304

NUR319 Contemporary Issues in Bioethics for Health Care  
3 credits 
Offered By Announcement Only  
This course will cover bioethical issues in the health care environment, including ethical principles, theories and decision making strategies. WRITING COURSE

NUR320 Pediatric Health Nursing.  
4 credits 
Fall Semester  
This course focuses in the use of the nursing process to develop and implement nursing management strategies for children and their families experiencing acute, chronic, and critical multi-system health alterations within a multicultural content. Use of the nursing process to expand and develop appropriate clinical interventions and a member of the health care team. Students will build on foundational skills in critical thinking, collaboration, and leadership in the provision of nursing care.  

NUR322 Community Based Multicultural Nursing Practice  
6 credits 
Fall Semester  
The introduction to basic knowledge, attitudes and clinical nursing skills applicable to the care of clients of various ages in health promotion, disease prevention and health maintenance in a variety of multicultural community settings. (3:9)  
PREREQUISITE: PRENURSING GPA OF 2.5; PASS ON MATH (75%); MICROBIOLOGY, ANATOMY AND PHYSIOLOGY; CHEMISTRY, STATISTICS. COREQUISITE: NUR 311 AND 314.

NUR330 Folk and Alternative Healing  
3 credits 
Spring Semester  
Critical discussion and evaluation of alternative and complementary healing. Theoretical and scientific bases of ethnomedical systems, traditional medical systems, and contemporary alternative therapies are explored. (3) Writing Credit.  
PREREQUISITE: Permission of faculty.

NUR331 Community Based Nursing Care of Adults and Families I  
6 credits 
Fall Semester  
Continuation of basic clinical nursing skills applicable to the care of clients across the lifespan in health promotion, disease prevention and health maintenance. Emphasis is placed on planning and delivering nursing care in multicultural settings. (3:9) Corequisite: NUR 335.  
PREREQUISITE: NUR 311, 314, 315, 317, 322

NUR334 Community-Based Nursing Care of Women and Their Families  
5 credits 
Fall Semester  
Nursing care of women during their reproductive and post-reproductive years, including the interdependent needs of their families. Emphasis is placed on the family-centered care of women in a variety of multicultural community-based settings. (3:6)  
PREREQUISITE: NUR 311, 322, 315, 317, 322
NUR335 Older Adult in the Community
2 credits Spring Semester
Course surveys factors related to aging in a multicultural community including
demographic changes, theories of aging, culture, and ageism. Selected topics related
to normal, age-related changes, health promotion for aged individuals and their
families, and health maintenance are examined. Selected threats to health in late
life including dementia and depression are analyzed as well as current intervention
strategies. (2) Corequisite: NUR 331.
PREREQUISITE: NUR 311, 314, 315, 317, 322

NUR340 Personal Nutrition
3 credits Spring Semester
Principles of nutrition integrated with cultural dietary patterns across the life
span. (3)
PREREQUISITE: NOT FOR NURSING MAJORS OR MINORS.

NUR350 Career Pathway: Assessment and Development
3 credits Offered By Announcement Only
This nursing course focuses on the assessment and development of a career pathway
for RNs seeking a BSN for professional nursing practice. Students will assess their
personal and professional assets and the need to further develop their career
in nursing. There will be a focus on concepts of professionalism, rules in nursing,
nursing education diversity and cultural influences in a dynamic health care environment.

NUR390 Adult Nursing for RN-BSN Students
10 credits Fall Semester
Nursing Management of the client throughout adulthood who experiences alterations
and/or adaptations/maladaptions in physiologic defense mechanisms; complex alteration
and/or adaptations in organ system function. The client in this course is identified
as the individual, family or significant others. Course content emphasizes concepts
of infection, the surgical client, immunity and altered cell growth, utilizing
the nursing theories and the nursing process. Assists adult clients to adjust to
multisystem alterations/adaptations/maladaptions in the endocrine, cardiovascular,
respiratory, immunological and hemopoietic, nervous, musculoskeletal, digestive,
and renal urinary systems. Specific models are utilized to enhance the teaching
of critical thinking. Research findings are utilized to support nursing interventions.
PREREQUISITE: ONE COMPLETED SEMESTER OF RN-BSN PROGRAM

NUR399 Independent Study
1-3 credits Fall & Spring Semester
As delineated in independent study contract.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

NUR400 Theories, Research and Evidence-Based Practice
3 credits Fall Semester
Course emphasis is placed on developing an understanding of the research process
and application of research findings in community-based practice in multicultural
settings. Course focuses on the relationship between theory, research, practice,
and the development of competencies to become an informed consumer of research.
Writing Credit. (2)
PREREQUISITE: SENIOR STANDING.
NUR402 Issues in Clinical Nursing
2 credits
Spring Semester
Examination of group and organizational dynamics in relation to professional roles. Emphasis is placed on problem solving and decision making strategies applied to ethical and legal issues with multicultural nursing perspective in the delivery of health care. (2)
PREREQUISITE: NUR 301 OR 302.

NUR403 Maternal & Child Nursing for RN-BSN Students
10 credits
Fall Semester
This course focuses on the nursing process in the care of pediatric clients and families, the obstetrical client, and women’s health. Emphasis is on the use of the nursing process to assist clients to adapt to health alterations requiring care in secondary health care settings. This course covers care of the pediatric client and the childbearing client and women’s health.
PREREQUISITE: ONE COMPLETED SEMESTER OF RN-BSN PROGRAM

NUR404 Nursing Management and Leadership
3 credits
Fall & Spring Semester
Course focuses on the evolving nursing first line management role in relation to care, and personnel and organizational components of the multicultural health care delivery system. Emphasis is placed on understanding theories, conceptual models, and technology supportive to professional decision making. (3)
PREREQUISITE: NUR 419, COREQUISITE: NUR 420, 421.

NUR405 Career Pathway: Professionalism
3 credits
Offered By Announcement Only
This nursing course focuses on enhancement of the nursing career beyond the entry to practice. It explores the opportunities with graduate nursing education, advanced practice careers, and a critical analysis of legal, ethical, and political dimensions of nursing and advanced practice. Collaborative practice and the changing client populations are also a focus for examination.
PREREQUISITE: NONE; CO-REQUISITES NUR 311, 314, 350, 400 & 417

NUR408 Genetics in Nursing.
3 credits
Fall Semester
Exploration of basic knowledge in genomics, understanding of social, cultural and psychological implications of genetic services, health prevention and promotion. (3)
PREREQUISITE: ONE COMPLETED SEMESTER ON RN-BSN PROGRAM

NUR411 Adult Health III
5-7 credits
Fall Semester
This course focuses on the adult experiencing complex multisystem alteration/adaptations in organ and system function. Emphasis is on the use of the nursing process to assist adult clients to adapt to system related insults. (5:2)
PREREQUISITE: NUR 308, 318
NUR412 Computer Applications in Nursing
2-3 credits  Fall Semester
Course focuses on the basic concepts of computer technology and applications used in nursing education, clinical practice, and research. Students develop novice level skills and use a variety of electronic strategies to access, store, communicate, analyze, and manage information. Students have the opportunity to study futuristic concepts such as virtual reality and apply it to nursing education, clinical practice, and research. (2-3)

NUR414 Psychiatric Health Nursing for RN-BSN Students
10 credits  Fall Semester
Content emphasizes concepts and themes of families and communities and the use of the nursing process to assist in promoting and maintaining health. The behavioral health focuses on psychotherapeutic processes across the life span. Emphasis is on planning nursing care for individuals, families and groups and professional and therapeutic communication skills and techniques. Explores the influence of neuro-physiology and psychopharmacology on the development of psychiatric and mental health services and the evolution of the role of the psychiatric nurse.
PREREQUISITE: ONE COMPLETED SEMESTER OF RN-BSN PROGRAM

NUR415 Perianesthesia Nursing
2-3 credits  First & Second Summer Session
The focus of this course is on the use of the nursing process to develop and implement nursing management strategies for patients and families undergoing a surgical and/or special procedure. Emphasis is placed on the use of a multicultural nursing perspective to plan and implement nursing interventions. This course highlights Perianesthesia nursing care of surgical patients. (2:3)

NUR419 Acute/Critical Care Nursing
7 credits  Spring Semester
The focus of this course is on the nursing management of the client throughout the life span who experiences emerging and critically evolving alterations in health. The client in the course is identified as the individuals, family or significant others. The emphasis of this course is on the use of the nursing process to assist critical care clients and families with critical alterations in the endocrine, cardiovascular, pulmonary, neurologic, renal, gastrointestinal, endocrine systems and multiple systems alterations. Specific models are utilized to enhance the teaching of critical thinking. Research findings are utilized to support nursing interventions. (5:2)
PREREQUISITE: NUR 411, 417

NUR420 Community Health Nursing
5 credits  Spring Semester
Nursing care of individuals, families, and population groups in the multicultural community with an emphasis on prevention, health maintenance, and promotion. Environmental and epidemiological aspects of health. Special health needs and community health intervention with high risk population groups. Ethical, legal, economical, multicultural, sociological, research, and political aspects of community health nursing. Case management approach utilized.
NUR426 Leadership and Management
5 credits Spring Semester
Analysis and synthesis of the application of professional concepts in a variety of multicultural health care delivery systems. Emphasis is placed on personal, professional, and organizational growth. Individualized and integrated clinical experiences are provided through direct clinical supervision by preceptors.
PREREQUISITE: NUR 311, 314, 350, 400, 408, 420; COREQUISITE NUR 305 AND 1 ELECTIVE

NUR429 Community Based Nursing Care of Adults and Families II
6 credits Fall Semester
Development and implementation of nursing care strategies for adults and families experiencing acute and complex health alterations within multicultural-based community settings. As a member of the health care team students build on foundational competencies in collaboration and leadership in the provision of nursing care. (3:9)
PREREQUISITE: SENIOR STANDING.

NUR430 Community Based Nursing Care of Children and Families
6 credits Fall Semester
Course focuses on the use of the nursing process to develop and implement nursing management strategies for children and their families experiencing acute, chronic, and critical multisystem health alterations within a multicultural context. The use of the nursing process to expand and develop appropriate clinical interventions as a member of the health care team is emphasized. Students build on foundational skills in critical thinking, collaboration, and leadership in the provision of nursing care. (3:9)
PREREQUISITE: SENIOR STANDING.

NUR440 Psychiatric Mental Health Nursing
4 credits Fall & Spring Semester
The focus is on population-focused nursing and community-oriented approaches to understanding and addressing major public health concerns across the life span. Emphasis is on assessing, planning, implementing and evaluating programs for a variety of communities both domestically and internationally. Health and disease is conceptualized as a complex interaction between individual, relationship, community and socio-economic-political level factors. Epidemiology, sociology, behavioral sciences and nursing theory and practice are integrated throughout. Special attention is given to addressing the unique needs of vulnerable populations and cultural groups, the elimination of health disparities, and social justice.
PREREQUISITE: NUR 304, 307, 308, 311, 314, 315, 318, 320 FOR THE TRADITIONAL PROGRAM.
NUR 304, 307, 308, 314, 315, 318, 320, 400 FOR THE ACCELERATED PROGRAM
COREQUISITES: NUR 411 AND 440 FOR THE TRADITIONAL PROGRAM NUR 411, 440, AND 450 FOR THE ACCELERATED PROGRAM.

NUR441 Professional Role Synthesis
7 credits Fall Semester
Synthesizing professional roles in the delivery of nursing care with emphasis on the principles of leadership and management. Integrating learning experiences are provided through preceptorship, with an emphasis on a more independent role as a beginning nurse generalist. Writing Credit. (3:12)
PREREQUISITE: NUR 400, 429, 430.
NUR448 Psychiatric Mental Health Nursing.
4 credits  Spring Semester
The focus is on psychotherapeutic processes across the life span. Emphasis is on planning nursing care for individuals, families, and communities with a variety of psychiatric and mental health problems in various settings (inpatient, outpatient, community). Professional and therapeutic communication skills and techniques are important components of this course. In addition, this course will explore the influence of genetics, neurophysiology and psychopharmacology on the development of psychiatric and mental health services and the evolution of the role of the psychiatric nurse. Emphasis is on the development of inter-personal and intra and interdisciplinary collaborative skills as a means of assisting persons, families and groups in active problem solving in community based settings. The formulation of nursing diagnoses and management strategies in multicultural settings is a focus. Socio-politica environmental aspects of nursing management are integrated throughout.

NUR450 Role Transition
7- 8 credits  Spring Semester
Theoretical and applied concepts of transition to the nursing role within the health care setting are explored in this course. The focus is on practice issues and responsibilities in contemporary professional nursing practice. Emphasis is placed on the transition to practice and nursing care systems with increasing responsibility through discussion of practice theory and styles, empowering, mentoring, managing change and striving for excellence. Seminar discussion topics will focus on the issues of successful transition to the practice environment as new nurse.
PREREQUISITE: NUR 411, 417

NUR487 International Health: Transcultural Nursing (International Clinical Experience)
3 credits  Spring Semester
Collaborative clinical venture between the University of Miami, School of Nursing and an International School of Nursing. Students will exchange supervised western clinical experiences, knowledge and skills for the care of clients and families in specialty areas including Medical-Surgical, Surgery, Intensive Care and/or Emergency nursing units. This course will allow students to apply and synthesize basic science knowledge and skills that foster ethical, legal and culture specific health care. (3)
PREREQUISITE: NUR 314, 315, 322 AND PERMISSION OF THE INSTRUCTOR.

NUR497 Selected Topics
1- 5 credits  Fall & Spring Semester
PREREQUISITE: NUR 301 AND PERMISSION OF INSTRUCTOR.

NUR498 Selected Topics
1- 5 credits  Fall & Spring Semester
PREREQUISITE: NUR 301 AND PERMISSION OF INSTRUCTOR.

NUR499 Selected Topics
1- 6 credits  Fall & Spring Semester
PREREQUISITE: PERMISSION OF INSTRUCTOR.
NUR502 Nursing in the International Context
2-3 credits Fall Semester
The concept and process of international nursing in the context of world health are discussed. Analysis of the role of nursing in relation to various national health care systems, theories of national development, and global strategies for international health are also included. Emphasis is placed on nursing education and service in various nations with a focus on less developed countries. (2-3)

NUR504 Topics in Oncology Nursing
2-3 credits Fall & Spring Semester
Course emphasizes the impact of cancer upon the individual and family. Course integrates concepts and theories related to nursing practice and cancer research. (2-3)
PREREQUISITE: SENIOR STANDING IN UNDERGRADUATE PROGRAM; GRADUATE STANDING; OR PERMISSION OF INSTRUCTOR.

NUR507 Clinical Nutrition in Nursing Practice
2 credits Spring Semester
Application of clinical nutrition in the assessment, diagnosis, planning, implementation, and evaluation of nursing care of multicultural clients in primary and secondary care settings. (2)
PREREQUISITE: NUR 306, JUNIOR LEVEL STATUS.

NUR508 Dying, Death and Bereavement
2-3 credits Spring Semester
Issues of providing care and comfort to dying persons and loved ones during illness and support to survivors after death are addressed. The development of nursing practice based on theory and research from nursing and other disciplines is also included. Emphasis is placed on the physical, emotional, and spiritual components in dying and bereavement. (2-3)

NUR523 Nursing Concepts of Health Promotion and Wellness
7 credits First & Second Summer Session
Assimilation and integration of theoretical foundations and clinical data applicable to the care of clients across the life span with a focus on health promotion, disease prevention, and health maintenance. Emphasis is placed on assessment and analysis of clinical data to formulate nursing care in multicultural setting. (3:12) Corequisites: NUR 314, 315, a course in Growth and Development and Nutrition.
PREREQUISITE: ADMISSION TO ACCELERATED OR GRADUATE ENTRY OPTIONS. COREQUISITES: NUR 314, 315, A COURSE IN GROWTH AND DEVELOPMENT AND NUTRITION.

NUR524 Community-Based Multicultural Psychiatric/Mental Health Nursing
6 credits Fall Semester
Assessment and analysis of clinical data applicable to the care of clients across the lifespan with multidimensional psychosocial or mental health alterations. Emphasis is on development of inter-personal and intra and interdisciplinary collaborative skills as a means of assisting individuals, groups, and families in active problem solving in community based settings. The formulation of nursing diagnoses and management strategies in multicultural settings is a focus. Developmental, sociological, and environmental aspects of nursing management are integrated throughout.
PREREQUISITE: NUR 314, 315, 523.
NUR530 Research in Nursing
3 credits  Fall Semester
Focus on the nature of scientific inquiry, the research process and the role of
the advanced practice nurse in conducting, critiquing, and synthesizing nursing
research. Course consists of two modules. Module 1 focuses on the research process,
research methodologies and the analysis of data using quantitative and qualitative
approaches. Module 2 focuses on the synthesis of research findings for implementing
changes in nursing practice or the development of a nursing research proposal,
depending on the student's area of interest. (3)
PREREQUISITE: BASIC STATISTICS COURSE.

NUR531 The Older Adult in Health and Illness
2- 3 credits  Offered By Announcement Only
Course explores factors relating to aging in health including demographic changes,
thecies of aging, culture and ageism, the sandwich generation, developmental tasks
and psychosocial issues in late life, sexual health, sleep pattern changes, and
cognitive changes. Selected topics related to threats to health in later life
are also discussed including depression, substance abuse, elder abuse and neglect,
and failure to thrive. Current psychosocial intervention strategies such as reality
orientation, re-motivation, reminiscence, life review and validation are examined.
(2-3)

NUR536 U.S. Health Care Crisis: Politics and Policies
3 credits  Spring Semester
This course will explore key health policy issues within the U.S., along with the
politics and interest groups which shape them. Fundamental concerns within the
health care system such as: cost, quality and access to care will be analyzed.
Major topics of discussion will include: Medicare, Medicaid, private insurance,
the nursing shortage, and prescription drugs. The politics and policies surrounding
issues such as bioethics, globalization, and infectious disease will also be considered.

NUR545 Research Project Management
3 credits  Fall Semester
The course focuses on preparing the student for coordination of all aspects of
a research project including recruitment, consenting, testing, executing intervention,
reliability checks, data base management and data entry. Management of project
staff, maintaining the integrity of the research design will be presented. Examination
of ethical issues and IRB procedures will be included.
PREREQUISITE: ALL PREVIOUS COURSES IN RESEARCH CERTIFICATE PROGRAM.

NUR550 Sociopolitical Dynamics of Health Issues
2- 3 credits  Offered By Announcement Only
The evaluation of public controversies surrounding community-based health issues
are examined from sociopolitical, economic, and cultural perspectives. The focus
of the course is on ethical and political dilemmas confronting health care professionals
when health issues are politicized. (2-3)

NUR551 Teaching and Learning Theory in Clinical Nursing Education
3 credits  Spring Semester
The focus of this course is the exploration of principles and practice of teaching
and learning integral to clinical nursing education. Identification of the role
of the faculty in teaching students with diverse learning styles and needs within
a variety of clinical settings.
PREREQUISITE: RN/BSN, MSN, AND/OR MASTERS STUDENT; RN LICENSE AND PERMISSION OF
INSTRUCTOR.
NUR552 From Childhood to Womanhood: Being Female in America
3 credits
Offered By Announcement Only
Cultural perspective on emotional health issues related to growth and development of females in the United States of America. Multidisciplinary theoretical issues surrounding particular problems of sex roles from birth to death are examined. Emphasis is placed on mental health issues. Gender identity, critical events, eating disorders, abuse syndromes, reproductive sequelae, and aging are addressed. Emotional health, preventive, and treatment strategies are also analyzed. Graduate level course open to nursing students and students from related disciplines; education, psychology, sociology, and anthropology. (3)

NUR553 Methods for Clinical Nursing Education
3 credits
Spring Semester
The focus of this course is the organization and management of instruction for clinical nursing education. Emphasis is on effective strategies for development of learning opportunities in diverse clinical settings.
PREREQUISITE: NUR 551, RN; PERMISSION OF INSTRUCTOR.

NUR555 Evaluation in Clinical Nursing Education
3 credits
Spring Semester
The focus of this course is the exploration of principles and practices of evaluation integral to clinical nursing education.
PREREQUISITE: NUR 551, 553 AND/OR PERMISSION OF INSTRUCTOR.

NUR558 Practicum in Clinical Nursing Education
6 credits
Spring Semester
The focus of this course is laboratory and clinical application of principles of teaching and learning. Emphasis is on the operationalization of the clinical faculty role.
PREREQUISITE: NUR 551, 553, 555, AND/OR PERMISSION OF INSTRUCTOR.

NUR564 Communicating Research Findings
3 credits
Fall Semester
The course focuses on preparing individuals to present research findings related to research projects. Discussion of data interpretation, results and presentation of research for publication will be presented.
PREREQUISITE: ALL PREVIOUS COURSES IN THE RESEARCH CERTIFICATE PROGRAM OR EQUIVALENT RESEARCH EXPERIENCE.

NUR570 Psychobiology for Advanced Practice Nursing
3 credits
Fall Semester
Focuses on basic neuroanatomy, neurophysiology, and neurochemistry followed by an introduction to the physiological bases of sensation, motor systems, motivation, emotion, learning and memory. (3)
PREREQUISITE: ACCEPTANCE IN THE GRADUATE NURSING PROGRAM. NUR 612, 613.

NUR575 Interdisciplinary Healthcare Improvement
2-3 credits
Offered By Announcement Only
Analyses of the theories and principles of quality improvement and interdisciplinary teamwork. Application of improvement methods and tools used in solving client-focused, system-level problems through participation in an interdisciplinary team in a selected clinical setting. (2:3-6)
PREREQUISITE: UNDERGRADUATE SENIOR STANDING OR PERMISSION OF INSTRUCTOR.
NUR583 Folk and Alternative Healing

3 credits

Spring Semester

Critical discussion and evaluation of alternative and complementary healing. Theoretical and scientific bases of ethnomedical systems, traditional medical systems, and contemporary alternative therapies are explored. Writing Credit. (3)

PREREQUISITE: UPPER DIVISION OR PERMISSION OF FACULTY.

NUR587 Sleep and Dreams

2-3 credits

Offered By Announcement Only

Multidisciplinary theory and research on sleep and dreams. Circadian rhythm, sleep wake cycle, sleep disorders, function, and meaning of dreams. Graduate level course open to nursing students and students from related disciplines; education, psychology, sociology, and anthropology. (2-3)

PREREQUISITE: SENIOR OR GRADUATE STANDING, NUR 418 OR EQUIVALENT.

NUR590 Health Policy, Structure and Ethics

3 credits

Fall Semester

Issues, problems, and motivation for change and policy development in the current health care system. Implications for advanced practice nursing are discussed. Examination of organizational, behavioral, ethical aspects, and interactions of various sectors in the U.S. health care system. The relationship between ethics, culture and public are emphasized. (3)

PREREQUISITE: ADMISSION TO GRADUATE PROGRAM OR PERMISSION OF INSTRUCTOR.

NUR594 Selected Topics

2-3 credits

Offered By Announcement Only

Sub-titles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Selected Topics". Also open to continuing education students. (2-3)

PREREQUISITE: PERMISSION OF INSTRUCTOR.

NUR595 Selected Topics

2-3 credits

Offered By Announcement Only

Sub-titles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Selected Topics". Also open to continuing education students. (2-3)

PREREQUISITE: PERMISSION OF INSTRUCTOR.

NUR596 Selected Topics

2-3 credits

Offered By Announcement Only

Sub-titles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Selected Topics". Also open to continuing education students. (2-3)

PREREQUISITE: PERMISSION OF INSTRUCTOR.
FRESHMAN SEMINARS IN ARTS

FFA190 Freshman Seminars in Arts
  3 credits  Fall Semester
  Seminars designed to introduce up to 25 freshmen to the Fine Arts. Topics will
  vary from year to year, as will faculty teaching the seminars.

FFA191 Freshman Seminars in Arts
  3 credits  Fall Semester
  Seminars designed to introduce up to 25 freshmen to the Fine Arts. Topics will
  vary from year to year, as will faculty teaching the seminars.

FFA192 Freshman Seminars in Arts
  3 credits  Fall Semester
  Seminars designed to introduce up to 25 freshmen to the Fine Arts. Topics will
  vary from year to year, as will faculty teaching the seminars.

FFA193 Freshman Seminars in Arts
  3 credits  Fall Semester
  Seminars designed to introduce up to 25 freshmen to the Fine Arts. Topics will
  vary from year to year, as will faculty teaching the seminars.

FFA194 Freshman Seminars in Arts
  3 credits  Fall Semester
  Seminars designed to introduce up to 25 freshmen to the Fine Arts. Topics will
  vary from year to year, as will faculty teaching the seminars.

FFA195 Freshman Seminars in Arts
  3 credits  Fall Semester
  Seminars designed to introduce up to 25 freshmen to the Fine Arts. Topics will
  vary from year to year, as will faculty teaching the seminars.

FFA196 Freshman Seminars in Arts
  3 credits  Fall Semester
  Seminars designed to introduce up to 25 freshmen to the Fine Arts. Topics will
  vary from year to year, as will faculty teaching the seminars.

FFA197 Freshman Seminars in Arts
  3 credits  Fall Semester
  Seminars designed to introduce up to 25 freshmen to the Fine Arts. Topics will
  vary from year to year, as will faculty teaching the seminars.

FFA198 Freshman Seminars in Arts
  3 credits  Fall Semester
  Seminars designed to introduce up to 25 freshmen to the Fine Arts. Topics will
  vary from year to year, as will faculty teaching the seminars.

FFA199 Freshman Seminars in Arts
  3 credits  Fall Semester
  Seminars designed to introduce up to 25 freshmen to the Fine Arts. Topics will
  vary from year to year, as will faculty teaching the seminars.

FRESHMAN SEMINARS IN LITERATURE

FLT190 Freshman Seminars in Literature
  3 credits  Fall Semester
  Seminars designed to introduce up to 25 freshmen to Literature. Topics will vary
  from year to year, as will faculty teaching the seminars.
HONORS AND SPECIAL PROGRAMS

FRESHMAN SEMINARS IN LITERATURE

FLT191 Freshman Seminars in Literature
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to Literature. Topics will vary from year to year, as will faculty teaching the seminars.

FLT192 Freshman Seminars in Literature
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to Literature. Topics will vary from year to year, as will faculty teaching the seminars.

FLT193 Freshman Seminars in Literature
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to Literature. Topics will vary from year to year, as will faculty teaching the seminars.

FLT194 Freshman Seminars in Literature
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to Literature. Topics will vary from year to year, as will faculty teaching the seminars.

FLT195 Freshman Seminars in Literature
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to Literature. Topics will vary from year to year, as will faculty teaching the seminars.

FLT196 Freshman Seminars in Literature
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to Literature. Topics will vary from year to year, as will faculty teaching the seminars.

FLT197 Freshman Seminars in Literature
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to Literature. Topics will vary from year to year, as will faculty teaching the seminars.

FLT198 Freshman Seminars in Literature
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to Literature. Topics will vary from year to year, as will faculty teaching the seminars.

FLT199 Freshman Seminars in Literature
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to Literature. Topics will vary from year to year, as will faculty teaching the seminars.

FRESHMAN SEMINARS IN NATURAL SCIENCE

FNS190 Freshman Seminars in Natural Science
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Natural Sciences. Topics will vary from year to year, as will faculty teaching the seminars.

FNS191 Freshman Seminars in Natural Science
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Natural Sciences. Topics will vary from year to year, as will faculty teaching the seminars.
FNS192 Freshman Seminars in Natural Science
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Natural Sciences. Topics will vary from year to year, as will faculty teaching the seminars.

FNS193 Freshman Seminars in Natural Science
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Natural Sciences. Topics will vary from year to year, as will faculty teaching the seminars.

FNS194 Freshman Seminars in Natural Science
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Natural Sciences. Topics will vary from year to year, as will faculty teaching the seminars.

FNS195 Freshman Seminars in Natural Science
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Natural Sciences. Topics will vary from year to year, as will faculty teaching the seminars.

FNS196 Freshman Seminars in Natural Science
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Natural Sciences. Topics will vary from year to year, as will faculty teaching the seminars.

FNS197 Freshman Seminars in Natural Science
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Natural Sciences. Topics will vary from year to year, as will faculty teaching the seminars.

FNS198 Freshman Seminars in Natural Science
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Natural Sciences. Topics will vary from year to year, as will faculty teaching the seminars.

FNS199 Freshman Seminars in Natural Science
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Natural Sciences. Topics will vary from year to year, as will faculty teaching the seminars.

FRESHMAN SEMINARS IN PHILOSOPHY/RELIGION
FPR190 Freshman Seminars in Philosophy/Religion
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to Philosophy and/or Religion. Topics will vary from year to year, as will faculty teaching the seminars.

FPR191 Freshman Seminars in Philosophy/Religion
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to Philosophy and/or Religion. Topics will vary from year to year, as will faculty teaching the seminars.

FPR192 Freshman Seminars in Philosophy/Religion
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to Philosophy and/or Religion. Topics will vary from year to year, as will faculty teaching the seminars.
FPR193 Freshman Seminars in Philosophy/Religion
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to Philosophy and/or Religion. Topics will vary from year to year, as will faculty teaching the seminars.

FPR194 Freshman Seminars in Philosophy/Religion
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to Philosophy and/or Religion. Topics will vary from year to year, as will faculty teaching the seminars.

FPR195 Freshman Seminars in Philosophy/Religion
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to Philosophy and/or Religion. Topics will vary from year to year, as will faculty teaching the seminars.

FPR196 Freshman Seminars in Philosophy/Religion
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to Philosophy and/or Religion. Topics will vary from year to year, as will faculty teaching the seminars.

FPR197 Freshman Seminars in Philosophy/Religion
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to Philosophy and/or Religion. Topics will vary from year to year, as will faculty teaching the seminars.

FPR198 Freshman Seminars in Philosophy/Religion
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to Philosophy and/or Religion. Topics will vary from year to year, as will faculty teaching the seminars.

FPR199 Freshman Seminars in Philosophy/Religion
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to Philosophy and/or Religion. Topics will vary from year to year, as will faculty teaching the seminars.

FRESHMAN SEMINARS IN SOCIAL SCIENCES
FSS190 Freshman Seminars in the Social Sciences
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Social Sciences. Topics will vary from year to year, as will faculty teaching the seminars.

FSS191 Freshman Seminars in the Social Sciences
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Social Sciences. Topics will vary from year to year, as will faculty teaching the seminars.

FSS192 Freshman Seminars in the Social Sciences
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Social Sciences. Topics will vary from year to year, as will faculty teaching the seminars.

FSS193 Freshman Seminars in the Social Sciences
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Social Sciences. Topics will vary from year to year, as will faculty teaching the seminars.
FSS194 Freshman Seminars in the Social Sciences
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Social Sciences. Topics will vary from year to year, as will faculty teaching the seminars.

FSS195 Freshman Seminars in the Social Sciences
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Social Sciences. Topics will vary from year to year, as will faculty teaching the seminars.

FSS196 Freshman Seminars in the Social Sciences
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Social Sciences. Topics will vary from year to year, as will faculty teaching the seminars.

FSS197 Freshman Seminars in the Social Sciences
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Social Sciences. Topics will vary from year to year, as will faculty teaching the seminars.

FSS198 Freshman Seminars in the Social Sciences
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Social Sciences. Topics will vary from year to year, as will faculty teaching the seminars.

FSS199 Freshman Seminars in the Social Sciences
3 credits Fall Semester
Seminars designed to introduce up to 25 freshmen to the Social Sciences. Topics will vary from year to year, as will faculty teaching the seminars.

HONORS PROGRAM
HON205 Society and the Future
3 credits Fall Semester
Examination through contemporary readings of future studies and related social changes.
PREREQUISITE: ADMISSION TO THE HONORS PROGRAM; SOPHOMORE STANDING.

HON321 Topics in the Humanities
1- 3 credits Fall Semester

HON322 Topics in the Humanities
1- 3 credits Fall Semester

HON323 Topics in Humanities
1- 3 credits Fall Semester
PREREQUISITE: ADMISSION TO HONORS PROGRAM.

HON324 Topics in Humanities
1- 3 credits Fall Semester
PREREQUISITE: ADMISSION TO HONORS PROGRAM.

HON331 Topics in the Social Sciences
1- 3 credits Fall Semester

HON332 Topics in the Social Sciences
1- 3 credits Fall Semester
HON333 Topics in Social Science  
1- 3 credits  
Fall Semester  
PREREQUISITE: ADMISSION TO HONORS PROGRAM.

HON351 Topics in the Natural Sciences  
1- 3 credits  
Fall Semester

HON352 Topics in the Natural Sciences  
1- 3 credits  
Fall Semester

HON353 Topics in Natural Science  
1- 3 credits  
Fall Semester  
PREREQUISITE: ADMISSION TO HONORS PROGRAM.

HON354 Topics in Natural Science  
1- 3 credits  
Fall Semester  
PREREQUISITE: ADMISSION TO HONORS PROGRAM.

HON355 Readings in Biology  
1 credit  
Fall Semester  
This course replaces BIL 371, 372, 374 and 375 for Honors Program students.  
PREREQUISITE: ADMISSION TO HONORS PROGRAM. PERMISSION OF INSTRUCTOR.

HON424 Topics in Humanities  
1- 3 credits  
Fall Semester  
PREREQUISITE: ADMISSION TO HONORS PROGRAM.

UNIVERSITY OF MIAMI EXPERIENCE  
UMX101 University Experience - General  
1 credit  
Fall Semester  
This course is designed to promote a positive transition to UM; to give students  
the information they will need to maximize their um experience; to foster community  
building and networking.

UMX102 University of Miami Experience - Athletes  
1 credit  
Fall Semester  
This course is designed to facilitate student-athletes in the development and enhancement  
of academic and life skills for success in the University setting and beyond. Students  
will learn how to utilize existing campus resources to achieve their academic and  
personal goals.

UMX104 University of Miami Experience - Psychology and NeuroBiology Majors  
1 credit  
Fall Semester  
This course is designed to ease the transition to college life, give freshman the  
information they will need to maximize their undergraduate experience, and foster  
community building and networking within the department.

UMX105 University of Miami Experience - International Students  
1 credit  
Fall Semester  
To promote a positive adjustment to University life; to promote and facilitate  
a positive UM experience; to foster community building and networking; to provide  
information about campus resources and how to use them to achieve success at UM  
and beyond, with a particular emphasis on the needs of an international student.
**UMX106 University of Miami Experience - Nursing/Health Science Majors**
1 credit  Fall Semester
To promote a positive adjustment to University life; to promote and facilitate a positive UM experience; to foster community building and networking; to provide information about campus resources and how to use them to achieve success at UM and beyond, with a particular emphasis on the needs of a nursing/health science major.

**UMX107 University of Miami Experience - Education Majors**
1 credit  Fall Semester
To promote a positive adjustment to University life; to promote and facilitate a positive UM experience; to foster community building and networking; to provide information about campus resources and how to use them to achieve success at UM and beyond, with a particular emphasis on the needs of an education major.

**UMX109 University of Miami Experience - Sports and Wellness**
1 credit  Fall Semester
To promote a positive adjustment to University life; to promote and facilitate a positive UM experience; to foster community building and networking; to provide information about campus resources and how to use them to achieve success at UM and beyond, with a particular emphasis on sports and wellness.

**UMX110 University Experience - Undecided Arts and Sciences**
1 credit  Fall Semester
This course is designed to maximize the student's potential to achieve academic success, to adjust responsibly to the individual and interpersonal challenges of life at UM, and foster community building and networking within the University.

**UMX111 University of Miami Experience - Business Majors**
1 credit  Fall Semester
To promote a positive adjustment to University life; to promote and facilitate a positive UM experience; to foster community building and networking; to provide information about campus resources and how to use them to achieve success at UM and beyond, with a particular emphasis on business majors.

**UMX112 University of Miami Experience - Business Majors, Pre-Law/Pre-MBA**
1 credit  Fall Semester
To promote a positive adjustment to University life; to promote and facilitate a positive UM experience; to foster community building and networking; to provide information about campus resources and how to use them to achieve success at UM and beyond, with a particular emphasis on business majors who want to pursue law school or an MBA.

**UNIVERSITY INTERNSHIP**

**UMI105 University Internship Part-time**
0-1 credits  Fall & Spring Semester & First & Second Summer Session
A part-time zero credit internship (minimum of 320 hours) designed to provide opportunities for career exploration, skill development, and exposure to career field. Completion of at least one semester of coursework at UM is required.

**PREREQUISITE:** COMPLETION OF AT LEAST ONE SEMESTER OF COURSEWORK AT UM
UMI110 University Internship Full-time
0-1 credits Fall & Spring Semester & First & Second Summer Session
A full-time zero credit internship (minimum of 160 hours) designed to provide opportunities for career exploration, skill development, and exposure to career field. Completion of at least on semester of coursework at UM is required.
PREREQUISITE: COMPLETION OF AT LEAST ONE SEMESTER OF COURSEWORK AT UM

UMI205 University Internship Part-time
0-1 credits Fall & Spring Semester & First & Second Summer Session
A part-time zero credit internship (minimum of 320 hours) designed to provide opportunities for career exploration, skill development, and exposure to career field. Completion of at least on semester of coursework at UM is required.
PREREQUISITE: COMPLETION OF AT LEAST ONE SEMESTER OF COURSEWORK AT UM.

UMI210 University Internship Full-time
0-1 credits Fall & Spring Semester & First & Second Summer Session
A full-time zero credit internship (minimum of 160 hours) designed to provide opportunities for career exploration, skill development, and exposure to career field. Completion of at least on semester of coursework at UM is required.
PREREQUISITE: COMPLETION OF AT LEAST ONE SEMESTER OF COURSEWORK AT UM

UMI305 University Internship Part-time
0-1 credits Fall & Spring Semester & First & Second Summer Session
A part-time zero credit internship (minimum of 320 hours) designed to provide opportunities for career exploration, skill development, and exposure to career field. Completion of at least on semester of coursework at UM is required.
PREREQUISITE: COMPLETION OF AT LEAST ONE SEMESTER OF COURSEWORK AT UM

UMI310 University Internship Full-time
0-1 credits Fall & Spring Semester & First & Second Summer Session
A full-time zero credit internship (minimum of 160 hours) designed to provide opportunities for career exploration, skill development, and exposure to career field. Completion of at least on semester of coursework at UM is required.
PREREQUISITE: COMPLETION OF AT LEAST ONE SEMESTER OF COURSEWORK AT UM

UMI405 University Internship Part-time
0-1 credits Fall & Spring Semester & First & Second Summer Session
A part-time zero credit internship (minimum of 320 hours) designed to provide opportunities for career exploration, skill development, and exposure to career field. Completion of at least on semester of coursework at UM is required.
PREREQUISITE: COMPLETION OF AT LEAST ONE SEMESTER OF COURSEWORK AT UM

UMI410 University Internship Full-time
0-1 credits Fall & Spring Semester & First & Second Summer Session
A full-time zero credit internship (minimum of 160 hours) designed to provide opportunities for career exploration, skill development, and exposure to career field. Completion of at least on semester of coursework at UM is required.
PREREQUISITE: COMPLETION OF AT LEAST ONE SEMESTER OF COURSEWORK AT UM
SAP001 Institutional Consortium Agreement
0-18 credits
Fall Semester

SAP101 International Education and Exchange Programs
1-18 credits
Fall & Spring Semester & First & Second Summer Session

SAP102 International Education and Exchange Programs
1-18 credits
Fall & Spring Semester & First & Second Summer Session

SAP103 International Education and Exchange Programs
1-18 credits
Fall & Spring Semester & First & Second Summer Session

SAP104 International Education and Exchange Programs
1-18 credits
Fall & Spring Semester & First & Second Summer Session

SAP201 International Education and Exchange Programs
1-18 credits
Fall & Spring Semester & First & Second Summer Session

SAP202 International Education and Exchange Programs
1-18 credits
Fall & Spring Semester & First & Second Summer Session

SAP203 International Education and Exchange Programs
1-18 credits
Fall & Spring Semester & First & Second Summer Session

SAP204 International Education and Exchange Programs
1-18 credits
Fall & Spring Semester & First & Second Summer Session

SAP301 Men and Material Culture in the Ancient Galilee
3 credits
Spring Semester
Course content may vary from semester to semester at selected universities.

SAP302 Archaeological Survey in the Galilee
3 credits
Fall Semester
Course content may vary from semester to semester at selected universities.

SAP303 The Rise of Christianity and Rabbinic Judaism in the Galilee
3 credits
Fall Semester
Course content may vary from semester to semester at selected universities.

SAP304 Galilee "Mosaic" - Aspects of the Galilee
3 credits
Fall Semester
Course content may vary from semester to semester at selected universities.

SAP305 Jewish Thought Over the Ages
3 credits
Fall Semester
Course content may vary from semester to semester at selected universities.

SAP306 Independent Study - Galilee Semester
3 credits
Fall Semester
Course content may vary from semester to semester at selected universities.

SAP311 Study Abroad-Argentina-Universidad del Salvador
1-18 credits
Fall & Spring Semester & First & Second Summer Session
STUDY ABROAD PROGRAM

SAP312 Study Abroad - Argentina - Universidad de San Andres
1-18 credits  Fall & Spring Semester

SAP313 Study Abroad - Argentina - Universidad Torcuato di Tella
1-18 credits  Fall & Spring Semester

SAP315 Study Abroad - Trinidad - University of the West Indies
1-18 credits  Fall & Spring Semester & First & Second Summer Session

SAP316 Study Abroad - Dominican Republic - Pont. Univ. Catolica Madre & Maestra
1-18 credits  Fall & Spring Semester

SAP317 The world in Prague - Witness to History
3 credits  Fall & Spring Semester
Course content may vary from semester to semester at selected universities.

SAP318 Prague in the World - Overcoming Smallness
3 credits  Fall & Spring Semester
Course content may vary from semester to semester at selected universities.

SAP319 Czech and European Art and Architecture
3 credits  Fall & Spring Semester
Course content may vary from semester to semester at selected universities.

SAP320 Jews in Christian and Moslem Europe: Introduction to Jewish Studies
3 credits  Fall & Spring Semester
Course content may vary from semester to semester at selected universities.

SAP321 Study Abroad - Australia - James Cook University
1-18 credits  Fall & Spring Semester

SAP322 Study Abroad - Australia - University of Wollongong
1-18 credits  Fall & Spring Semester

SAP323 Study Abroad - Australia - Monash University
1-18 credits  Fall & Spring Semester

SAP324 Study Abroad - Australia - University of Technology, Sydney
1-18 credits  Fall & Spring Semester

SAP325 Study Abroad - Australia - Murdoch University
1-18 credits  Fall & Spring Semester

SAP326 Study Abroad - Australia - Edith Cowan University
1-18 credits  Fall & Spring Semester

SAP327 Study Abroad - Australia - University of Melbourne
1-18 credits  Fall & Spring Semester

SAP328 Study Abroad - Australia - Griffith University
1-18 credits  Fall & Spring Semester

SAP329 Study Abroad - Australia - Flinders University
1-18 credits  Fall & Spring Semester
SAP330 Australia - Deakin University
1-18 credits Fall & Spring Semester

SAP331 Study Abroad - Australia - University of Sydney
1-18 credits Fall & Spring Semester

SAP332 From Kafka to Kundera - Two Sections
3 credits Fall & Spring Semester

SAP333 Reading Prague: Literature-Architecture-Cultural History
3 credits Fall & Spring Semester

SAP334 Snapshots of Changing Landscape: Currents in Contemporary Czech Literature
3 credits Fall & Spring Semester

SAP335 Literature of Central European Coffee Houses
3 credits Fall & Spring Semester

SAP336 Alternative Literature, Music and Lifestyles
3 credits Fall & Spring Semester

SAP337 Contemporary Central-European Politics
3 credits Fall & Spring Semester

SAP338 Does Central Europe Exist? Creating and Crossing Borders
3 credits Fall & Spring Semester

SAP339 Univ. of Vienna - Strobol
1-9 credits First & Second Summer Session

SAP340 Brazil - CIEE
1-18 credits Fall & Spring Semester & First & Second Summer Session

SAP341 Study Abroad-Colombia-Universidad Javeriana
1-18 credits Offered By Announcement Only

SAP342 Study Abroad-Colombia-Universidad de los Andes
1-18 credits Offered By Announcement Only

SAP343 Study Abroad - Brazil - Pontificia Universidade Catolica do Rio de Janeiro
1-18 credits Fall & Spring Semester

SAP345 Study Abroad-Ecuador-PUCE
1-18 credits Offered By Announcement Only

SAP349 Study Abroad-Czech Republic-Prague Summer Film Program
1-12 credits Offered By Announcement Only
Academy of Performing Arts.

SAP350 Study Abroad - England - University of Kent
1-18 credits Fall & Spring Semester

SAP351 Study Abroad-England-University of Sussex
1-18 credits Fall & Spring Semester
SAP352 Study Abroad-England-University of Essex  
1-18 credits  
Fall & Spring Semester

SAP353 Study Abroad - England - London School of Economics  
3- 6 credits  
Fall & Spring Semester

SAP354 Study Abroad-England-University of Leicester  
1-18 credits  
Fall & Spring Semester

SAP355 Study Abroad-England-Queen Mary and Westfield College  
1-18 credits  
Fall & Spring Semester

SAP356 Study Abroad - England - Buckinghamshire Chilterns University College  
1-18 credits  
Fall & Spring Semester

SAP357 Study Abroad-England-University of Westminster  
1-18 credits  
Fall & Spring Semester

SAP358 Study Abroad-England-University of East Anglia  
1-18 credits  
Fall & Spring Semester

SAP359 Study Abroad-England-Lancaster University  
1-18 credits  
Fall & Spring Semester

SAP361 Study Abroad-Chile-Univ. Diego Portales  
1-18 credits  
Fall & Spring Semester

SAP362 Study Abroad-Chile-Universidad Catolica  
1-18 credits  
Fall & Spring Semester

SAP363 Study Abroad - Chile - Universidad de Playa Ancha  
1-18 credits  
Fall & Spring Semester & First & Second Summer Session

SAP365 Study Abroad-China-Chinese University of Hong Kong  
1-18 credits  
Fall & Spring Semester

SAP366 Study abroad-Zhongnan University of Economics and Law  
1-18 credits  
First & Second Summer Session

SAP371 Sweet Briar College JY France  
1-18 credits  
Fall Semester

SAP372 Study Abroad-France-Universite d'Orleans  
1-18 credits  
Fall & Spring Semester & First & Second Summer Session

SAP373 Study Abroad-France-University of Paris-MICEFA  
1-18 credits  
Fall & Spring Semester

SAP374 Study Abroad-France-L'Ecole Superieure de Commerce Groupe de Rennes  
1-18 credits  
Fall & Spring Semester

SAP375 Study Abroad-France-American University of Paris  
1-18 credits  
Fall & Spring Semester & First & Second Summer Session
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<td>SAP382</td>
<td>Study Abroad-Germany-University of Tuebingen</td>
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<td>Fall &amp; Spring Semester</td>
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<td>South Africa-University of Natal</td>
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<td>Study Abroad-Israel-Hebrew University of Jerusalem</td>
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<td>SAP431</td>
<td>Study Abroad-Japan-Sophia University</td>
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1249
SAP445 Study Abroad - Denmark - University of Southern Denmark  
1-18 credits  
Fall & Spring Semester

SAP446 Study Abroad--Denmark--Univ. of Copenhagen  
1-18 credits  
Fall & Spring Semester

SAP447 Study Abroad--Denmark--Aalborg Univ.  
1-18 credits  
Fall & Spring Semester

SAP451 Mexico-Centro de Investigaciones y Docencia Economica  
1-18 credits  
Fall & Spring Semester

SAP452 Study Abroad-Mexico-Universidad Iberoamericana  
1-18 credits  
Fall & Spring Semester & First & Second Summer Session

SAP453 Study Abroad--Mexico--Univ. de las Americas-Puebla  
1-18 credits  
Fall & Spring Semester

SAP455 Study Abroad - Monaco - International University of Monaco  
1-18 credits  
Fall & Spring Semester & First & Second Summer Session

SAP461 Study Abroad-Scotland-University of Glasgow  
1-18 credits  
Fall & Spring Semester

SAP462 Study Abroad-Scotland-University of Edinburgh  
1-18 credits  
Fall & Spring Semester

SAP463 Study Abroad-Scotland-University of Stirling  
1-18 credits  
Fall & Spring Semester

SAP465 Study Abroad-Japan-Kagoshima  
3- 9 credits  
Fall Semester

SAP466 Study Abroad - Singapore - Nanyang Technological University  
1-18 credits  
Fall & Spring Semester

SAP467 Study Abroad  Singapore - National University of Singapore  
1-18 credits  
Fall & Spring Semester

SAP468 Study Abroad-England-University of Oxford Summer Program  
3- 6 credits  
First & Second Summer Session

SAP470 Study Abroad-Spain-Universidad De Sevilla  
1-18 credits  
Fall & Spring Semester

SAP471 Study Abroad-Spain-University of Cantabria  
1-18 credits  
Fall & Spring Semester & First & Second Summer Session

SAP472 Study Abroad-Spain-Universidad de Granada  
1-18 credits  
Fall & Spring Semester

SAP473 Study Abroad-Spain-Universidad de Murcia  
1-18 credits  
Fall & Spring Semester
SAP474 Study Abroad - Spain - Universidad de Alicante
1-18 credits
Fall & Spring Semester

SAP475 Spain - Universidad de Santiago de Compostela
1-18 credits
Fall & Spring Semester

SAP476 Study Abroad-Spain-Antonio de Nebrija
1-18 credits
Fall & Spring Semester

SAP477 Study Abroad--Spain--Univ. Politecnica de Madrid
1-18 credits
Fall & Spring Semester

SAP478 Finland - Sibelius Academy
1-18 credits
Fall & Spring Semester

SAP479 Poland-Adam Mickiewicz University
1-18 credits
Fall & Spring Semester

SAP480 Mexico-Instituto Technologico y de Estudios Superiores De Monterrey
1-18 credits
Fall & Spring Semester

SAP481 Germany - Universitat Mannheim
1-18 credits
Fall & Spring Semester

SAP482 Vienna - Vienna University of Economics and Business Administration
1-18 credits
Fall & Spring Semester & First & Second Summer Session

SAP483 Spain-Universidad de las Palmas de Gran Canaria
1-18 credits
Fall & Spring Semester

SAP484 Austria - University of Innsbruck
1-18 credits
Fall & Spring Semester

SAP485 Spain-Universidad Politecnica de Valencia
1-18 credits
Fall & Spring Semester

SAP486 Study Abroad - Czech Republic - Charles University
1-18 credits
Fall & Spring Semester

SAP487 Study Abroad - Brazil - Pontificia Universidade Catolica do Rio Grande do Sul
1-18 credits
Fall & Spring Semester

SAP488 Study Abroad - Technische Universitat Munchen
1-18 credits
Fall & Spring Semester

SAP490 Canada-McGill University
1-18 credits
Fall & Spring Semester

SAP491 Study Abroad-Sweden-Uppsala University
1-18 credits
Fall & Spring Semester

SAP495 Study Abroad-Switzerland-University of Lausanne
1-18 credits
Fall & Spring Semester & First & Second Summer Session
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<td>Study Abroad - Korea - Yonsei University</td>
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<td>SAP503</td>
<td>Czech Republic-Charles University</td>
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In some departments it is possible to earn graduate credits for study taken abroad. Curriculum must be worked out by the student in conjunction with an advisor.
GRADUATE COURSES *
* 500 level courses appear in both the undergraduate and graduate course listing and may be considered undergraduate or graduate at the discretion of the department. Prerequisites, co-requisites and other course requirements are subject to change.

**Architecture**
- Architecture
- Real Estate Development

**Arts & Sciences**
- Anthropology
- Art
- Art History
- Biology
- Chemistry
- Computer Science
- English
- French
- Geography
- Geological Sciences
- German
- History
- International Studies
- Italian
- Latin
- Latin American Studies
- Liberal Studies
- Mathematics
- Modern Languages & Literatures
- Philosophy
- Physics
- Political Science
- Portuguese
- Psychology
- Religious Studies
- Sociology
- Spanish

**Business**
- Accounting
- Business
- Business Law
- Computer Information Systems
- Economics
- Executive & Special Programs
- Finance
- Management
- Management Science
- Marketing
Communication
Communication
Communication Studies
Electronic Media
Journalism
Motion Pictures
Public Relations
Visual Journalism

Education
Educational & Psychological Studies
Exercise & Sport Sciences
Teaching & Learning

Engineering
Biomedical Engineering
Civil, Architectural & Environmental Engineering
Electrical and Computer Engineering
Industrial Engineering
Mechanical and Aerospace Engineering

Graduate School - Interdisciplinary
Interdisciplinary Global Studies

Marine & Atmospheric Science
Applied Marine Physics
Marine Affairs and Policy
Marine Biology and Fisheries
Marine Geology and Geophysics
Marine and Atmospheric Chemistry
Marine and Physical Oceanography
RSMAS – General

Medicine
Biochemistry & Molecular Biology
Cancer Biology
Epidemiology & Public Health
Human Genetics & Genomics
Interdisciplinary Biomedical Studies
Microbiology & Immunology
Molecular Cell & Developmental Biology
Molecular & Cellular Pharmacology
Neuroscience
Physical Therapy
Physiology & Biophysics
Program in Biomedical Sciences
Music 1615
Instrumental Performance
Keyboard Performance
Music Education and Therapy
Music Media and Industry
Music Theory and Composition
Musicology
Studio Music and Jazz
Vocal Performance

Nursing and Health Studies 1701
Health Studies
Healthcare Sciences
Nursing

International Exchange and Language Programs 1717
Study Abroad Program

University Internship 1718
ARC501 Architecture Design and Theory I  
6 credits  
Fall Semester  
Cultural, human and environment component and architectural responses to these:  
Social and aesthetic concepts, architectural psychology, climatic principles,  
programming analysis and design.  
PREREQUISITE: GRADUATE STANDING.

ARC502 Architecture Design and Theory II  
6 credits  
Spring Semester  
Technology component; materials, structure, and environmental control systems as  
a framework for architectural design. Construction materials and methods, structural  
systems, mechanical systems.  
PREREQUISITE: ARC 501.

ARC503 Architectural Design and Theory III  
6 credits  
Fall Semester  
Legal and economic component; government and finances as active constituents of  
architecture design. Zoning regulations, building codes, principles of public  
health, safety and welfare, market and feasibility studies.  
PREREQUISITE: ARC 502.

ARC507 Architecture Design  
6 credits  
Fall & Spring Semester & First & Second Summer Session  
Elective component: student and faculty select areas of in-depth study. Topics  
include building types, environment, energy, community design, etc.  
PREREQUISITE: ARC503.

ARC509 Architecture Design IX  
6 credits  
Fall & Spring Semester & First & Second Summer Session  
Elective component: student and faculty select areas of in-depth study. Topics  
include building types, environment, energy, community design, etc.  
PREREQUISITE: ARC 408.

ARC510 Architecture Design X  
6 credits  
Fall & Spring Semester & First & Second Summer Session  
Elective component: student and faculty select areas of in-depth study. Topics  
include building types, environment, energy, community design, etc.  
PREREQUISITE: ARC 509.

ARC511 Drawing  
3 credits  
Fall Semester  
Graphic representation and exploration of visual ideas through increased awareness  
of visual and graphic vocabulary, stressing projections, light, shade and shadow,  
perspective, and freehand sketching.  
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF INSTRUCTOR.

ARC512 Advanced Visual Analysis  
3 credits  
Offered By Announcement Only  
Drawing as a means of analyzing and recording visual experience. Composition, form,  
light, color and drawing as a primary device in the mental registration of visual  
experience.  
PREREQUISITE: ARC 204, 112.
ARC513 Computing
3 credits
Spring Semester
An introduction to new electronic design tools and technology available to architects today. Lectures on the history and future of computing in the profession.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF INSTRUCTOR.

ARC514 Michelangelo
3 credits
Fall Semester
Drawing as a form of research across mediums to understand historical research and interpretation of Michelangelo's work.
PREREQUISITE: ARC 306, 112, 213 OR PERMISSION OF THE INSTRUCTOR.

ARC515 Computer Modeling
3 credits
Fall & Spring Semester
Three-dimensional, computer modeling, and rendering. Lecture, problem solving exercises and laboratory.
PREREQUISITE: ARC 213, 513 OR PERMISSION OF THE INSTRUCTOR.

ARC516 Architectural Watercolor Renderings
3 credits
Fall Semester
This course will use freehand drawing and watercolor painting as a vehicle to study and record the urban and architectural conditions of Coral Gables and other South Florida sites. Particular emphasis will be placed on the analytical potential of sketches (recording space, light, surfaces and color).
PREREQUISITE: ARC 306 OR PERMISSION OF THE INSTRUCTOR.

ARC517 Construction Documents
3 credits
Fall Semester
Working drawings and specifications. Form, content and role of constituent parts of working drawings and specifications by using case studies.
PREREQUISITE: ARC 204 AND 261.

ARC518 Documentation of Historic Architecture
3 credits
First & Second Summer Session
Principles of preservation and restoration, research methods, measured drawings, surveying methods, case studies.
PREREQUISITE: ARC 204.

ARC519 Architecture and Color
3 credits
First & Second Summer Session
This course focuses on the theory and practice of color and its application to architectural design. Topics include color history from Newton through Alber, the relationship between color practice in science versus art, and the discipline of color in architecture from the Neoclassical movement through the Modern Movement.
PREREQUISITE: ARC 306 OR PERMISSION OF THE INSTRUCTOR.

ARC520 Computer Modeling II
3 credits
Spring Semester
Advanced three-dimensional computer modeling and rendering. Lecture, problem solving exercises and laboratory.
PREREQUISITE: ARC 213 OR 513 AND 515 OR PERMISSION OF THE INSTRUCTOR.
ARC521 The Architecture of American Cities
3 credits Fall Semester
Study of theories on relationships between architectural objects and urban space based on works which include Sitte, Rossi, and Norberg-Schulz. Application of selected theoretical principles to the contemporary American cities.
PREREQUISITE: ARC 374.

ARC522 Architecture Psychology
3 credits Offered By Announcement Only
Environmental behavior concepts and their application to an architecture focused on designing for people. Fundamental principles covered include proxemics, privacy, personalization, territoriality, defensible space, social interaction, aesthetics, symbolism, and spatial perception, reasons for individual and cultural differences in spatial actions are outlined. Psychological and social concepts are applied to the process of design and to residential environments, neighborhoods, and public spaces.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ARC523 Interior Architecture Design
3 credits Fall Semester
Principles and technical components of interior design. Topics include activity, analysis, finishes, furniture, fixture, lighting, and acoustics.
PREREQUISITE: ARC 204 OR PERMISSION OF THE INSTRUCTOR.

ARC524 Selected Topics in Interior Architecture Design
3 credits Spring Semester
Principles and technical components of interior design. Topics include interior volumetrics, finishes, furnishings and lighting.
PREREQUISITE: ARC 204 OR PERMISSION OF THE INSTRUCTOR.

ARC525 Landscape Arch Design I
3 credits Fall & Spring Semester
Analysis and design of landscape spaces. Studies in historical precedent, gardens, parks, plazas, squares and response to architectural context.
PREREQUISITE: ARC 204 OR PERMISSION OF THE INSTRUCTOR.

ARC526 Landscape Arch Design II
3 credits Offered By Announcement Only
Analysis and design of landscape spaces. Topics include ecological principles, landforms and plant materials.
PREREQUISITE: ARC 204 OR PERMISSION OF THE INSTRUCTOR.

ARC527 Architecture Photography
3 credits Offered By Announcement Only
Photography with emphasis on architectural subjects. Introduction to visual principles, photographic equipment, materials, and techniques.
PREREQUISITE: ARC 204.

ARC528 Historic Preservation
3 credits Spring Semester
Basic design principles for the rehabilitation of historic buildings. Evaluating character-defining details; significance analysis; context of setting issues within historic districts; applying the Secretary of the Interior's Standards for rehabilitation.
PREREQUISITE: ARC 204.
ARC529 Research in Design-Methods and Procedures
3 credits                                              Fall & Spring Semester
Application of research methods and procedures to design issues. Historical, descriptive, analytic, experimental research methods; tools for data manipulation and communication.
PREREQUISITE: PERMISSION OF PROGRAM DIRECTOR.

ARC530 Architectural Principles of Harmony
3 credits                                              Fall & Spring Semester
The study of the essential elements of architectural design including form, proportion, light, color, ornamentation and intention. Referring to historic precedents, students will investigate the relationship between these elements through the spectrum of harmonic ratios. Emphasis on understanding Greek and Roman principles of design through analytical drawing.
PREREQUISITE: ARC 382.

ARC531 Building Structures I
3 credits                                              Spring Semester
The structural behavior and tectonic form of the elements of buildings. Topics include loads, stability, equilibrium, strength, and the dimensions of structural form.
PREREQUISITE: PHY 103, GRADUATE STANDING OR PERMISSION OF INSTRUCTOR.

ARC532 Building Structures II
3 credits                                              Spring Semester & First Summer Session
The structural behavior of simple frame structures. Topics include techniques to determine basic system layout and preliminary dimensioning of key subsystems and members.
PREREQUISITE: ARC 531.

ARC533 Building Structures III
3 credits                                              Fall Semester & Second Summer Session
The structural behavior of complex structures. Topics include prestressed systems, waffle and space trusses, curved structures and longspan buildings.
PREREQUISITE: ARC 532.

ARC534 The Palazzo in Italian Architecture
3 credits                                              Fall & Spring Semester
Study of the development of the Renaissance and Baroque palazzo in Rome and other important centers of art and culture. Emphasis on the socio-political context.
PREREQUISITE: ARC 382.

ARC535 Historic Italian Urbanism
3 credits                                              Fall & Spring Semester
Study of Italian cities and towns from medieval to contemporary times, including a comparative analysis of history and form.
PREREQUISITE: ARC 382.

ARC536 Italian Gardens
3 credits                                              Fall & Spring Semester
Study of Italian garden design during the Renaissance, Baroque and Mannerist periods. Emphasis on historical and political context.
PREREQUISITE: ARC 382.
ARC537 Research in Rome
3 credits
Fall & Spring Semester
An exploration of Roman history, architecture and urban form through lectures, on site study and drawing assignments. Emphasis on chronological and spatial sequence of development.
PREREQUISITE: ARC 382.

ARC541 Seminar on Town Design
3 credits
Fall Semester
Introduction to the lexicon of urbanism; analytical presentations of the concepts of: region, town, neighborhood, corridor, district, and building type; interdisciplinary presentations, review, and criticism of current town and urban design projects.

ARC542 Seminar on Housing
3 credits
Offered By Announcement Only
Introduction to domestic building typology; exploration of the concepts of low, medium, and high density housing with attention to social, environmental, and economic issues; presentations of current case studies.
PREREQUISITE: ARC 306 OR PERMISSION OF INSTRUCTOR.

ARC543 Seminar on Retrofit of Suburbia
3 credits
Offered By Announcement Only
Introduction to the critical reconstitution of the city; theory and history of the concepts of revitalization and redevelopment; presentations, review, and criticism of current case studies.
PREREQUISITE: ARC 306 OR PERMISSION OF INSTRUCTOR.

ARC544 The Architecture of Palladio
3 credits
Fall Semester
On site study of the architecture and urbanism of Andrea Palladio. Emphasis on the artistic precedents of the Veneto Region.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

ARC545 Urban Composition
3 credits
Offered By Announcement Only
Survey and analytical review of urban rooms as the vessel of human activity in urban culture. Study of proportional and compositional aspects of urban rooms together with economic, social, and cultural factors. Readings and discussion format.
PREREQUISITE: ARC 306, 502, OR PERMISSION OF INSTRUCTOR.

ARC546 Studies of Havana
3 credits
Spring Semester
Analysis of the physical structure of a major city and its environments including an exploration of its history and iconographic themes, mapping and building studies.

ARC547 Architecture and Urban Identity
3 credits
Offered By Announcement Only
Study of the relationship between architecture and urbanism focusing on the ways by which architecture provides urban identity and image of place. Case studies relating monuments, fabric and urban plans to their culture, time and place. Lecture and seminar format.
PREREQUISITE: ARC 306 OR PERMISSION OF INSTRUCTOR.
ARC548 Seminar in Community Development
3 credits Offered By Announcement Only
Study of the contemporary context for the development of the physical environment. Examination of public, private and third sector implementation of building and community design. Format: guest speakers, readings, discussions, and seminar. PREREQUISITE: ARC 305, 502, OR PERMISSION OF INSTRUCTOR.

ARC550 Professional Lecture Series
3 credits Fall & Spring Semester
Exposure to the various professional disciplines in South Florida that make contributions to the design process. Case study analysis and evaluation of current building project, from time of initial formulation through completion, including research, diagrammatic studies, site visits and lectures.

ARC551 Contemporary Theories of Architecture
3 credits Offered By Announcement Only
Theoretical basis of modern architecture and different present currents and movements. Agrarianism, technism, orthodoxy, brutalism, scientism, revivalism, consumerism, rationalism, classicism. PREREQUISITE: ARC 204 OR PERMISSION OF INSTRUCTOR.

ARC553 Structural Design Theory
3 credits Offered By Announcement Only
Relationship of structural systems to architectural design. Case studies in theories of structure, form and construction. PREREQUISITE: ARC 306 AND CAE 313.

ARC554 Architecture of South Florida
3 credits Offered By Announcement Only
History of architecture and human settlements. Studies of significant architectural landmarks and urban design of the South Florida Region, chronological growth of Miami, Miami Beach, Coral Gables, Key West and Palm Beach. PREREQUISITE: ARC 204 OR PERMISSION OF THE INSTRUCTOR.

ARC555 Design and Fabrication Techniques in Wood: The Lamp
3 credits Spring Semester
Design, construction and detailing of wood as applied to furnishings and interiors. Focus: lamps and illumination. Workshop based course including research, exercises, measuring, documentation and a final project.

ARC556 Design and Fabrication Techniques in Wood - The Clock
3 credits Fall Semester
Design, construction and detailing of wood as applied to furnishings and interiors. Focus: Traditional Clock and Case Design. Workshop based course including research, exercises, measuring, documentation and a final project.

ARC557 Design and Fabrication Techniques: Carved Panels
3 credits First & Second Summer Session
Design, construction and detailing of wood as applied to furnishings and interiors. Focus: low and high relief carved wood panels. Workshop based course including research, exercises, measuring, documentation and a final project.
ARC558 Theories of Landscape Architecture

3 credits  
Fall Semester
Leading theories of landscape architecture which have influenced current considerations of nature, landscape and design.
PREREQUISITE: ARC 204 OR PERMISSION OF INSTRUCTOR.

ARC559 Computer Aided Presentation Graphics

3 credits  
Offered By Announcement Only
Introduction to computer aided presentation graphics from the perspective of the design professional. Topics include: desktop publishing, image processing, and desktop presentations.
PREREQUISITE: ARC 213 OR PERMISSION OF INSTRUCTOR.

ARC561 Building Construction

3 credits  
Fall Semester
Material characteristics of enclosure and structural systems, case studies in traditional and modern building construction. Topics include properties of building materials; wood, masonry, concrete, steel and glass construction techniques; on-site and off-site processes; interior and exterior finishes; assemblies, detailing and building codes.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR.

ARC562 Building Systems I

3 credits  
Fall Semester
Environmental and Safety Systems. Topics include mechanical - HVAC and conveyors; plumbing - fixtures and pipes; electrical - equipment and wiring design; safety systems - fire safety and emergency and signal systems.
PREREQUISITE: ARC 561 OR PERMISSION OF INSTRUCTOR.

ARC563 Building Systems II

3 credits  
Spring Semester
Principles and applications of light and acoustics. Topics include natural and artificial light - planning for sunlight, problems and solutions for interior and exterior illumination; sound - properties, problems and solutions in new and existing spaces electrical equipment and wiring design.
PREREQUISITE: ARC 562 OR PERMISSION OF INSTRUCTOR.

ARC564 Building Systems III

3 credits  
Offered By Announcement Only
Direction, control and coordination of construction project activities. Topics include inspection, reporting, recording, safety standards.
PREREQUISITE: ARC 363 OR 563 OR PERMISSION OF INSTRUCTOR.

ARC567 History of Architecture I: Ancient, Medieval and Renaissance

3 credits  
Fall Semester
Studies of the history of architecture and urban design. Focus on religious and secular monuments and their settings, domestic architecture and infrastructure, regional constructional and compositional traditions from prehistory to the end of the sixteenth century. Corequisite: ARC 501.
ARC568 History of Architecture II: Baroque through Contemporary
3 credits
Spring Semester
Studies of the history of architecture and urban design. Focus on religious and
secular monuments and their settings, domestic architecture and infrastructure,
regional constructional and compositional traditions from the end sixteenth century
through to the present. Corequisite: ARC502.

ARC569 Directed Readings
3 credits
Fall & Spring Semester & First & Second Summer Session
A structured program of readings and essays organized by the student and his/her
graduate supervisor constituting a preparation for graduate research in the student's
chosen area of interest.
PREREQUISITE: PERMISSION OF PROGRAM DIRECTOR.

ARC570 Modern Architecture
3 credits
Spring Semester
History of architecture, landscape, and city design in the modern era.

ARC571 Ancient Architecture
3 credits
Fall Semester
History of architecture and human settlements. Western European prehistory, Egypt,
Mesopotamia, Persia, Aegean and Mediterranean, Greece, Rome.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR.

ARC572 Selected Topics in World Architecture
3 credits
Fall Semester
History of architecture and human settlements. Islamic Near East, North Africa,
Hindu and Buddhist India, Nepal, S. E. Asia, China, Japan, Pre-Columbian America.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR.

ARC573 Early Christian, Byzantine, and Medieval Architecture
3 credits
Fall Semester
History of architecture and human settlements. Early Christian and Byzantine architecture
in Italy, the Near East, Greece, North Africa, Eastern Europe, Medieval architecture
in Western Europe.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR.

ARC574 Renaissance Architecture
3 credits
Fall Semester
History of architecture and human settlements. Renaissance and Baroque architecture
in Italy, France, Spain and Portugal, Great Britain, Austria, Germany, and neighboring
countries.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR.

ARC575 Colonial Architecture
3 credits
Fall Semester
History of architecture and human settlements. Iberian and British Colonies from
the 16th through the 19th centuries: North and South America, Caribbean, India
and Africa.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR.
ARC576 19th and 20th Century Architecture
3 credits  Fall Semester
History of architecture and human settlements. America and Europe during the 19th and 20th centuries; cultural, technological and theoretical development.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR.

ARC577 The Architecture of Alvar Aalto
3 credits  Fall Semester
An examination of the architecture of Alvar Aalto through the analysis of selected buildings.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

ARC578 Italian Rationalist Architecture
3 credits  Offered By Announcement Only
History of Italian architecture and urban design between 1914 and 1950: cultural, technological, and theoretical developments; relationship between architecture, politics and propaganda; related survey of the period in other countries (France, German, Soviet Union).
PREREQUISITE: ARC 305 OR PERMISSION OF THE INSTRUCTOR.

ARC579 History of Architecture: The Natural and the Man-Made
3 credits  Offered By Announcement Only
A review of the relationship between man, the landscape, and architecture from pre-history to the twentieth century.
PREREQUISITE: GRADUATE STANDING.

ARC584 Special Problems
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Group or individual investigations of significant architectural issues, offered by special arrangement only.
PREREQUISITE: PERMISSION OF PROGRAM DIRECTOR.

ARC585 Special Problems
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Group or individual investigations of significant architectural issues, offered by special arrangement only.
PREREQUISITE: PERMISSION OF PROGRAM DIRECTOR.

ARC586 Special Problems
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Group or individual investigations of significant architectural issues, offered by special arrangement only.
PREREQUISITE: PERMISSION OF PROGRAM DIRECTOR.

ARC590 History of Cities
3 credits  Fall & Spring Semester
Historical overview of the origin of cities and the development of cities in the East, West, and New World. Focus on the nature of the industrial revolution and the development of the industrial city and contemporary urban settlements.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR.
ARC592 Computing in Design Practice
3 credits  Fall Semester
Introduction to computer applications specific to the design professional practice and management of computing resources in a design firm.
PREREQUISITE: ARC 213 OR 513 OR PERMISSION OF INSTRUCTOR.

ARC593 Computer Animation
3 credits  Spring Semester
Explores the use of computer animation and advanced visualization techniques in architecture with emphasis on texture and lighting, spatial choreography and story-boarding.
PREREQUISITE: ARC 415 OR PERMISSION OF INSTRUCTOR.

ARC594 Geographic Information Systems in Urban Design
3 credits  Spring Semester
Exploration of Geographic Information Systems (GIS) in urban design. Principles of GIS and their application to spatial analysis, data management and visualization.
PREREQUISITE: ARC 213 OR 513 OR PERMISSION OF INSTRUCTOR.

ARC595 Database Management Systems and Programming
3 credits  Fall Semester
Introduction to principles of database management and programming. Instruction of a selected database management program and a programming language.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR.

ARC596 Interactive Multimedia in Design
3 credits  Spring Semester
Integration of text, video, sound, and computer graphics to create an interactive electronic information medium.
PREREQUISITE: ARC 213 OR 513 OR PERMISSION OF INSTRUCTOR.

ARC597 Computer Visualization
3 credits  Spring Semester
Focus: Explores the use of various advanced visualization techniques in design. Topic will change from semester to semester. Format: lecture, laboratory and exercises.
PREREQUISITE: ARC 593 OR 596 OR PERMISSION OF INSTRUCTOR.

ARC601 Town Design
6 credits  Fall Semester
Exploration of town design as an alternative to suburban sprawl.
PREREQUISITE: GRADUATE STANDING.

ARC602 Housing Design
6 credits  Spring Semester
Exploration of low and medium density housing with attention to social, environmental, and market issues. Design of housing in different social and environmental conditions.
PREREQUISITE: ARC 601.

ARC603 Redesign of Suburbia
6 credits  First & Second Summer Session
Exploration of design issues and problems related to growth management and the re-development of suburbia.
PREREQUISITE: ARC 602.
ARC607 Architecture Design
6 credits                    Fall & Spring Semester & First & Second Summer Session
Elective component: student and faculty select areas of in-depth study. Topics include building types, environment, energy, community design, etc.
PREREQUISITE: ARC 503.

ARC608 Architecture Design
6 credits                    Fall & Spring Semester & First & Second Summer Session
Specialization component: student and faculty select areas of in-depth study in housing. Low-income housing, elderly housing, suburban housing, housing types, etc.
PREREQUISITE: ARC 607.

ARC609 Architecture Design
6 credits                    Fall & Spring Semester & First & Second Summer Session
Comprehensive project. Programming, design development, formulation of alternative solutions, detailing, presentation.
PREREQUISITE: ARC 608.

ARC610 Architecture Design Degree Project
6 credits                    Fall & Spring Semester & First & Second Summer Session
Special component: student/faculty selected area of special study.
PREREQUISITE: ARC 609.

ARC611 Architecture Design and Research
6 credits                  Fall Semester
Documentation, investigation and research of the stylistic and constructive characteristics of Roman buildings and monuments. Focus on factual documentation.

ARC612 Architecture Design and Research
6 credits                  Spring Semester
Research and investigation of urbanism and the construction of the city through compositional exercises.

ARC621 Seminar on Town Design
3 credits                  Fall Semester
Introduction to the lexicon of urbanism; analytical presentations of the concepts of: region, town, neighborhood, corridor, district, and building type; interdisciplinary presentations, review, and criticism of current town and urban design projects. Corequisite: ARC 601.
PREREQUISITE: COREQUISITE ARC 601.

ARC622 Seminar on Housing
3 credits                  Spring Semester
Introduction to domestic building typology; exploration of the concepts of low, medium, and high density housing with attention to social, environmental, and economic issues; presentations of current case studies. Corequisite: ARC 602.
PREREQUISITE: COREQUISITE ARC 602.

ARC623 Seminar on Redesigning Suburbia
3 credits                  First & Second Summer Session
Introduction to the critical reconstitution of the city; theory and history of the concepts of revitalization and redevelopment; presentations, review, and criticism of current case studies. Corequisite: ARC 603.
PREREQUISITE: COREQUISITE ARC 603.
ARC624 Architecture Theory
3 credits
Spring Semester
Review and criticism of current theoretical work in architecture. Design theory, language, typology, image, form, context.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF THE INSTRUCTOR.

ARC625 Roman Architecture and Urbanism I
3 credits
Fall Semester
Historical overview of architecture and town planning in ancient Rome, from the Etruscan period through the Imperial period.

ARC652 Management of Professional Practice
3 credits
Fall Semester
Overview of the practice and the profession, legal and ethical concerns, business types and management practices, traditional and non-traditional practices and services, contracts and contractual relationships, disputes and risk management.
PREREQUISITE: ARC 502. LIMITED TO ARCHITECTURE STUDENTS.

ARC691 Seminar in Computing and Design
3 credits
Fall Semester
Exploration of a range of topics related to computing and design. Future of computing in design, electronic communications, computing and design theory and methods, etc.
PREREQUISITE: ARC 213 OR 513 OR PERMISSION OF INSTRUCTOR.

ARC695 Advanced Topics
3 credits
Fall & Spring Semester
Subject matter offerings based upon student demand and availability of faculty.
Subtitles describing the topics will be shown in the printed class schedule, following the title "Advanced Topics".
PREREQUISITE: PERMISSION OF THE PROGRAM DIRECTOR.

ARC696 Advanced Topics
3 credits
Spring Semester
Subject matter offerings based upon student demand and availability of faculty.
Subtitles describing the topics will be shown in the printed class schedule, following the title "Advanced Topics".
PREREQUISITE: PERMISSION OF THE PROGRAM DIRECTOR.

ARC699 Directed Research
1-6 credits
Fall & Spring Semester & First & Second Summer Session
Individually supervised projects. Required 6 credit course for all Master of Architecture in Computing students who exercise final project rather than thesis option.
PREREQUISITE: ARC 529 OR EQUIVALENT, APPROVED THESIS OR FINAL PROJECT PROPOSAL AND PERMISSION OF INSTRUCTOR.

ARC701 Masters Final Project
6 credits
Fall & Spring Semester & First & Second Summer Session
Individually supervised projects. Required as a 6 credit course for all Master of Architecture in Computing students electing a final project.
PREREQUISITE: AN APPROVED FINAL PROJECT PROPOSAL AND PERMISSION OF SUPERVISING FACULTY.
ARC710 Master's Thesis
1-6 credits  Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.
PREREQUISITE: PERMISSION OF THE PROGRAM DIRECTOR.

ARC720 Research in Residence
0 credit  Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis or final project for the master's degree after the student has enrolled for the permissible cumulative total in ARC 699 or ARC 710 (usually six credits). Credit not granted. May be regarded as full-time residence.
PREREQUISITE: PERMISSION OF THE PROGRAM DIRECTOR.

REAL ESTATE DEVELOPMENT
RED601 Introduction to Real State Development and Urbanism.
3 credits  Fall Semester

RED610 Financing Urban Real Estate Development
3 credits  Fall Semester
Concepts and techniques for analyzing financial decisions in property development and investment including: real estate economics and investment performance measurement, leasing and property income streams, pro forma analysis, basics of equity and debt valuation, income tax and leverage considerations, mortgages, and deal structures. Emphasis financing individual projects.

RED620 Real Estate Law
3 credits  Fall Semester
Fundamentals of law and the entitlement process, including contractual aspects of real estate development, finance, management and ethical issues and a real-world overview of the review and approvals process.

RED630 Market Analysis for Urban Markets
3 credits  Fall Semester
Identification of critical market factors that determine development opportunities. Topics include business and construction cycles, regional and urban growth trends, commercial and industrial location theories, and advanced demographic analysis and projection techniques to project and analyze occupancy, rental growth, absorption, and competitive supply.

RED640 National Charrette Institute (NCI)
1 credits  Spring Semester

RED650 Complex Urban Real Estate Transactions
3 credits  Spring Semester
Real estate finance, law, and deal structuring from the perspective of developers. Using the case study method, the course explores the legal components and the skills needed for drafting the documentation involved in sophisticated real property transactions, as well as complex original financings. prerequisite: Successful completion of Real Estate Finance and Real Estate Law.
PREREQUISITE: REAL ESTATE FINANCE AND REAL ESTATE LAW
RED660 Urban infill, Preservation & Mixed Use Development.

3 credits  
Spring Semester
Builds students' competencies for infill and redevelopment practice focusing on: mixed-use development, transit oriented development, barriers and solutions for urban infill development, urban site analysis, repositioning of urban land, vacant and underutilized properties, long-term land leases, tax incentives, historic preservation, public-private partnerships, business improvement districts, tax increment financing, community (re)development districts, parking strategies, and urban housing types.

RED670 Construction and Project Management

3 credits  
Spring Semester
Management of construction projects including legal considerations and techniques of management science applied to construction. Includes engineering methods of cost and time estimating, and exercises in applications of engineering economics, flow charts, tracking progress, construction contracts, indemnity agreements, and network planning techniques including CPM and PERT.

RED680 Entrepreneurship: Building A Real Estate Development Company

3 credits  
Spring Semester
Focuses on management and business practices for building new urban real estate firms capable of leading the industry and assuming competitive advantages over conventional models.

RED690 Integrated Real Estate Development Case Studies Practicum

3 credits  
First & Second Summer Session
Students integrate and apply their learning and skills to complex problem-solving involving a series of intensive real world cases of urban real estate development. Focuses on project feasibility and helps hone the required set of development skills.

RED699 Capstone: Real Estate Development and Urbanism Charrette

3 credits  
First & Second Summer Session
An intensive real estate development and urban design studio in which students are part of a multi-disciplinary team on an urban development project. Focuses on comprehensive analysis, project planning, feasibility and program development through the application of advanced development skills in an urban context.
APY501 Methods of Anthropological Research
3- 6 credits
Spring Semester
Concentration on research methods for Cultural, Archaeological, Linguistic, and/or Biological Anthropology.
PREREQUISITE: SIX CREDITS IN ANTHROPOLOGY AT 300 LEVEL OR ABOVE.

APY502 Field Studies in Anthropology
3- 6 credits
Fall & Spring Semester & First Summer Session
Field research in advanced topics in Cultural, Archaeological, Linguistic and/or Biological Anthropology. Preparation of data for professional presentation and publication is stressed.
PREREQUISITE: SIX CREDITS IN ANTHROPOLOGY AT 300 LEVEL OR ABOVE AND WRITTEN PERMISSION FROM INSTRUCTOR.

APY505 Museum Internship
3 credits
Fall & Spring Semester
Field work and on-site experience in museum studies conducted in conjunction with the major museums in Miami. Training and research in methods and techniques in museology.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

APY506 Workshop in Anthropology
3- 6 credits
Fall & Spring Semester
This course is designed for upper level and graduate students to participate in special topics in Anthropology and related fields.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

APY512 Advanced Medical Anthropology
3 credits
Fall & Spring Semester
Applications of theories and methods of medical anthropology to problems in human health and disease.
PREREQUISITE: APY 413, OR THREE CREDITS IN NURSING, OR THREE CREDITS IN EPIDEMIOLOGY AND PUBLIC HEALTH, OR PERMISSION OF THE INSTRUCTOR.

APY518 Advanced Seminar in Anthropology
3 credits
Fall & Spring Semester
Specialized topics in Anthropology to involve students into current research specializations.
PREREQUISITE: SIX CREDITS IN ANTHROPOLOGY AT 300 LEVEL OR ABOVE OR PERMISSION OF INSTRUCTOR.

ART
ART501 Advanced Painting III
3 credits
Fall & Spring Semester
Course content decided between student and professor.
PREREQUISITE: ART 402.

ART502 Advanced Painting IV
3 credits
Fall & Spring Semester
Continuation of ART 501.
PREREQUISITE: ART 501.

ART503 Independent Study in Painting
1- 6 credits
Fall & Spring Semester
Course content decided between student and professor. An independent study course may be repeated.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
ART504 Independent Study in Drawing
1-6 credits                             Offered By Announcement Only
Course content decided between student and professor. An Independent Study course may be repeated.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ART505 Topics in Painting
1-6 credits                              Fall Semester
Current readings and/or technical concerns not covered in the regular curriculum.
Course content will vary each semester.
PREREQUISITE: ANY 400 LEVEL PAINTING 2SS.

ART509 Independent Study in Other Media
1-6 credits                              Fall & Spring Semester
Course content decided between student and professor. Independent Study course may be repeated.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ART510 Advanced Photography III
3 credits                                 Fall & Spring Semester
Course content decided between student and professor.
PREREQUISITE: ART 411.

ART511 Advanced Photography IV
3 credits                                 Fall & Spring Semester
Continuation of ART 510.
PREREQUISITE: ART 510.

ART512 Independent Study in Photography
1-6 credits                              Fall & Spring Semester
Course content decided between student and professor. An independent Study course may be repeated.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ART517 Advanced Sculpture III
3 credits                                 Fall & Spring Semester
Examination of ongoing work in relationship to historical and contemporary interpretations issues.
PREREQUISITE: ART 418 AND PERMISSION OF INSTRUCTOR.

ART518 Advanced Sculpture IV
3 credits                                 Fall & Spring Semester
Continuation of ART 517.
PREREQUISITE: ART 517.

ART519 Independent Study in Sculpture
1-6 credits                              Fall & Spring Semester
Course content decided between student and professor. An Independent Study course may be repeated.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
ART551 Intaglio/Relief IV  
3 credits Offered By Announcement Only
Advanced work in intaglio/relief processes: course requirements decided between student and professor.
PREREQUISITE: ART 451.

ART552 Lithography IV  
3 credits Offered By Announcement Only
Advanced work in lithography: course requirements decided between student and professor.
PREREQUISITE: ART 452.

ART553 Silkscreen IV  
3 credits Offered By Announcement Only
Advanced work in silkscreen.
PREREQUISITE: ART 453.

ART554 Computer Assisted Printmaking  
3 credits Offered By Announcement Only
Advanced work in computer assisted printmaking; course requirements decided between student and professor.
PREREQUISITE: ART 454 OR PERMISSION OF INSTRUCTOR.

ART555 Topics in Printmaking  
1-6 credits Fall Semester
Current readings and/or technical concerns not covered in the regular curriculum.
Course content will vary each semester.
PREREQUISITE: ANY 400 LEVEL PRINTMAKING CLASS.

ART562 Contemporary Ceramic Art  
3 credits Fall & Spring Semester
Development of artistic style and technical abilities in relation to contemporary trends in ceramic art.
PREREQUISITE: ART 462 OR ART 463 OR PERMISSION OF INSTRUCTOR.

ART563 Independent Study in Ceramics/Glass  
1-6 credits Fall & Spring Semester
Course content decided between student and professor. An Independent Study course may be repeated.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ART564 Directed Research and Projects in Ceramics/Glass  
3 credits Fall & Spring Semester
Ceramic/glass approaches from early history to contemporary period, and the development of technical ability.
PREREQUISITE: ART 561 OR PERMISSION OF INSTRUCTOR.

ART591 Portfolio/Business of Design  
3 credits Offered By Announcement Only
Individually supervised graphic design portfolio. Professional practices in design.
PREREQUISITE: ART 491.

ART592 Special Projects/Multimedia  
3 credits Offered By Announcement Only
Video Art and multimedia portfolio includes classroom work.
PREREQUISITE: ART 392, 491, OR PERMISSION OF INSTRUCTOR.
ART 593 Seminar in Professional Practices
1-6 credits  Fall & Spring Semester
Advanced course with a required placement in a professional design or multimedia setting. Classroom sessions on professional topics and issues. Portfolio required. PREREQUISITE: SENIOR STANDING.

ART 599 Exhibition Preparation
3 credits  Fall Semester
A seminar class devoted to the preparatory work needed to plan and promote a solo exhibition, including installation/lighting concerns. Preliminary written assignments will also be given in preparation for ART 710 Thesis. PREREQUISITE: PERMISSION OF INSTRUCTOR.

ART 601 Painting
3 credits  Fall & Spring Semester
Professional and concentrated experiences in media and subject matter decided in conference between candidate and instructor. PREREQUISITE: COMPLETION OF 500 LEVEL PAINTING COURSES.

ART 602 Painting
3 credits  Fall & Spring Semester
Continuation of ART 601.

ART 603 Problems in Studio Art
1-6 credits  Fall & Spring Semester
Course content will be decided in conference between candidate and instructor. This course may be repeated for credit. PREREQUISITE: PERMISSION OF CHAIRMAN.

ART 604 Seminar in Studio Art
3 credits  Spring Semester
Special topics in selected area of studio art. PREREQUISITE: PERMISSION OF CHAIRMAN.

ART 610 Photography
3 credits  Fall & Spring Semester
Content decided in conference between candidate and instructor. PREREQUISITE: COMPLETION OF 500 LEVEL PHOTOGRAPHY COURSES.

ART 611 Photography
3 credits  Fall & Spring Semester
Continuation of ART 610. PREREQUISITE: ART 610.

ART 617 Sculpture
3 credits  Fall & Spring Semester
Content decided in conference between candidate and instructor. PREREQUISITE: COMPLETION OF 500 LEVEL SCULPTURE COURSES.

ART 618 Sculpture
3 credits  Fall & Spring Semester
Continuation of ART 617. PREREQUISITE: ART 618.
ART651 Intaglio/Relief V
3 credits  Offered By Announcement Only
Advanced intaglio/relief processes: course requirements decided between candidate and professor.
PREREQUISITE: COMPLETION OF 500 LEVEL INTAGLIO/RELIEF COURSE.

ART652 Lithography V
3 credits  Offered By Announcement Only
Advanced lithography. Course requirements decided between candidate and professor.
PREREQUISITE: COMPLETION OF 500 LEVEL LITHOGRAPHY COURSE.

ART653 Silkscreen V
3 credits  Offered By Announcement Only
Advanced work in silkscreen.
PREREQUISITE: ART 553.

ART654 Computer Assisted Printmaking
3 credits  Offered By Announcement Only
Advanced work in computer assisted printmaking; course requirements decided between candidate and professor.
PREREQUISITE: ART 554 OR PERMISSION OF INSTRUCTOR.

ART661 Ceramics
3 credits  Fall & Spring Semester
Content to be decided in conference between candidate and instructor.
PREREQUISITE: COMPLETION OF 500 LEVEL CERAMICS COURSES.

ART662 Ceramics
3 credits  Fall & Spring Semester
Continuation of ART 661.
PREREQUISITE: ART 661 OR PERMISSION OF INSTRUCTOR.

ART681 Writing About Art
3 credits  Fall Semester
Writing about art on a professional level.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ART691 Graphic Design
3 credits  Fall & Spring Semester
Advanced graduate projects in graphic design.
PREREQUISITE: GRADUATE STANDING.

ART692 Multimedia
3 credits  Fall & Spring Semester
Advanced graduate projects in multimedia.
PREREQUISITE: GRADUATE STANDING.

ART710 Master's Thesis
1-6 credits  Fall & Spring Semester
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.
### ART

**ART720 Research in Residence**

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Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in ART 710 (usually six credits). Credit not granted. May be regarded as full time residence.

### ART HISTORY

**ARH505 Problems in Art History**

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A means by which the student of advanced standing may investigate areas of a specialized nature, or those which are not offered as a regular part of the curriculum. Course content will be decided in joint conference between student and instructor.

**PREREQUISITE:** ANY 300-LEVEL OR 400-LEVEL COURSE IN ART HISTORY AND PERMISSION OF INSTRUCTOR.

**ARH506 Problems in Art History**

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A means by which the student of advanced standing may investigate areas of a specialized nature, or those which are not offered as a regular part of the curriculum. Course content will be decided in joint conference between student and instructor.

**PREREQUISITE:** ANY 300-LEVEL OR 400-LEVEL COURSE IN ART HISTORY AND PERMISSION OF INSTRUCTOR.

**ARH507 Museum Studies I**

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Administrative functions of local art museums; researching selected art works in their permanent collections.

**PREREQUISITE:** ARH 131, 132, ONE 300/400 LEVEL COURSE IN ART HISTORY, OR PERMISSION OF INSTRUCTOR.

**ARH508 Museum Studies II**

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Organizing an art museum exhibition, and participating in the installation. Writing and composing the catalogue.

**ARH509 Museum Internship**

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UM sponsored internship with Miami-area museum.

**PREREQUISITE:** BY PERMISSION OF HEAD OF ART HISTORY.

**ARH510 Arts Administration Internship**

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UM sponsored internship with Miami-area arts institution.

**PREREQUISITE:** BY PERMISSION OF HEAD OF ART HISTORY.

**ARH530 Seminar in Art History**

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<th>Credit</th>
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Special topics in western and nonwestern art. Semester's topic will be announced.

**PREREQUISITE:** PERMISSION OF INSTRUCTOR.

**ARH560 Seminar in Nineteenth and Twentieth Century Art**

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Special topics including museum practices and theory, women's art and contemporary issues.

**PREREQUISITE:** PERMISSION OF INSTRUCTOR.
ART HISTORY

ARH570 Seminar in Non-European Art
3 credits ------------ Offered By Announcement Only
Special Topics in African, Oriental, Oceanic, Native North or South American art traditions.
PREREQUISITE: ARH 133, 134, OR PERMISSION OF INSTRUCTOR.

ARH598 Seminar in Contemporary American Art
3 credits ------------ Fall Semester
Issues in Art since 1960: Aesthetic theories and ideological issues generated in contemporary art as expressed in the writing of artists and art critics.
PREREQUISITE: ARH 344. UNDERGRADUATES MUST HAVE PERMISSION OF INSTRUCTOR.

ARH605 Problems in Art History
3 credits ------------ Fall & Spring Semester
Course content will be decided in joint conference between student and instructor.

ARH606 Problems in Art History
3 credits ------------ Fall & Spring Semester
Course content will be decided in joint conference between student and instructor.

ARH681 Directed Reading and Research
1-3 credits -------- Offered By Announcement Only
Individual supervised research project on a specific artist, work of art, or period.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ARH682 Directed Reading and Research
1-3 credits -------- Offered By Announcement Only
Individual supervised research project on a specific artist, work of art, or period.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ARH710 Master's Thesis
1-6 credits -------- Fall & Spring Semester
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

ARH720 Research in Residence
0 credit ------------- Fall & Spring Semester
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in ARH 710 (usually six credits). Credit not granted. May be regarded as full time residence.

BIOLOGY

BIL511 Biometry
3 credits ------------ Offered By Announcement Only
Descriptive and analytical statistics as used in biology. Emphasizes sampling, presentation of quantitative data, probability theory applications, distributions, parametric and non-parametric test procedures.
PREREQUISITE: ONE SEMESTER OF STATISTICS AND ONE YEAR OF CALCULUS.

BIL512 PERL programming lab for Biologists
1 credit ------------- Fall Semester
PREREQUISITE: PERMISSION FROM INSTRUCTOR.
BIL520 Evolution
3 credits
Evolutionary mechanisms and pathways: sources of hereditary variation, evolutionary forces, origins of adaptations, speciation, macroevolution, origin of life and humankind.
PREREQUISITE: BIL 250.

BIL521 Systematics
3 credits
Concepts and methods in phylogenetic systematics. Lectures, discussions, and computer labs, 3 hours.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL522 Plant Evolution
3 credits
Role of genetic variation, local adaptation, speciation, hybridization and polyploidy, and life histories in plant evolution.
PREREQUISITE: BIL 250 OR PERMISSION OF INSTRUCTION.

BIL523 Advanced Biology of Marine Invertebrates
4 credits
Detailed study of major phyla of marine invertebrates. Special emphasis on taxa found in waters off southern Florida. Field course. Lectures, laboratory, special projects, and seminars.
PREREQUISITE: BIL 235 AND 321.

BIL525 Herpetology
3 credits
Systematics, biogeography, and evolutionary biology of amphibians and reptiles, with emphasis on modern families. Lecture, 2 hours; laboratory, 3 hours.
PREREQUISITE: BIL 235.

BIL526 Studies in the Biology of Mycorrhizae
2 credits
Readings, discussions and laboratory exercises concerning the biology of mutualistic root-inhabiting fungi and their plant hosts. Topics will vary by semester, may be repeated for credit.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL527 Biology of Fungi
4 credits
Physiology and ecology of the major groups of fungi, especially those of importance as pathogens or mutualists. Combined lecture and laboratory.
PREREQUISITE: ONE YEAR OF GENERAL BIOLOGY WITH LABORATORY.

BIL529 Higher Vascular Plants
4 credits
Anatomy and morphology of higher vascular plants; emphasis on form as related to function and ecology. Lecture plus laboratory, 6 hours.
PREREQUISITE: BIL 235.
BIL530 Population Genetics

3 credits

Offered By Announcement Only

Theories of genes in populations, including an analysis of the genetic basis of microevolution; current examples from natural and experimental populations. Lecture and discussion, 3 hours.

PREREQUISITE: BIL 251 AND A YEAR OF CALCULUS OR THEIR EQUIVALENTS.

BIL531 Advanced Field Ecology

5 credits

Offered By Announcement Only

Principles of and practical experience in quantitative sampling of community structure, plant and animal populations, and animal activities. Emphasis on individual projects. Lecture, 3 hours; laboratory and field, 10 hours alternate Saturdays plus projects.

PREREQUISITE: ONE SEMESTER OF ECOLOGY AND BIL 511 OR ANOTHER STATISTICS COURSE.

BIL535 Molecular Ecology

3 credits

Fall Semester

Molecular markers and analyses, and their applications to different problems in biology. Appropriate sampling, methods for assessing genetic diversity and differentiation. Approaches to studying gene flow, tools for behavioral ecology, remote sampling, tracking individuals, and paternity analysis, hybridization and speciation, DNA barcodes, and gene expression from a population biological perspective.

PREREQUISITE: BIL 250

BIL536 Molecular Ecology Laboratory

1 credits

Offered By Announcement Only

Laboratory techniques, molecular tools, applications, and analysis methods commonly used by researchers in the areas of molecular ecology and population genetics.

PREREQUISITE: BIL 535

BIL537 Ecosystem Ecology

3 credits

Offered By Announcement Only

Concepts and models of energy and nutrient flow, food webs, successional processes, human influences and effects of spatial heterogeneity.

PREREQUISITE: BIL 235 OR PERMISSION OF INSTRUCTOR.

BIL539 Wildlife Resource Philosophy and Policy

3 credits

Offered By Announcement Only

Attitudes, philosophy, and policies that govern management of wildlife resources worldwide. Methods to influence public support for implementation of sound wildlife resource management.

PREREQUISITE: BIL 332.

BIL540 Ethology and Behavioral Ecology

3 credits

Offered By Announcement Only

Evolutionary and comparative approach to concepts in animal behavior emphasizing function and mechanism. Topics include genetics of behavior, orientation, foraging, communication, and social behavior.

PREREQUISITE: BIL 235 AND EITHER BIL 241 OR 341 OR PERMISSION OF INSTRUCTOR.

BIL541 Laboratory and Field Ethology

3 credits

Offered By Announcement Only

Laboratory and field exercises introduce the quantitative techniques currently employed in ethological research. Both principles and practice will be covered and a term project is required.

PREREQUISITE: BIL 236.
BIL550 Cell Metabolism: Structure and Function
3 credits
Offered By Announcement Only
Interactions of cell organelles within the dynamic context of intracellular microarchitecture, enzyme kinetics and bioenergetics.
PREREQUISITE: BIL 255.

BIL551 Current Topics in Genetics
1- 2 credits
Offered By Announcement Only
Research literature in cytogenetics, molecular, human and population genetics. Subjects vary from year to year. This course may be repeated for credit.
PREREQUISITE: BIL 250 AND PERMISSION OF INSTRUCTOR.

BIL552 Bioinformatics Tools
3 credits
Fall Semester
Databases and tools of bioinformatics as relevant to research in genomics and molecular biology. Bioinformatics applications. Information retrieval, analytical tools, BLAST searches, promoter analysis, protein structure-function analysis and various applications.
PREREQUISITE: BIL 250

BIL554 Electron Microscopy
4 credits
Fall Semester
Techniques in transmission electron microscopy including tissue preparation, use of the electron microscope, photography, and interpretation of micrographs. Lecture, 1 hour; laboratory, 6 hours.
PREREQUISITE: BIL 255 OR 361 AND PERMISSION OF INSTRUCTOR.

BIL555 Projects in Electron Microscopy
2 credits
Spring Semester
Individual research projects in transmission electron microscopy, 6 hours.
PREREQUISITE: BIL 554. PERMISSION OF INSTRUCTOR.

BIL556 Ecological and Evolutionary Genomics
3 credits
Fall Semester
PREREQUISITE: BIL 250, BIL 255 OR PERMISSION FROM INSTRUCTOR

BIL562 Ornithology
4 credits
Offered By Announcement Only
Advanced ornithology with stress on quantitative aspects.
PREREQUISITE: BIL 261 OR EQUIVALENT.

BIL564 Advanced Developmental Biology
3 credits
Offered By Announcement Only
Comprehensive survey of the principles of development and methods of experimental analysis. Lecture, discussion and demonstration, 3 hours.
PREREQUISITE: BIL 364.

BIL566 Plant Environmental Physiology
3 credits
Offered By Announcement Only
Environmental influence on the physical and chemical bases of life processes in plants, including ecosystem consequences.
PREREQUISITE: BIL 255, 265 OR PERMISSION OF INSTRUCTOR.
BIL567 Animal Physiological Ecology
3 credits Offered By Announcement Only
Physiological interactions of animals with their biotic and abiotic environments:
Information integrated from tissue, organ, and whole organism levels.
PREREQUISITE: BIL 265 OR PERMISSION OF INSTRUCTOR.

BIL568 Evolution and development of Nervous Systems
3 credits Fall Semester
Mechanisms/pathways/modules underlying formation of the nervous system during development.
How some properties of nervous systems have resisted change while others have diverged
dramatically during evolution.
PREREQUISITE: BIL 268 OR BIL 355 OR PERMISSION OF INSTRUCTOR

BIL569 Biology of Aging
3 credits Offered By Announcement Only
The hypotheses and data relating to the biological basis of aging in invertebrates
and vertebrates, including humans.
PREREQUISITE: SENIOR OR GRADUATE STATUS IN A BIOLOGICAL SCIENCE.

BIL571 Advanced Special Studies in Biology
1-6 credits Offered By Announcement Only
Content of course will vary by semester. Content in any semester will be indicated
via subtitle in the class schedule.

BIL572 Advanced Special Studies in Biology
1-6 credits Offered By Announcement Only
Content of course will vary by semester. Content in any semester will be indicated
via subtitle in the class schedule.

BIL573 Advanced Special Studies in Biology
1-6 credits Offered By Announcement Only
Content of course will vary by semester. Content in any semester will be indicated
via subtitle in the class schedule.

BIL574 Advanced Special Studies in Biology
1-6 credits Offered By Announcement Only
Content of course will vary by semester. Content in any semester will be indicated
via subtitle in the class schedule.

BIL575 Advanced Special Studies in Biology
1-6 credits Offered By Announcement Only
Content of course will vary by semester. Content in any semester will be indicated
via subtitle in the class schedule.

BIL581 Survey of the History and Literature of Biology
2 credits Offered By Announcement Only
Emphasis on historical development and central concepts of biology.
PREREQUISITE: SENIOR STANDING AND PERMISSION OF INSTRUCTOR.
BIL582 Borderless Science
3 credits Fall Semester
Students from various scientific disciplines will be introduced to new technologies and resources from wide-ranging fields of science and learn to apply them in their own fields. Students will engage in mutual exchange of discipline-specific practices and novel ideas for research in biology, neuroscience, psychology, chemistry, physics, mathematics, engineering, etc.
PREREQUISITE: PERMISSION FROM INSTRUCTOR

BIL585 Advanced special topics in biology
3 credits Fall Semester
Topics relevant to the biological sciences, co-listed with other departments or programs.
PREREQUISITE: SENIOR OR GRADUATE STUDENT STATUS

BIL586 Advanced Special Topics in Biology
4 credits Fall Semester
Topics relevant to the biological sciences, co-listed with other departments or programs.
PREREQUISITE: SENIOR OR GRADUATE STUDENT STATUS

BIL590 Studies in Biology
1-5 credits Not Offered; Transfer Credit Only
Special topics taken at other institutions with no direct equivalents.

BIL591 Studies in Biology
1-5 credits Not Offered; Transfer Credit Only
Special topics taken at other institutions with no direct equivalents.

BIL592 Studies in Biology
1-5 credits Not Offered; Transfer Credit Only
Special topics taken at other institutions with no direct equivalents.

BIL593 Studies in Biology
1-5 credits Not Offered; Transfer Credit Only
Special topics taken at other institutions with no direct equivalents.

BIL594 Studies in Biology
1-5 credits Not Offered; Transfer Credit Only
Special topics taken at other institutions with no direct equivalents.

BIL595 Studies in Biology
1-5 credits Not Offered; Transfer Credit Only
Special topics taken at other institutions with no direct equivalents.

BIL610 Lab Group Meeting
1 credits Fall Semester
Weekly seminar meeting for discussion of research projects and other academic issues in the research laboratories of graduate faculty in biology.
PREREQUISITE: PERMISSION FROM INSTRUCTOR

BIL611 Lab Group Meeting
2 credits Spring Semester
PREREQUISITE: PERMISSION OF INSTRUCTOR
BIL612 Graduate Core Module
1 credits Fall Semester
PREREQUISITE: PERMISSION FROM INSTRUCTOR

BIL613 Graduate Core Module
1 credits Fall Semester
A two-term sequence of modules that addresses core principles across Biology in a format that is based on and forsters trans-disciplinary thought. Each module is one credit, taught dually by two faculty for 15 hours per module over a period of three weeks, and graded independently of other modules. Five modules are taught sequentially each term, for a total of ten credits for the year. Different modules may take place in different years. Offered in Fall semesters.
PREREQUISITE: PERMISSION OF INSTRUCTOR

BIL620 Seminar in Evolution
1-2 credits Offered By Announcement Only
Current literature in evolutionary biology. This course may be repeated for credit.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL621 Biogeography
3 credits Offered By Announcement Only
Distribution of plants and animals on a world basis, including concepts of long-range distribution. Lecture, 3 hours.

BIL622 Topics in Arthropod Biology
2 credits Offered By Announcement Only
Areas of current interest will be covered in weekly two-hour seminar-discussions.
PREREQUISITE: BIL 323 OR PERMISSION OF INSTRUCTOR.

BIL623 Birds of the World
4 credits Offered By Announcement Only
Classification, evolution, distribution, and natural history of the major taxa of birds.
PREREQUISITE: A COURSE IN ORNITHOLOGY OR BACKGROUND IN VERTEBRATE BIOLOGY.

BIL626 Pollination Biology
2 credits Offered By Announcement Only
Principles of pollination biology.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL629 Advanced Tropical Botany
8 credits Offered By Announcement Only
A 7-8 week course on the anatomy, morphology, taxonomy, physiology, evolution and adaptation of tropical plants. Offered on main campus, utilizing the Fairchild Tropical Garden and the United States Plant Introduction Station collections or in Costa Rica under the Organization of Tropical Studies.
PREREQUISITE: APPROVAL OF INSTRUCTORS.

BIL630 Population and Community Ecology: Theory
3 credits Offered By Announcement Only
Classical and contemporary theory in population and community ecology including population dynamics, matrix models, life tables, predator-prey models and food webs.
PREREQUISITE: CONSENT OF INSTRUCTOR.
BIL631 Population and Community Ecology: Empirical Studies
3 credits
Offered By Announcement Only
Experimental and multivariate approach to the study of the community including the analysis of data sets and the design of field studies.
PREREQUISITE: BIL 630 OR PERMISSION OF INSTRUCTOR.

BIL632 Population and Community Ecology: Theory II
3 credits
Offered By Announcement Only
Classical and contemporary theory in population and community ecology including population dynamics, matrix models, life tables, predator-prey models and food webs.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL633 Seminar in Ecology
1 credits
Offered By Announcement Only
PREREQUISITE: CONSENT OF INSTRUCTOR.

BIL635 Seminar in Environmental Biology
1 credits
Offered By Announcement Only

BIL636 Tropical Biology: An Ecological Approach
8 credits
Offered By Announcement Only
The tropical environment and biota; ecologic relations, communities and evolution in the tropics. Conducted in Costa Rica under the Organization for Tropical Studies. Lecture, laboratory, and fieldwork.

BIL637 Ecologia de Poblaciones
7 credits
Offered By Announcement Only
PREREQUISITE: ONE SEMESTER OF ECOLOGY OR FIELD BIOLOGY.

BIL638 Tropical Managed Ecosystems
8 credits
Offered By Announcement Only
Application of ecological principles to problems in agriculture, forestry, conservation and natural resource management in the tropics. Conducted in Costa Rica under the Organization for Tropical Studies.
PREREQUISITE: ONE SEMESTER OF ECOLOGY OR FIELD BIOLOGY.

BIL639 Natural Communities of Southern Florida
3 credits
Offered By Announcement Only
Analysis of structure, function and problems of natural communities, with emphasis on management. Lecture, 1 hour; six all-day field trips (Saturday).
PREREQUISITE: ONE SEMESTER OF ECOLOGY WITH LABORATORY, AND PERMISSION OF INSTRUCTOR.

BIL640 Neuroethology
2 credits
Offered By Announcement Only
Neuronal, sensory, neuromuscular and integrative foundations of animal behavior. Topics include: orientation, navigation, sensory perception, patterns of movement, learning, memory and communication.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
BIL641 Hormones and Behavior
2 credits
Offered By Announcement Only
Mediation of specific behaviors by hormones and other chemical messengers.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

BIL649 Seminar in Behavior
1 credits
Fall & Spring Semester

BIL651 Genomes
3 credits
Offered By Announcement Only
Genome organization and evolution in various cell types. Structure, organization, and evolution, including sex chromosomes.
PREREQUISITE: ONE UNDERGRADUATE GENERAL GENETICS COURSE FOR SCIENCE MAJORS.

BIL652 Seminar in Population Genetics
1-2 credits
Offered By Announcement Only
Discussion of current literature in Population Genetics. This course may be repeated for credit.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL653 Seminar in Cell Biology
1 credits
Offered By Announcement Only

BIL654 Trends in Molecular and Cell Biology
3 credits
Offered By Announcement Only
Survey of recent advances in molecular and cell biology via both high-throughput and high-resolution approaches. In-depth discussion of select recent works, critical analysis of their conceptual and historical significance, and formulation of unique, independent research plans.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL655 Techniques in Scanning Electron Microscopy
3 credits
Offered By Announcement Only
Tissue preparation, use of the scanning electron microscope, photography, and analysis and manipulation of digital images. Lecture 1 hour; laboratory 5 hours.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL660 Neurosciences I: Neuronal Mechanisms
3 credits
Offered By Announcement Only
Survey of biophysical, biochemical and morphological approaches at the cellular level to nervous integration as a basis for behavior. Lecture, 3 hours.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL661 Neurosciences II: Nervous System Integration
3 credits
Offered By Announcement Only
PREREQUIST: BIL 660 OR PSY 607 OR PERMISSION OF INSTRUCTOR.

BIL664 Seminar in Developmental Biology
1 credits
Offered By Announcement Only
BIL665 Advanced Topics in Animal Physiology
3 credits Offered By Announcement Only
Seminars and discussions of current topics in physiology.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL671 Advanced Study in Plant or Animal Sciences
1-6 credits Fall & Spring Semester & First & Second Summer Session
Content of course will vary by semester. Content in any semester will be expressed in parenthesis following title "Advanced Study" in the printed class schedule.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL672 Advanced Study in Plant or Animal Sciences
1-6 credits Fall & Spring Semester & First & Second Summer Session
Content of course will vary by semester. Content in any semester will be expressed in parenthesis following title "Advanced Study" in the printed class schedule.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL673 Advanced Study in Plant or Animal Sciences
1-6 credits Fall & Spring Semester & First & Second Summer Session
Content of course will vary by semester. Content in any semester will be expressed in parenthesis following title "Advanced Study" in the printed class schedule.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL674 Advanced Study in Plant or Animal Sciences
1-6 credits Fall & Spring Semester & First & Second Summer Session
Content of course will vary by semester. Content in any semester will be expressed in parenthesis following title "Advanced Study" in the printed class schedule.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL675 Advanced Study in Plant or Animal Sciences
1-6 credits Fall & Spring Semester & First & Second Summer Session
Content of course will vary by semester. Content in any semester will be expressed in parenthesis following title "Advanced Study" in the printed class schedule.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BIL676 Current Topics in Biological Research
1-2 credits Fall & Spring Semester & First & Second Summer Session
Content will vary by semester. Readings and discussions with eminent scholars temporarily resident in the department's Distinguished Visiting Professor program.

BIL677 Current Topics in Biological Research
1-2 credits Fall & Spring Semester & First & Second Summer Session
Content will vary by semester. Readings and discussions with eminent scholars temporarily resident in the department's Distinguished Visiting Professor program.

BIL678 Current Topics in Biological Research
1 credits Fall & Spring Semester & First & Second Summer Session
Content will vary by semester. Readings and discussions with eminent scholars temporarily resident in the department's Distinguished Visiting Professor program.
BIL680 Research Ethics
0 credits Offered By Announcement Only
PREREQUISITE: PERMISSION OF INSTRUCTOR

BIL681 Ecologia da Floresta Amazonica
4 credits Offered By Announcement Only
One-month field course focusing on the ecological characteristics of the tropical forests of Brazil. An Organization for Tropical Studies course conducted near Manaus, Brazil, and offered to students fluent in Portuguese. Offered annually.
PREREQUISITE: GRADUATE STANDING; FLUENCY IN PORTUGUESE.

BIL682 Ecosistemas Amazonicas
4 credits Offered By Announcement Only
Intensive one-month field course focusing on the unique ecological characteristics of the flooded and upland forests of the Amazon region of Peru. Conducted in Peru for Spanish-speaking students by the Organization for Tropical Studies.
PREREQUISITE: GRADUATE STANDING; FLUENCY IN SPANISH.

BIL683 Molecular Methods in Tropical Ecology
4 credits Offered By Announcement Only
One-month course addressing issues of population genetics, paternity analysis, and species interactions underlying many important aspects of tropical ecology. Course is conducted at La Selva Biological Station, Costa Rica by the Organization for Tropical Studies.
PREREQUISITE: GRADUATE STANDING.

BIL684 Ecologia de Ecosistemas Costeros Tropicales
6 credits Offered By Announcement Only
Six week Field course introducing the ecology and management of tropical coastal ecosystems of the Gulf of Mexico. Course offered in Spanish in Mexico by the Organization for Tropical Studies.
PREREQUISITE: GRADUATE STANDING; FLUENCY IN SPANISH.

BIL691 Biology Seminar
0 credit Fall & Spring Semester
Research seminars by distinguished biologists.

BIL710 Master's Thesis
1-6 credits Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

BIL720 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in BIL 710 (usually six credits). Credit not granted. May be regarded as full time residence.
BIL730 Doctoral Dissertation

1-12 credits  Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor, but not for less than a total of 12. Not more than 12 hours of BIL 730 may be taken in a regular semester, nor more than six in a summer session.

BIL740 Post-Candidacy Doctoral Dissertation

1-12 credits  Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. who have advanced to candidacy. The student will enroll for credit as determined by his/her advisor, but not for less than a total of 12. Not more than 12 hours of BIL 740 may be taken in a regular semester, nor more than six in a summer session.
PREREQUISITE: PH.D CANDIDATE STATUS

BIL750 Research in Residence

0 credit  Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

CHEMISTRY

CHM520 Physical Organic Chemistry

3 credits  Fall Semester
Aspects of chemical bonding, acids and bases, stereoechemistry, aromaticity, pericyclic reactions, linear free energy relationships, transition state theory, excited state chemistry, reactive intermediaries, mechanisms of uni- and bimolecular reactions.
PREREQUISITE: CHM 202 AND 360.

CHM522 Synthetic Organic Chemistry

3 credits  Fall Semester
Functional group transformations, Synthon approach. Retrosynthetic analyses, multistep syntheses.

CHM524 Supramolecular Chemistry

3 credits  Fall Semester
Complexation, recognition, and catalysis as applied to bioorganic chemistry. Steric, polar, and lipophilic interactions as well as proximity effects in the design of synthetic enzyme mimics, cationic transport species, etc.
PREREQUISITE: CHM 365 AND 520.

CHM525 Structural Organic Chemistry

3 credits  Spring Semester

CHM541 Principles of Bonding and Reactivity in Inorganic Chemistry

3 credits  Fall Semester
Bonding principles necessary to understand the structure, stability, and fundamental reactivity of main group and transition metal inorganic compounds.
PREREQUISITE: CHM 365.
CHM553 Modern Quantum Chemistry
3 credits
Offered By Announcement Only
Many-electron wave functions and operators. Hartee-Fock approximation, density
functional theory, configuration interaction, and many-body perturbation theory.
PREREQUISITE: CHM 365

CHM556 Self-Assembly and Surface Chemistry
3 credits
Fall Semester
Methods of preparation of self-assembly monolayers and surface chemistry properties.
PREREQUISITE: CHM 365.

CHM563 Electronic Structure Methods
3 credits
Fall Semester
Basis sets, post-SCF methods, and potential energy surfaces. Thermodynamic, structural,
and vibrational predictions, excited states, solvation and hybrid Hamiltonians.
PREREQUISITE: CHM 365

CHM564 Molecular Simulations
1 credits
Offered By Announcement Only
Classical dynamics, force-fields, sampling, periodic and stochastic boundaries,
Monte-Carlo and molecular dynamics simulations, and free energy perturbation.
PREREQUISITE: PERMISSION OF DEPARTMENT.

CHM565 Principles of Spectroscopic Techniques
3 credits
Fall Semester
Spectroscopic techniques: nuclear magnetic resonance (NMR), mass spectra (MS),
ultraviolet (UV), visible infrared (IR), fluorescence, and other specialized spectroscopic
techniques.
PREREQUISITE: CHM 365.

CHM570 Advanced Physical Chemistry Topics
3 credits
Fall Semester
PREREQUISITE: CHM 365.

CHM579 Special Topics: Chemistry Internship
1- 3 credits
Offered By Announcement Only

CHM580 Special Topics: Chemistry Internship
1- 3 credits
Fall Semester

CHM591 Topics in Chemistry
1- 3 credits
Offered By Announcement Only
Subject matter offerings based upon student demand and availability of faculty.
Subtitles describing the topics to be offered will be shown in parentheses in
the printed class schedule following the title, "Topics in Chemistry".
PREREQUISITE: 20 CREDITS IN CHEMISTRY.

CHM592 Topics in Chemistry
1- 3 credits
Offered By Announcement Only
Subject matter offerings based upon student demand and availability of faculty.
Subtitles describing the topics to be offered will be shown in parentheses in the
printed class schedule following the title, "Topics in Chemistry."
PREREQUISITE: 20 CREDITS IN CHEMISTRY.
CHM593 Readings in Chemistry
1-3 credits Offered By Announcement Only
Supervised readings on special topics. Offered by special arrangement. May be repeated for credit.
PREREQUISITE: 20 CREDITS IN CHEMISTRY AND PERMISSION OF THE DEPARTMENT CHAIRMAN.

CHM594 Readings in Chemistry
1-3 credits Offered By Announcement Only
Supervised readings on special topics. Offered by special arrangement. May be repeated for credit.
PREREQUISITE: 20 CREDITS IN CHEMISTRY AND PERMISSION OF THE DEPARTMENT CHAIRMAN.

CHM603 Structure and Reactivity of Inorganic Compounds
3 credits Offered By Announcement Only
Current theories of bonding, stereochemistry, and reaction mechanisms as applied to the structures and reactions of inorganic compounds.

CHM604 Coordination Chemistry
2 credits Fall Semester
Bonding theory, vibrational and electron spectra of coordination compounds; enumeration, recognition, and spectra of isomers.

CHM626 Advanced Organic Topics
1-3 credits Offered By Announcement Only
Special topics in organic chemistry.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CHM640 Introduction to Crystallography
1 credits Offered By Announcement Only
Crystals, Crystal Systems, 2-d and 3-d Space Groups and Diffraction (5h) Diffraction Principles (3h) Structure solution (direct and Patterson methods) and refinement (3h) Hands-on experiences: SMART 1000 CCD operation and SHELXTL calculation (4h)

CHM641 Inorganic Reaction Mechanism
3 credits Offered By Announcement Only
Substitution reactions Electron transfer reactions Reaction of coordinated ligands Stereochemical Change.

CHM646 Organometallics
3 credits Offered By Announcement Only
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CHM647 Advanced Inorganic Topics
1-3 credits Offered By Announcement Only
Selected topics in inorganic chemistry.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
CHM649 Advanced Inorganic Topics
2-3 credits
Offered By Announcement Only
Study of selected topics in inorganic chemistry.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CHM650 Chemical Thermodynamics
1 credit
Offered By Announcement Only
Thermodynamic equations from basic laws and definitions, and their applications to chemical problems.
PREREQUISITE: PERMISSION OF DEPARTMENT.

CHM651 Optical Spectroscopy
1 credit
Offered By Announcement Only
Techniques in Ultraviolet, Visible, and Infrared Spectroscopies. Fluorescence Measurements.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CHM652 Chemical Kinetics
1 credit
Offered By Announcement Only
Rate laws and rate constants, integrated rate law mechanisms and reaction rates, transition state theory methods for conventional and fast kinetic determinations.

CHM654 Modern Statistical Mechanics
1 credit
Offered By Announcement Only
Statistical thermodynamics, ensembles and fluctuations, partition functions for ideal and nonideal systems, quantum statistics, and distribution functions for liquids.
PREREQUISITE: PERMISSION OF DEPARTMENT.

CHM655 Electrochemistry
3 credits
Offered By Announcement Only
Modern electrochemical techniques including voltammetry, chronocoulometry, rotating disk electrode, and ultramicroelectrodes.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CHM660 Magnetic Resonance
3 credits
Offered By Announcement Only
Theory and practice of nuclear magnetic resonance (NMR) and electron spin resonance (ESR).
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CHM665 Physical Supramolecular Chemistry
3 credits
Offered By Announcement Only
Intramolecular host-guest complex formation; characterization of supramolecular assemblies.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CHM670 Advanced Physical Chemistry Topics
1-3 credits
Offered By Announcement Only
Special topics in advanced physical chemistry.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CHM679 Chemistry Seminar
1 credit
Fall & Spring Semester
Participation in the departmental seminar program. Required each semester the student is in residence and not enrolled in CHM 680 (excluding summer sessions).
CHM680 Chemistry Seminar
1 credits  Fall & Spring Semester
Participation in the chemistry department seminar program, including an oral presentation of special topics.

CHM685 Introduction to Research
2 credits  Offered By Announcement Only
Research principles and practices, independent study in selected subject areas, and/or oral presentation of a proposed research topic. Open only to graduate students working toward the M.S. or Ph.D. in chemistry.
PREREQUISITE: PERMISSION OF DEPARTMENT.

CHM688 Problems in Research Planning
2 credits  Offered By Announcement Only
Formulation of a research program for investigating an original problem not related to the candidate's major laboratory research. A brief written summary and an oral defense of the plan will be required.
PREREQUISITE: AT LEAST 10 CREDITS OF RESEARCH AND SUCCESSFUL COMPLETION OF THE EVALUATION EXAMINATIONS.

CHM693 Directed Readings in Chemistry
1- 3 credits  Offered By Announcement Only

CHM694 Directed Readings in Chemistry
1- 3 credits  Offered By Announcement Only

CHM705 Research Practices
1- 3 credits  Fall & Spring Semester
Research experiences in special techniques. For students electing the non-thesis M.S. option. May be repeated for a total not to exceed six credits.

CHM710 Master's Thesis
1- 6 credits  Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

CHM715 Post-candidacy thesis.
1- 6 credits  Fall & Spring Semester & First & Second Summer Session
For students seeking the MS Degree. Credit is not awarded until the thesis has been accepted.

CHM720 Research in Residence
0 credit  Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in CHM 710 (usually six credits). Credit not granted. May be regarded as full time residence.

CHM730 Doctoral Dissertation
1-12 credits  Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor, but for not less than a total of 12 hours. Up to 12 hours may be taken in a regular semester, but not more than six in a summer session.
CHM740 Post-candidacy Dissertation
1-12 credits                 Fall & Spring Semester & First & Second Summer Session

CHM750 Research in Residence
0 credit                     Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D. and D.A., after the student
has been enrolled for the permissible cumulative total in appropriate doctoral
research. Credit not granted. May be regarded as full-time residence as determined
by the Dean of the Graduate School.

COMPUTER SCIENCE
CSC506 Logic
3 credits                                              Offered By Announcement Only
Propositional and first order logic: completeness. Computational logic: Robinson's
resolution. Formalized theories: arithmetic, Godel's incompleteness theorem, Tarski's
theorem on undefinability of truth.
PREREQUISITE: MTH 230 OR 309 OR PERMISSION OF THE INSTRUCTOR.

CSC507 Data Security and Cryptography
3 credits                                              Offered By Announcement Only
Access, information flow, and inference controls. Network security and management.
Encryption algorithms. Cryptographic techniques.
PREREQUISITE: (CSC 517 OR 527)

CSC517 Data Structures and Algorithm Analysis
3 credits                                              Fall & Spring Semester
Distributed algorithms. Cryptographic algorithms. Geometric algorithms.
PREREQUISITE: MTH 309, AND CSC 220.

CSC518 Interpreters and Compiler Theory
3 credits                                              Offered By Announcement Only
Translation of higher-level languages into machine language. Grammars, parsing,
scanners, precedence relations. Run-time storage and symbol table organization.
implementation.
PREREQUISITE: CSC 519.

CSC519 Program Languages
3 credits                                              Fall Semester
Models of execution control. Declaration, modularity, and storage management. Programming
language semantics. Programming paradigms.
PREREQUISITE: CSC 517.

CSC521 Principles of Computer Operating Systems
3 credits                                              Fall Semester
Process management. Scheduling and dispatch. Interprocess communication. Memory
for UNIX.
PREREQUISITE: (CSC 314 OR 350), (CSC 322 OR PERMISSION OF INSTRUCTOR).
CSC523 Database Systems  
3 credits  
Information models and systems. Database systems. Data modeling. Relational databases. 
Relational database design. Database query languages. Database Mining concepts. 
Web database programming.  
PREREQUISITE: CSC 517.

CSC524 Computer Networks  
3 credits  
Computer networks and network applications. The protocol stack. Routing, switching 
and bridging technologies. Models of network computing. Internet standards and 
protocols.  
PREREQUISITE: (CSC 314 OR 350), (CSC 322 OR PERMISSION OF INSTRUCTOR).

CSC527 Theory of Computing  
3 credits  
Sets, relations, and languages. Automata theory. Basic computability theory. Turing 
machines. The complexity classes P and NP.  
PREREQUISITE: CSC 220, MTH 309

CSC529 Introduction to Computer Graphics  
3 credits  
Graphic systems. Graphic communication. Geometric modeling (2D and 3D representations). 
PREREQUISITE: CSC 220, MTH 210

CSC531 Introduction to Software Engineering  
3 credits  
Requirements and specifications. Design, validation, and evolution. Project management. 
Tools and environments. Foundations of human-computer interaction. Risks and liabilities 
of computer-based systems. Intellectual property.  
PREREQUISITE: CSC 322 OR 517.

CSC540 Algorithm Design and Analysis  
3 credits  
Design techniques include divide-and-conquer, greedy method, dynamic programming, 
backtracking. Time and space complexity. Sorting, searching, combinatorial and 
graph algorithms.  
PREREQUISITE: CSC 517.

CSC545 Introduction to Artificial Intelligence  
3 credits  
Search and constraint satisfaction. Knowledge representation and reasoning. Natural 
PREREQUISITE: CSC 220 AND MTH 309.

CSC547 Computational Geometry  
3 credits  
Algorithms for solving geometric problems arising from application domains including 
graphics, robotics, and GIS.  
PREREQUISITE: CSC 517
CSC548 Bioinformatics Algorithms
3 credits
CSC548 Bioinformatics Algorithms
PREREQUISITE: (CSC120 OR CSC210) AND (BIL150 OR BIL104 OR BIL352 OR BIL552)

CSC555 Multimedia Systems
3 credits
CSC555 Multimedia Systems
PREREQUISITE: CSC 517.

CSC595 Topics in Computer Science
1-3 credits
CSC595 Topics in Computer Science
CSC596 Topics in Computer Science
1-3 credits
CSC596 Topics in Computer Science
CSC597 Topics in Computer Science
1-3 credits
CSC597 Topics in Computer Science
CSC598 Topics in Computer Science
1-3 credits
CSC598 Topics in Computer Science
CSC599 Topics in Computer Science
1-3 credits
CSC599 Topics in Computer Science

CSC606 Logic Programming
3 credits
CSC606 Logic Programming
Programming in Prolog, Fix-point semantics, Declarative semantics, Completeness of SLD-resolution, Negation, Implementation of logic programming languages. Deductive databases.
PREREQUISITE: MTH 506 AND CSC 517.

CSC609 Data Security and Cryptography
3 credits
CSC609 Data Security and Cryptography
PREREQUISITE: CSC 517 OR 527.

CSC611 Theory of Computation
3 credits
CSC611 Theory of Computation
Recursive functions, Markov algorithms, Turing machines. Unsolvability.
PREREQUISITE: MTH 509 AND CSC 517.

CSC612 Complexity Theory
3 credits
CSC612 Complexity Theory
Models of computations, Blum's axioms, intractibility, NP-completeness.
PREREQUISITE: MTH/CSC 611.
CSC623 Theory of Relational Databases  
3 credits  
Offered By Announcement Only  
PREREQUISITE: CSC 523.

CSC624 Mobile Wireless Systems  
3 credits  
Offered By Announcement Only  
Cellular Systems, multiple access techniques, wireless networking, mobile IP, power management, user location information management, TDMA, CDMA, and GSM systems, data broadcasting. 
PREREQUISITE: CSC 524.

CSC628 Parallel Algorithms  
3 credits  
Offered By Announcement Only  
Parallel computation models; sorting networks; parallel algorithms for sorting, searching, graph problems, prefix computation, pattern matching, and fast Fourier transforms; theory of P-completeness, the class NC. 
PREREQUISITE: CSC 540.

CSC645 Introduction to Expert Systems  
3 credits  
Offered By Announcement Only  
Overview of expert systems, architecture of expert systems, knowledge base and representation, inference engine, expert system tools, reasoning under uncertainty, explaining the reasoning, evaluation of expert systems. 
PREREQUISITE: CSC 545.

CSC646 Neural Computing  
3 credits  
Offered By Announcement Only  
PREREQUISITE: CSC 517.

CSC647 Computational Geometry  
3 credits  
Offered By Announcement Only  
Algorithms for solving geometric problems arising from application domains including graphics, robotics, and GIS. 
PREREQUISITE: CSC 517.

CSC648 Automated Reasoning  
3 credits  
Offered By Announcement Only  
PREREQUISITE: CSC 517 OR 545.

CSC655 Advanced Multimedia Systems  
3 credits  
Offered By Announcement Only  
PREREQUISITE: CSC 555.
CSC670 Directed Reading
2-4 credits
Fall & Spring Semester

CSC685 Topics in Computer Science
1-3 credits
Offered By Announcement Only
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CSC686 Topics in Computer Science
1-3 credits
Offered By Announcement Only
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CSC687 Topics in Computer Science
1-3 credits
Offered By Announcement Only
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CSC688 Topics in Computer Science
1-3 credits
Offered By Announcement Only

CSC689 Topics in Computer Science
1-3 credits
Offered By Announcement Only

CSC690 Seminar for Beginning Graduate Students
1-3 credits
Offered By Announcement Only
Flexible topics of interest to beginning graduate students.

CSC692 Seminar
1-2 credits
Offered By Announcement Only

CSC693 RESEARCH PROJECT
1-6 credits
Fall & Spring Semester
Supervised research project preceding dissertation research for the Ph.D.

CSC694 Research Project
1-6 credits
Fall & Spring Semester
Supervised research project preceding dissertation research for the Ph.D.

CSC710 Master's Thesis
1-6 credits
Fall & Spring Semester
The student working on his/her master's thesis enrolls for the number of credits as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

CSC725 Continuous Registration--Master's Study
0 credit
Fall & Spring Semester
To establish residence for non-thesis master's students who are preparing for major examinations. Credit not granted. Regarded as full time residence.

CSC730 Pre-Candidacy DOCTORAL DISSERTATION
1-12 credits
Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor, but for not less than a total of 12 hours. Up to 12 hours may be taken in a regular semester, but not more than six in a summer session.
CSC740 Post-Candidacy Doctoral Dissertation
1-12 credits  Spring Semester
Required of all candidates for the Ph.D. who have advanced to candidacy. The student will enroll for credit as determined by his/her advisor, but not for less than a total of 12. Not more than 12 hours of CSC 740 may be taken in a regular semester, nor more than six in a summer session.

CSC750 RESEARCH IN RESIDENCE
0 credit  Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for Ph.D. students after the student has enrolled for permissible cumulative total in appropriate doctoral research. Regarded as full-time residence.

ENGLISH

ENG504 Form in Poetry
3 credits  Offered By Announcement Only
Poetic works as literary objects, with attention to poetic trends and the creative process.
PREREQUISITE: PERMISSION OF INSTRUCTOR. SIX CREDITS IN LITERATURE OR GRADUATE STANDING.

ENG505 Form in Fiction
3 credits  Offered By Announcement Only
Fictional works as literary objects with attention to individual styles, Fictional Trends and the creative process.
PREREQUISITE: GRADUATE STUDENTS: PERMISSION OF INSTRUCTOR. UNDER-GRADUATES: SIX CREDITS IN LITERATURE AND PERMISSION OF INSTRUCTOR.

ENG560 Creative Writing: Fiction I
3 credits  Offered By Announcement Only
Advanced work in the writing of fiction.
PREREQUISITE: PERMISSION OF INSTRUCTOR AND, FOR UNDERGRADUATE, SIX CREDITS IN ENGLISH AT THE 200 LEVEL OR ABOVE.

ENG561 Creative Writing: Fiction II
3 credits  Offered By Announcement Only
Advanced work for students displaying superior ability for prose fiction writing. Admission by recommendation or demonstration of skills.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ENG562 Creative Writing: Poetry
3 credits  Offered By Announcement Only
Advanced work in the writing of poetry.
PREREQUISITE: AT LEAST SIX CREDITS IN ENGLISH AT THE 200 LEVEL OR ABOVE OR GRADUATE STANDING.

ENG591 Graduate Practicum I: Teaching College Writing
0 credit  Fall Semester
Methods and problems in teaching English composition and college writing.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG592 Graduate Practicum II: Teaching College Literature
0 credit  Fall Semester
Methods and problems in teaching introductory literature courses.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.
ENG595 Special Topics
3 credits
Offered By Announcement Only
PREREQUISITE: FOR UNDERGRADUATES, SIX CREDITS IN LITERATURE OR PERMISSION OF INSTRUCTOR; FOR GRADUATE STUDENTS, PERMISSION OF DIRECTOR OF GRADUATE STUDIES.

ENG601 Creative Writing: Fiction III
3-6 credits
Offered By Announcement Only
Advanced M.F.A. workshop in the techniques of writing fiction.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF INSTRUCTOR.

ENG602 Creative Writing: Poetry II
3-6 credits
Offered By Announcement Only
Advanced M.F.A. workshop in the techniques of writing poetry.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF INSTRUCTOR.

ENG610 Studies in Old English Language and Literature
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG611 Beowulf
3 credits
Offered By Announcement Only
In-class analysis and translation of Beowulf; consideration of text-related problems such as paleography, editing, emendation, and translation.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG615 Studies in Chaucer
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG616 Studies in Middle English Language and Literature
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG620 Studies in Shakespeare
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG621 Studies in Elizabethan and Jacobean Drama
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG622 Studies in 16th Century Literature
3 credits
Offered By Announcement Only
A survey of predominantly non-dramatic Renaissance literature, with an emphasis on the Sixteenth Century.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG623 Studies in Spenser
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG624 Studies in 17th Century Literature
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.
ENG625 Studies in Milton
3 credits  Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG630 Restoration and 18th-Century Drama
3 credits  Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG631 Studies in Restoration and 18th Century Literature
3 credits  Offered By Announcement Only
Special topics in British Literature from 1660-1800.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG633 The Eighteenth-Century British Novel
3 credits  Offered By Announcement Only
Survey of the British novel from Defoe to Austen.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF GRADUATE DIRECTOR.

ENG640 Studies in Romanticism
3 credits  Offered By Announcement Only
A study of writers and genres between the late eighteenth and the mid-nineteenth century, through an investigation of questions of canonicity, epistemological orientation, colonialism, and the revolutionary context.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG645 Studies in Victorian Poetry and Prose
3 credits  Offered By Announcement Only
Victorian poetry and prose exclusive of the novel. Poems by Tennyson, Browning, Arnold, Rossetti, and others. Prose works by writers such as Carlyle, Newman, Mill, Ruskin, and Pater.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG646 Nineteenth-Century British Novel
3 credits  Offered By Announcement Only
Survey of the British novel from Austen to Conrad.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG648 Studies in the Novel
3 credits  Offered By Announcement Only
Topics in eighteenth-, nineteenth-, and twentieth-century fiction.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG650 Studies in Modern British Literature
3 credits  Offered By Announcement Only
Intensive coverage of a limited topic in twentieth-century British or Irish literature.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG651 Studies in Joyce
3 credits  Offered By Announcement Only
Close readings of Dubliners, A Portrait of the Artist as a Young Man, Ulysses, and Finnegans Wake; extensive review of Joyce criticism.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.
ENG652 Studies in Irish Literature
3 credits
Offered By Announcement Only
Intensive coverage of a selected topic in Irish Literature.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG654 Contemporary British Literature
3 credits
Offered By Announcement Only
Studies in British prose, poetry, and drama since 1939.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG655 Contemporary American Poetry and Poetics
3 credits
Offered By Announcement Only
Poetry and poetics from 1945 to present, focusing on Black Mountain Poetics, the New York School, the Black Arts Movement, Language Poetry and more recent writers and movements.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG658 Studies in Transatlantic Literature
3 credits
Fall Semester
Literature on transatlantic themes and/or by transatlantic writers. Border crossing; ships; sailors; and other travelers; movement of people, things, and ideas in the Atlantic world.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG660 Studies in American Literature: Beginnings to 1800
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG661 Studies in American Literature: 1800–1865
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG662 Studies in American Literature: 1865–1914
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG663 Studies in American Literature: 1914 to 1950
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG664 Studies in American Literature: 1950 to the present
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG665 Studies in African-American Literature
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG666 Caribbean Literature
3 credits
Offered By Announcement Only
Caribbean literature and cultural theory; Caribbean aesthetic.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.
ENG667 Caribbean Popular Culture
3 credits
Offered By Announcement Only
Special topics on the relations among politics, popular culture, and literature in the Caribbean region.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG668 Studies in Race and Diasporic Literatures
3 credits
Offered By Announcement Only
Analysis of race, ethnicity, immigration, and transnationalism in literature and cultural theory.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG669 Studies in Women's Literature
3 credits
Offered By Announcement Only
Topic varies by semester. Analysis of gender issues and literary production by women.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG670 The Classical Tradition and English Literature
3 credits
Offered By Announcement Only
A study of classical authors such as Homer, Aeschylus, Sophocles, Euripides, Virgil, Ovid, Horace, and Catullus, who have been seminal for English writers from the Middle Ages to the present.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG672 Comparative Studies in Renaissance and Baroque Literature
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG673 Eighteenth-Century European Literature
3 credits
Offered By Announcement Only
Major literary and aesthetic works of the European Enlightenment.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG674 The Romantic Movement in Europe
3 credits
Offered By Announcement Only
A study of the forces and influences of the Romantic Movement in Europe as these intersect English Romanticism.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG675 European Novel
3 credits
Offered By Announcement Only
Major authors and trends in the development of the European novel as a unified literary tradition.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG677 Studies in Modern Literature
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG678 Studies in Contemporary Literature
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.
ENG680 History of Literary Criticism
3 credits
Offered By Announcement Only
A survey of literary criticism and theory from the ancient Greeks to the early twentieth century.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG681 Introduction to Literary Theory
3 credits
Offered By Announcement Only
Twentieth-century literary theory beginning with the New Criticism and including topics such as semiotics, hermeneutics, deconstruction, feminism, and neopragmatism.

ENG682 Contemporary Criticism and Theory
3 credits
Offered By Announcement Only
Topics in recent criticism and theory.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG683 Literature and Psychoanalysis
3 credits
Offered By Announcement Only
The interrelations between literary theory, textual analysis, and psychoanalytic theory.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG684 Theory of Narrative
3 credits
Offered By Announcement Only
Analysis of narrative theories, ancient to contemporary.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG685 Feminist Theory
3 credits
Offered By Announcement Only
Feminist writing and criticism from the nineteenth century to the present. Supplementary readings in anthropological, psychoanalytic, and socio-political criticism, as well as in theories of poetic tradition and the poetic process.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG686 Theories of Gender and Sexuality
3 credits
Offered By Announcement Only
Queer theory and its relationship with gender studies, critical race studies, and emerging directions in the field.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG687 Studies in Literature and Culture since 1950
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG688 Studies in Latino/a Literatures and Cultures
3 credits
Offered By Announcement Only
Comparative and interdisciplinary approaches to art, film, music and literature. Topics may include: borderlands, postcolonial and "Americas" methodology; ethnicity, race and mestizaje; immigration and the "Latinization" of the U.S.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.
ENG689 Comparative Americas Studies
3 credits Offered By Announcement Only
Comparative, interdisciplinary and transnational approaches to literatures and cultures of the Americas.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR

ENG691 Rhetorical Traditions
3 credits Offered By Announcement Only
Rhetorical traditions from antiquity to the nineteenth century in light of recent scholarship, with special emphasis on the use of rhetoric in education.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG692 Modern Rhetorical Theory
3 credits Offered By Announcement Only
A study of rhetorical theory in the twentieth century, concentrating on the epistemological and ideological essence of discourse.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG693 Teaching College Composition
3 credits Fall Semester
Rhetorical and literary theory related to composition instruction. Designed primarily for Teaching Assistants in the English Department, but open to all students planning to teach writing.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG695 Special Topics
3 credits Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG696 Directed Readings
1-3 credits Fall & Spring Semester
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG697 Readings for the Qualifying Examination
1-3 credits Fall & Spring Semester
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF ENGLISH DEPARTMENT GRADUATE DIRECTOR.

ENG710 Master’s Thesis
1-6 credits Fall & Spring Semester
The student working on his/her master’s thesis enrolls for credit in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

ENG720 Research in Residence
0 credit Fall & Spring Semester
Used to establish research in residence for the thesis for the master’s degree after the student has enrolled for the permissible cumulative total in ENG 710 (usually six credits). Credit not granted. May be regarded as full time residence.

ENG730 Doctoral Dissertation
1-12 credits Fall & Spring Semester
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor, but for not less than a total of 12 hours. Up to 12 hours may be taken in a regular semester, but not more than six in a summer session.
ENG740 Post-Candidacy Doctoral Dissertation
1-12 credits  Fall & Spring Semester
Required of all candidates for the Ph.D. who have advanced to candidacy. The student will enroll for credit as determined by his/her advisor, but not for less than a total of 12. Not more than 12 hours of ENG 740 may be taken in a regular semester, nor more than six in a summer session.

ENG750 Research in Residence
0 credit  Fall & Spring Semester
Used to establish research in residence for the Ph.D. and D.A., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

FRENCH
FRE501 Capstone
3 credits  Fall & Spring Semester
Course with a broad-based topic designed to integrate high-level linguistic, critical and analytical skills with the body of knowledge acquired during the course of study toward the major. Topics vary. Open only to undergraduates in the last semester of their French major. Course is writing intensive; fulfills writing credit requirement. PREREQUISITE: TO BE TAKEN IN THE LAST SEMESTER OF THE MAJOR.

FRE591 Directed Readings
1-3 credits  Offered By Announcement Only
May be repeated for credit if topic is different.
PREREQUISITE: ONE 500-LEVEL COURSE AND PERMISSION OF INSTRUCTOR.

FRE592 Directed Readings
1-3 credits  Offered By Announcement Only
PREREQUISITE: ONE 500-LEVEL COURSE AND PERMISSION OF INSTRUCTOR.

FRE593 Directed Readings
1-3 credits  Offered By Announcement Only
PREREQUISITE: ONE 500-LEVEL COURSE AND PERMISSION OF INSTRUCTOR.

FRE594 Senior honors Thesis I
3 credits  Fall Semester
Directed research for honors thesis.
PREREQUISITE: MUST HAVE COMPLETED AT LEAST TWELVE CREDITS AT THE 300-LEVEL OR ABOVE TOWARDS FRENCH MAJOR, MUST MEET ELIGIBILITY FOR HONORS IN FRENCH.

FRE595 Senior Honors Thesis II
3 credits  Fall Semester
Directed writing of honors thesis.
PREREQUISITE: FRE 594.

FRE611 Topics in French Medieval Literature
3 credits  Offered By Announcement Only
Recent topics: exile, the epic, orientalism, imperialism, monsters.

FRE612 Topics in French Renaissance Literature
3 credits  Offered By Announcement Only
Specific genres, works, authors, and movements. Possible topics: Melancholy and Madness; Montaigne; Rabelais; Marguerite de Navarre; lyric poetry.
FRE613 Topics in 17th Century French Literature
3 credits  Offered By Announcement Only
Recent topics: Racine, Moliere, Corneille; Pascal and the Moralist tradition, the birth of the psychological novel, love and war.

FRE614 Topics in 18th Century French Literature
3 credits  Offered By Announcement Only
Recent topics: Diderot, Rousseau, Sade; exoticism as related to political theory; the epistolary novel; the Enlightenment and postcolonial theory.

FRE615 Topics in 19th Century French Literature
3 credits  Offered By Announcement Only
Recent topics: Balzac, Stendhal, Flaubert; Dandysm and Decadence; the Symbolist movement.

FRE616 Topics in 20th-21st Century French Literature
3 credits  Offered By Announcement Only
Recent topics: Paris 1913; Surrealism; Artaud, Beckett, Ionesco, Genet; the Noveau Roman.

FRE621 Special Topics in French Studies
3 credits  Offered By Announcement Only

FRE625 Elementary French for Graduate Research
0 credit  Offered By Announcement Only
Grammatical structuring, verb tenses, and word families necessary for reading text with minimal use of a dictionary. May fulfill the Foreign Language Reading Competency Requirement (consult your graduate advisor).

FRE675 Topics in Francophone Studies
3 credits  Offered By Announcement Only
Recent topics: travel narratives, literary historiography, discourses of race, colonialism, multilingualism and literacy, nationalism and culture.

FRE691 Writing Practicum
1 credits  Offered By Announcement Only
The writing of a publishable research paper under faculty guidance.

FRE692 Directed Readings
1-3 credits  Offered By Announcement Only

FRE730 Pre-Candidacy Doctoral Dissertation
1-12 credits  Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. Prior to admission to candidacy, the student will enroll for credit as determined by his/her advisor. Not more than 12 hours of FRE 730 may be taken in a regular semester, nor more than six in a summer session. Students who have not passed their qualifying examinations yet, but are not taking any courses, may enroll in FRE 730.
FRE740 Post-Candidacy Doctoral Dissertation
1-12 credits                  Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. After admission to candidacy, the student
will enroll for credit as determined by his/her advisor. Not more than 12 hours
of FRE 740 may be taken in a regular semester, nor more than six in a summer session.
Students who have passed their qualifying examinations, but are not taking courses
any more, may enroll in FRE 740. Where a student has passed his/her(a) qualifying
examinations, and (b) is engaged in an assistantship, he/she may still take the
maximum allowable credit stated above.

FRE750 Research in Residence
0 credit                     Fall & Spring Semester & First & Second Summer Session
Used to establish residence for the Ph.D., after the student has been enrolled
for the permissible cumulative total in appropriate doctoral research. Credit not
granted. May be regarded as full-time residence as determined the Dean of the Graduate
School.

GEOGRAPHY
GEG501 Place, Region, Nature
3 credits                                  Offered By Announcement Only
Introductory seminar for Graduate students about geographic thought and geographical
traditions.
PREREQUISITE: AT LEAST 6 CREDITS IN GEOGRAPHY OR PERMISSION FROM INSTRUCTOR.

GEG503 Research Trends in Geography
3 credits                                  Offered By Announcement Only
Contemporary research trends and methodological developments.

GEG510 Survey Research in Geography
3 credits                                  Offered By Announcement Only
The use of survey research including the choice of a survey mechanism, sampling,
questionnaire design, survey logistics, survey analysis, and reporting of results.

GEG511 Field Studies in Geography
1-6 credits                                Offered By Announcement Only
One to six weeks of intensive geographic field studies outside the Miami area.
Lectures will be given prior to departure. The locations and topics of study will
vary.
PREREQUISITE: GEG 105 OR ANY 200-LEVEL GEOGRAPHY COURSE.

GEG515 Human Dimensions of Global Environmental Change
3 credits                                  Fall Semester
Explores the human dimensions of global environmental change using an interdisciplinary
approach. The course is reading and writing intensive. Special attention is given
to the central role that land-use/cover change plays in the larger realm of global
environmental change.
PREREQUISITE: GEG 105 AND JUNIOR/SENIOR STANDING.

GEG520 Immigration to the United States
3 credits                                  Fall Semester
A description and analysis of current immigration patterns in the United States.
PREREQUISITE: ANY 100 OR 200 LEVEL COURSE OR PERMISSION FROM INSTRUCTOR.
GEG521 Global Trade
3 credits
Offered By Announcement Only
Geographic analysis of the distribution of economic activities and capabilities, with emphasis on contemporary trade patterns and policies.

GEG522 Urbanization in the Developing World
3 credits
Spring Semester
Patterns and processes in large cities in the developing world are examined.
PREREQUISITE: ANY 100 OR 200 LEVEL COURSE IN GEOGRAPHY OF PERMISSION FROM INSTRUCTOR.

GEG523 Seminar in Urban Management
3 credits
Fall Semester
Identification of and responses to urban problems in large cities in European and Latin American metropolitan areas. Emphasis is on demographic, cultural/ethnic, service-provision, environmental, transportation, and land-use problems. Approach is via case studies, theory applications, and planning practicalities.

GEG525 Problems in Geography
1- 6 credits
Fall & Spring Semester
Content and prerequisites announced when offered. Course may be repeated for credit if content varies.
PREREQUISITE: GEOGRAPHY GRADUATE STUDENT, MAJOR, OR MINOR ONLY.

GEG535 Internship in Geography
1- 4 credits
Fall & Spring Semester
Students are assigned to work for a local public or private agency.
PREREQUISITE: 15 CREDITS IN GEOGRAPHY AND PERMISSION OF DEPARTMENT.

GEG545 Special Topics
3 credits
Fall & Spring Semester
PREREQUISITE: NINE CREDITS IN GEOGRAPHY.

GEG552 Seminar on the Geography of South Florida
3 credits
Offered By Announcement Only
Human and physical geography of South Florida.
PREREQUISITE: NINE CREDITS IN GEOGRAPHY.

GEG570 Gender and Development
3 credits
Offered By Announcement Only
Theoretical and empirical examination of gender and development processes through exploration of gender and development evolution as an academic discipline and application in development practice.
PREREQUISITE: GRADUATE STUDENTS OR PERMISSION OF INSTRUCTOR.

GEG580 Introductory quantitative methods for geographical analysis.
3 credits
Spring Semester
Basic quantitative methods for geographic analysis.
PREREQUISITE: GRADUATE STANDING

GEG582 Advanced Quantitative Methods
3 credits
Spring Semester
Continuation of GEG 481. The use of statistical methods and techniques in the solution of geographic research problems.
PREREQUISITE: GEG 481.
GEG591 Introduction to GIS (Geographic Information Systems) for graduate students
3 credits
Offered By Announcement Only
Overview of basic concepts in GIS (Geographic Information Systems) for students wishing to get graduate credit. This class involves a student project using GIS.

GEG595 Advanced Seminar on South Asia
3 credits
Spring Semester
Seminar on development-related issues in South Asia.
PREREQUISITE: PERMISSION FROM INSTRUCTOR (GRADUATE).

GEG603 Advanced Research Design in Geography
3 credits
Fall Semester
Designing and proposing geographic research projects based upon a critical reading of the geographical literature. Students will prepare a master's thesis (master's students) or dissertation (doctoral students) project proposal.
PREREQUISITE: GEG 503.

GEG620 Political Geography
3 credits
Offered By Announcement Only
Spatial manifestations of human political behavior. State systems, boundaries, maritime territorial issues.
PREREQUISITE: GEG 420 OR EQUIVALENT.

GEG625 Advance independent study in geography I
1-6 credits
Fall & Spring Semester & First & Second Summer Session
Advanced independent study for Two-Paper Option for first paper.
PREREQUISITE: PI

GEG637 Development Studies
3 credits
Offered By Announcement Only
Advanced seminar on issues in contemporary development studies.
PREREQUISITE: ANY 100 OR 200 LEVEL GEOGRAPHY COURSE OR PERMISSION FROM INSTRUCTOR.

GEG645 Advanced Independent Study in Geography II
1-6 credits
Fall & Spring Semester & First & Second Summer Session
Advanced independent study for Two-Paper Option for second paper.
PREREQUISITE: PI

GEG651 Geopolitics and Geoculture
3 credits
Offered By Announcement Only
Advanced graduate seminar about the cultural context of geopolitics and foreign policy.
PREREQUISITE: ANY COURSE IN GEOGRAPHY OR PERMISSION FROM INSTRUCTOR.

GEG661 Advanced Urban Geography
3 credits
Offered By Announcement Only
Analysis of the spatial structure of urban centers, the development of and interaction between functional zones, and the movement of goods and people in urban areas.

GEG672 Environmental Monitoring and Assessment
0 credit
Spring Semester
Geographic monitoring and assessment of contaminated regions; important background legislation and government actions; pollution monitoring; superfund site remediation; geographic sampling of environmental populations; and, selected case studies.
PREREQUISITE: GEG 591, 592
GEG681 Advanced Spatial Statistics
3 credits
Offered By Announcement Only
Social and environmental science applications of spatial statistical analysis illustrated with data and numerical (simulation experiments) examples employing interactive software. This course's focus is on spatial autocorrelation.
PREREQUISITE: GEG 582, 591.

GEG710 Master's Thesis
1-6 credits
Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

GEG720 Research in Residence
0 credit
Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in GEG 710 (usually six credits). Credit not granted. May be regarded as full time residence.

GEG725 Continuous Registration--Master's Study
0 credit
Fall & Spring Semester & First & Second Summer Session
To establish residence for non-thesis master's students who are preparing for major examinations. Credit not granted. Regarded as full time residence.

GEOLOGICAL SCIENCES

GSC515 Applied Environmental Geology
3 credits
Spring Semester
An advanced undergraduate/graduate course providing knowledge and methods for effective environmental site surveys, to be presented in a weekly 3-hour lecture and discussion. The course will cover policies and regulation including applied practice to comply with safe environmental conduct and valid assessment. Case study, best management practice, and appropriate field equipment and approaches will complement two one-day field trips associated with this course.
PREREQUISITE: PERMISSION OF INSTRUCTOR OR DEPARTMENT CHAIR.

GSC520 Geology of Florida and the Caribbean
3 credits
Fall Semester
The land and marine geologic history, the natural resources and geologic hazards of Florida and the Caribbean region.
PREREQUISITE: GSC 110, 111, 260.

GSC540 Geophysics
3 credits
Spring Semester
PREREQUISITE: PHY 205, 206.

GSC545 Introduction to Isotope and Nuclear Geology
4 credits
Offered By Announcement Only
Radioactivity and particle counting. The geological time scale. Isotope fractionation in natural systems. Mass spectrometry and the measurements of relative isotopic abundances in the ocean, the atmosphere, and the solid earth. Lecture, 2 hours; laboratory, 4 hours.
GSC550 Hydrogeology
3 credits Fall Semester
Movement of subterranean water. The mechanical, chemical and thermal interaction of water with porous solids, and the transport of energy and chemical constituents. The origin of porosity and permeability. The controls exerted on aquifers by the lithology, stratigraphy and structure of geologic deposits and formations.
PREREQUISITE: 8 CREDITS IN GEOLOGICAL SCIENCES AND PERMISSION OF INSTRUCTOR.

GSC555 Mathematical Methods for Geoscientists
3 credits Fall Semester
Background mathematics needed to solve problems in the geosciences. Applications in tectonics, structural geology, geochemical systems, seismology and hydrology.
PREREQUISITE: MTH 112 OR 132, 211 OR 310, OR 312, AND PHY 206, OR EQUIVALENT.

GSC556 Complexity in Coastal Systems
4 credits Fall Semester
Different aspects of the coastal system and their interactions using inquiry-based learning; will include remote sensing data as a tool for data analysis and visualization.
PREREQUISITE: SIX CREDITS IN BIOLOGY OR GEOLOGICAL SCIENCES.

GSC560 Colloquium - Current Topics in the Geosciences
1 credits Fall Semester
Weekly presentations and discussions. Written and oral presentations required.
PREREQUISITE: SENIOR STANDING.

GSC561 Colloquium - Current Topics in the Geosciences
1 credits Spring Semester
Weekly presentations and discussions. Written and oral presentations required.
PREREQUISITE: SENIOR STANDING.

GSC565 Fluxes of Energy and Matter in the Earth Systems
3 credits Offered By Announcement Only
Transport phenomena, motions, and deformation in Earth Systems.
PREREQUISITE: GSC 110, 360.

GSC574 Special Studies
1-4 credits Fall & Spring Semester & First & Second Summer Session
Students engaged in approved field and/or laboratory activities, such as work at sea or in the laboratory under supervision, may register for credit.
PREREQUISITE: PERMISSION OF DEPARTMENT.

GSC575 Special Studies
1-4 credits Fall & Spring Semester & First & Second Summer Session
Students engaged in approved field and/or laboratory activities, such as work at sea or in the laboratory under supervision, may register for credit.
PREREQUISITE: PERMISSION OF DEPARTMENT.

GSC576 Special Studies
1-4 credits Fall & Spring Semester & First & Second Summer Session
Students engaged in approved field and/or laboratory activities, such as work at sea or in the laboratory under supervision, may register for credit.
PREREQUISITE: PERMISSION OF DEPARTMENT.
GSC580 Summer Field Geology
4 credits Spring Semester & First & Second Summer Session
An intensive four-week summer field laboratory study of modern geological processes and ancient rock sequences. Mapping, description and interpretation of rock and structural sequences, paleoenvironmental reconstruction, interpretation of tectonic history. Reports required. Touring course. Travel fee required.
PREREQUISITE: 18 CREDITS IN GEOLOGICAL SCIENCES AND/OR PERMISSION OF INSTRUCTOR.

GSC581 Summer Field Environmental Geology
2 credits Spring Semester & First & Second Summer Session
Field evaluation of environmental geology problems in marine, coastal, wetland and terrestrial environments. Effects of human alteration of landscape, natural hazards, pollution of ground water, surface water and soils. Role of climate change on surficial environments. Reports required. Touring course. Travel fee required.
Corequisite: GSC 580.
PREREQUISITE: COREQUISITE GSC 580.

GSC582 Field Studies
1- 4 credits Offered By Announcement Only
Conducted field trips to selected geological sites in the United States and abroad.
Report required.
PREREQUISITE: GRADUATE OR ADVANCED UNDERGRADUATE STANDING AND PERMISSION OF DEPARTMENT.

GSC596 Research in Geology
1- 4 credits Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: PERMISSION OF INSTRUCTOR.

GERMAN
GER521 Advanced German Studies
3 credits Offered By Announcement Only
German language, literature, culture of the 18th-20th centuries. Involves independent research. WRITING CREDIT May be repeated for credit if topic is different.
PREREQUISITE: GER 363, 364, OR 365.

GER522 Special Topics in German Literature
3 credits Offered By Announcement Only
WRITING CREDIT. May be repeated for credit if topic is different.
PREREQUISITE: TWO COURSES ON THE 300-LEVEL; PERMISSION OF THE INSTRUCTOR.

GER566 German Literature of the Twentieth Century
3 credits Offered By Announcement Only
WRITING CREDIT. Major literary movements: prose, poetry, and drama.
PREREQUISITE: GER 363 OR 364.

GER591 Directed Readings
1- 3 credits Offered By Announcement Only
PREREQUISITE: TWO 300-LEVEL COURSES AND PERMISSION OF THE INSTRUCTOR.

GER592 Directed Readings
1- 3 credits Offered By Announcement Only
PREREQUISITE: TWO 300-LEVEL COURSES AND PERMISSION OF THE INSTRUCTOR.

GER593 Directed Readings
1- 3 credits Offered By Announcement Only
PREREQUISITE: TWO 300-LEVEL COURSES AND PERMISSION OF THE INSTRUCTOR.
GER594 Senior Honors Thesis I
3 credits Fall Semester
Directed research for honors thesis.
PREREQUISITE: MUST HAVE COMPLETED AT LEAST NINE CREDITS AT THE 300-LEVEL OR ABOVE TOWARDS GERMAN MAJOR, MUST MEET ELIGIBILITY FOR HONORS IN GERMAN.

GER595 Senior Honors Thesis II
3 credits Fall Semester
Directed writing of honors thesis.
PREREQUISITE: GER 594.

GER625 German for Graduate Research
0 credit Offered By Announcement Only
Grammatical structuring, verb tenses, and word families necessary for reading text with minimal use of a dictionary. May fulfill the Foreign Language Reading Competency Requirement (consult your graduate advisor.)

HISTORY
HIS501 Studies in African History
3 credits Offered By Announcement Only
Selected topics in African history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.

HIS511 Studies in Asian History
3 credits Offered By Announcement Only
Selected topics in Asian history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.

HIS515 Studies in Chinese History
3 credits Offered By Announcement Only
Selected topics in Chinese history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.

HIS531 Studies in European History
3 credits Offered By Announcement Only
Selected topics in European history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.

HIS534 Studies in Ancient History
3 credits Offered By Announcement Only
Selected topics in Ancient history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.

HIS536 Studies in Medieval History
3 credits Offered By Announcement Only
Selected topics in Medieval history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.
HIS538 Studies in Early Modern European History
3 credits Offered By Announcement Only
Selected topics in European history before the French Revolution. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL

HIS544 Studies in Modern European History
3 credits Offered By Announcement Only
Selected topics in European history after the French Revolution. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL

HIS551 Studies in Latin American History
3 credits Offered By Announcement Only
Selected topics in Latin-American history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL

HIS553 Studies in Colonial Latin American History
3 credits Offered By Announcement Only
Selected topics in the colonial period of Latin-American history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL

HIS554 Studies in Modern Latin American History
3 credits Offered By Announcement Only
Selected topics in Latin-American history before and after Independence. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL

HIS561 Studies in United States History
3 credits Offered By Announcement Only
Selected topics in United States history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL

HIS564 Studies in American Intellectual and Cultural History
3 credits Offered By Announcement Only
Selected topics in American intellectual and cultural history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL

HIS565 Studies in American Political and Diplomatic History
3 credits Offered By Announcement Only
Selected topics in American political and diplomatic history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL
HIS569 Studies in African-American History
3 credits
Offered By Announcement Only
Selected topics in African-American history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.

HIS570 Studies in Public History
3 credits
Offered By Announcement Only
Selected topics in public history. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.

HIS591 Studies in Comparative History
3 credits
Offered By Announcement Only
Selected topics in Comparative History. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.

HIS592 Transfer Credits
1- 5 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

HIS593 Transfer Credits
1- 5 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

HIS594 Transfer Credits
1- 5 credits
Not Offered; Transfer Credit Only
Courses taken at other institutions with no direct equivalents.

HIS595 Studies in Visual History
3 credits
Offered By Announcement Only
Selected topics in the use of photographs and other visual evidence for historical purposes. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: THREE CREDITS IN HISTORY AT THE 300-LEVEL.

HIS599 Independent Research
3 credits
Offered By Announcement Only
PREREQUISITE: PERMISSION OF INSTRUCTOR.

HIS601 Directed Readings in African History
1- 3 credits
Offered By Announcement Only
PREREQUISITE: PERMISSION OF INSTRUCTOR.

HIS622 Directed Readings in Asian History
1- 3 credits
Offered By Announcement Only
PREREQUISITE: PERMISSION OF INSTRUCTOR.

HIS631 Directed Readings in European History
1- 3 credits
Offered By Announcement Only
PREREQUISITE: PERMISSION OF INSTRUCTOR.
HIS633 Seminar in European History
3 credits
Selected topics in European History.

HIS634 Seminar in Ancient History
3 credits

HIS636 Seminar in Medieval History
3 credits

HIS641 Field Preparation: Colonial Latin America
3 credits
Fall Semester
An introduction to central historical issues and historiographical debates in the field of Colonial Latin America.

HIS642 Field Preparation: Modern Latin America
3 credits
Fall Semester
An introduction to central historical issues and historiographical debates in the field of Modern Latin America.

HIS643 Field Preparation: Colonial and Revolutionary America
3 credits
Fall Semester
An introduction to central historical issues and historiographical debates in the field of Colonial and Revolutionary America.

HIS644 Field Preparation: Modern America
3 credits
Fall Semester
An introduction to central historical issues and historiographical debates in the field of Modern America.

HIS645 Field Preparation: Early Modern Europe
3 credits
Fall Semester
An introduction to central historical issues and historiographical debates in the field of Early Modern Europe.

HIS646 Field Preparation: Modern Europe
3 credits
Fall Semester
An introduction to central historical issues and historiographical debates in the field of Modern Europe.

HIS651 Directed Readings in Latin-American History
1-3 credits
PREREQUISITE: PERMISSION OF INSTRUCTOR.
Offered By Announcement Only

HIS653 Seminar in Latin-American History
3 credits
Offered By Announcement Only

HIS661 Directed Readings in American History
1-3 credits
PREREQUISITE: PERMISSION OF INSTRUCTOR.
Offered By Announcement Only

HIS663 Seminar in United States History
3 credits
Offered By Announcement Only
HIS691 Directed Readings in Comparative History
1-3 credits  Offered By Announcement Only
PREREQUISITE: PERMISSION OF INSTRUCTOR.

HIS693 Seminar in Comparative History
3 credits  Offered By Announcement Only

HIS695 Historiography
3 credits  Offered By Announcement Only
The philosophy, theory, and practice of history.

HIS696 History as a Profession
3 credits  Fall & Spring Semester
Practical experience for graduate students in designing courses; preparing lectures, conference papers and scholarly publications; and in applying for jobs and research grants
PREREQUISITE: COMPLETION OF GRADUATE SEMINAR PAPER OR EQUIVALENT

HIS710 Master's Thesis
1-6 credits  Fall & Spring Semester
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

HIS720 Research in Residence
0 credit  Fall & Spring Semester
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in HIS 710 (usually six credits). Credit not granted. May be regarded as full time residence.

HIS725 Continuous Registration--Master's Study
0 credit  Fall & Spring Semester
To establish residence for non-thesis master's students who are preparing for major examinations. Credit not granted. Regarded as full time residence.

HIS730 Doctoral Dissertation
1-12 credits  Fall & Spring Semester
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor, but for not less than a total of 12 hours. Up to 12 hours may be taken in a regular semester, but not more than six in a summer session.

HIS740 Post-Candidacy Doctoral Dissertation
1-12 credits  Fall & Spring Semester
Required of all candidates for the Ph.D. who have advanced to candidacy. The student will enroll for credit as determined by his/her advisor, but not for less than a total of 12. Not more than 12 hours of HIS 740 may be taken in a regular semester, nor more than six in a summer session.
PREREQUISITE: ABD STATUS

HIS750 Research in Residence
0 credit  Fall & Spring Semester
Used to establish research in residence for the Ph.D. and D.A., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.
INS503 Int Relations Topics  
3 credits Offered By Announcement Only  
Selected topics in International Relations Theory. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.

INS504 Int Rel Topics II  
3 credits Offered By Announcement Only  
Selected topics in International Relations Theory. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.

INS510 ISSUES IN INS  
3 credits Offered By Announcement Only  
Analysis of current issues of international importance.

INS511 Issues in INS II  
3 credits Offered By Announcement Only  
Analysis of current issues of international importance.

INS512 International Administration  
3 credits Fall Semester  
Introductory course for the Master of Arts in International Administration. 
PREREQUISITE: GRADUATE STUDENTS ONLY.

INS513 Information and Communication in International Relations  
3 credits Fall Semester  
First semester offering for students in the Master of Arts in International Administration program. 
PREREQUISITE: GRADUATE STUDENTS ONLY.

INS514 World Affairs  
3 credits Fall Semester  
Explores the complexity of world affairs in relation to international administrative fields. First semester offering for students in the Master of Arts in International Administration program. 
PREREQUISITE: GRADUATE STUDENTS ONLY.

INS515 Independent Study  
1-6 credits Fall & Spring Semester  
PREREQUISITE: INS CORE AND MINIMUM 3.0 CUMULATIVE GPA REQUIRED AND PERMISSION OF INSTRUCTOR.

INS516 Str Thinking, Neg and Bargaining  
3 credits Spring Semester  
Second semester offering for students in the Master of International Administration program. 
PREREQUISITE: GRADUATE STUDENTS ONLY.
INS517 Practicum in International Administration  
3 credits  Offered By Announcement Only
Each student in the Master of Arts in International Studies (with a specialization in International Administration) is required to complete a three (3) credit practicum/internship during the summer months subsequent to their completion of the fall and spring semester. The purpose of the practicum is to give each student the necessary skills to help advance their professional careers.
PREREQUISITE: PERMISSION OF PROGRAM COORDINATOR.

INS519 Internship  
1- 3 credits  Fall Semester & First Summer Session

INS520 Microeconomics for INS  
3 credits  Offered By Announcement Only
Microeconomics for students of international studies. Topics will include rationality, market failure and comparative advantage.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS521 INT'L ECON TOPICS II (International Economic System Topics)  
3 credits  Offered By Announcement Only
Selected topics in International Economics. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS522 Latin American Political Economy  
3 credits  Fall Semester
Latin American political economy including analysis of market reform and integration of the region into the world economy.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS523 Economics of Terrorism  
3 credits  Fall Semester
Economic resources of terrorist movements today: their financing, acquisition of tools, recruitment, and operations.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS524 INTL ECON Topics  
3 credits  Offered By Announcement Only
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS530 Comparative Analysis  
3 credits  Offered By Announcement Only
Advanced overview of the comparative method. Required for students specializing in Comparative Studies at the graduate level.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS531 Dictatorship and Human Rights  
3 credits  Offered By Announcement Only
How have societies coped with traumatic pasts, and how have they faced the tension between remembering and forgetting? This course will explore these issues with a view to various approaches and scenarios.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.
INS532 Globalization and Human Rights
3 credits
Offered By Announcement Only
The integration of markets has many concerned for the political and economic rights of the common citizen. This course examines the effect of globalization on the human rights standards throughout the world.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS533 Transnational Social Movements
3 credits
Fall Semester
Focuses on global civic activism and contentious politics, with particular attention to transnational non-state actors - NGOs, social movements, environmental protection, and the emergence of a global civil society.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS534 Military, State and Society
3 credits
Offered By Announcement Only
The role of the military in state formation; questions of military rule, civilian control, and social structures in contemporary world politics.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS536 Comparative Political Regimes
3 credits
Offered By Announcement Only
Literature concerned with the transition from authoritarianism to democracy in various parts of the world.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS537 Comparative Political Economy
3 credits
Fall Semester
Compares how domestic politics and macroeconomic policies interact with globalization. Case studies include welfare states in the U.S. and Europe, East Asian development, postcommunist transitions and market restructuring in Latin America and Africa.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS540 National Security
3 credits
Offered By Announcement Only
The central issues concerning European security since World War II, with emphasis on the period since the end of the cold war.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS541 The Role of Intelligence in U.S. National Security
3 credits
Offered By Announcement Only
Required alternate for students concentrating in Strategic Studies. Explains what is intelligence, how it is collected and analyzed, and what it contributes to U.S. national security. Discusses the issue of secret intelligence activities in a democratic society.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS542 Drug-Trafficking in the Americas
3 credits
Fall Semester
The political economy of the U.S.-Latin American drug trade in the 20th Century along with the dynamics of the U.S.-led war on drugs through the first years of the Twenty First Century.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.
INS543 National Security and Foreign Policy
3 credits Fall Semester
Explores alternative conceptualizations of "security" and the new challenges to U.S. national security that have emerged in the Post-Cold War era.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS550 Non-Western Regional Topics
3 credits Offered By Announcement Only
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS551 Regional Topics II
3 credits Offered By Announcement Only
Selected topics in International Business. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS560 US Foreign Policy
3 credits Spring Semester
The leading approaches to the analysis of American foreign policy. Particular emphasis will be placed on the post-Cold War period and the new challenges to U.S. foreign policy of the 21st century.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS561 Negotiation and Bargaining
3 credits Fall Semester
Examines the nature of diplomatic negotiation through readings and discussion of international negotiation and through the case method, selecting several cases of high-level policy issues in which the United States has been a principal actor.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS562 International Peace and Conflict Resolution
3 credits Fall Semester
The major sources of conflict, and what resources are available for making and keeping the peace? This class introduces students to the most fundamental concerns of the field of International Relations (IR), and especially of its subfield IPCR.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS563 International Organizations
3 credits Offered By Announcement Only
The role, function, and impact on states of international governmental and non-governmental organizations in critical areas like peace and security, human rights, economic development, and environmental degradation.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS564 International Law
3 credits Fall Semester
How international law affects the conduct of states. Issues include jurisdiction, diplomatic immunity, the use of armed force, peaceful dispute settlement among states, human rights, and the International Criminal Court.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.
INS565 The World Before European Domination
3 credits
Fall Semester
The historical roots of the contemporary international system. Its objective is to question the standard Eurocentric perspective on the rise of the West to a dominant position in the global system.
PREREQUISITE: 15 CREDITS IN ADVANCED LEVEL SOCIAL SCIENCES OR PERMISSION OF INSTRUCTOR.

INS566 US-Latin American Relations
3 credits
Fall Semester
Political, economic and strategic aspects of U.S.-Latin American relations; the historical experience and contemporary issues, including the influence of extra-regional parties such as Europe and China.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS567 Foreign Policy Topics
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS570 Globalization and Health
3 credits
Fall Semester
Globalization and its benefits and threats to public health; the relationship between global economic, political, social, cultural, environmental and technological changes and their impact on human health.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS571 International Development and Human Welfare
3 credits
Spring Semester
Health and development links; macroeconomic policies and their impact on social equity; poverty and structural inequities; and other key issues that influence human development.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS572 Global Health Policy and Ethics
3 credits
Fall & Spring Semester
National, regional and global health policies with special consideration to ethical and human rights issues; policies and the moral considerations that shape public health policy.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS573 Disasters, Terrorism and Global Public Health
3 credits
Fall Semester
The historical processes and present trends of disasters, terrorism, humanitarian emergencies and their impact on human health, safety and security.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS580 Latin American Comparative Politics
3 credits
Fall Semester
The major intellectual debates shaping the field of comparative politics including: (1) development, (2) military politics, (3) democratization and (4) the emergence of new social movements.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.
INS581 Politics and Ideology in Latin America
3 credits Offered By Announcement Only
The roles played by both "class" and the "new social movements" in the emergence of new modes of political representation.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS582 Problems of Latin American Democracies
3 credits Offered By Announcement Only
The Left and the Right, business, and indigenous movements along with issues such as transitional justice, state reform, public security, human rights and the politics of memory.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS583 Chile: Politics and Society
3 credits Offered By Announcement Only
Changes in Chilean politics and society. The three chronological parts of Chilean history: pre-1973, the years of dictatorship and the contemporary transition to democracy since 1990.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS584 Latin American Thought
3 credits Spring Semester
The evolution of Latin American thought through political and intellectual history; the classical writings of the main "pensadores", and a comparative analysis of contemporary ideological trends.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS585 Dilemmas of Mexical Democracy
3 credits Offered By Announcement Only
Contemporary politics in Mexico and US-Mexican relations first-hand during visits to Mexico City and Oaxaca. Meetings with Mexican scholars and civil society leaders are included.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS586 Brazil in Transition
3 credits Offered By Announcement Only
The social, economic, cultural transformations shaping Brazilian politics. In addition to visiting Rio de Janeiro and Salvador, there will be seminars with Brazilian academics and social and political activists.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS587 Politics in Central America
3 credits Offered By Announcement Only
The domestic issues of the Central American republics and their relationships with the United States, other western hemisphere countries and the global system.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS588 Politics in the Andes
3 credits Offered By Announcement Only
The domestic issues of the Andean republics and their relationships with the United States, other western hemisphere countries and the global system.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.
INS589 Argentine Politics and Society
3 credits                      Offered By Announcement Only
Seminar offered in Buenos Aires covering dilemmas of democratic consolidation, social justice, and market reform. Students will meet with Argentine social scientists and leaders of major social, economic, and political movements.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS591 The European Union
3 credits                      Fall & Spring Semester
The European Union's history, institutions, policies and contemporary issues.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS592 European Union and the World
3 credits                      Spring Semester
The European Union's development, its main institutions and policies followed by an analysis of the main features of the European Union's external relations.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS593 European Security
3 credits                      Spring Semester
Regional security in Europe, focusing on NATO expansion, EU expansion, Russian foreign policy, and related issues.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS594 European Topics
3 credits                      Offered By Announcement Only
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS595 European Social Movements
3 credits                      Offered By Announcement Only
The major social movements active today throughout Europe including those concerned with the environment, agriculture, poverty, racism, deposing social democracy, the rights of workers, minorities, and women.
PREREQUISITE: GRADUATE STUDENT, UPPER LEVEL UNDERGRADUATE OR PERMISSION OF INSTRUCTOR.

INS599 Special Topics
3 credits                      Offered By Announcement Only

INS601 IR Theory
3 credits                      Spring Semester
Introduces students to key historic events, themes, concepts, and theories that have animated the practice and scholarship of international relations.
PREREQUISITE: GRADUATE STANDING.

INS603 Dissertation Proposal
3 credits                      Spring Semester
A workshop designed to assist doctoral students in the preparation of a proposal for their dissertation research projects.
PREREQUISITE: GRADUATE STANDING.

INS610 Graduate Seminar in INS
3 credits                      Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING.
INS611 INT RELATNS METH II (International Relations Methodology II)

3 credits  Spring Semester
Introduces graduate students to issues of research design and research methods in International Relations. The course will focus on three main methodological approaches in political science: qualitative case study, quantitative research and formal modeling. Apart from examining the principles guiding the choice of methods (and the trade offs involved in that choice), the course will examine how these methods have been applied to the study of three major sub-fields of international relations: international political economy, security studies, and international environmental regimes. It also aims to provide the students with basic knowledge on how to apply these methods to their own research.
PREREQUISITE: GRADUATE STANDING.

INS615 Independent Study

1-3 credits  Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING.

INS620 Economics of the International System

3 credits  Offered By Announcement Only
The essentials of International Economics providing students with an operational understanding of the theory of comparative advantage and its applications to policy issues.
PREREQUISITE: GRADUATE STANDING.

INS621 Economics Development

3 credits  Offered By Announcement Only
International economics; rigorous but nontechnical presentation of international trade theory; globalization; commercial policy; determination of exchange rates; the international monetary system.
PREREQUISITE: GRADUATE STANDING.

INS622 Advanced Seminar in International Economics

3 credits  Offered By Announcement Only
This is a seminar in International Economics at the graduate level. The first part consists of a rigorous but nontechnical presentation of international trade theory, followed by a discussion of the main arguments for protection and their validity. The third part of the course analyzes the process of globalization; its meaning, measurement and effects. A final brief section is devoted to the determination of exchange rates and the international monetary system.
PREREQUISITE: GRADUATE STANDING.

INS630 Advanced Seminar in Comparative Studies

3 credits  Fall Semester
PREREQUISITE: GRADUATE STANDING.

INS640 Conflict and its Alternatives

3 credits  Offered By Announcement Only
Historical, theoretical, and empirical analyses of violent conflict. Alternatives to violent conflict are explored including the prevention and control of war, preventive diplomacy, crisis management and conflict transformation.
PREREQUISITE: GRADUATE STANDING.

INS641 Advanced ISC Seminar

3 credits  Offered By Announcement Only
INS650 Advanced Regional Seminar
3 credits                                  Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING.

INS660 Foreign Policy Analysis
3 credits                                  Offered By Announcement Only
Develops skills in conceptualization, description, explanation, evaluation and
prescription, concentrating on leading foreign policy issues, sources, and research
techniques.
PREREQUISITE: GRADUATE STANDING.

INS670 Advanced Seminar in International Health
3 credits                                  Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING.

INS680 Advanced Seminar on Latin America
3 credits                                  Offered By Announcement Only
PREREQUISITE: GRADUATE STANDING.

INS692 ADV SEMINAR - EUROPE (Advanced Seminar on Europe)
3 credits                                  Offered By Announcement Only

INS699 Readings in International Studies
1- 3 credits                               Fall & Spring Semester & First & Second Summer Session

INS710 Master's Thesis
1- 6 credits                               Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments
not to exceed six, as determined by his/her advisor. Credit is not awarded until
the thesis has been accepted.

INS720 Research in Residence
0 credit                                   Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree
after the student has enrolled for the permissible cumulative total in INS 710
(usually six credits). Credit not granted. May be regarded as full time residence.

INS725 Continuous Registration--Master's Study
0 credit                                   Fall & Spring Semester & First & Second Summer Session
To establish residence for non-thesis master's students who are preparing for major
examinations. Credit not granted. Regarded as full time residence.

INS730 Doctoral Dissertation
1-12 credits                               Fall & Spring Semester & First & Second Summer Session
A total of 12 hours of INS 730 is required of all candidates for the Ph.D. Not
more than 12 dissertation credits may be taken during the Fall or Spring semesters,
nor more than six in a summer session.

INS740 Post-candidacy Doctoral Dissertation
1-12 credits                               Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. who have advanced to candidacy. The student
will enroll for credit as determined by his/her advisor, but not for less than
a total of 12. Not more than 12 hours of INS 740 may be taken in a regular semester,
nor more than six in a summer session.
INS750 Research in Residence
0 credit                  Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D. and D.A., after the student
has been enrolled for the permissible cumulative total in appropriate doctoral
research. Credit not granted. May be regarded as full-time residence as determined
by the Dean of the Graduate School.

ITALIAN
IT591 Directed Readings
1- 3 credits               Offered By Announcement Only
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

IT592 Directed Readings
1- 3 credits               Offered By Announcement Only
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

IT593 Directed Readings
1- 3 credits               Offered By Announcement Only
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

IT625 Italian for Graduate Research
0 credit                   Offered By Announcement Only
Grammatical structuring, verb tenses, and word families necessary for reading text
with minimal use of a dictionary. May fulfill the Foreign Language Reading Competency
Requirement (consult your graduate advisor).

LATIN
LAT625 Elementary Latin for Graduate Research
0 credit                   Offered By Announcement Only
Grammatical structures, verb tenses, and word families necessary for reading texts
with minimal use of a dictionary. May fulfill the Foreign Language Reading Competency
Requirement (consult your graduate advisor).

LATIN AMERICAN STUDIES
LAS501 Interdisciplinarity in Latin American and Caribbean Studies.
3 credits                  Fall Semester
Interdisciplinary methods and politics of Latin American and Caribbean area Studies.
PREREQUISITE: SIX CREDITS IN LAS OR LAS-APPROVED COURSES AT OR ABOVE THE 300-LEVEL.

LAS502 Interdisciplinary Research Methods in Latin American and Caribbean Studies
3 credits                  Spring Semester
Interdisciplinary research methods and skills in Latin American and Caribbean studies.
PREREQUISITE: LAS 501 OR SIX CREDITS IN LAS OR LAS-APPROVED COURSES AT OR ABOVE
THE 300-LEVEL.

LAS503 Program Seminar in Latin American Studies and Caribbean Studies
3 credits                  Fall & Spring Semester
Content of course will vary by semester.
PREREQUISITE: LAS 501 OR SIX CREDITS IN LAS OR LAS-APPROVED COURSES AT OR ABOVE
THE 300-LEVEL.

LAS505 Internship in Latin American and Caribbean Studies
1- 3 credits               Fall & Spring Semester & First & Second Summer Session
On-site experience in business, governmental organization, or non-profit organization
dealing with Latin America and/or the Caribbean.
PREREQUISITE: DECLARED MAJOR OR MINOR IN LATIN AMERICAN STUDIES, SIX CREDITS IN
LAS OR LAS-APPROVED COURSES AT OR ABOVE THE 300-LEVEL, AND PERMISSION OF LAS DIRECTOR.
COLLEGE OF ARTS AND SCIENCES
LATIN AMERICAN STUDIES

LAS594 Directed Readings in Latin America and Caribbean
3 credits Fall & Spring Semester
Independent Study leading to an original piece of research, or creative project on a Latin American or Caribbean interdisciplinary topic.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF LAS DIRECTOR

LAS597 Readings for the Comprehensive Exam
3 credits Fall & Spring Semester
Readings for M.A. students who are preparing for comprehensive examinations.
PREREQUISITE: PERMISSION OF ADVISOR AND PROGRAM DIRECTOR

LAS710 Pre-candidacy thesis credits
3 credits Fall & Spring Semester
the student working on his/her master's thesis enrolls for credit, not to exceed three, before student has been admitted to candidacy. Credit is not awarded until the thesis has been accepted.

LAS715 Post-candidacy thesis credits
3 credits Fall & Spring Semester
the student working on his/her master's thesis enrolls for credit, not to exceed six, after student has been admitted to candidacy. Credit is not awarded until the thesis has been accepted.
PREREQUISITE: ADMISSION TO CANDIDACY.

LAS720 Research in residence.
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in LAS 710 (usually six credits). Credit not granted. May be regarded as full time residence.

LIBERAL STUDIES

MLS595 Special Topics
3 credits Fall & Spring Semester

MLS596 Special Topics
3 credits Fall Semester

MLS597 Special Topics
3 credits Fall Semester

MLS601 Aspects of Creative and Reflective Thought
3 credits Fall & Spring Semester
Selected aspects of creative and reflective thought, based on materials from the arts, the humanities, the sciences, the social sciences and history. The focus will be on themes and issues represented in a variety of cultural traditions.

MLS602 Perspectives on Human Nature
3 credits Fall & Spring Semester
Basic theories of human nature proposed by the humanities, the sciences, and the social sciences. The course deals with fundamental issues regarding the concept of human nature, such as the nature of the self and its relation to society, the impact of culture on self perception and the relation of thought to human action.
MLS603 Theories of the Physical Universe
3 credits                                                    Fall & Spring Semester
Various understandings of the nature of the universe and their impact on human
culture. The course will deal with critical issues addressed in the various attempts
to understand the physical world, such as fundamental structures and processes,
the limitation of human perception, and the interaction between the human species
and its environment.

MLS611 Studies in the Humanities
3 credits                                                    Fall & Spring Semester
Interdisciplinary study of selected topics in the Humanities.

MLS612 Studies in the Social Sciences
3 credits                                              Offered By Announcement Only
Interdisciplinary study of selected topics in the Social Sciences.

MLS613 Studies in the Sciences
3 credits                                              Offered By Announcement Only
Interdisciplinary study of selected topics in the sciences.

MLS621 Studies in the Humanities
3 credits                                                             Fall Semester

MLS622 Studies in the Social Sciences
3 credits                                                             Fall Semester

MLS623 Studies in the Sciences
3 credits                                                             Fall Semester

MLS631 Studies in the Humanities
3 credits                                                             Fall Semester

MLS696 Directed Readings
1- 3 credits                                                    Fall & Spring Semester
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF THE DIRECTOR OF THE PROGRAM.

MLS697 Directed Readings
1- 3 credits                                                    Fall & Spring Semester
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF THE DIRECTOR OF THE PROGRAM.

MLS698 Seminar in Liberal Studies
3 credits                                              Offered By Announcement Only

MLS699 Seminar in Liberal Studies
3 credits                                                             Fall Semester

MLS710 Master's Thesis
1- 6 credits                                                    Fall & Spring Semester
The student working on his/her master's thesis enrolls for credit, in most departments
not to exceed six, as determined by his/her advisor. Credit is not awarded until
the thesis has been accepted.
MLS715 MALS Project
1-6 credits  Fall & Spring Semester
The student working on his/her MALS project enrolls for credit, not to exceed 6, as determined by his/her advisor. Credit is not awarded until the project has been accepted.

MLS720 Research in Residence
0 credit  Fall & Spring Semester
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in PSY 710 (usually six credits). Credit not granted. May be regarded as full time residence.

MLS725 Continuous Registration-Master's Study
0 credit  Offered By Announcement Only
To establish residence for non-thesis students who are preparing for major examinations. Credit not granted. Regarded as full time residence.

MATHEMATICS

MTH502 History of Mathematics
3 credits  Fall Semester
The development of mathematics from its earliest beginnings through the first half of the twentieth century. Numeral systems, geometry, algebra, analysis and set theory.
PREREQUISITE: TWO COURSES IN MATHEMATICS AT THE 200 LEVEL OR ABOVE.

MTH504 Foundations of Geometry
3 credits  Fall Semester
Axiom systems and models of Euclidean and Non-Euclidean geometry.
PREREQUISITE: MTH 230 OR 309.

MTH505 Theory of Numbers
3 credits  Spring Semester
Divisibility, primes; congruences, quadratic residues and reciprocity; Diophantine equations. Applications to cryptography.
PREREQUISITE: MTH 210 OR 504.

MTH506 Logic
3 credits  Offered By Announcement Only
PREREQUISITE: MTH 230 OR 309 OR PERMISSION OF THE INSTRUCTOR.

MTH509 Discrete Mathematics II
3 credits  Offered By Announcement Only
Groups and combinatorics; applications of group theory to computer design and error correcting codes; Semigroups and applications to finite state machines; rings and fields; applications of Boolean algebra to computer design.
PREREQUISITE: MTH 210, 309.

MTH510 Linear Algebra
3 credits  Fall Semester
Abstract vector spaces, bases and dimensions, linear maps, eigenvalues and eigenvectors, inner product spaces, operators, spectral theorems, canonical forms.
PREREQUISITE: MTH 210: TRANSITION COURSE IN LOGICAL REASONING SUCH AS MTH 230 OR 309 RECOMMENDED BUT NOT REQUIRED.
MTH512 Elementary Complex Analysis  
3 credits  
Spring Semester  
Complex variables; conformal mapping, contour integration.  
PREREQUISITE: MTH 211 OR 310.

MTH513 Partial Differential Equations I  
3 credits  
Fall Semester  
Derivation, well posedness, and qualitative properties of initial value and boundary value problems for the heat, wave and Laplace equations. Energy methods, causality, maximum principles, heat kernels, Fourier series, and potential theory.  
PREREQUISITE: MTH 210, 311 AND EITHER MTH 211 OR 310.

MTH514 Partial Differential Equations II  
3 credits  
Spring Semester  
PREREQUISITE: MTH 513 OR PERMISSION OF THE INSTRUCTOR.

MTH515 Ordinary Differential Equations  
3 credits  
Fall Semester  
Linear systems, equilibria and periodic solutions, stability analysis, bifurcation, phase plane analysis, boundary value problems, applications to engineering and physics.  
PREREQUISITE: MTH 311 AND EITHER MTH 211 OR 310.

MTH516 Dynamics and Bifurcations  
3 credits  
Spring Semester  
Bifurcation of equilibria and periodic solutions, global theory of planar systems, planar maps, nonlinear vibrations, forced oscillations, chaotic solutions, Hamiltonian systems, applications to engineering and physics.  
PREREQUISITE: MTH 515 OR PERMISSION OF INSTRUCTOR.

MTH517 Data Structures and Algorithm Analysis  
3 credits  
Offered By Announcement Only  
Data abstraction, formal specification, trees, B-trees, balanced binary trees, graphs, searching and sorting. Algorithm analysis. Memory management.  
PREREQUISITE: MTH 112, 220, AND 309.

MTH520 Numerical Analysis I  
3 credits  
Offered By Announcement Only  
Numerical linear algebra including the algebraic eigenvalue problem.  
PREREQUISITE: MTH 320 OR PERMISSION OF DEPARTMENT CHAIRMAN.

MTH521 Numerical Analysis II  
3 credits  
Offered By Announcement Only  
Numerical solution of ordinary and partial differential equations.  
PREREQUISITE: MTH 320 OR 520 OR PERMISSION OF DEPARTMENT CHAIRMAN.

MTH524 Introduction to Probability Theory  
3 credits  
Fall Semester  
Probability spaces, random variables, expectation, limit theorems.  
PREREQUISITE: MTH 224 AND 310.
**Mathematics**

**MTH525 Introduction to Mathematical Statistics**
3 credits
Spring Semester
Probability distributions, theory of sampling and hypothesis testing.
PREREQUISITE: MTH 524.

**MTH527 Theory of Automata**
3 credits
Offered By Announcement Only
Finite-state automata, context-free grammars, pushdown automata, Turing machines and computability.
PREREQUISITE: MTH 309 OR 508.

**MTH528 Combinatorics**
3 credits
Offered By Announcement Only
Permutations and combinations, generating functions, enumerative analysis.

**MTH531 Topology I**
3 credits
Fall Semester
Set theory, topological spaces, compactness, connectedness, separation properties, quotient spaces, Tychonoff Theorem, compactification, Urysohn Lemma and Tietze Extension Theorem, function spaces.
PREREQUISITE: MTH 230

**MTH532 Topology II**
3 credits
Spring Semester
Differential and topological manifolds, classical groups and associated manifolds, tangent and tensor bundles, vector fields, differential forms, transversality, Sard's theorem, Stokes' Theorem.
PREREQUISITE: MTH 210 AND 531.

**MTH533 Introduction to Real Analysis I**
3 credits
Fall Semester
Sequences and series in Euclidean space; sequences and series of functions; Fourier series; continuity, differentiation, and integration of functions between Euclidean spaces; implicit and inverse function theorems.
PREREQUISITE: MTH 230 AND MTH 310

**MTH534 Introduction to Real Analysis II**
3 credits
Spring Semester
Continuation of MTH 533.
PREREQUISITE: MTH 533.

**MTH540 Algorithm Design and Analysis**
3 credits
Offered By Announcement Only
Design techniques include divide-and-conquer, greedy method, dynamic programming, backtracking. Time and space complexity. Sorting, searching, combinatorial and graph algorithms.
PREREQUISITE: MTH 517.

**MTH542 Statistical Analysis**
3 credits
Offered By Announcement Only
Statistical inference about one or two populations from interval, ordinal and categorical data; analysis of variance; simple and multiple linear regression; designing research studies.
PREREQUISITE: MTH 224, 310 (OR 211 OR 312).
MTH551 Introduction to Differential Geometry
3 credits
Fall Semester
Geometry of curves and surfaces in Euclidean space. Local space curve theory, intrinsic and extrinsic curvature of surfaces, geodesics, parallelism, and differential forms.
PREREQUISITE: MTH 210 AND EITHER MTH 211 OR 310

MTH561 Abstract Algebra I
3 credits
Fall Semester
Groups; rings; linear algebra; modules.
PREREQUISITE: MTH 210 AND PERMISSION OF DEPARTMENT CHAIRMAN.

MTH562 Abstract Algebra II
3 credits
Spring Semester
Continuation of MTH 561.
PREREQUISITE: MTH 561.

MTH571 Directed Readings in Mathematics
1-3 credits
Fall Semester
Readings in special topics.
PREREQUISITE: GRADUATE STANDING; PERMISSION OF DEPARTMENT CHAIR.

MTH572 Directed Readings in Mathematics
1-3 credits
Fall Semester
Readings in special topics.
PREREQUISITE: GRADUATE STANDING; PERMISSION OF DEPARTMENT CHAIR.

MTH591 Topics in Mathematics
1-3 credits
Offered By Announcement Only

MTH592 Topics in Mathematics
1-3 credits
Offered By Announcement Only

MTH593 Topics in Mathematics
1-3 credits
Offered By Announcement Only

MTH594 Topics in Mathematics
1-3 credits
Offered By Announcement Only

MTH609 Cryptography and Data Security
3 credits
Offered By Announcement Only
Encryption algorithms; cryptographic techniques; access, information flow and inference controls.
PREREQUISITE: MTH 509.

MTH611 Theory of Computation
3 credits
Offered By Announcement Only
Recursive functions, Markov algorithms, Turing machines. Unsolvability.
PREREQUISITE: MTH 509 AND AT LEAST ONE PROGRAMMING COURSE.

MTH612 Complexity Theory
3 credits
Offered By Announcement Only
Models of computations, Blum's axioms, intractability, NP-completeness.
PREREQUISITE: MTH 611.
MTH621 Mathematical Probability
3 credits Offered By Announcement Only
Development of the measure-theoretic approach to probability. Random variables, central limit theory, laws of large numbers, martingales.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

MTH625 Multivariate Analysis
3 credits Offered By Announcement Only
Sampling theory for multivariate normal populations. Component and factor analysis. Stochastic difference equations.
PREREQUISITE: MTH 525.

MTH630 Real Variables
3 credits Offered By Announcement Only
Lebesgue measure and the Lebesgue Integral for R1, Banach Spaces. General measure theory, topological groups and Haar Measure.
PREREQUISITE: MTH 532.

MTH631 Real Variables
3 credits Offered By Announcement Only
Lebesgue measure and the Lebesgue Integral for R1, Banach Spaces. General measure theory, topological groups and Haar Measure.
PREREQUISITE: MTH 532.

MTH632 Complex Variables
3 credits Offered By Announcement Only
Complex numbers line or transformations, analytic function, conformality. Cauchy's Theorem, representation theorems, harmonic functions.
PREREQUISITE: MTH 531.

MTH633 Complex Variables
3 credits Offered By Announcement Only
Complex numbers line or transformations, analytic function, conformality. Cauchy's Theorem, representation theorems, harmonic functions.
PREREQUISITE: MTH 531.

MTH638 Stochastic Processes
3 credits Offered By Announcement Only
PREREQUISITE: MTH 631.

MTH640 Algebraic Topology
3 credits Offered By Announcement Only
Homotopy, covering space, Eilenberg-Steenrod axioms for (co) homology theories, Mayer-Vietoris sequences, Universal Coefficient theorem, Kunneth formula, computations and applications.
PREREQUISITE: MTH 532.

MTH641 Algebraic Topology
3 credits Offered By Announcement Only
Homotopy, covering space, Eilenberg-Steenrod axioms for (co) homology theories, Mayer-Vietoris sequences, Universal Coefficient theorem, Kunneth formula, computations and applications.
PREREQUISITE: MTH 532.
MTH647 Computational Geometry
3 credits Offered By Announcement Only
Algorithms for solving geometric problems arising from application domains including graphics, robotics, and GIS.
PREREQUISITE: MTH 517 OR PERMISSION OF INSTRUCTOR.

MTH651 Differential Geometry
3 credits Offered By Announcement Only

MTH652 Differential Geometry
3 credits Offered By Announcement Only

MTH657 Lie Groups
3 credits Offered By Announcement Only

MTH661 Abstract Algebra
3 credits Offered By Announcement Only
PREREQUISITE: MTH 562.

MTH662 Abstract Algebra
3 credits Offered By Announcement Only
PREREQUISITE: MTH 562.

MTH670 Directed Readings or Research
2- 4 credits Offered By Announcement Only

MTH680 Topics in Analysis
3 credits Offered By Announcement Only

MTH681 Topics in Analysis
3 credits Offered By Announcement Only

MTH682 Topics in Topology
3 credits Offered By Announcement Only

MTH683 Topics in Topology
3 credits Offered By Announcement Only

MTH685 Topics in Algebra
3 credits Offered By Announcement Only

MTH686 Topics in Mathematics
3 credits Offered By Announcement Only

MTH687 Topics in Mathematics
3 credits Offered By Announcement Only

MTH690 Seminar for Beginning Graduate Students
1- 3 credits Offered By Announcement Only
The selection of topics will be flexible but will be of interest to beginning graduate students.

MTH692 Seminar
1- 2 credits Offered By Announcement Only
MTH720 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
To establish a residence for non-thesis master's students who are preparing for major examinations. Credit not granted. Regarded as full-time residence.

MTH730 Pre-Candidacy Doctoral Dissertation
1-12 credits Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor, but for not less than a total of 12 hours. Up to 12 hours may be taken in a regular semester, but not more than six in a summer session.

MTH735 Research Project
1-6 credits Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Doctoral of Arts degree. Student enrolls for credit as determined by his/her advisor. Credit is not awarded until the doctoral project has been accepted. Total enrollment may not exceed six credits.

MTH740 Post-Candidacy Doctoral Dissertation
1-6 credits Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. who have advanced to candidacy. The student will enroll for credit as determined by his/her advisor, but not for less than a total of 12. Not more than 12 hours of MTH 740 may be taken in a regular semester, nor more than six in a summer session.

MTH745 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for DA, after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

MTH750 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D. after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

MODERN LANGUAGES & LITERATURES

MLL597 Readings for the Ph.D. Examinations
1-3 credits Offered By Announcement Only
For Ph.D. students who are preparing for exams.
PREREQUISITE: PERMISSION OF DIRECTOR OF GRADUATE STUDIES

MLL599 Internship
1 credits Offered By Announcement Only
Students work in a community or business setting on issues related to language, culture, and/or teaching.

MLL601 Introduction to Foreign Language Teaching: Theory and Practice
3 credits Fall Semester
Current trends in foreign language teaching with emphasis on introductory Latin language courses. Topics include: linguistic and psychological foundations, teaching methodologies, language skills development.
PREREQUISITE: GRADUATE STANDING IN MLL OR PERMISSION OF THE DIRECTOR OF GRADUATE STUDIES
MLL602 Romance Philology
3 credits
Offered By Announcement Only
Historical and Comparative study of phonology, syntax and semantics from Latin to the early stages of Romance languages. Philological readings of selected texts. Topics may vary.

MLL603 Advanced Topics in Second Language Acquisition
3 credits
Offered By Announcement Only
Second language acquisition theory with emphasis on classroom-based research.

MLL604 Sociocultural Theory and Foreign Language Teaching
3 credits
Offered By Announcement Only
The basic principles of the Sociocultural theory of Mind in the field of Foreign Language Teaching. How the teaching and learning of foreign/second languages can be explained utilizing sociocultural psychology. Focusing on Applied Linguistics, the seminar will explore the pedagogical implications of the theory, centering on Concept-Based Teaching and Dynamic Assessment in the Foreign Language Classroom. PREREQUISITE: MLL 601; GRADUATE STANDING AND PERMISSION OF INSTRUCTOR

MLL605 Literacy Development in Advance Foreign Language
3 credits
Offered By Announcement Only
This pedagogy seminar provides a forum for developing expertise in the teaching of advanced-level content courses in a second or foreign language. Course readings, in-class discussions, and assignments will focus on how advanced-level second or foreign language courses can be designed to develop the content knowledge of language learners simultaneously with their linguistic capabilities. PREREQUISITE: MLL 601; GRADUATE STANDING AND PERMISSION OF INSTRUCTOR

MLL611 Introduction to Literary Theory
3 credits
Fall Semester
An introduction to the major concepts, issues, and debates that inform contemporary literary criticism. PREREQUISITE: GRADUATE STANDING AND PERMISSION OF INSTRUCTOR

MLL612 Topics in Early Modern Comparative Literature
3 credits
Offered By Announcement Only
Specific genres, works, authors and movements in comparative perspective in the early modern period (1300-1750). Topics may include: Trans-Atlantic Baroque; Grotesque Literature; Petrarchan Poetry in Italy, France, and England The Emergence of Professional Theatre in Western Europe.

MLL614 Readings in Literary Theory
3 credits
Spring Semester
Representative works of critical theory as related to philosophy, sociology of culture, psychoanalysis, hermeneutics, deconstruction, etc. May be repeated for credit if topics are different. PREREQUISITE: GRADUATE STANDING AND PERMISSION OF INSTRUCTOR

MLL621 Special Topics in Literature
3 credits
Offered By Announcement Only
May be repeated for credit, if topics are different. PREREQUISITE: GRADUATE STANDING AND PERMISSION OF INSTRUCTOR
### COLLEGE OF ARTS AND SCIENCES

#### MODERN LANGUAGES & LITERATURES

**MLL626 Topics in Comparative Literature**
- 3 credits
- Offered By Announcement Only
- May be repeated for credit, if topics are different.
- PREREQUISITE: GRADUATE STANDING AND PERMISSION OF INSTRUCTOR

**MLL693 Teaching Practicum**
- 3 credits
- Offered By Announcement Only

#### PHILOSOPHY

**PHI510 Formal Logic**
- 3 credits
- Spring Semester
- First and second-order quantification theory; metalogic.

**PHI530 Ethical Theory**
- 3 credits
- Offered By Announcement Only
- G. E. Moore to the present.
- PREREQUISITE: THREE COURSES AT THE 200 LEVEL OR ABOVE, INCLUDING PHI 210 AND 330.

**PHI533 Political Philosophy**
- 3 credits
- Offered By Announcement Only
- A survey of some central issues and developments in political philosophy.
- PREREQUISITE: THREE COURSES AT THE 200 LEVEL OR ABOVE, INCLUDING PHI 210 AND 330.

**PHI540 Epistemology**
- 3 credits
- Offered By Announcement Only
- A survey of the basic topics and questions in epistemology: knowledge acquisition and justification, perception, fallibilism, and skepticism.

**PHI541 Mind and Language**
- 3 credits
- Offered By Announcement Only
- Philosophical problems about signs, linguistic and mental representations, intentionality, action, and consciousness.

**PHI543 Induction, Probability, and Scientific Method**
- 3 credits
- Offered By Announcement Only
- Foundations of inductive reasoning and role of experiment in science.

**PHI545 Metaphysics**
- 3 credits
- Offered By Announcement Only
- A selection of topics dealing with the main problems of metaphysics: existence, modality, universals, identity and persistence through time, causation, the self and physicalism.

**PHI546 Evidence and Knowledge in Medicine**
- 3 credits
- Fall Semester
- Basic methodologies in medicine in the context of philosophical theories of evidence.
- PREREQUISITE: 2 COURSES IN PHI, OR PERMISSION FROM INSTRUCTOR
PHI555 Philosophy of Education
3 credits
Fall Semester
Problems concerning the nature and aims of education.

PHI560 History of Logic
3 credits
Fall Semester
Aristotle, the Stoics, the Scholastics, Leibniz, Boole, DeMorgan, Peirce, Frege, and Russell and Whitehead.

PHI562 History of Ethics
3 credits
Offered By Announcement Only
A selection of ethical theories from Aristotle to Rawls.
PREREQUISITE: THREE COURSES AT THE 200 LEVEL OR ABOVE, INCLUDING PHI 210 AND 330.

PHI570 Presocratics and Plato
3 credits
Offered By Announcement Only
Fragments from the Presocratics and the dialogues of Plato.
PREREQUISITE: THREE COURSES AT THE 200 LEVEL OR ABOVE, INCLUDING PHI 210 AND 271.

PHI571 Aristotle and Hellenistic Philosophy
3 credits
Offered By Announcement Only
A survey of central philosophical topics in Aristotle and Hellenistic Philosophers (Epicureans, Stoics, and Skeptics).
PREREQUISITE: THREE COURSES AT THE 200 LEVEL OR ABOVE, INCLUDING PHI 210 AND 271.

PHI572 Medieval Philosophy
3 credits
Offered By Announcement Only
The patristic period through the scholasticism of the late middle ages.

PHI573 Early Modern Philosophy
3 credits
Offered By Announcement Only
An examination of early modern philosophy from Hobbes and Descartes to Hume.
PREREQUISITE: THREE COURSES AT THE 200 LEVEL OR ABOVE, INCLUDING PHI 210 AND 272.

PHI575 Kant
3 credits
Offered By Announcement Only
An examination of selected issues in Kant's theoretical or practical philosophy.
PREREQUISITE: THREE COURSES AT THE 200 LEVEL OR ABOVE, INCLUDING PHI 210 AND 272.

PHI581 Pragmatism
3 credits
Offered By Announcement Only
Peirce, James, Dewey, and others.
PHI582 History of Analytic Philosophy
3 credits
Offered By Announcement Only
The development of analytic philosophy from its beginnings in the work of Frege and Russell through logical positivism to contemporary philosophy.

PHI583 The Phenomenological Tradition
3 credits
Offered By Announcement Only
An examination of the phenomenological movement (Edmund Husserl, Martin Heidegger, Maurice Merleau-Ponty, and others) and of its impact on contemporary thought.

PHI591 Special Topics
3 credits
Offered By Announcement Only
A selected philosopher or philosophical problem. May be repeated for credit.
PREREQUISITE: SIX CREDITS IN PHILOSOPHY AND JUNIOR STANDING.

PHI592 Special Topics
3 credits
Offered By Announcement Only
A selected philosopher or philosophical problem. May be repeated for credit.
PREREQUISITE: SIX CREDITS IN PHILOSOPHY AND JUNIOR STANDING.

PHI594 Independent Study in Philosophy
1-3 credits
Offered By Announcement Only
Directed reading on a topic or philosopher. May be repeated for credit.
PREREQUISITE: SIX CREDITS IN PHILOSOPHY AND JUNIOR STANDING.

PHI610 Topics in Logic
3 credits
Offered By Announcement Only
Problems in philosophical logic; non-standard logics.

PHI630 Seminar in Ethics
3 credits
Fall Semester
Problems in normative ethics, meta-ethics, and value theory.

PHI633 Seminar in Social and Political Philosophy
3 credits
Offered By Announcement Only
Morality and politics, rights and obligations, sources and limits of political obligation, and the function of the state.
PREREQUISITE: GRADUATE STANDING.

PHI636 Values, Norms, and Actions
3 credits
Offered By Announcement Only
The role of values and norms in practical reasoning and decision making.

PHI640 Seminar in Epistemology
3 credits
Offered By Announcement Only
Problems concerning knowledge: skepticism, belief, certainty, truth, and justification.

PHI641 Seminar in Philosophy of Language
3 credits
Offered By Announcement Only
Nature and uses of language; concepts of reference, truth, and meaning.
PHI643 Philosophy of Science

3 credits

Offered By Announcement Only

Selected topics in the philosophy of science, such as realism, explanation, and conceptual and methodological issues in the special sciences.

PHI644 Seminar in Philosophy of Mind

3 credits

Offered By Announcement Only

Problems concerning mental phenomena: theories of perception, action, consciousness.

PHI645 Seminar in Metaphysics

3 credits

Offered By Announcement Only

Problems related to the nature and kinds of being.

PHI651 Seminar in Philosophy of Art

3 credits

Offered By Announcement Only

Problems related to beauty and the philosophy of art.

PHI652 Seminar in Philosophy of Religion

3 credits

Offered By Announcement Only

Problems in philosophy of religion: the existence and attributes of God, the rationality of theistic belief, the problem of evil.

PHI671 Seminar in Ancient Philosophy

3 credits

Offered By Announcement Only

A discussion of selected topics in ancient philosophy.

PHI675 Seminar in Modern Philosophy

3 credits

Offered By Announcement Only

A discussion of selected topics in modern philosophy from Hobbes and Descartes to Kant.

PHI676 Idealism

3 credits

Offered By Announcement Only

An examination of Idealism, both contemporary and historical.

PREREQUISITE: GRADUATE STANDING

PHI682 The Origins of Contemporary Continental and Analytic Philosophy

3 credits

Offered By Announcement Only

A study of selected topics in the philosophical tradition originating from Franz Brentano and his contemporaries and students.

PHI691 Seminar in Special Topics

3 credits

Offered By Announcement Only

A selected philosopher or philosophical problem. May be repeated for credit.

PHI692 Seminar in Special Topics

3 credits

Offered By Announcement Only

A selected philosopher or philosophical problem. May be repeated for credit.

PHI694 Independent Study in Philosophy

1-3 credits

Offered By Announcement Only

Directed reading on a topic or philosopher. May be repeated for credit.
COLLEGE OF ARTS AND SCIENCES

PHILOSOPHY

PHI710 Master's Thesis
1-6 credits
Fall & Spring Semester
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

PHI720 Research in Residence
0 credit
Fall & Spring Semester
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in PHI 710 (usually six credits). Credit not granted. May be regarded as full time residence.

PHI725 Continuous Registration--Master's Study
0 credit
Fall & Spring Semester
To establish residence for non-thesis master's students who are preparing for major examinations. Credit not granted. Regarded as full time residence.

PHI730 Doctoral Dissertation
1-12 credits
Fall & Spring Semester
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor, but for not less than a total of 12 hours. Up to 12 hours may be taken in a regular semester, but not more than six in a summer session.

PHI740 Post-candidacy doctoral dissertation
1-6 credits
Fall & Spring Semester
Required of all candidates for the Ph.D. who have advanced to candidacy. The student will enroll for credit as determined by his/her advisor, but not for less than a total of 12. Not more than 12 hours of PHI 740 may be taken in a regular semester, nor more than six in a summer session.

PHI750 Research in Residence
0 credit
Fall & Spring Semester
Used to establish research in residence for the Ph.D., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

PHYSICS

PHY500 Research
1.3 credits
Offered By Announcement Only
Project course introducing methods of research, individual investigation of current problems.

PHY505 Advanced Laboratory
1-2 credits
Fall Semester
Advanced experiments such as properties of the electron, optical spectra, electrical measurements, radioactive decay, absorption, etc.
PREREQUISITE: PHY 208. PREREQUISITE OR COREQUISITE: PHY 360.

PHY506 Advanced Laboratory
1-2 credits
Spring Semester
Advanced experiments such as properties of the electron, optical spectra, electrical measurements, radioactive decay, absorption, etc.
PREREQUISITE: PHY 208. PREREQUISITE OR COREQUISITE: PHY 360.
PHY515 Mathematical Techniques in Physics
3 credits
Spring Semester
Complex variables and applications. Infinite series and their uses, particularly
in differential equations. Multiple integrals and Fourier series.
PREREQUISITE: PHY 206, 207; MTH 311, AND 310 OR 312.

PHY516 Readings in Physics
1- 3 credits
Fall & Spring Semester
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

PHY517 Readings in Physics
1- 3 credits
Spring Semester
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

PHY518 Readings in Physics
1- 3 credits
Offered By Announcement Only
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

PHY520 Solid State Physics
3 credits
Offered By Announcement Only
Crystal structure, quantum theory of the electronic structure of solids, mechanical,
electric, magnetic and optical properties of solids.
PREREQUISITE: PHY 560.

PHY530 Plasma Physics I
3 credits
Offered By Announcement Only
Kinetic theory of plasmas, adiabatic motion of charged particles magnetofluid dynamics,
transport properties of plasmas in electromagnetic fields.
PREREQUISITE: PHY 340, 351, 360.

PHY540 Classical Mechanics II
3 credits
Fall Semester
Lagrangian formulation, rigid body dynamics. Topics selected from fluid dynamics,
non-linear oscillations, normal modes, phase plane analysis.
PREREQUISITE: PHY 340.

PHY545 Introduction to Astrophysics
3 credits
Fall Semester
Celestial mechanics, solar models, galaxies, distance scales, instruments.
PREREQUISITE: PHY 360 AND ANOTHER 3 CREDIT 300 LEVEL PHYSICS COURSE.

PHY552 Optical Physics
3 credits
Offered By Announcement Only
Geometric optics, interference and diffraction, polarized light, optical pumping,
coherence phenomena, applications to modern physical research.
PREREQUISITE: PHY 351, 360.

PHY560 Quantum Mechanics and Modern Physics I
3 credits
Fall Semester
Introductory theory with applications to simple systems. Perturbation theory and
atomic structure.
PREREQUISITE: PREREQUISITE OR COREQUISITE: PHY 350.
University of Miami Bulletin, 2009-2010
Graduate Course Listing
COLLEGE OF ARTS AND SCIENCES
PHYSICS

PHY561 Quantum Mechanics and Modern Physics II
3 credits  Spring Semester
Applications of quantum mechanics to atomic and molecular spectroscopy, quantum statistical mechanics, and nuclear physics.
PREREQUISITE: PHY 560.

PHY601 Condensed Matter Physics Seminar
1 credits  Fall & Spring Semester

PHY602 Optical Physics Seminar
1 credits  Fall & Spring Semester

PHY603 Particle Physics Seminar
1 credits  Offered By Announcement Only

PHY604 Plasma Physics Seminar
1 credits  Offered By Announcement Only

PHY610 Special Topics in Physics
1-3 credits  Offered By Announcement Only
Topics are typically selected from fluid dynamics, applied mathematics, particle theory, nuclear physics.

PHY611 Special Topics in Physics
1-3 credits  Offered By Announcement Only
Topics are typically selected from fluid dynamics, applied mathematics, particle theory, nuclear physics.

PHY612 Special Topics in Physics
1-3 credits  Offered By Announcement Only
Topics are typically selected from fluid dynamics, applied mathematics, particle theory, nuclear physics.

PHY615 Methods of Mathematical Physics I
3 credits  Offered By Announcement Only
A continuation of PHY 515.
PREREQUISITE: PHY 515.

PHY616 Methods of Mathematical Physics II
3 credits  Offered By Announcement Only
A continuation of PHY 515. Different topics from PHY 615.
PREREQUISITE: PHY 515.

PHY620 Advanced Solid State Physics
3 credits  Offered By Announcement Only
Electronic structure, electron-electron interactions, phonons, many-body problems, transport properties, magnetism, superconductivity.
PREREQUISITE: PHY 520, 560.

PHY623 Statistical Mechanics I
3 credits  Offered By Announcement Only
Equilibrium state, irreversibility, statistical description of an ensemble, entropy, partition functions.
PREREQUISITE: PHY 321, 561.
PHY624 Statistical Mechanics II  
3 credits  
Offered By Announcement Only  
Statistical description of many body problems, specific heats, Brownian motion 
in liquids and fields, nonequilibrium states, super-conductivity.  
PREREQUISITE: PHY 623.

PHY630 Plasma Physics II  
3 credits  
Offered By Announcement Only  
Plasmas oscillations and waves, interaction of electromagnetic waves, with plasmas 
in magnetic fields, plasma turbulence, beam-plasma interactions, methods of experimental 
investigation.  
PREREQUISITE: PHY 530.

PHY650 Electromagnetic Theory 1  
3 credits  
Offered By Announcement Only  
Electrostatics, magnetostatics, Maxwell's equations, continuous media, waves, antennas, 
resonant cavities, wave guides.  
PREREQUISITE: PHY 351, 515.

PHY651 Electromagnetic Theory II  
3 credits  
Offered By Announcement Only  
Relativistic effects, interaction of radiation with matter, multipole radiation, 
radiation reaction.  
PREREQUISITE: PHY 650.

PHY654 General Relativity Theory  
3 credits  
Offered By Announcement Only  
Einstein's theory of gravitation. Includes basic differential geometry and tensor 
analysis, the Einstein field equations, the motion of particles in gravitational 
fields, tests of general relativity, black holes, and cosmology.

PHY666 Elementary Particles  
3 credits  
Offered By Announcement Only  
The Standard Model of elementary particles. Classical theory of fields for spin 
0, 1/2, 1; Feynman rules. The Standard Model Lagrangian is postulated, and some 
of its basic consequences are explored.  
PREREQUISITE: PHY 540, 561, 650.

PHY670 Quantum Theory I  
3 credits  
Offered By Announcement Only  
Transformation theory, linear operators afn vector spaces. Schrodinger's equation,rotation 
group and angular momentum, statistics (Bose-Einstein and Fermi- Dirac), isotopic 
spin,multiplet structure of levels, approximation methods.  
PREREQUISITE: PHY 540, 561, 615.

PHY671 Quantum Theory II  
3 credits  
Offered By Announcement Only  
One particle relativistic theory; Lorentz group; symmetries of particles; elementary 
scattering theory; many body problems; Greens's function techniques; S-matrix. 
PREREQUISITE: PHY 670.

PHY672 Quantum Field Theory  
3 credits  
Offered By Announcement Only  
Canonical and path-integral quantization; renormalization; gauge theories.  
PREREQUISITE: PHY 540, 651, 671.
PHY680 Directed Readings or Research  
1-4 credits  
Fall & Spring Semester

PHY710 Master's Thesis  
1-6 credits  
Offered By Announcement Only  
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

PHY720 Research in Residence  
0 credit  
Offered By Announcement Only  
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in PHY 710 (usually six credits). Credit not granted. May be regarded as full time residence.

PHY725 Continuous Registration--Master's Study  
0 credit  
Offered By Announcement Only  
To establish residence for non-thesis master's students who are preparing for major examinations. Credit not granted. Regarded as full time residence.

PHY730 Pre-Candidacy Doctoral Dissertation  
1-12 credits  
Fall & Spring Semester & First & Second Summer Session  
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor, but not for less than a total of 12. Not more than 12 hours of PHY 730 may be taken in a regular semester, nor more than six in a summer session.

PHY740 Post-Candidacy Doctoral Dissertation  
1-6 credits  
Fall & Spring Semester & First & Second Summer Session  
Required of all candidates for the Ph.D. who have advanced to candidacy. The student will enroll for credit as determined by his/her advisor, but not for less than a total of 12. Not more than 12 hours of PHY 740 may be taken in a regular semester, nor more than six in a summer session.

PHY750 Research in Residence  
0 credit  
Fall & Spring Semester  
Used to establish research in residence for the Ph.D. and D.A., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

POLITICAL SCIENCE

POL501 Budget and Financial Management and Administration  
3 credits  
Fall Semester  
Role of the budget in shaping public policy; managing public revenues; budgetary theory, politics, and fiscal management. Examples from state, municipal and federal governments.  
PREREQUISITE: ADVANCED UNDERGRADUATE OR GRADUATE STANDING AND PERMISSION OF INSTRUCTOR.

POL505 Security, globalization, and human rights: ideals and  
6 credits  
First Summer Session
COLLEGE OF ARTS AND SCIENCES
POLITICAL SCIENCE

POL510 Political Analysis
3 credits
Introduction to the tools used to investigate empirical questions relevant to politics, policy and public administration. Students apply statistical concepts to contemporary social phenomena. Examines the impact of minority-majority redistricting, the fairness of the butterfly ballot, and the sources of political realignment.
PREREQUISITE: POL 201 OR POL 202 OR POL 203 OR POL 380 OR GRADUATE STANDING

Fall Semester

POL512 Advanced Political Analysis
3 credits
Offered By Announcement Only
This course teaches students how to do social science research using the applied techniques of statistics and case study analysis while exposing them to research in the leading sub-fields of political science. Students will produce an original paper that evaluates an academic question using empirical social science evidence.
PREREQUISITE: POL 380 OR POL 510

POL513 Models of Politics
3 credits
Offered By Announcement Only
Hands-on examination of the process by which quantitative and qualitative models are constructed in political science. The course focuses on the creative aspect of model building and diverse forms of theory construction.
PREREQUISITE: POL 201, POL 202, OR POL 203

POL515 Media Content Analysis
3 credits
Fall Semester
There are few facets of our lives which are not directly affected by media content. From cell phones to televisions, the media is with us all the time. But what messages are contained in the mass media? What methods can we employ to study media content scientifically? This course will explore methods of analyzing media sources including movies, newspapers, magazines, and television Course topics will include political bias, campaign coverage, and news content. Students will design their own projects and implement their own coding strategies.
PREREQUISITE: FOR POLITICAL SCIENCE MAJORS: POL201. FOR NON-POLITICAL SCIENCE MAJORS, JUNIOR SENIOR, OR GRADUATE STUDENT STANDING.

POL520 Internship
3 credits
Fall & Spring Semester & First & Second Summer Session
Provides advanced political science majors with an opportunity to participate in a structured, supervised internship. 25-35 page research paper required.
PREREQUISITE: JUNIOR OR SENIOR STANDING; OPEN TO POLITICAL SCIENCE MAJORS ONLY, WITH MINIMUM GPA OF 3.5 IN THE MAJOR, 3.3 OVERALL; PERMISSION OF SUPERVISING INSTRUCTOR AND DEPARTMENT CHAIR.

POL521 Public Affairs Internship
3 credits
Fall & Spring Semester & First & Second Summer Session
Opportunity for the advanced student specializing in public administration to participate in an administrative capacity in an agency of state or local government. Periodic conferences with adviser and paper required.
PREREQUISITE: JUNIOR OR SENIOR STANDING; OPENING TO POLITICAL SCIENCE MAJORS ONLY. NEED MINIMUM GPA OF 3.5 IN THE MAJOR, 3.3 GPA OVERALL. PERMISSION OF SUPERVISING INSTRUCTOR AND DEPARTMENT CHAIR.
POL522 Introduction to Graduate Public Administration
3 credits  Fall & Spring Semester
Introduction to concepts, issues, problems, theories and process in the field of public administration and/or public management.
PREREQUISITE: ADVANCED UNDERGRADUATE OR GRADUATE STANDING AND PERMISSION OF INSTRUCTOR.

POL523 Problems in Public and Non-Profit Management
3 credits  Offered By Announcement Only
Nature of the power vested in administrative bodies and problems involved in management procedures. Special emphasis on local or non-profit administration.
PREREQUISITE: ADVANCED UNDERGRADUATE OR GRADUATE STANDING. PERMISSION OF INSTRUCTOR.

POL524 Non-Profit Organizations: Law, Policy, and Management
3 credits  Fall Semester
This course teaches students the essential requirements for creation and operation of tax-exempt nonprofit organization in accordance with state and federal law. The course covers a wide range of relevant topics including guidelines for charitable giving and charitable solicitation, pitfalls that can result in personal liability for officers and directors, and statutory constraints on legislative lobbying and political activities.
PREREQUISITE: JUNIOR OR SENIOR STATUS, GRADUATE STANDING, OR PERMISSION OF THE INSTRUCTOR

POL525 Comparative Public Policy and Administration
3 credits  Offered By Announcement Only
Comparison and analysis of the organizational and managerial policy problems of developed and developing nations. The administrative process will be considered within the institutional and cultural framework of each nation. Case studies will be used to focus on transition from traditional to modern techniques of public management.
PREREQUISITE: POL 202

POL526 Administrative Law
3 credits  Fall Semester
Administrative law is the study of the legal relationship of government agencies to legislatures, courts, and private parties. The course examines the legal dimensions of bureaucratic power and procedures as well as constitutional and statutory constraints on regulators and administrators. Topics include rulemaking, adjudication, investigation and enforcement, political controls on agencies, judicial review of agency decisions, governmental liability and immunity, public records and open meetings laws. Both federal law and Florida law are covered. The course assumes a basic knowledge of the American legal system, constitutional law and bureaucracy.
PREREQUISITE: FOR POLITICAL SCIENCE MAJORS: POL 201 AND POL 321. FOR NON-POLITICAL SCIENCE MAJORS, JUNIOR, SENIOR, OR GRADUATE STANDING.

POL528 Advanced Seminar on Electoral Behavior
3 credits  Fall Semester
This seminar examines the opinions that Americans have and how those opinions are expressed through participation in elections. At the end of the semester we will also examine other forms of political participation (e.g., interest groups).
PREREQUISITE: POL 201.
POL530 Intelligence and National Security Decision Making  
3 credits  
Offered By Announcement Only  
This course will study the US national security community structure and decision making process. The course will look at the National Security Council, the principal national security agencies (such as the CIA, Defense Department, and State Department), how they interact, and their roles in devising and executing policy. We will also examine the role and function of senior policy decision makers such as the President. We will study recent policy challenges such as Iraq and Afghanistan as examples of National Security policy.  
PREREQUISITE: POL 201 AND POL 203

POL531 Global Environmental Politics  
3 credits  
Offered By Announcement Only  
Examination of the environment within the context of economic globalization. Contrasts the international trading regime and those regimes designed to protect the environment, with specific attention to the issues of global warming and bio-diversity.  
PREREQUISITE: POL 203

POL535 Comparative Legal Systems  
3 credits  
Fall & Spring Semester  
Consider the institutional and political roles of Courts from a comparative perspective. With a focus on judicial independence and judicial review, will consider the juridical systems of a variety of countries and regions including the US, the EU, Germany, France, Great Britain, Chile, Argentina, Russia, The Asian-Pacific Rim, South Africa, Israel, Central America and the Middle East.  
PREREQUISITE: POL 202 OR GRADUATE STANDING.

POL536 U.S. Health Care Crisis: Politics and Policies  
3 credits  
Fall Semester  
This seminar will explore the politics and policies of healthcare in the United States. Our examination of the current crisis in cost and coverage will draw on experience from the debates on comprehensive and incremental reform over the past decade. In addition, we will explore the politics and policies of other health and science issues. Students will be expected to attend every class and be actively involved in class discussions. There will be two examinations, one at mid-term and a final based on readings and course discussions.  
PREREQUISITE: SENIORS ONLY (PEOPLE GRADUATING THE SEMESTER THE COURSE IS HELD OF THE FOLLOWING DECEMBER)

POL541 Philosophy of Law  
3 credits  
Offered By Announcement Only  
Case-based study of jurisprudence designed to illuminate and explain philosophies of law. Examination of theories of free expression; bioethical matters; theories of punishment and legal responsibility; and the placement of religious discourses in liberal systems of law. Special attention to cases involving fundamental rights and liberties; the role of the individual and the state in civil society; and the capacities of individual to be legally competent in contemporary systems of law.  
PREREQUISITE: POL 201, 212 OR POL 203 OR GRADUATE STANDING.
**POL542 American Constitutional Development**  
*3 credits*  
*Offered By Announcement Only*  
This seminar examines the judicial role in protecting civil rights and liberties under the Constitution, with principal attention to the Supreme Court's interpretation of due process of law, the right of privacy, First Amendment freedoms, and equal protection.  
PREREQUISITE: POL 201

**POL543 Urban Politics**  
*3 credits*  
*Offered By Announcement Only*  
Examination of sources of political power in urban areas and how they influence the policies pursued in those areas. Analysis of the role of economic power, protest actions, neighborhood groups, and voting to evaluate whether there is a bias in urban politics that systematically favors some groups over other and, if so, how likely it is that the bias can be overcome.  
PREREQUISITE: POL 201 OR GRADUATE STANDING.

**POL544 Chinese Foreign Policy**  
*3 credits*  
*Fall Semester*  
PREREQUISITE: POL 203

**POL545 Environmental Policymaking**  
*3 credits*  
*Spring Semester*  
Examination of different ethical approaches to the environment; the federal government's management of natural resources; selected environmental policies; international environmental policy issues. Topics include federal management of national grazing lands, national forests, and minerals in the public domain. Analyzes environmental policies such as air, water, toxic wastes, energy, and environmentally-related issues in international trade and national security.  
PREREQUISITE: POL 201 OR POL 203

**POL546 Public Policy**  
*3 credits*  
*Fall Semester*  
Analysis of American federal policy formulation and implementation processes; roles of congress, the executive branch, and the supreme court, interest groups, public opinion, voting, and political parties in the formulation of policy. Addresses economic, social and environmental policies. Considers the causes and consequences of public policy and the extent in which the policy formulation process is democratic.  
PREREQUISITE: POL 201

**POL547 Congressional Representation**  
*3 credits*  
*Not Offered; Transfer Credit Only*  
This course examines how and when citizens influence legislators' behavior. More specifically, we examine how legislators' floor behavior reflects citizens' preferences and how these preferences influence the manner in which legislators build electoral coalitions.  
PREREQUISITE: POL 201
POL 548 Civic Participation and Democracy
3 credits                                          Fall Semester
Citizens participate in the governing process by communicating their preferences
and pressuring the government to respond. In this course we examine these various
mechanisms of "civic participation", and discuss the meaning and consequences of
participatory democracy. The course focuses on the contemporary United States,
but we will devote some time to discuss civic participation in other countries
as well.
PREREQUISITE: POL 201

POL 550 Advanced Seminar on American Politics
3 credits                                          Fall Semester
This seminar provides students with a survey of significant research on major topics
in American Politics. We will read influential works of the past, as well as recent
cutting-edge research. Particular attention will be paid to discussing the methods
and theories used in the research we will read. The purpose of the course is to
acquaint students with the literature on American Politics, while also providing
an opportunity for students to develop skills in critically assessing and skillfully
conducting social science research.
PREREQUISITE: POL 201

POL 551 Productivity in the Public and Non-Profit Sectors
3 credits                                          First Summer Session
Definitions and measures of productivity. Evaluation of government programs, and
methods of productivity improvement.
PREREQUISITE: POL 201

POL 553 The Environmental Movement: Groups, Beliefs and Values
3 credits                                          Fall Semester
Exploration of the origins and political impact of environmentalism in the United
States and, to a lesser extent, in the global context. Impact of democratic participation
on environmental politics.
PREREQUISITE: POL 201

POL 554 Social Welfare Policy
3 credits                                          Not Offered; Transfer Credit Only
Examination of major domestic policy issues in the United States, including poverty,
housing, homelessness, education, and crime. Analysis of the different definitions
of the underlying problem or different causes of each issue. Particular stress
is on how those definitions determine the type of policy solution needed and the
conflict in policy recommendations that occur because of the different problem
definitions.
PREREQUISITE: POL 201 OR GRADUATE STANDING

POL 555 Total Quality Public Service Management: Achieving High Performance Government
3 credits                                          Fall Semester
Examination of the theory and practice of Total Quality Management (TQM) in the
government and non-profit sector. Focuses on budgetary, customer service, employee
and process improvements that facilitate increased public and non-profit performance.
Special emphasis to TQM's contribution to improved service delivery.
PREREQUISITE: POL 201
POL556 Politics and Ethics  
3 credits  
Offered By Announcement Only  
Personal, professional, organizational, and societal levels of ethical analysis.  
Ethical theories will be reviewed and applied to actual cases that focus on public  
policy and/or the officials who create and implement it. Profiles of moral exemplars  
in public life will be examined.  
PREREQUISITE: POL 201 OR GRADUATE STANDING

POL557 Ethical and Managerial Issues in Government, Business and Non-Profit Organization  
3 credits  
Offered By Announcement Only  
PREREQUISITE: POL 201 OR GRADUATE STANDING

POL563 Senior Honors Course (I)  
3 credits  
Fall & Spring Semester  
General reading, preparation of research design and collection of information.  
Admission to this course requires an application to the Director or Undergraduate  
Studies for Political Science. Contact the department for details.  
PREREQUISITE: ADMISSION BY APPLICATION ONLY. SEE THE DIRECTOR OF UNDERGRADUATE  
STUDIES FOR DETAILS.

POL564 Senior Honors Course (II)  
3 credits  
Fall & Spring Semester  
Continuation of POL 563: writing and defense of the theses. Admission to this course  
requires an application to the Director or Undergraduate Studies for Political  
Science. Contact the department for details.  
PREREQUISITE: ADMISSION BY APPLICATION ONLY. SEE THE DIRECTOR OF UNDERGRADUATE  
STUDIES FOR DETAILS.

POL570 Uniting States in International Perspective  
3 credits  
Fall Semester  
How states form and fragment; The main actors in nation formation; the elements  
of continuity and change; the impact outsiders can have on the process.  
PREREQUISITE: POL 211 AND POL 212

POL577 Security in South Asia: The Conflicts of Afghanistan, Pakistan and India  
3 credits  
Fall & Spring Semester  
The security system of South Asia's northern reaches and the current conflict involving  
Afghanistan, Pakistan, and India: considerations of sovereignty and the role of  
frontiers in world politics.  
PREREQUISITE: POL 203

POL578 Energy and Security in the Caspian and Black Sea Regions  
3 credits  
Fall & Spring Semester  
The intersection of energy and security within the contested geopolitical and geocultural  
space of the Caspian and Black Sea basins. It is concerned with these two, interconnected,  
sub-regions for what they tell us about ideas and acts, identities and interests,  
in a notoriously fluid periods in international politics.  
PREREQUISITE: POL 203
POL579 The politics of post-communist transactions

3 credits  Fall Semester
Examination of the creation, breakdown, and aftermath of communist governments in Eastern Europe and the USSR. Develops a theoretical framework for understanding cross-national patterns of post-communist development in the context of country-specific experiences.
PREREQUISITE: POL 202

POL580 Ethnicity, Nationalism and Secession

3 credits  Spring Semester
Examination of the creation, breakdown, and aftermath of communist governments in Eastern Europe and the Soviet Union. Using empirical evidence from four case studies, develops a theoretical framework for understanding cross-national patterns of post-communist development in the context of country-specific experiences.
PREREQUISITE: POL 202 OR POL 203

POL581 Comparative Political Economy of Post-Industrial Democracies

3 credits  Fall Semester
This seminar examines four key turning points in the development of capitalism: the industrial revolution, the aftermath of the depression and world wars, the oil crisis of the 1970's, and today's "globalization". We will compare the relationships between government and the economy in Western Europe, Canada, the U.S., Australia, New Zealand, and Japan in each period, and attempt to evaluate why these countries react similarly or differently to identical changes in world economy.
PREREQUISITE: POL 202

POL582 Political Economy of Development

3 credits  Offered By Announcement Only
Overview of the principal theoretical paradigms of the development process. Comparative analysis of issues such as the role of the state, strategies of industrialization, changes in social structure, basic needs and the trade-offs between growth and equity.
PREREQUISITE: POL 202 OR GRADUATE STANDING.

POL584 Contemporary Latin American Politics

3 credits  Fall & Spring Semester
This course assumes a basic knowledge of Latin American politics, and is designed to foster deeper understanding of political processes in the region and to provide an overview of key debates among political scientists specializing in Latin America. We discuss issues related to democratic consolidation, political participation, representation and governance.
PREREQUISITE: POL 202; POL 385 IS STRONGLY RECOMMENDED

POL586 Conflict in the Middle East and Africa

3 credits  Fall Semester
Introduction to major paradigms for the explanation of war and conflict in two of the most unstable regions of the world. Reading and class discussions on select cases of current and past conflicts in each region in order to discern patterns of conflict within and across regions, gain a clearer understanding of what drives violent conflict, and assess strategies of resolution.
PREREQUISITE: POL 203.
POL 588 Politics in China
3 credits  
Spring Semester
Development and nature of Chinese domestic politics in theory and practice; problems of political stability and conflict; the role of historical and cultural traditions, institutions, social, economic and personality factors in Chinese politics; process of change and problems of leadership succession; the significance of changes in the character and style of Chinese leadership.
PREREQUISITE: POL 202 OR HIS 121 OR HIS 122 OR GRADUATE STANDING.

POL 591 International Security
3 credits  
Offered By Announcement Only
Analysis and evaluation of approaches to international conflict, resolution, reduction and stabilization such as international organization, law, collective security, balance of power, functionalism, world government, morality, and conscience. Special emphasis on recent problems and efforts at institutionalizing social control.
PREREQUISITE: POL 203 OR GRADUATE STANDING.

POL 592 International Political Economy
3 credits  
Offered By Announcement Only
This course provides an analysis of the changing trade and financial structures of the international economy and the differing approaches that developed and developing states have taken in adapting to them. Special emphasis will be placed on the political implications of economic strategies, the challenges and opportunities posed by the increasingly free mobility of capital and goods across borders, and the ability of states to shape domestic economic outcomes.
PREREQUISITE: POL 203

POL 593 International Relations of the Middle East
3 credits  
Offered By Announcement Only
Regional and interregional analysis of the foreign relations of Middle Eastern nations, domestic and geopolitical factors.
PREREQUISITE: POL 203, 387 OR GRADUATE STANDING.

POL 599 Special Topics
1-3 credits  
Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: POL 201, POL 202 OR 203

POL 601 Seminar in Political Theory
3 credits  
Offered By Announcement Only

POL 602 Seminar in Public Law
3 credits  
Offered By Announcement Only

POL 603 Seminar in the Political Process
3 credits  
Offered By Announcement Only

POL 604 Seminar in International Law and Relations
3 credits  
Offered By Announcement Only

POL 605 Seminar in Comparative Government
3 credits  
Offered By Announcement Only
POL606 Seminar in Administration
3 credits
Spring Semester
Examination of theory and behavior in public and nonprofit organizations. Focus on the importance of understanding the behavior, motivations, and actions of individuals in public service and on the distinctiveness of management and leadership in public organizations.

POL607 Seminar in U.S. Government
3 credits
Offered By Announcement Only

POL621 Group Structure, Group Process and Organizational Change in Criminal
3 credits
Offered By Announcement Only
Measurement of the institutional climate of criminal justice institutions, strategies for change; relationships between the organizational structure and outcomes.

POL643 Seminar on Urban Development Policy
3 credits
Offered By Announcement Only
The course will employ a problem approach to selected policy issues, ranging from interdisciplinary theories of urbanization in conjunction with politico-educational to scientific-technological developments. Consideration will be given to appropriate research techniques, field work and case studies of public action for guiding urban development, including intergovernmental relations and national urban policy.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

POL644 Seminar on Urban Development Policy
3 credits
Offered By Announcement Only
Continuation of POL 643.
PREREQUISITE: POL 643 OR PERMISSION OF INSTRUCTOR.

POL646 Public Policy Analysis and Administration
3 credits
Spring Semester
Examination of public policy issue areas including education, health, welfare, urban mass transit. Limits to effectiveness of federal, state and local governments in providing services. Techniques for analyzing the effectiveness of public policies; research techniques for the assessment of future policy alternatives.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

POL647 Personnel Administration
3 credits
Fall Semester
Modern personnel administration: job analysis and design, evaluation and appraisal, recruitment and interviewing, training and development, wages and benefits, and health and safety. Unionization, regulation of wages, hours and working conditions, financial security for workers, and job anti-discrimination legislation. Manpower planning.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

POL648 Community Participation and Organization
3 credits
Offered By Announcement Only
Examination of citizen participation in administrative affairs of governmental organizations and its impact on the efficiency of public agencies.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
POL652 Public Sector Collective Bargaining and Labor-Management Relations
3 credits Offered By Announcement Only
PREREQUISITE: PERMISSION OF INSTRUCTOR.

POL653 Seminar in Public Sector Personnel Problems
3 credits Offered By Announcement Only
Human resource planning, performance, evaluation, recruitment and staffing, training and development, motivation, and personnel management. A workshop utilizing simulation, games, role playing and other skill building devices.
PREREQUISITE: MGT 602 AND PERMISSION OF INSTRUCTOR.

POL655 Public Policy and Health
3 credits First Summer Session
Development of public policy at the federal, state and local level. Policy process, models of policy analysis, policy development in several government service areas, and plans for policy change. Special emphasis on health policy formulation, implementation and the use of epidemiological tools in health policy analysis.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

POL656 Public Service Internship
3-6 credits Fall & Spring Semester & First & Second Summer Session
Individual on-the-job work experience; arranged and monitored by a faculty member.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

POL671 Political Environment of Business
3 credits Fall & Spring Semester & First & Second Summer Session
Examines government-business-society relations with emphasis on the social, economic, political, technological, ethical, and ecological environment.

POL672 Program Planning, Research and Evaluation in Criminal Justice and Corrections,
3 credits Offered By Announcement Only
Identification of long-term goals and intermediate objectives in the criminal justice process. Formulation of operations, evaluation techniques and the relationships among research, evaluation and management decisions.
PREREQUISITE: GRADUATE STANDING.

POL673 Program Planning, Research and Evaluation in Criminal Justice and Corrections,
3 credits Offered By Announcement Only
Continuation of POL 672. Topics include types of evaluation and the design of evaluative studies. POL 672 and POL 673 are designed to facilitate the formulation and execution of a thesis.
PREREQUISITE: POL 672 OR PERMISSION OF INSTRUCTOR.

POL681 Seminar: Political Dynamics in Communist China
3 credits Offered By Announcement Only

POL683 Seminar: Topics in the Comparative Study of the Foreign Policy of China
3 credits Offered By Announcement Only
POL685 Seminar in the Dynamics of Soviet Society
3 credits
Offered By Announcement Only
Forces and factors that shape and continue to influence the development of social,
political and economic institutions in the Former Soviet Union and their evolving
role in decision making.

POL690 Topics in Urban Studies
3 credits
Offered By Announcement Only

POL691 International Relations
3 credits
Offered By Announcement Only
Principles of international relations. Theories of relations among states; founding
of the state system; implications of sovereignty. International conflict and cooperation;
international law. International political economy; trade flows; the role of multinational
corporations. North-South relations and global environmental considerations.
PREREQUISITE: MBA STATUS.

POL698 Selected Topics
3 credits
Offered By Announcement Only
Topics in selected areas of specialization.

POL699 Directed Readings
1-3 credits
Fall & Spring Semester & First & Second Summer Session

POL710 Master's Thesis
3 credits
Offered By Announcement Only
Designed for student working on masters' theses. Not to exceed six credit hours,
as determined by student's advisor. Credit is not awarded until the thesis has
been accepted.

POL720 Research in Residence
0 credit
Offered By Announcement Only
Research in residence for thesis or master's degree after the student has enrolled
for the permissible cumulative total in POL 710 (usually six credits). Credit not
granted; regarded as full time residence.

POL725 Continuous Registration--Master's Study
0 credit
Offered By Announcement Only
Establishes residence for non-thesis master's students who are preparing for major
examinations. Credit not granted; regarded as full time residence.

PORTUGUESE

POR591 Directed Readings in Portuguese
1-3 credits
Offered By Announcement Only
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

POR592 Directed Readings in Portuguese
1-3 credits
Offered By Announcement Only
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

POR593 Directed Readings in Portuguese
1-3 credits
Offered By Announcement Only
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.
POR625 Portuguese for Graduate Research
0 credits  Offered By Announcement Only
Grammatical structuring, verb tenses, and word families necessary for reading text with minimal use of a dictionary. May fulfill the Foreign Language Reading Competency Requirement (consult your graduate advisor).

PSYCHOLOGY

PSY501 History and Systems of Psychology
3 credits  Offered By Announcement Only
Development of psychology as a science.
PREREQUISITE: 12 CREDITS IN PSYCHOLOGY.

PSY502 Culture, Values, Religiosity, and Mental Illness
3 credits  Offered By Announcement Only
Cultural differences in the manifestation, course, and outcome of serious mental disorders; the relationship between chronic mental disorders and ethnicity, religious values, family cohesion, attributions of control, and world view; cultural differences in societies' reactions to and treatment of mentally ill patients.
PREREQUISITE: PSY 110; 316; 352.

PSY590 Special Topics
3 credits  Offered By Announcement Only
PREREQUISITE: NINE CREDITS IN PSYCHOLOGY.

PSY600 Sensory Processes
3 credits  Offered By Announcement Only
Mechanisms of vertebrate sensation, with emphasis on the structure and function of the peripheral organs. Lecture, 2 hours; laboratory, 2 hours.
PREREQUISITE: GRADUATE STANDING.

PSY601 Issues in Professional Development and Research.
1 credits  Fall Semester
Seminar addressing issues such as structure of academic systems and progress through them, time management, library search systems, professional journals, how to structure curriculum vitae, procedures and rules in human subject research, professional meetings and presentations, extramural funding opportunities, professional writing style, ethical issues.
PREREQUISITE: GRADUATE STANDING IN PSYCHOLOGY.

PSY602 Scientific writing and grantsmanship
3 credits  Offered By Announcement Only
Writing and organizational skills for professional development in social and behavioral sciences. Mechanism of extramural funding and grant review, including grantsmanship.
PREREQUISITE: GRADUATE STANDING.

PSY603 Neuroanatomy
3 credits  Fall Semester
Functional neuroanatomy for individuals engaged in basic neuroscience and psychological research. Gross anatomy, identification of pathways and circuits, and physiological functions of neuroanatomical systems. Clinical examples and case histories of neuroanatomical disorders. Laboratory exercises including brain dissections, examination of brain models and atlases, and internet neuroanatomy websites.
PREREQUISITE: GRADUATE STANDING
PSY604 Cognition and Emotion
3 credits Spring Semester
Study of basic cognitive processes of attention and memory, the function of emotions, and the role of cognitive mechanisms in the processing of affective information.

PSY605 Cognitive Neuroscience
3 credits Fall Semester
Brain mechanisms in cognition and behavior, including sensory encoding and perception, attention, motivation, emotion, learning/memory, language, executive functions, and mental disorders.
PREREQUISITE: GRADUATE STANDING.

PSY606 Foundations in Behavioral Medicine
3 credits Fall Semester
Psychological and behavioral processes on health, well-being, and disease. Basic mechanisms of physiological regulation and dysregulation of cardiovascular, endocrine, and immune systems with specific reference to issues in cardiovascular behavioral medicine and psychoneuroimmunology.
PREREQUISITE: GRADUATE STANDING.

PSY607 Neurosciences I: Neuronal Mechanisms
3 credits Offered By Announcement Only
Biophysical, biochemical and morphological approaches at the cellular level to nervous integration as a basis for behavior. Lecture, 3 hours.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

PSY608 Neurosciences II: Nervous System Integration
3 credits Offered By Announcement Only
Survey of neural control mechanisms underlying behavior. Organization and synaptic connections of specific invertebrate, brain and spinal cord control systems using neurohistological, neurophysiological and neuro-pharmacological procedures.
PREREQUISITE: BIL 660 OR PSY 607 OR PERMISSION OF INSTRUCTOR.

PSY609 Psychopharmacology
3 credits Offered By Announcement Only
Basic methods and current issues in psychopharmacology.
PREREQUISITE: PSY 605 OR PERMISSION OF INSTRUCTOR.

PSY610 Behavioral Medicine
3 credits Spring Semester
Psychological factors in the etiology, pathogenesis, diagnosis, prevention and treatment of physical disorders.
PREREQUISITE: PSY 605 OR PERMISSION OF INSTRUCTOR.

PSY611 Social Psychology of Health and Illness
3 credits Offered By Announcement Only
Topics in behavioral medicine, including social and personality factors affecting disease susceptibility, health related beliefs and behaviors; the doctor-patient relationship; evaluation of health care systems and patient compliance.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

PSY612 Stress, Emotions, and Motivation
3 credits Spring Semester
PREREQUISITE: PSY 605 OR EQUIVALENT.
PSY613 Psychoneuroimmunology
3 credits
Spring Semester
Structural and functional aspects of the immune system that are sensitive to neural and psychological processes. Interactions between the nervous and immune systems are examined in relation to empirical associations between psychological factors (i.e., stress) and immune-mediated processes in diseases such as cancer and AIDS.
PREREQUISITE: PSY 605 OR PERMISSION OF INSTRUCTOR.

PSY614 Diversity issues in psychology
3 credits
Spring Semester
Overview of diversity issues including race, religion, gender, age, sexual orientation, physical disability and socioeconomic status as they relate to psychological research and clinical practice.
PREREQUISITE: GRADUATE STANDING.

PSY615 Foundations of neuropsychology
3 credits
Spring Semester
Mechanisms of neurological and psychiatric disorders, including developmental disorders, dementia, aphasia, amnesia, stroke, traumatic brain injury, and loss of general intelligence. Clinical tools for neuropsychological assessment, forensics, and genetic screening.
PREREQUISITE: GRADUATE STANDING.

PSY620 Developmental Psychology
3 credits
Offered By Announcement Only
Emphasis on applied research and interventions.

PSY621 Theories of Development
3 credits
Fall Semester
Theoretical aspects of psychological development throughout the life span.
PREREQUISITE: PSY 620.

PSY622 Deviant Intellectual Development
3 credits
Offered By Announcement Only
Disorders of intellectual development: Mental retardation, learning problems, and language delays (etiology, epidemiology, and prognosis). Does not include clinical applications.

PSY623 Deviant Communicative Development
3 credits
Offered By Announcement Only
The nature of deviant acquisition of communication systems. Specific language and speech problems of developmentally disabled, sensorily impaired and physically handicapped children. Intervention methods utilizing traditional and nonverbal approaches.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF THE INSTRUCTOR.

PSY624 Atypical Social Development
3 credits
Spring Semester
The theoretical and empirical literature on social development in children with psychopathology, mental retardation, and/or those who have experienced trauma.
PREREQUISITE: PSY 620.
PSY625 Social Psychology  
3 credits  
Overview of the major substantive areas and theories of social psychology. Emphasis on applications to health-related concerns.  

PSY626 Social Influence Processes  
3 credits  
Offered By Announcement Only  
The major elements reviewed are source, message and target. The various processes include persuasion threats, promises and activation of normative commitments. Sub-areas of social psychology included are conformity, leadership, propaganda, social conflicts, decision theory, and social power.  
PREREQUISITE: PSY 625.  

PSY627 Interpersonal Attraction  
3 credits  
Offered By Announcement Only  
A review of theories, methods and empirical findings related to the study of interpersonal affiliation and affect.  
PREREQUISITE: PSY 625.  

PSY628 Theories of Personality  
3 credits  
Offered By Announcement Only  
A thorough comparative study of the major theoretical positions in the field of personality in terms of units of analysis, the structure of personality, the development of personality, the relation of personality to other fields of Psychology, the relation of personality to fields of knowledge outside psychology, (biology, sociology, anthropology) and the heuristic value of the theory.  
PREREQUISITE: PSY 640.  

PSY630 Research Methods in Psychology.  
1-3 credits  
Fall Semester  
Fundamentals of behavioral research including experimental, and non-experimental design, clinical trial methodology, measurement theory, and statistical methods. Computer applications of univariate statistical techniques.  
PREREQUISITE: PSY 631  

PSY631 Psychological Statistics, Research Methods and Design  
3 credits  
Fall Semester  
Statistics for experimental design with uncorrelated independent variables. Review of t-tests; designs and applications of analysis of variance; including one-way, factorial, repeated-measures, and mixed designs; post hoc comparisons among means.  
PREREQUISITE: PSY 630 OR PERMISSION OF INSTRUCTOR.  

PSY632 Multiple Regression and Multivariate Statistics  
3 credits  
Spring Semester  
Techniques for the analysis of multiple quantitative measurements including multiple regression, multivariate analysis of variance, discriminant analysis and canonical correlation. Computer application of these techniques to the behavioral sciences.  
PREREQUISITE: PSY 630 OR EPS 568 AND 653 OR PERMISSION OF INSTRUCTOR.
PSY633 structural equation modeling
3 credits
Fall Semester
Structural equation modeling. Specific and testing explicit theory based models of covariances among variables. Structural models, path analysis, measurement models, and confirmatory factor analysis, particularly related to hypotheses about causal relations, change over time, and comparisons across diverse populations.
PREREQUISITE: PSY 632.

PSY634 Hierarchical Linear Evaluation
3 credits
Spring Semester
Hierarchical linear modeling. Multi-level modeling of nested and non-independent data. Application of multi-level modeling to social science and behavioral data, including computer laboratory exercises.
PREREQUISITE: PSY 632

PSY635 Data-Base Management Systems in the Psychological Sciences
3 credits
Offered By Announcement Only
Management of large data sets in the psychological sciences, including evaluation research, clinical client data, epidemiological studies, demographic studies and laboratory research.
PREREQUISITE: GRADUATE STANDING IN PSYCHOLOGY OR PERMISSION OF THE INSTRUCTOR.

PSY636 Developmental Methodology
3 credits
Fall Semester
Concepts and research design problems for the analysis of developmental data from infancy through adolescence.
PREREQUISITE: PSY 620 OR EQUIVALENT.

PSY637 Methods in Social Psychology
3 credits
Offered By Announcement Only
Methodology of experimental research in social psychology, including problems of research setting, sampling, experimenter-subject relationships, and methods of collecting social psychological data. Lecture, seminar, and laboratory.
PREREQUISITE: PSY 625.

PSY638 Psychology of Infant Development
3 credits
Offered By Announcement Only
Theory, research, and methodology pertaining to psychological development in the first two years of life. Applied research on infancy as it pertains to individual differences in cognitive, social, and emotional development.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR

PSY639 Psychology of Mental Retardation and Developmental Disabilities
3 credits
Offered By Announcement Only
Learning disabilities, autism and other developmental disabilities with an emphasis on mental retardation. Definitions, causal factors, societal attitudes and services from an historical perspective.

PSY640 Adult Psychopathology
3 credits
Fall Semester
Theories, models, history, and research relevant to various patterns of problematic behavior, with a focus on adults. The influences of family systems as well as cultural and other diversity factors (e.g., ethnicity, sexual orientation) are included.
PSY641 Child and Adolescent Psychopathology
3 credits Fall Semester
Theories, models, and research relevant to the development and the course of behavioral disorders and other problems (e.g., maltreatment, exposure to violence and poverty) that emerge in childhood and adolescence. The influences of family and peer systems as well as cultural and other diversity factors (e.g., ethnicity, sexual orientation) are included.

PSY642 Advanced Adult Psychopathology
3 credits Fall Semester
Theory and research on risk factors and etiological models of mental disorders. Socioenvironmental (cultural, social support, life events), psychological (temperament, cognitive biases), and biological (genes, neurotransmitters) models of risk, research methodology, and design are discussed.
PREREQUISITE: GRADUATE STANDING IN PSYCHOLOGY OR PERMISSION OF INSTRUCTOR.

PSY643 Behavioral Medicine and Developmental Disabilities
3 credits Fall & Spring Semester
Processes influencing diagnosis and management of developmental disabilities: genetics, embryology/fetology, physical growth and development, nutrition, hearing and speech pathology, family dynamics, cognition and psycho-educational assessment.

PSY645 Introduction to Psychological Evaluation
3 credits Fall Semester
Measurement theory; introduction to the administration and interpretation of widely-used intelligence and personality tests, with attention to issues of ethics and diversity.
PREREQUISITE: PERMISSION OF DIRECTOR OF CLINICAL PSYCHOLOGY TRAINING PROGRAM.

PSY646 Psychological Evaluation of Adults
3 credits Spring Semester
Issues of diversity, ethics, and personality theory as they pertain to psychological evaluation of adults. Emphases on the use of projective and objective personality assessment methods.
PREREQUISITE: PSY 645 AND PERMISSION OF DIRECTOR OF CLINICAL PSYCHOLOGY TRAINING PROGRAM.

PSY647 Psychological Evaluation of Children and Families
3 credits Spring Semester
Clinical and developmental theory and methods pertaining to the evaluation of children, adolescents, and families including intelligence tests, structured diagnostic instruments, personality and behavioral check lists, observational formats, interviewing, and projective assessment. Attention to issues of ethics and diversity.
PREREQUISITE: PSY 645 AND PERMISSION OF DIRECTOR OF CLINICAL PSYCHOLOGY TRAINING PROGRAM.

PSY648 Psychological Evaluation in Physical Disorders
3 credits Spring Semester
Administration, interpretation, and psychometric evaluation of psychological tools and procedures used in the evaluation of physical disorders. Attention to issues of ethics and diversity.
PREREQUISITE: PSY 610 OR 645 OR PERMISSION OF INSTRUCTOR.
PSY649 Evaluation of the Mentally Retarded and Brain-Damaged Child  
3 credits Offered By Announcement Only  
Special diagnostic and evaluative procedures and techniques used with the intellectually inefficient child. Laboratory required.  
PREREQUISITE: PSY 441, 645 OR EQUIVALENT.

PSY650 Laboratory in Clinical Psychology  
0 credit Fall & Spring Semester  
Practical training in clinical skills such as assessment, interviewing, and case conceptualization. Laboratory to be used in conjunction with courses such as PSY 640 and PSY 645  
PREREQUISITE: PERMISSION OF THE DIRECTOR OF THE CLINICAL TRAINING PROGRAM

PSY651 Infant Assessment  
3 credits Offered By Announcement Only  
Background, history, purpose, and utility of infant assessments. Evaluation of various methods of assessing cognitive, social, language, and emotional development on conceptual, psychometric, empirical and practical grounds.

PSY655 Counseling and Psychotherapy  
3 credits Offered By Announcement Only  
Theory and research on traditional and modern therapeutic methods.  
PREREQUISITE: PSY 604 OR PERMISSION OF INSTRUCTOR.

PSY656 Introduction to Evidence-Based Psychological Treatments  
1-3 credits Fall Semester  
Theories, history, and techniques of psychological and behavioral therapies, with emphasis on evidence-based approaches.  
PREREQUISITE: PSY 640.

PSY657 Introduction to Psychotherapy, Ethics, and Professional Issues  
3 credits Spring Semester  
Introductory experience in clinical interviewing, therapeutic communication, ethics, and case conceptualization. Consideration of client-and-therapist culture, gender, and diversity are also emphasized.  
PREREQUISITE: PERMISSION OF DIRECTOR OF CLINICAL PSYCHOLOGY TRAINING PROGRAM

PSY658 Introduction to Clinical Methods II  
3 credits Offered By Announcement Only  
Continuation of PSY 657.  
PREREQUISITE: PSY 657 AND PERMISSION OF DIRECTOR OF CLINICAL PSYCHOLOGY TRAINING PROGRAM.

PSY659 Evidence-Based Psychological Treatments for Adults  
3 credits Offered By Announcement Only  
Continuation of PSY 656 with emphasis on a broad range of research pertaining to the efficacy and effectiveness of psychological treatments for adults.  
PREREQUISITE: PSY 656 AND PERMISSION OF DIRECTOR OF CLINICAL PSYCHOLOGY TRAINING PROGRAM.
PSY660 Evidence-Based Psychological Intervention with Children and Families

3 credits  
Fall Semester
Theories, history, and techniques of psychological and behavioral therapies, with emphasis on evidence-based approaches with children, adolescents, and families. Understanding normative and deviant development, with attention to issues of diversity, ethics, and domestic violence.
PREREQUISITE: PSY 656 OR PERMISSION OF INSTRUCTOR.

PSY661 Interventions in Pediatric Psychology

3 credits  
Spring Semester
Pediatric psychology and basic learning theory. Medical and behavioral aspects of child and adolescent health disorders, psychological assessment, and evidence-based treatment approaches.
PREREQUISITE: PSY 656 AND PERMISSION OF DIRECTOR OF CLINICAL PSYCHOLOGY TRAINING PROGRAM.

PSY662 Health Psychology Interventions

3 credits  
Fall Semester
Clinical interventions and research relevant to health problems and lifestyle, with emphasis on critical evaluations of past research and the design and implementation of intervention protocols. The origins of health psychology and the role of the health psychologist in medical systems.
PREREQUISITE: PSY 610 OR 656 OR PERMISSION OF INSTRUCTOR.

PSY663 Cognitive Behavior Therapy

3 credits  
Offered By Announcement Only
Theory, history, research, and practice in cognitively oriented forms of therapy, including cognitive restructuring, rational emotive therapy, and cognitive behavior modification.
PREREQUISITE: PSY 656 AND PERMISSION OF DIRECTOR OF CLINICAL PSYCHOLOGY TRAINING PROGRAM.

PSY664 Group Psychotherapy

3 credits  
Offered By Announcement Only
Procedures, techniques, and theoretical perspectives.
PREREQUISITE: PSY 656 OR PERMISSION OF DIRECTOR OF CLINICAL TRAINING.

PSY665 Family Therapy

3 credits  
Offered By Announcement Only
History of family therapy, including theoretical perspectives, methods, and techniques associated with each. Includes behavioral, cognitive, dynamic, interpersonal, and systems family therapeutic approaches, in addition to a focus on family developmental process. Attention to ethics and diversity.
PREREQUISITE: PSY 656 OR PERMISSION OF DIRECTOR OF CLINICAL TRAINING.

PSY666 Research and Theory of Early Intervention

3 credits  
Fall Semester
Theories, models, methods, purposes, and utility of intervention in young children. Includes illustrative examples from contemporary intervention research literature.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
PSY670 Practicum in Clinical Psychology
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Supervised experience in evaluating and treating psychological problems of children, adolescents, families, and/or adults behavior. For students placed at the U.M. Psychological Services Clinic there is a weekly case conference that focuses on ethics case conceptualization. Course may be repeated for credit.
PREREQUISITE: PERMISSION OF DIRECTOR OF CLINICAL PSYCHOLOGY TRAINING PROGRAM.

PSY671 Practicum in Clinical Psychology II
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Continuation of PSY 670.
PREREQUISITE: PERMISSION OF DIRECTOR OF CLINICAL PSYCHOLOGY TRAINING PROGRAM.

PSY672 Advanced Practicum in Clinical Psychology
1-3 credits  Fall & Spring Semester
Advanced experience in special clinical techniques and clinical supervision. Primarily for post-internship clinical students. The advisor may direct that PSY 672 be repeated, but no more than six credits may be applied toward a degree.
PREREQUISITE: PSY 671 AND PERMISSION OF DIRECTOR OF CLINICAL PSYCHOLOGY TRAINING PROGRAM.

PSY673 Advanced Practicum in Professional Psychology I
1-3 credits  Fall & Spring Semester
Advanced experience in special clinical techniques, supervision and/or teaching. No more than a total of six credits in PSY 673 and 674 may be counted toward the required 90 credits for the Ph.D. degree.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

PSY674 Advanced Practicum in Professional Psychology II
1-3 credits  Fall & Spring Semester
A continuation of PSY 673. No more than a total of six credits in PSY 673 and 674 may be counted toward the required 90 credits for the Ph.D. degree.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

PSY675 Field Experience in Behavioral Medicine
3 credits  Offered By Announcement Only
Observation, assessment, and/or health psychology intervention opportunities in physical health care settings.
PREREQUISITE: PSY 605, 640. COREQUISITE: PSY 612 OR 623.

PSY676 Practicum on Mental Retardation
3 credits  Offered By Announcement Only
Specialized practicum especially in the evaluation or counseling, both individual and group with retardates.
PREREQUISITE: PSY 670.

PSY680 Research
1-4 credits  Fall & Spring Semester & First & Second Summer Session
Investigation of an original problem.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

PSY681 Research
1-4 credits  Fall & Spring Semester & First & Second Summer Session
Investigation of an original problem.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.
PSY682 Special Projects
2-4 credits Fall & Spring Semester
Designed to allow students to earn credit in special projects of educational nature which do not fit readily into existing course offerings. Not to be used as a substitute for other courses.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF CHAIRMAN.

PSY683 Special Topics
3 credits Fall & Spring Semester
Topics in selected areas of specialization.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

PSY684 Readings in Psychology
3 credits Fall & Spring Semester
Supervised readings in selected topics.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

PSY685 Seminar in Clinical Psychology
3 credits Fall & Spring Semester

PSY686 Seminar in Clinical Psychology
3 credits Fall & Spring Semester

PSY687 Seminar in Clinical Psychology
3 credits Offered By Announcement Only

PSY688 Seminar in Developmental Psychology
3 credits Offered By Announcement Only

PSY689 Seminar in Developmental Psychology
3 credits Offered By Announcement Only

PSY690 Seminar in Developmental Psychology
3 credits Offered By Announcement Only

PSY691 Seminar in Social Psychology
3 credits Offered By Announcement Only

PSY692 Seminar in Personality
3 credits Offered By Announcement Only

PSY693 Seminar in Behavioral Medicine
3 credits Spring Semester

PSY694 Seminar in Behavioral Medicine
3 credits Fall Semester

PSY695 Seminar in Learning
3 credits Offered By Announcement Only

PSY696 Seminar in Motivation
3 credits Offered By Announcement Only

PSY697 Seminar in Biological Psychology
3 credits Fall Semester
PSY698 Seminar in Quantitative Psychology
3 credits Fall Semester

PSY704 Internship in Clinical Psychology
1 credits Fall & Spring Semester
Supervised internship in clinical psychology. May not be counted as part of the 90 hours required for the Ph.D. degree.
PREREQUISITE: PERMISSION OF DIRECTOR OF PSYCHOLOGY TRAINING PROGRAM.

PSY705 Postdoctoral Practicum
1-3 credits Fall Semester
Advanced clinical psychology training for individuals who have completed a clinical psychology Ph.D. or PsyD. from an APA-accredited doctoral program. Supervision of clinical activity by licensed faculty members.
PREREQUISITE: PERMISSION OF THE DIRECTOR OF CLINICAL PSYCHOLOGY TRAINING PROGRAM.

PSY706 Summer Research Practicum
1 credit Fall Semester
Faculty-supervised research during the summer for students in the Psychology Ph.D. Program.
PREREQUISITE: PERMISSION OF THE PSYCHOLOGY DEPARTMENT'S DIRECTOR OF GRADUATE STUDIES.

PSY710 Master's Thesis
1-6 credits Fall & Spring Semester
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

PSY720 Research in Residence
0 credit Fall & Spring Semester
Research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in PSY 710 (usually six credits). Credit not granted. May be regarded as full time residence.

PSY725 Continuous Registration--Master's Study
0 credit Fall & Spring Semester
To establish residence for non-thesis master's students who are preparing for major examinations. Credit not granted. Regarded as full time residence.

PSY730 Doctoral Dissertation
1-12 credits Fall & Spring Semester
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor, but for not less than a total of 12 hours. Up to 12 hours may be taken in a regular semester, but not more than six in a summer session.

PSY740 Post-Candidacy Doctoral Dissertation
1-12 credits Fall & Spring Semester
Required of all candidates for the Ph.D. who have advanced to candidacy. The student will enroll for credit as determined by his/her advisor, but not for less than a total of 12. Not more than 12 hours of PSY 740 may be taken in a regular semester, nor more than six in a summer session.
PREREQUISITE: ADMISSION TO PH.D. CANDIDACY.
PSY750 Research in Residence
0 credit  
Fall & Spring Semester
Used to establish research in residence for the Ph.D., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

RELIGIOUS STUDIES

REL501 Supervised Reading in Religious Literature or Texts
1-3 credits  
Fall Semester
Independent study to enable students to read extensively in an area of personal interest in religious literature or texts.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

REL502 Supervised Reading in Religious or Historical Traditions
1-3 credits  
Fall Semester
Independent study to enable students to read extensively in an area of personal interest in religious or historical traditions.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

REL503 Supervised Reading in Religious Issues or Problems
1-3 credits  
Fall Semester
Independent study to enable students to read extensively in an area of personal interest in religious issues or problems.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

REL505 Seminar in Ancient Studies
3 credits  
Fall Semester
Various topics in Greek and Roman Studies.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.

REL510 Seminar in Hebrew Bible and Ancient Judaism
3 credits  
Offered By Announcement Only
Selected topics in Hebrew Bible and Ancient Judaism.
PREREQUISITE: JUNIOR STANDING AND SIX CREDITS IN RELIGIOUS STUDIES; PERMISSION OF THE INSTRUCTOR.

REL520 Seminar in New Testament and Early Christianity
3 credits  
Offered By Announcement Only
Selected topics in New Testament and Early Christianity.
PREREQUISITE: JUNIOR STANDING AND SIX CREDITS IN RELIGIOUS STUDIES; PERMISSION OF THE INSTRUCTOR.

REL530 Seminar in Religious or Historical Traditions
1-3 credits  
Fall Semester
Selected topics in religious or historical traditions.
PREREQUISITE: JUNIOR STANDING AND SIX CREDITS IN RELIGIOUS STUDIES; PERMISSION OF INSTRUCTOR.

REL550 Seminar in Religious Ethics
3 credits  
Offered By Announcement Only
Selected issues in religious ethics and their social implications.
PREREQUISITE: SIX CREDITS IN RELIGIOUS STUDIES AND JUNIOR STANDING.
REL560 Seminar in Contemporary Religious Issues  
1-3 credits  
Fall Semester  
Selected topics in contemporary religious issues.  
PREREQUISITE: JUNIOR STANDING AND SIX CREDITS IN RELIGIOUS STUDIES; PERMISSION OF INSTRUCTOR.

SOCIOLOGY  
SOC501 Sociological Theory  
3 credits  
Fall & Spring Semester  
Classical sociological concepts and theory from the eighteenth century to the present.  
PREREQUISITE: NINE CREDITS IN SOCIOLOGY AND SENIOR STANDING.

SOC502 Sociology of Science  
3 credits  
Offered By Announcement Only  
Culture of science, sociology of knowledge, various positions on the nature of knowledge, causality, and the relationship between theory and social research.  
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR.

SOC511 Sociological Statistics  
3 credits  
Offered By Announcement Only  
Probability theory, descriptive statistics and tests of independence.  
PREREQUISITE: GRADUATE STATUS OR PERMISSION OF INSTRUCTOR.

SOC530 Advanced Social Psychology: Sociological Perspective  
3 credits  
Offered By Announcement Only  
Major theoretical perspectives in sociological social psychology including symbolic interaction and role theory, social structure and personality, psychoanalytic, and ethnomethodology. Selected research is reviewed.  
PREREQUISITE: NINE CREDITS IN SOCIOLOGY OR GRADUATE STANDING.

SOC550 Theories of Family Structure  
3 credits  
Offered By Announcement Only  
PREREQUISITE: NINE CREDITS IN SOCIOLOGY.

SOC570 Theories of Criminology  
3 credits  
Offered By Announcement Only  
Review and critique of central criminological theories. Evaluation of these theories in view of recent criminological research.

SOC591 Special Topics  
3 credits  
Offered By Announcement Only  
The content of this course will vary by semester. In any given semester its content will be expressed in parentheses following the title "Special Topics" in the printed class schedule.  
PREREQUISITE: SENIOR STANDING.

SOC592 Special Topics  
3 credits  
Offered By Announcement Only  
The content of this course will vary by semester. In any given semester its content will be expressed in parentheses following the title "Special Topics" in the printed class schedule.  
PREREQUISITE: SENIOR STANDING.
SOC601 Classical Sociological Theory
3 credits
Offered By Announcement Only
Major orientations of modern sociology with emphasis upon structural and functional theories.
PREREQUISITE: GRADUATE STATUS OR CONSENT OF INSTRUCTOR

SOC602 Contemporary Sociological Theory
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STATUS OR CONSENT OF INSTRUCTOR

SOC603 Selected Topics in Social Theory
3 credits
Offered By Announcement Only
PREREQUISITE: SOC 601, 602. GRADUATE STATUS OR CONSENT OF INSTRUCTOR

SOC604 Proseminar in Sociology
1 credits
Fall Semester
Introduction to Sociology: the research process, departmental resources, and the graduate program.
PREREQUISITE: GRADUATE STATUS OR CONSENT OF INSTRUCTOR

SOC610 Advanced Research Methods
3 credits
Offered By Announcement Only
Quantitative techniques for the measurement of theoretical constructs, the consequences of technique selection, and the relationships between method and underlying theory.
PREREQUISITE: GRADUATE STATUS OR CONSENT OF INSTRUCTOR

SOC611 Advanced Sociological Statistical Analysis I
3 credits
Fall Semester
Introduction to the general linear model for continuous variables in sociological research. Foundations of the model and computerized applications.
PREREQUISITE: GRADUATE STATUS OR PERMISSION OF INSTRUCTOR

SOC612 Advanced Sociological Statistics II
3 credits
Offered By Announcement Only
Multiple linear regression and regression diagnostics, analysis of categorical dependent variables, count dependent variables, simultaneous equations, and panel data models.
PREREQUISITE: SOC 611, GRADUATE STATUS OR CONSENT OF INSTRUCTOR

SOC613 Qualitative Research Methods
3 credits
Offered By Announcement Only
Qualitative methods, based in a grounded theory orientation, focusing on participant observation and interviewing; methods for the collection of data in naturalistic social settings, with simultaneous data analysis; the history of such approaches; ties between methods and theory; the basic methods used in qualitative research, and typical analytic approaches; current issues and debates relevant to this set of approaches to generating knowledge.
PREREQUISITE: SOC 610, GRADUATE STATUS OR CONSENT OF INSTRUCTOR
SOC614 Evaluation Research
3 credits
Offered By Announcement Only
Conceptualizing, designing, conducting, and interpreting the results of evaluation research programs in health and human service agencies.
PREREQUISITE: SOC 610, 611, GRADUATE STATUS OR CONSENT OF INSTRUCTOR

SOC615 Class Structure and Social Stratification
3 credits
Offered By Announcement Only
Theoretical and research approaches to class structure and social stratification, with a focus on the U.S. Examines the conflict perspective(s) and major alternative views including economic class, status and power, gender and race.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR.

SOC616 Social Psychology: Sociological Perspectives
3 credits
Offered By Announcement Only
Sociological theories and research explaining the influence of human groups and social processes on personality and human social behavior.
PREREQUISITE: GRADUATE STATUS OR PERMISSION OF INSTRUCTOR.

SOC617 Social Organization
3 credits
Offered By Announcement Only
Effects of industrial downsizing on occupational structure, family income, and social mobility are examined and related to changes in class, ethnic, and racial identity.
PREREQUISITE: GRADUATE STATUS OR PERMISSION OF INSTRUCTOR.

SOC620 Social Epidemiology
3 credits
Offered By Announcement Only
Theories, issues and methods of study pertinent to health and illness in society. Social factors implicated in patterns of disease occurrence.
PREREQUISITE: GRADUATE STATUS OR CONSENT OF INSTRUCTOR

SOC622 Teaching Seminar in Sociology
3 credits
Fall Semester
Pedagogical techniques for teaching Sociology at the college/university level.
PREREQUISITE: GRADUATE STATUS OR CONSENT OF INSTRUCTOR

SOC632 Social Psychology of Health and Illness
3 credits
Offered By Announcement Only
Social and psychological factors affecting susceptibility to illness, health related beliefs and behaviors: the doctor-patient relationship: evaluation of health care systems and patient compliance.
PREREQUISITE: GRADUATE STANDING AND PERMISSION OF INSTRUCTOR.

SOC635 Medical Sociology: Issues in Research and Theory.
3 credits
Offered By Announcement Only
Examination of health, illness, and health care from sociological perspectives. Includes social-structural, interpretive, and critical approaches, as various authors have used these to address specific issues. Phenomena to be examined range from macro (e.g. population patterns of mortality and morbidity, health care policy) to micro (e.g. the subjective experience of illness). Related theories and methodologies discussed. Focus varies somewhat by instructor and as issues emerge in the discipline.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR.
SOC642 Contemporary Health Care Systems
3 credits
Offered By Announcement Only
Components of the health care systems in the US compared with those in other countries.
PREREQUISITE: GRADUATE STATUS OR CONSENT OF INSTRUCTOR

SOC650 Social Analysis of Race Relations
3 credits
Offered By Announcement Only
The impact of race relations research on the discipline of sociology.
PREREQUISITE: GRADUATE STATUS OR CONSENT OF INSTRUCTOR

SOC651 Race Relations: Social Psychological Perspectives
3 credits
Offered By Announcement Only
Social psychological perspectives on the nature, causes, and consequences of racial inequality in American society.
PREREQUISITE: GRADUATE STATUS OR CONSENT OF INSTRUCTOR

SOC652 Theories of Race and Ethnic Relations
3 credits
Offered By Announcement Only
Micro- and macro-level theories of race and ethnic relations.
PREREQUISITE: GRADUATE STATUS OR CONSENT OF INSTRUCTOR

SOC660 Social Gerontology
3 credits
Offered By Announcement Only
Personal issues, problems and crises of middle-age and aging, and the interrelation of those personal crises with the larger societal structures and processes.
PREREQUISITE: NINE CREDITS IN SOCIOLOGY, GRADUATE STATUS OR CONSENT OF INSTRUCTOR

SOC670 The Criminal Justice System: Theory and Practice
3 credits
Offered By Announcement Only
PREREQUISITE: GRADUATE STATUS OR CONSENT OF INSTRUCTOR

SOC671 Seminar on Criminology
3 credits
Offered By Announcement Only
Selected issues, topics, theories, and recent research in criminology.
PREREQUISITE: GRADUATE STATUS OR CONSENT OF INSTRUCTOR

SOC672 Research in Crime and Delinquency
3 credits
Offered By Announcement Only
Measurement issues; effects of race, gender, age, and socio-economic status on criminality; extra-legal factors affecting criminal justice decision making.
PREREQUISITE: SOC 610 AND 611, GRADUATE STATUS OR CONSENT OF INSTRUCTOR

SOC675 Theories of Criminology
3 credits
Offered By Announcement Only
Review and Critique of central criminological theories. Evaluation of these theories in view of recent criminological research.
PREREQUISITE: GRADUATE STATUS OR CONSENT OF INSTRUCTOR

SOC690 Directed Studies
1-3 credits
Offered By Announcement Only
Individually supervised readings or research on special topics. Offered by arrangement with the instructor.
PREREQUISITE: GRADUATE STATUS OR CONSENT OF INSTRUCTOR
SOC691 Special Topics and Current Issues in Medical Sociology
1-3 credits Offered By Announcement Only
Seminar topics will be announced in schedule of classes. PREREQUISITE: GRADUATE STATUS OR PERMISSION OF INSTRUCTOR.

SOC692 Special Topics and Current Issues in Criminology
1-3 credits Offered By Announcement Only
Seminar topics will be announced in schedule of classes. PREREQUISITE: GRADUATE STATUS OR PERMISSION OF INSTRUCTOR.

SOC693 Special Topics and Current Issues in Race/Ethnic Relations
1-3 credits Offered By Announcement Only
Seminar topics will be announced in schedule of classes. PREREQUISITE: GRADUATE STATUS OR PERMISSION OF INSTRUCTOR.

SOC710 Master's Thesis
1-6 credits Fall & Spring Semester
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted. PREREQUISITE: GRADUATE STATUS OR CONSENT OF INSTRUCTOR.

SOC720 Research in Residence
0 credit Fall & Spring Semester
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in SOC 710 (usually six credits). Credit not granted. May be regarded as full time residence. PREREQUISITE: GRADUATE STATUS OR CONSENT OF INSTRUCTOR.

SOC725 Continuous Registration--Master's Study
0 credit Fall & Spring Semester
To establish residence for non-thesis master's students who are preparing for major examinations. Credit not granted. Regarded as full time residence. PREREQUISITE: GRADUATE STATUS OR CONSENT OF INSTRUCTOR.

SOC730 Pre-Candidacy Doctoral Dissertation
1-12 credits Fall & Spring Semester
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor, but for not less than a total of 12 hours. Up to 12 hours may be taken in a regular semester, but not more than six in a summer session.

SOC740 Post-Candidacy Doctoral Dissertation
1-12 credits Fall & Spring Semester
Required of all candidates for the Ph.D. who have advanced to candidacy. The student will enroll for credit as determined by his/her advisor, but not for less than a total of 12. Not more than 12 hours of SOC 740 may be taken in a regular semester, nor more than six in a summer session.

SOC750 Research in Residence
0 credit Fall & Spring Semester
Used to establish research in residence for the Ph.D. and D.A., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School. PREREQUISITE: GRADUATE STATUS OR CONSENT OF INSTRUCTOR.
SPA501 CAPSTONE
3 credits Fall & Spring Semester
Course with a broad-based topic designed to integrate all the high-level linguistic, critical and analytical skills with the body of knowledge acquired during the course of study towards the major. Topics vary. Open only to undergraduates completing their Spanish major. Writing Credit. To be taken in the last semester of the major.
PREREQUISITE: TO BE TAKEN IN THE LAST SEMESTER OF THE MAJOR.

SPA591 Directed Readings
1-3 credits Offered By Announcement Only
PREREQUISITE: ONE 500-LEVEL COURSE AND THE PERMISSION OF THE INSTRUCTOR.

SPA592 Directed Readings
1-3 credits Offered By Announcement Only
PREREQUISITE: ONE 500-LEVEL COURSE AND THE PERMISSION OF THE INSTRUCTOR.

SPA593 Directed Readings
1-3 credits Offered By Announcement Only
PREREQUISITE: ONE 500-LEVEL COURSE AND THE PERMISSION OF THE INSTRUCTOR.

SPA594 Senior Honors Thesis I
3 credits Fall Semester
Directed research for honors thesis.
PREREQUISITE: MUST HAVE COMPLETED AT LEAST 12 CREDITS AT THE 300-LEVEL OR ABOVE TOWARDS SPANISH MAJOR, MUST MEET ELIGIBILITY FOR HONORS IN SPANISH.

SPA595 Senior Honors Thesis II
3 credits Fall Semester
Directed writing of honors thesis.
PREREQUISITE: SPA 594.

SPA611 Topics in Spanish Medieval Literature
3 credits Offered By Announcement Only
Recent topics: Libro de Buen a mor, the epic, Berceo, cancionero poetry.

SPA613 Topics in the Golden Age
3 credits Offered By Announcement Only
Recent topics: culteranismo and conceptismo, La Celestina, Cervantes, the picaresque, sixteenth-century theatre.

SPA615 Topics in 18th-19th Century Spanish Literature
3 credits Offered By Announcement Only
Recent topics: neoclassicism, romantic theatre, Spain and the European Enlightenment, Galdos, realism, postromantic poetry.

SPA616 Topics in 20th Century Spanish Literature
3 credits Offered By Announcement Only
Recent topics: the generation of 1898, Garcia Lorca, the post-war novel, contemporary theater.

SPA621 Special Topics in Hispanic Studies
3 credits Offered By Announcement Only
SPA633 Topics in Colonial Literature
3 credits Offered By Announcement Only
Recent topics: the chroniclers, Sor Juana Ines de la Cruz, Baroque of the Indies.

SPA635 Topics in 19th Century Latin American Literature
3 credits Offered By Announcement Only
Recent topics include: romanticism, modernist poetry, anti-slavery novel.

SPA636 Topics in 20th Century Latin American Literature
3 credits Offered By Announcement Only
Recent topics: modernism, magic realism, the short story, the novel of the Mexican Revolution, the Boom and post-Boom.

SPA691 Writing Practicum
1 credits Offered By Announcement Only
The writing of a publishable research paper under faculty guidance.

SPA692 Directed Readings
1-3 credits Offered By Announcement Only

SPA693 Teaching Practicum
3 credits Offered By Announcement Only

SPA730 Pre-Candidacy Doctoral Dissertation
1-12 credits Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. Prior to admission to candidacy, the student will enroll for credit as determined by his/her advisor. Not more than 12 hours of SPA 730 may be taken in a regular semester, nor more than six in a summer session. Students who have not passed their qualifying examinations yet, but are not taking any courses, may enroll in SPA 730.

SPA740 Post-Candidacy Doctoral Dissertation
1-12 credits Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. After admission to candidacy, the student will enroll for credit as determined by his/her advisor. Not more than 12 hours of SPA 740 may be taken in a regular semester, nor more than six in a summer session. Students who have passed their qualifying examinations, but are not taking courses any more, may enroll in SPA 740. Where a student has passed his/her(a) qualifying examinations, and (b) is engaged in an assistantship, he/she may still take the maximum allowable credit stated above.

SPA750 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish residence for the Ph.D., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.
ACC501 Advanced Cost Accounting  
3 credits  First Summer Session  
The latest developments in cost and managerial accounting are studied. Using case studies, the course focuses on activity based product cost allocation methodology in terms of: (1) basic concepts and rationale, (2) applicability in both manufacturing and service industries, (3) strategic cost analyses, and (4) applicability in total quality management programs. Other topics include cost pools, two stage costing methodologies, and the behavioral aspects of cost systems. Finally, students implement an activity based cost system using commercially developed software.  
PREREQUISITE: ACC 301 AND SENIOR STATUS.

ACC505 Accounting Controls in Information Technology  
3 credits  Second Summer Session  
Course develops a student's understanding of the theory and practice of relational database management systems in the accounting view of enterprise-wide databases. With a focus on controls, students build accounting system elements related to main accounting transaction cycles, the revenue cycle, and the purchase cycle.  
PREREQUISITE: ACC 212 AND PERMISSION OF INSTRUCTOR; SENIOR STATUS.

ACC506 Internal Auditing  
3 credits  Offered By Announcement Only  
Course explores the unique issues associated with the internal audit function. Additionally, the ethical code applicable to internal auditors is discussed.  
PREREQUISITE: ACC 402 AND SENIOR STATUS.

ACC522 Advanced Issues in Auditing  
3 credits  Spring Semester  
Course covers advanced issues which arise in audit practice including audit reporting issues, fraud detection and reporting, attestation engagements, special reporting issues, compilation and review engagements, scope of services issues, and other new issues which have a significant impact on audit practice.  
PREREQUISITE: ACC 402 AND SENIOR STATUS.

ACC523 International Accounting and Taxation  
3 credits  First Summer Session  
Course covers tax accounting and business considerations in the global business environment. U.S. issues involved in international transactions, working across national borders, the Foreign Corrupt Practices Act, money laundering, and uses of accounting information in managing an international business.  
PREREQUISITE: ACC 212 AND SENIOR STATUS.

ACC524 Accounting for Governmental and Not-for-Profit Entities  
3 credits  First Summer Session  
The course introduces accounting within the environment of modern government and not-for-profit organizations. Emphasis is placed on financial accounting and reporting, current accounting issues, and managerial activities.  
PREREQUISITE: ACC 312 AND SENIOR STATUS.
ACC525 Trends in Present Day Accounting

3 credits Offered By Announcement Only
Recent developments in accounting thought and advanced accounting theory. The analysis of trends as disclosed by recent releases of the Securities and Exchange Commission, the American Institute of Certified Public Accountants, and the Financial Accounting Standards Board are discussed. Other topics include terminology, current trends in the measurement, presentation of financial data to meet the needs of third parties, and surveys accounting literature.
PREREQUISITE: ACC 312 AND SENIOR STATUS.

ACC550 Accounting Internship

0-3 credits Fall & Spring Semester & First & Second Summer Session
Student is individually assigned to operating business firm or other organization to gain insight into management practice in area of career interest. Periodic reports and conferences are required. Approval of chairman is required at time of registration.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

ACC599 Directed Readings

1-3 credits Fall & Spring Semester & First & Second Summer Session
Individually supervised research projects in selected fields. Approval of supervising professor as to topic and evaluation of project is required at time of registration.
PREREQUISITE: SENIOR STANDING AND PERMISSION OF DEPARTMENT CHAIR.

ACC600 Accounting for Decision-Making and Control

3 credits Offered By Announcement Only
The course focuses on the use and understanding of basic financial and managerial accounting reports. The course is oriented to the user of financial data rather than the preparer of the data. Coverage of basic accounting assumptions and current issues affecting accounting processes and reporting are included, but detailed accounting procedures are not emphasized. Completion of the course should permit students to understand accounting information and to communicate with professional accountants. Does not satisfy any accounting requirements needed to sit for the CPA exam in Florida.

ACC601 Trends in Present Day Accounting

3 credits Offered By Announcement Only
Recent developments in accounting thought and advanced accounting theory. The analysis of trends as disclosed by recent releases of the Securities and Exchange Commission, the American Institute of Certified Public Accountants, and the Financial Accounting Standards Board are discussed. Other topics include terminology, current trends in the measurement, presentation of third financial data to meet the needs of third parties, and surveys accounting literature.
PREREQUISITE: ACC 312.

ACC602 Analysis of Financial Statements

3 credits Spring Semester
Course emphasizes the fundamental techniques of financial statement analysis. Building upon core accounting and investment concepts, the course covers the analysis (including ratio analysis) and interpretation of financial accounting information including the balance sheet, income statement, and statement of cash flows. The course also examines the use of accounting information in investment and credit decisions.
PREREQUISITE: ACC 312
ACC603 Studies in Financial Reporting Issues  
3 credits  
Spring Semester  
An exploration of complex financial reporting issues using the case method.  
PREREQUISITE: ACC 312.

ACC604 Seminar in Cost Accounting  
3 credits  
Fall Semester  
Course covers four major segments. First, it review the basic concepts and tools associated with management control systems. Second, it underscores the importance of decentralization and the impact it has on decision making. Third, it examines the strategic place for cost management. Examples include the adoption of the balanced score card, quality control, productivity, and environmental cost management. Fourth, the course brings costing and control tools into the discussion of decision making.  
PREREQUISITE: ACC 301 OR PERMISSION OF INSTRUCTOR.

ACC605 Enterprise Resource Planning (ERP) Financial Systems  
3 credits  
Offered By Announcement Only  
Course emphasizes the use of Enterprise Resource Planning Systems to collect, monitor, and evaluate financial and managerial data. Students are introduced to how data is captured from the purchasing function through the sales function and how business activities impact the financial statements. The course also utilizes the Enterprise Resource Planning Systems to evaluate managerial performance and financial performance using concepts such as Activity Based Costing, Data Warehousing, and Key Performance Indicators. ERP systems installations are introduced using case materials.  
PREREQUISITE: ACC 212.

ACC606 Internal Auditing  
3 credits  
Offered By Announcement Only  
Course explores the unique issues associated with the internal audit function. Additionally, the ethical code applicable to internal auditors is discussed.  
PREREQUISITE: ACC 402.

ACC607 Financial Accounting & Reporting  
3 credits  
Spring Semester & Second Summer Session  
Basic concepts of accounting designed to increase understanding of the function of accounting statements and their limitations. The generally accepted principles governing the preparation of financial reports and the use of accounting information in investment and credit decisions. Does not satisfy any accounting requirement needed to sit for the CPA Exam in Florida. Limited to Executive MBA students only.  
PREREQUISITE: LIMITED TO EXECUTIVE MBA ONLY.

ACC608 Managerial Accounting  
3 credits  
Offered By Announcement Only  
Current managerial accounting techniques and theories. Topics include the use of accounting data in making decisions and planning and control systems for implementation of decisions. Does not satisfy any accounting requirements needed to sit for the CPA Exam in Florida. Limited to Executive MBA students only.  
PREREQUISITE: ACC 607 OR EQUIVALENT.
ACC610 Accounting Research and Theory
3 credits  
**Fall Semester**
This course is an introduction to research in financial accounting. In this course, students will become familiar with the foundations of accounting research, including hypothesis development, data collection, and data analysis. To this end, students will become familiar with empirical research in accounting, learn to construct a dataset for hypothesis testing, and conduct some basic statistical analysis (e.g., Ordinary Least Squares regressions). Accounting topics covered will include accounting information and the capital markets, financial restatements, accounting method choice, earnings management, earnings quality, and international accounting.
PREREQUISITE: ACC 312.

ACC611 Auditing Seminar
3 credits  
**Offered By Announcement Only**
Practical applications of auditing and research into audit matters. Emphasis of the course is placed on cases involving audit failures, appropriate auditing procedures, reporting, and exercise of audit judgment.
PREREQUISITE: ACC 402.

ACC612 Contemporary Issues in Financial Accounting
3 credits  
**Offered By Announcement Only**
Doctoral seminar investigating financial reporting issues and their implications in the behavior of users and preparers of the financial statements. Course focuses on research methodologies used to investigate these issues and discuss alternative approaches.
PREREQUISITE: LIMITED TO DOCTORAL STUDENTS USING ACCOUNTING AS A MAJOR OR MINOR FIELD OF STUDY OR PERMISSION OF INSTRUCTOR.

ACC614 Contemporary Issues in Cost/Managerial Accounting
3 credits  
**Offered By Announcement Only**
Doctoral seminar investigating the use and implications of cost and managerial accounting systems in an organizational context. Course emphasizes the behavioral aspects of accounting systems.
PREREQUISITE: LIMITED TO ACCOUNTING DOCTORAL STUDENTS OR PERMISSION OF INSTRUCTOR.

ACC615 Personal Financial Planning
3 credits  
**First Summer Session**
Fundamentals of personal financial planning. Overview of the financial planning process including regulation and ethical considerations. Topics include an introduction to tax planning, insurance planning, investment planning, retirement planning, and estate planning.
PREREQUISITE: ACC 303

ACC616 Insurance and Retirement Planning
3 credits  
**Spring Semester**
Course covers the fundamentals of insurance and retirement planning including tax and investment implications. In addition, various types of employee plans available are discussed.
ACC620 ACCOUNTING CONTROLS IN INFORMATION TECHNOLOGY
3 credits
Offered By Announcement Only
Course develops students' understanding of the theory and practice of relational database management systems in the accounting view of enterprise-wide databases. With a focus on controls, students build accounting systems elements related to main accounting transaction cycles, the revenue cycle, and the purchase cycle.
PREREQUISITE: ACC 306

ACC621 ADVANCED COST ACCOUNTING
2 credits
Offered By Announcement Only
PREREQUISITE: ACC 301

ACC622 Advanced Issues in Auditing
3 credits
Fall Semester
Course covers advanced issues which arise in audit practice including audit reporting issues, fraud detection and reporting, attestation engagements, special reporting issues, compilation and review engagements, scope of services issues, and other new issues which have a significant impact in audit practice. Not open to students with credit in ACC 522.
PREREQUISITE: ACC 402.

ACC623 International Accounting and Taxation
3 credits
Fall Semester & First Summer Session
Course covers tax accounting and business considerations in the global business environment. U.S. tax issues involved in international transactions, working across national borders, the Foreign Corrupt Practices Act, money laundering and uses of accounting information in managing an international business. Not open to students with credit for ACC 523.
PREREQUISITE: ACC 670 AND 671 OR EQUIVALENT.

ACC624 Accounting for Governmental and Not-for-Profit Entities
3 credits
Spring Semester & First Summer Session
The course introduces accounting within the environment of modern government and not-for-profit organizations. Emphasis is placed on financial accounting and reporting, current accounting issues, and managerial activities. Not open to students with credit for ACC 524.
PREREQUISITE: ACC 312 OR PERMISSION OF INSTRUCTOR.

ACC631 Accounting for Decision-Making and Control II
3 credits
Offered By Announcement Only
Continuation of ACC 600. A further study of the generally accepted accounting principles governing the preparation of financial statements. Not for credit in MPA or MST Programs.
PREREQUISITE: ACC 600.

ACC639 Income Taxation and Business Entities
3 credits
Offered By Announcement Only
This course is designed to be the second tax course for MBA students who are interested in the business applications of federal income tax laws, as they affect corporations, partnerships, and their owners. Emphasis is placed on tax planning aspects of formation, operation, reorganization, liquidation, and distributions of corporations and partnerships. Not open to students with credit in ACC 404 or equivalent.
PREREQUISITE: ACC 673 OR EQUIVALENT.
ACC640 Corporations I
3 credits
Fall Semester
Course covers treatment of the corporate form of organization, its related opportunities, and problem areas, including formation, tax formula, non-liquidating and liquidating distributions, capital structure, redemptions, alternative minimum tax, S corporation election, and operation.
PREREQUISITE: ACC 404 OR PERMISSION OF INSTRUCTOR.

ACC641 Corporations II
3 credits
Spring Semester
An in-depth study of taxable and nontaxable corporate reorganizations. An introduction to affiliated corporations, requirements for consolidated returns, and their associated problems and opportunities are discussed.
PREREQUISITE: ACC 640 OR PERMISSION OF INSTRUCTOR.

ACC642 Seminar in Taxation
3 credits
Offered By Announcement Only
Investigation of significant major topical areas in taxation, such as taxation of individuals and planning considerations, pension and deferred compensation plans, accounting for income taxes, and specialized topics.
PREREQUISITE: ACC 404 OR PERMISSION OF INSTRUCTOR.

ACC643 Tax Research
3 credits
Spring Semester
Study of the tax practice environment including the Treasury Department, the Courts, and the legislative history of the Internal Revenue Code. Ethics in tax practice are also examined. Course includes training in the use of tax services such as RIA Checkpoint and LEXIS, in performing tax research. A research methodology for solving tax problem cases is studied and cases to be researched are assigned.
PREREQUISITE: ACC 404 OR PERMISSION OF INSTRUCTOR.

ACC645 Partnerships
3 credits
Fall Semester
Taxation of partners and partnerships, formation, termination, distributions, liquidations, and sales of partnership interests are covered. Limited partnerships in conjunction with their use as tax shelters are discussed as well as family partnerships, limited liability companies, and LLPs.
PREREQUISITE: ACC 404 OR PERMISSION OF INSTRUCTOR.

ACC647 Estates and Gift Taxes
3 credits
First Summer Session
Estate and gift planning for shifting wealth from one individual to another by death, gift, or by the use of trusts. Property included in the decedent's gross estate valuation methods, gifts in contemplation of death, jointly held property, life insurance, transfers with retained life estates, bequests, revocable transfers, the marital deduction, powers of appointment, gifts of present and future interest, and gifts to minors are covered.
PREREQUISITE: ACC 404 OR PERMISSION OF INSTRUCTOR.

ACC649 Issues in Tax Policy
3 credits
Second Summer Session
A study of tax policy issues inherent in individual and corporate income taxes, consumption taxes, wealth, and wealth transfer taxes. Focus is placed on the purposes of taxation and the development of a "good" tax system.
ACC650 Accounting Internship
1-3 credits Fall & Spring Semester & First & Second Summer Session
Student is individually assigned to operating business firm or other organization to gain insight into management practice in area of career interest. Periodic reports and conferences required.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

ACC662 Taxation of Multinational Corporations
3 credits Spring Semester
This course introduces the fundamental tax concepts underlying U.S. taxation of international transactions. Topics include the taxation of U.S. corporations with income from foreign sources, intercompany pricing, anti-tax avoidance provisions, and tax treaties.
PREREQUISITE: ACC 640 OR PERMISSION OF THE INSTRUCTOR.

ACC670 Financial Reporting and Analysis
2 credits Fall & Spring Semester & Second Summer Session
The course focuses on the analysis and use of financial accounting information in the evaluation of corporate performance. The course initially demonstrates the accounting process and resulting generation of financial statements. Building on these core accounting concepts, the course emphasizes the understanding of financial statements prepared under U.S. and International Accounting Standards and the analysis of these financial statements including common size analysis, ratio analysis, the impact of taxes, and credit analysis. Completion of the course enhances the student's ability to read, interpret, and analyze financial statements for making investment, credit, acquisition, and other evaluation decisions. Limited to MBA students and Executive MBA students. Does not satisfy any accounting requirements needed to sit for the CPA Exam in Florida.
PREREQUISITE: LIMITED TO MBA STUDENTS AND EXECUTIVE MBA STUDENTS.

ACC671 Accounting for Decision Making
2 credits Fall & Spring Semester
The course focuses on the use of accounting information in reporting managerial performance and making business decisions. The course covers the preparation and use of managerial accounting information for use in planning, budgeting, control, break-even analysis and pricing, including the impact of taxes. Completion of the course will enhance the student's ability to understand managerial accounting reports and use this information in making business decisions. Limited to MBA students and Executive MBA students. Does not satisfy any accounting requirement needed to sit for the CPA Exam in Florida.
PREREQUISITE: ACC 670.

ACC672 Advanced Financial Analysis and Valuation
2 credits Spring Semester
Advanced Financial Analysis and Valuation builds on the analytical techniques developed in the basic financial statement analysis course, Accounting 670: Financial Reporting and Analysis, to augment your understanding of more complex financial reporting issues and to introduce you to the valuation of equity investments. The viewpoint is that of the user of financial statements, particularly from the standpoint of an equity investor or purchaser of a business. We discuss each financial reporting issue in terms of its effect on assessments of a firm's profitability and risk. This course is designed primarily for students who expect to be intensive users of financial statements as part of their professional responsibilities.
PREREQUISITE: ACC 670.
ACC673 Taxation for Business and Investment Decisions  
2 credits  
Spring Semester  
This course is designed to be the first tax course for MBA students who are interested in acquiring the basic knowledge that all executives and investors should have about our federal income tax system. The primary focus of this course is on business entities (including C corporations, S corporations, partnerships, and sole proprietorships) with individuals covered in their role as employees and investors. A sample of topics includes choice of business organizational form, deductible business expenses, employee fringe benefits and retirement planning, capital gains and losses, and tax-deferred exchanges. Completion of this course will enhance the students' appreciation of the role of taxation in making investment, employment-related, and business decisions. Not open to students with credit in ACC 303 or equivalent.  
PREREQUISITE: ACC 670 OR EQUIVALENT.

ACC697 Ph.D. Colloquium  
0 credit  
Offered By Announcement Only  
Doctoral colloquium required of all Ph.D. students. Course serves as a forum for faculty, Ph.D. students, and visiting researchers to present their research and for Ph.D. students to critique and evaluate such research. Open only to Ph.D. students.  
PREREQUISITE: OPEN ONLY TO PH.D. STUDENTS.

ACC698 Selected Topics  
3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

ACC699 Directed Readings  
1-3 credits  
Fall & Spring Semester & First & Second Summer Session  
Individually supervised research projects in selected fields. Approval of supervising professor as to topic and evaluation of project required at time of registration.

ACC730 Doctoral Dissertation  
1-12 credits  
Offered By Announcement Only  
Required of all candidates for the PhD. The student will enroll for credit as determined by their advisor, but not for less than a total of 24. Not more than 12 hours of ACC 730 may be taken in a regular semester, nor more than six in a summer session. Where a student has passed their (a) qualifying examinations, and (b) is engaged in an assistantship, they may still take the maximum allowable credit stated above.

ACC750 Research in Residence  
0 credit  
Offered By Announcement Only  
Used to establish research in residence for the PhD after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

BUSINESS  

BUS600 Fundamentals of Critical Thinking and Effective Writing  
1 credit  
Fall Semester  
Critical thinking skills are developed by studying questions that transcend any single business discipline. Utilizing a variety of written formats, students hone analytic and persuasive skills, with emphasis on identifying critical issues, developing reasoned positions, and making compelling written arguments.
BUS602 Critical Thinking and Effective Writing
1 credits     Fall Semester
Critical thinking skills are developed by studying questions that transcend any single business discipline. Utilizing a variety of written formats, students hone analytic and persuasive skills, with emphasis on identifying critical questions, developing reasoned positions, and making compelling written arguments.

BUS604 MBA Career Development and Enrichment
0-1 credit    Fall & Spring Semester
This course will expose students to a variety of academic and industry career lectures, events, and workshops to enhance their MBA experience. The focus is to establish added-value to an MBA student through real world and relevant access to information and resources beyond the traditional curriculum.

BUSINESS LAW

BSL550 Business Law Internship
2-3 credits    Offered By Announcement Only
Student is individually assigned to operating business firm or other organization to gain insight into management practice in area of career interest. Periodic reports and conferences are required. Approval of chairman required at time of registration.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

BSL575 Advanced Business Law
3 credits    Spring Semester
Legal problems encountered by Certified Public Accountants, Finance, Management and Marketing Executives, including agency, commercial paper, bank deposits and collections, secured transactions, suretyship, bankruptcy, partnership, corporations, contracts, anti-trust, insurance, property, wills and estates, SEC law, and accountants' legal responsibility. Special attention is given to the commercial law segment of the Uniform Public Accountant Examination.
PREREQUISITE: BSL 212 OR EQUIVALENT AND SENIOR STANDING. NOT FOR LST MAJORS OR BSL MINORS.

BSL612 Legal Aspects of International Business
3 credits    Spring Semester
International legal framework, transactional legal issues in finance, marketing, management, distribution, and a review of theory and practice of negotiations. Case studies on such topics as legal implications of GATT, European Competition, C.I.S.G., and Export Import Rules are also included.

BSL616 Law of Business Organizations
3 credits    Offered By Announcement Only
The Law of Business Organizations provides an examination of the legal and social issues involved in the organization, operation, and governance of the various forms of business organizations, including corporations, limited and general partnerships, syndicates, and trusts. The course is also designed to supply a background in law relating to investments and capital markets.

BSL617 Telecommunications: Law and Regulation
3 credits    Offered By Announcement Only
A study and analysis of law and regulation governing the telecommunications industry. Topics include state and federal legislation, administrative law, antitrust, rate regulation as well as those principles which constitute the industry's legal environment such as contracts, employment rules, and defamation.
BSL676 Legal Aspects of Real Estate Development
3 credits
Offered By Announcement Only
An examination of the legal issues encountered by the real estate professional involved in the development of commercial real estate, i.e. ownership vehicles, acquisition, financing, governmental regulation, land use, construction, and sales contracting. Case study analysis is used to detail the legal factors of developing a real estate project from land acquisition to final sale.

BSL685 Legal Aspects of Health Administration
3 credits
Fall Semester
Derivation of rule of law governing health providers, vicarious liability of administrative and medical personnel, informed consent, and other related problems are discussed.

BSL690 Legal and Ethical Implications of Business Decision Making
2 credits
Fall & Spring Semester
The course provides an introduction to our legal and governmental regulatory system, as well as a review of constitutional considerations for businesses. Morality and ethics are defined and distinguished. Applied philosophy is then introduced, to give the student a foundation upon which to analyze the ethical dimensions of common business questions. The relationship between the letter and the spirit of the law is examined. Specific business topics and their legal and ethical aspects are then addressed. This includes, but is not limited to, discussion of the following areas: consumer relationships; business organizations; the balancing of corporate vs. individual power (employee rights and responsibilities, employment discrimination); and the emerging ethic of a global economy.

BSL691 The Public Corporation: Legal Perspectives
2 credits
Fall Semester
The Public Corporation: Legal Perspectives reviews the laws governing the formation, operation, regulation, and governance of the public corporation with the objective of providing the graduate business student a sophisticated examination of the legal and social aspects of managing the money of others. Further, the course examines the rules and regulations governing the raising of capital from the public through the sale of securities for the development of and investment in a private enterprise.

BSL692 Legal Implications of International Business Transactions
2 credits
Fall Semester
International legal framework, transactional legal issues in finance, marketing, management, and distribution. Case studies in substantive international legal topics such as international sales contracts, international documentary sale, international terms of trade, legal implications and substantive rules governing international finance, collections, payments, and letter of credit, the resolution of international disputes with a particular emphasis and examination upon the management of litigation, enforcement of foreign judgments, and alternative dispute resolution are also included.

BSL693 Legal Principles of Commercial Contracting
2 credits
Offered By Announcement Only
Course examines the fundamentals of all business dealings including the law of contracts. Reported court cases are presented and analyzed in order to assist the student's understanding of basic commercial contracting principles. This methodology is intended to develop the graduate student's critical thinking process as well as their skills in oral and written communication.
BSL694 Real Estate Law  
2 credits  
Spring Semester  
Course focuses on the U.S. legal system as it relates to the buying, selling, and financing of real property. In addition to traditional text material, the analysis of U.S. court cases is used to detail the legal factors of ownership rights and liabilities, specific interests in real property, contracting issues related to the purchase and sale of real property, as well as financing and closing the real estate transaction. The course provides a problem-solving experience, which is intended to develop graduate which is intended to develop graduate communication.

BSL695 Legal Implications in Executive Decision Making  
3 credits  
Offered By Announcement Only  
Law and legal process are examined as they mix with the politics and ethics of business, including the weight given to legal implications in the executive decision-making process.

BSL696 Legal and Ethical Implications in Executive Decision Making  
3 credits  
Offered By Announcement Only  
Business and public administration cases requiring identification of the legal, ethical, and social elements as well as the determination of the weight such elements should have in setting policy are discussed. Integration of law and ethics with public and business administration is also included.

BSL698 Selected Topics  
1- 3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.  
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIR.

COMPUTER INFORMATION SYSTEMS  
CIS550 Computer Information Systems Internship  
1- 3 credits  
Fall & Spring Semester & First & Second Summer Session  
Student is individually assigned to operating business firm or other organization to gain insight in information technology practice in the area of career interest. Periodic reports and conferences are required.  
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN. FOR CREDIT ONLY.

CIS590 Topics in Computer Information Systems  
1- 3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS591 Topics in Computer Information Systems  
1- 3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS592 Topics in Computer Information Systems  
1- 3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS593 Topics in Computer Information Systems  
1- 3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.

CIS594 Topics in Computer Information Systems  
1- 3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization.
CIS595 Topics in Computer Information Systems
1-3 credits
Topics in selected areas of specialization. Offered By Announcement Only

CIS596 Topics in Computer Information Systems
1-3 credits
Topics in selected areas of specialization. Offered By Announcement Only

CIS597 Topics in Computer Information Systems
1-3 credits
Topics in selected areas of specialization. Offered By Announcement Only

CIS598 Topics in Computer Information Systems
1-3 credits
Topics in selected areas of specialization. Offered By Announcement Only

CIS599 Topics in Computer Information Systems
1-3 credits
Topics in selected areas of specialization. Offered By Announcement Only

CIS610 Foundations of Management Information Systems
2 credits
Spring Semester
Course is designed to provide the foundations in management information systems required to understand and effectively use an enterprise-wide information system. Topics include the role of the CIO, managing Information Technology (IT) as a strategic resource, business process reengineering, IT planning, IT governance and communication, the Internet, and eBusiness.

CIS612 Enterprise Technologies
2 credits
Offered By Announcement Only
Course addresses the needs of business students who wish to expand their understanding of information technology fundamentals. Focusing upon their use in today's enterprises, the course aims to provide students with knowledge of a variety of technological concepts commonly used in the IT Organization's systems development initiatives and enables students to understand the implications of deploying such technologies within the enterprise.

CIS613 Business Intelligence Technologies
2 credits
Offered By Announcement Only
Course facilitates business decision makers in their understanding of data analysis tools that operate over data warehouses and 'data marts' more commonly referred to as Business Intelligence. Course focuses upon using technologies to drive effective data-driven decision making through effective mining of corporate data warehouses, thus improving operational efficiency and ultimately increasing profitability. Students are exposed to the concepts, analysis techniques, data cubes, and manipulation of information extracted from a data warehouse that enables the formulation and execution of business strategies. Data analysis case studies are used to reinforce students' understanding and strategic use of results to accomplish business objectives.
CIS616 IT Systems Modeling
2 credits
Offered By Announcement Only
Overview of the systems development life cycle (SDLC). Topics include concepts, tools, and techniques of systems analysis modeling with an emphasis on data and process modeling. Modeling is accomplished by using both structured and object-oriented tools and techniques. Students work in groups to model an application system for a business related problem using CASE tools.

CIS617 Information Technology Project Management
2 credits
Fall Semester
Course covers the identification and development of information technology plans for projects supporting the organization's business objectives and all activities required in the initiating, planning, executing, controlling, and closing phases of the project's lifecycle. Course is intended to provide the body of knowledge and best practices necessary for a new Consultant, Business Analyst or Project Manager to successfully perform his/her responsibilities on a wide variety of IT enterprise projects.

CIS618 IT Security for Managers
2 credits
Offered By Announcement Only
This course provides a systematic and practical approach for establishing, managing and operating a comprehensive Information Assurance (IA) program. It is designed to provide INFOSEC managers, IT managers, CIOs, Business owners, organizations that provide the outsourcing of IT, organizational senior and general managers with an understanding of the essential issues required to develop and apply a targeted information security posture for both public and private corporations and government-run agencies.

CIS620 Information Systems Analysis and Design
3 credits
Offered By Announcement Only
Overview of the systems development life cycle (SDLC). Topics include concepts, tools, techniques of systems analysis and design, data modeling, process modeling, prototyping, file/database design, physical process modeling, CASE tools, and the role of the system analyst in the organization. Students work in groups to analyze and design an application system for a business related problem.
PREREQUISITE: KNOWLEDGE OF A HIGH LEVEL PROGRAMMING LANGUAGE.

CIS621 Management Information Systems
3 credits
Offered By Announcement Only
Course is designed to give prospective managers a foundation in MIS sufficient to understand and effectively use information systems. Topics include types of information systems, role of MIS in organizations, CIO issues, ERP systems, and electronic commerce.

CIS630 Fundamentals of Local and Wide Area Networks
3 credits
Offered By Announcement Only
Course provides the graduate student the necessary knowledge to understand the design, integration, technologies, and services of local and wide area networks (LANs and WANs) in the business environment. Topics include signal transmission and propagation, standards and protocols, data communications media and devices, layered/encapsulated communications based on the hybrid TCP/IP-OSI standards, small and large-site PC LANs, Frame Relay, ATM, Virtual Private Networking (VPN), Telephony, Internet technologies, and network security.
CIS631 Computer and Network Security
3 credits
Offered By Announcement Only
Protection of computers and networks against unauthorized access, access control, encryption, firewalls, proxy, digital certificates, and software security are discussed.
PREREQUISITE: A HIGH-LEVEL PROGRAMMING LANGUAGE COURSE WITH A GRADE OF C OR BETTER AND CIS 630 (OR EQUIVALENT).

CIS640 Data Communications and Networking
3 credits
Offered By Announcement Only
Course addresses advanced topics in computer networks from the perspective of a business decision-maker. The course begins with a focus on signal propagation, media characteristics, and digital and analog encoding techniques. It continues with a study of datalink, network, and transport layer functions as defined by the OSI and TCP/IP models. The architecture of the Internet is explored and routing algorithms for wired, wireless, and peer-to-peer networks are introduced. Course concludes with a high-level overview of the top OSI layers. After taking the class the students should be able to critically evaluate network solutions based on the capabilities and limitations of the equipment.
PREREQUISITE: CIS 630 (OR EQUIVALENT) OR PERMISSION OF INSTRUCTOR.

CIS646 IT Planning and Project Management
3 credits
Offered By Announcement Only
Course covers the development of information technology strategic and tactical plans for projects supporting the organization's business objectives and project management as applied to planning, implementing, controlling networking, information systems and e-commerce projects. Course is intended to provide a body of knowledge necessary for a new Consultant or Project Manager to successfully initiate, plan, manage, control, and report on a variety of project types. People skills required in the areas of team selection, structure, conflict resolution, and leadership is also covered.
PREREQUISITE: A PRIOR GRADUATE LEVEL CIS OR IT COURSE.

CIS650 Advanced Topics in Database
3 credits
Offered By Announcement Only
In depth treatment of database design and performance, data administration, dictionaries, distributed database, database machines, and other current database topics.
PREREQUISITE: CIS 423 OR EQUIVALENT.

CIS660 Computer Information Systems Graduate Internship
1- 3 credits
Offered By Announcement Only
Student is individually assigned to an operating business firm or other organization to gain insight and experience in information technology practice in area of career interest. Periodic reports and conferences are required. This course can only be taken as "satisfactory/unsatisfactory."
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

CIS661 Introduction to Expert Systems for Management
3 credits
Offered By Announcement Only
An introduction to the fundamental techniques of Artificial Intelligence (AI) that are used in the creation of expert systems. The techniques include problems as game trees and knowledge engineering and management of expert system projects.
PREREQUISITE: A HIGH-LEVEL PROGRAMMING LANGUAGE COURSE WITH A GRADE OF C OR BETTER OR PERMISSION OF INSTRUCTOR.
SCHOOL OF BUSINESS ADMINISTRATION
COMPUTER INFORMATION SYSTEMS

CIS680 Topics in Computer Information Systems
3 credits
Topics in selected areas of specialization.
Offered By Announcement Only

CIS681 Topics in Computer Information Systems
3 credits
Topics in selected areas of specialization.
Offered By Announcement Only

CIS682 Topics in Computer Information Systems
3 credits
Topics in selected areas of specialization.
Offered By Announcement Only

CIS683 Topics in Computer Information Systems
3 credits
Topics in selected areas of specialization.
Offered By Announcement Only

CIS684 Topics in Computer Information Systems
3 credits
Topics in selected areas of specialization.
Offered By Announcement Only

CIS685 Topics in Computer Information Systems
3 credits
Topics in selected areas of specialization.
Offered By Announcement Only

CIS686 Topics in Computer Information Systems
3 credits
Topics in selected areas of specialization.
Offered By Announcement Only

CIS687 Topics in Computer Information Systems
3 credits
Topics in selected areas of specialization.
Offered By Announcement Only

CIS688 Topics in Computer Information Systems
3 credits
Topics in selected areas of specialization.
Offered By Announcement Only

CIS689 Topics in Computer Information Systems
3 credits
Topics in selected areas of specialization.
Offered By Announcement Only

CIS690 Directed Study in Computer Information Systems
1-3 credits
Investigation and research in special areas of interest. Offered by special arrangement.
PREREQUISITE: APPROVAL OF SUPERVISING PROFESSOR AND DEPARTMENT CHAIRMAN.
Offered By Announcement Only

CIS691 Directed Study in Computer Information Systems
1-3 credits
Investigation and research in special areas of interest. Offered by special arrangement.
PREREQUISITE: APPROVAL OF SUPERVISING PROFESSOR AND DEPARTMENT CHAIRMAN.
Offered By Announcement Only

CIS692 Directed Study in Computer Information Systems
1-3 credits
Investigation and research in special areas of interest. Offered by special arrangement.
PREREQUISITE: APPROVAL OF SUPERVISING PROFESSOR AND DEPARTMENT CHAIRMAN.
Offered By Announcement Only
CIS699 Directed Study

1- 3 credits Offered By Announcement Only
Offered by special arrangement.
PREREQUISITE: APPROVAL OF SUPERVISING PROFESSOR AND DEPARTMENT CHAIRMAN.

CIS710 Master's Thesis

1-6 credits Offered By Announcement Only
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

CIS725 Continuous Registration--Master's Study

0 credit Offered By Announcement Only
To establish residence for non-thesis master's students who are preparing for major examinations. Credit not granted. Regarded as full time residence.

CIS730 Doctoral Dissertation

1-12 credits Offered By Announcement Only
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor but not for less than a total of 24. Not more than 12 hours of CIS 730 may be taken in a regular semester, nor more than six in a summer session. Where a student has passed his/her (a) qualifying examinations, and (b) is engaged in an assistantship, he/she may still take the maximum allowable credit stated above.

CIS750 Research in Residence

0 credit Offered By Announcement Only
Used to establish research in residence for the Ph.D., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

ECONOMICS

ECO507 Taxation and Government Expenditure

3 credits Offered By Announcement Only
The incentive and equity effects of taxation and public expenditures. Efficiency aspects of various tax and expenditure programs and the application of cost-benefit analysis to such areas as health, education, and welfare programs, both domestic and foreign, are discussed.
PREREQUISITE: ECO 302.

ECO510 Mathematical Economics

3 credits Fall Semester
Introduction to mathematical techniques commonly employed in economic analysis. Topics include simultaneous linear equation systems, linear algebra, expansions of polynomials, logarithmic and exponential equations, differential calculus, and optimization theory. A substantial part of the course focuses on the comparative static analysis of both macroeconomic and microeconomic problems.
PREREQUISITE: A SEMESTER COURSE IN CALCULUS. ECO 301 AND 302.
ECO511 Labor Economics (II)  
3 credits  
Spring Semester  
A theoretical and empirical analysis of how labor markets operate. A survey of the literature, problems, and methodology of modern labor economics. Human capital analysis, the wage structure, job search and job-matching models, time-allocation models, the economic impact of labor unions, labor market discrimination, the determinants of labor demand and supply, and the factors affecting government policy relating to the labor sector is also included.  
PREREQUISITE: ECO 302.

ECO512 Mathematical Economics (II)  
3 credits  
Spring Semester  
Economics 512 will be sequential to the introductory Mathematical Economics I (ECO 510). Topics include integral calculus, differential equations, difference equations, Kuhn-Tucker conditions, solutions to general equilibrium systems, optimization under uncertainty, and an introduction to dynamic optimization. Applications of mathematical techniques to economic analysis will be stressed.  
PREREQUISITE: ECO 510 OR ITS EQUIVALENT.

ECO520 Econometrics  
3 credits  
Fall Semester  
Statistical methods of estimating and testing mathematical model of economic relationships.  
PREREQUISITE: ECO 301 AND 302, A COURSE IN STATISTICS AND PERMISSION OF INSTRUCTOR.

ECO521 Graduate Macroeconomic Theory  
3 credits  
Fall Semester  
The primary objective of this course is to introduce the student to the mathematical presentation of the major Classical, Neo-classical, Keynesian, and Neo-Keynesian macroeconomic models.  
PREREQUISITE: INTERMEDIATE MACROECONOMIC THEORY AND PERMISSION OF INSTRUCTOR.

ECO532 History of Economic Thought  
3 credits  
Offered By Announcement Only  
Historical development of economic doctrines and theory. Topics and individuals discussed include mercantilism, physiocracy, Adam Smith, Thomas Malthus, David Ricardo, J. S. Mill, Karl Marx, marginal analysis, Alfred Marshall, and J. M. Keynes. Special emphasis is placed on the effect of historical insights upon the contemporary core of economic theory.  
PREREQUISITE: ECO 301 AND 302.

ECO533 Advanced Microeconomic Theory  
3 credits  
Fall Semester  
An introduction to the mathematical approach to microeconomic theory. Topics include consumer/household behavior, the theory of the firm, resource allocation, welfare economics, and uncertainty theory.  
PREREQUISITE: ECO 302, AND PERMISSION OF INSTRUCTOR.

ECO545 Natural Resources Economics II  
3 credits  
Offered By Announcement Only  
This course surveys the economics of natural resource use, and is targeted to upper-division undergraduate and graduate students in economics. Topics include the economics of pollution control, the application of cost/benefit analysis to the marine environment, the economics of non-renewable and renewable resource extraction, and international environmental problems.  
PREREQUISITE: ECO 345 or MAF 502.
ECO586 Economics of Health
3 credits Offered By Announcement Only
A survey of the literature on the health care market. Economic theory is used to analyze public policy alternatives.
PREREQUISITE: ECO 302 OR 691, OR CONSENT OF INSTRUCTOR.

ECO603 Monetary Theory and Policy
3 credits Fall Semester
Current monetary theory and its use and application in fiscal and monetary policymaking. Topics include the rational expectations hypothesis, time inconsistency, and the role of the government budget constraint.
PREREQUISITE: ECO 621.

ECO604 Topics in Applied Macroeconomics
3 credits Offered By Announcement Only
Course acquaints students with current, substantive issues in macroeconomics. Topics include consumption determination, savings behavior, bequest behavior, fiscal policy effects on interest rates, consumption, real exchange rates, trade balances, and inflation.
PREREQUISITE: GRADUATE LEVEL MICROECONOMICS AND MACRO-ECONOMICS, AND AT LEAST ONE COURSE IN ECONOMETRICS OR CONSENT OF INSTRUCTOR.

ECO611 Labor Economics (III)
3 credits Offered By Announcement Only
The formulation and testing of models of labor markets. The application of the tools of microeconomics and econometrics to the analysis of labor markets. Leading contributions in the areas of dynamic analysis of labor markets, human capital investment, the determinants of the wage structure, time allocation and search models, dual and internal labor market models, and analysis of government policy are discussed.
PREREQUISITE: ECO 520, 633 AND 511 OR THE PERMISSION OF THE INSTRUCTOR

ECO620 Advanced Econometrics
3 credits Spring Semester
Advanced econometric methods including advanced techniques in multiple regression, Bayesian methods, maximum likelihood estimators, distributed lag models, spectral analysis, and Monte Carlo studies are discussed.
PREREQUISITE: ECO 520 OR PERMISSION OF INSTRUCTOR.

ECO621 Advanced Macro Analysis
3 credits Spring Semester
Theory of the determination of national income, employment, and price levels. Course emphasizes mathematical solutions of Classical, Keynesian, and other economic models.
PREREQUISITE: ECO 301 AND 302. A COURSE IN CALCULUS REQUIRED.

ECO625 Applied Econometrics
3 credits Fall Semester
Practical applications of econometrics are surveyed. Computer packages are used to examine economic data. Topics include the series analysis, limited dependent variable modes, pooling cross section and time series data, model selection, and rational expectations models.
PREREQUISITE: ECO 620.
ECO633 Advanced Micro Analysis
3 credits
Spring Semester
Theory of the behavior of firms and households and the determination of prices and resource allocation in a decentralized economy.

ECO634 Advanced Micro Analysis II
3 credits
Fall Semester
Continuation of ECO 633. Advanced analysis of theory of the household and firm emphasizing recent approaches. Analysis of decisions over time, duality relationships, advanced demand theory, risk and uncertainty, behavioral theories of the firm, and technological change are covered.
PREREQUISITE: ECO 633.

ECO635 Special Topics in Advanced Microeconomic Theory
3 credits
Spring Semester
Examination of situations where welfare economics associated with a perfectly competitive market must be modified and where non-market rationing devices are often used. Emphasis is placed on allocation structures that may supplement the market mechanism, such as: government, non-profit enterprises, and the family.
PREREQUISITE: ECO 621 AND 633.

ECO641 Problems of Economic Development
3 credits
Offered By Announcement Only
Economic change and growth in relation to theory and empirical evidence. Emphasis is placed on problems of actual vs. potential output and income of developing countries. Discussion of policies associated with promoting the full use of productive resources under various internal and external constraints is also included.

ECO642 Inflation and Financial Markets in Developing Countries
3 credits
Offered By Announcement Only
Monetary and financial aspects of economic development and stabilization policies in the Third World. Topics include rural financial markets, savings mobilization, effects of interest rate restrictions, and the political economy of financial policies in Third World countries.
PREREQUISITE: INTERMEDIATE ECONOMICS; ECO 301; 302; OR PERMISSION OF INSTRUCTOR.

ECO660 International Trade
3 credits
Offered By Announcement Only
The theory and practice of international trade. Comparative advantage, tariffs, quotas, non-tariff barriers (NTBs) to trade, and the regulatory framework (GATT/WTO, the US Harmonized Tariff Schedule, customs clearance procedures, special trade regimes free-trade zones, bonded warehouses, and letters of credit) are discussed.
PREREQUISITE: ECO 660 OR EQUIVALENT BY WAIVER.

ECO661 International Economics II
3 credits
Spring Semester
Continuation of ECO 660. Modern developments in pure trade theory, international factor movements, the external adjustment mechanism, policies for external and internal balance, trade and growth, and recent developments in international monetary relations are discussed.
PREREQUISITE: ECO 660.
ECO665 Economic Analysis of Law
3 credits Offered By Announcement Only
Economic analysis of the evolution, nature, and consequences of the law, including
liability rules, contractual and exchange relations, and remedies.

ECO675 Economic Problems of Latin America
3 credits Offered By Announcement Only
Analysis of the economic, political, and social forces at work in the changing
economies in Latin America.

ECO680 Essentials of Economics
2 credits Fall Semester
Course provides an introduction to the core concepts of economics. Topics include
allocation of scarce resources by the laws of supply and demand, use of the market
place as the principle organizing and distribution tool of the economy, externalities,
and market failure. Pollution of the environment is treated as a needed correction
to be done by public regulation through taxation and legislation. The principal
forms of firm organization and dissolution are also discussed. Applications of
the laws of supply and demand are made to forecasting demand and analyzing cost
structure. The entry and exit of firms and the valuation of the firm is also covered.

ECO681 Directed Readings
1-3 credits Offered By Announcement Only

ECO682 Macroeconomics
1 credits Offered By Announcement Only
Course topics include the definition and measurement of full employment, price
stability, economic growth, and Gross National Product. The definition and rationale
for anti-inflationary and anti-recessionary fiscal and monetary policy is also
covered.
PREREQUISITE: EXECUTIVE MBA ONLY.

ECO685 Managerial Decisions in a Global Economy
2 credits Fall Semester
Modern techniques of economic analysis and decision science are applied management
of the firm in a global environment. Business planning and the determinants of
supply and demand are an integral part of the course. The principal forms of business
organization and dissolution are reviewed. The major issues confronted by the
firm: Principal-agent problem (or how to motivate managers to act in the best
interest of the owners, the shareholders), moral hazard, discounting of free cash
flow and terminal value, economies of scale and scope, and strategic management
decision making are covered.

ECO687 Health Care Organization, Economics, and Ethics
3 credits Offered By Announcement Only
Course provides insight into organizational and behavioral aspects of various sectors
and agents within the health care industry. Understanding how such aspects affect
performance measured in terms of both economic and ethical criteria is included.
PREREQUISITE: FOR MBA HEALTH ADMINISTRATION STUDENTS.
ECO690 Essentials of Economic Theory
3 credits                    Fall & Spring Semester & First & Second Summer Session
An economic study of the environment in which the decision making process takes place in management and the functional areas. Structured especially for students without an undergraduate background in economics. Credit not applicable toward 36-credit professional MBA component.

ECO691 Managerial Economics
3 credits                    Fall & Spring Semester & First & Second Summer Session
Application of economic analysis to the formulation and solving of management problems and the determination of business policy.
PREREQUISITE: ECO 690 OR EQUIVALENT AND MAS 110 OR EQUIVALENT.

ECO698 Selected Topics
3 credits                    Fall & Spring Semester & First & Second Summer Session
Topics in selected areas of specialization.

ECO710 Master's Thesis
1-6 credits                 Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

ECO720 Research in Residence
0 credit                     Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in ECO 710 (usually six credits). Credit not granted. May be regarded as full time residence.

ECO725 Continuous Registration--Master's Study
0 credit                     Fall & Spring Semester & First & Second Summer Session
To establish residence for non-thesis master's students who are preparing for major examinations. Credit not granted. Regarded as full time residence.

ECO730 Doctoral Dissertation
1-12 credits                 Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor but not for less than a total of 12. Not more than 12 hours of ECO 730 may be taken in a regular semester, nor more than six in a summer session. Where a student has passed his/her (a) qualifying examinations, and (b) is engaged in an assistantship, he/she may still take the maximum allowable credit stated above.

ECO740 Research Project
1-6 credits                  Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Doctor of Arts degree. Student enrolls for credit as determined by advisor. Credit is not awarded until the doctoral project has been accepted. Total enrollment may not exceed six credits.

ECO750 Research in Residence
0 credit                     Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D. and D.A., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.
ECO760 The Theory of International Trade  
3 credits  
Fall Semester  
PREREQUISITE: ECO 533, 633.

EXECUTIVE & SPECIAL PROGRAMS

ESP500 Review Module  
0 credit  
Fall Semester  
A non-credit review session to provide students with the skills necessary to prepare for the successful completion of the common body of knowledge courses.

ESP501 Fundamentals of Accounting  
3 credits  
Spring Semester  
The generally accepted principles governing the preparation of financial reports, the use of accounting information systems in collecting financial, and cost data used in investment decisions and controlling an enterprise are discussed.  
PREREQUISITE: LIMITED TO STUDENTS IN OVERSEAS PROGRAMS.

ESP510 Introduction to Business Statistics  
3 credits  
First Summer Session  
Data analysis, probability concepts, distributions, sampling, estimation, hypothesis testing, simple and multiple regression, and correlation analysis are discussed.  
PREREQUISITE: LIMITED TO STUDENTS IN OVERSEAS PROGRAMS.

ESP521 Introduction to Information Systems  
3 credits  
Offered By Announcement Only  
Computer information system concepts, including spreadsheets, data management, and word processing.  
PREREQUISITE: LIMITED TO STUDENTS IN OVERSEAS PROGRAMS.

ESP551 Organizational Behavior  
3 credits  
Spring Semester  
Exploration of relevant concepts, research findings and pragmatic implications of the behavioral sciences for the management of complex socio-technical systems.  
PREREQUISITE: LIMITED TO STUDENTS IN OVERSEAS PROGRAMS.

ESP560 Fundamentals of Marketing  
3 credits  
Fall Semester  
Marketing problems experienced by top executives are examined. Fundamental problem-solving concepts are developed. Students consider problems of consumer needs, product planning, promotion, distribution, and pricing. The discovery and application of marketing management skills are developed through the use of cases and a major planning project.  
PREREQUISITE: LIMITED TO STUDENTS IN OVERSEAS PROGRAMS.

ESP590 Macro- and Microeconomics  
3 credits  
First Summer Session  
An economic study of the environment in which the decision-making process takes place in management and the functional areas. Course is structured especially for students without an undergraduate background in economics.  
PREREQUISITE: LIMITED TO STUDENTS IN OVERSEAS PROGRAMS.
ESP601 MBA Math Module
0-3 credits Offered By Announcement Only
This course provides the student with the necessary mathematical skills to progress toward an MBA degree. The course begins with a review of algebra and continues with the fundamentals of differential and integral calculus. The focus is on applying these concepts in solving business problems.
PREREQUISITE: LIMITED TO STUDENTS IN THE EXECUTIVE M.B.A. PROGRAMS.

ESP700 Internship Directed Research
3 credits Offered By Announcement Only
This course consists of a directed research done by the student within the company/country where his/her internship is practiced. The study will be supervised and graded by a faculty member. Project requires in-depth research into the company, its role in globalization, and the culture's role in the company structure and purpose.

ESP730 Doctoral Dissertation.
1-6 credits Fall & Spring Semester & First & Second Summer Session
Required for all candidates for the Ph.D. program. The student will enroll for credit as determined by his/her advisor, but not for less than a total of 12. Not more than 12 hours of ESP 730 may be taken in a regular semester, nor more than six in a summer session.
PREREQUISITE: NONE

ESP734 Research Project
1-6 credits Fall & Spring Semester & Second Summer Session
Individually supervised research project in selected field. Scope of work must be approved by supervision instructor prior to registration. Total enrollment may not exceed six credits.

ESP735 Research Project
1-6 credits Offered By Announcement Only
Required of all candidates for the Add-On Master of Business Administration degree. Credit is not awarded until the project has been accepted. Total enrollment may not exceed six credits (option 1). Available to those students who have selected option 1 curriculum.
PREREQUISITE: MUST HAVE COMPLETED THE MASTER OF SCIENCE IN PROFESSIONAL MANAGEMENT PROGRAM.

ESP736 Research Project
1-6 credits Offered By Announcement Only
Required of all candidates for the Add-On Master of Business Administration degree. Credit is not awarded until the project has been accepted. Total enrollment may not exceed six credits. May be regarded as full-time residence as determined by the Dean of the Graduate School. Available to those students who have selected option 2 curriculum.
PREREQUISITE: MUST HAVE COMPLETED THE MASTER OF SCIENCE IN PROFESSIONAL MANAGEMENT PROGRAM.
FIN590 Internship
1 credits
Offered By Announcement Only
Student is individually assigned to operating business firm or other organization to gain insight into management practice in area of career interest. Periodic reports and conferences are required. Approval of department is required at time of registration. Note: FIN 590 is an elective and is not for credit toward the major.
PREREQUISITE: FIN 303, 320 AND PERMISSION OF DEPARTMENT CHAIRMAN. REQUIRES DEPARTMENTAL APPROVAL. NOTE: DOES NOT COUNT AS CREDIT TOWARDS MAJOR.

FIN599 Directed Study
3 credits
Offered By Announcement Only
Individually supervised research projects in selected finance topics. Approval of the Chairperson and advisor is required prior to registration.
PREREQUISITE: FIN 302, 320. REQUIRES DEPARTMENTAL APPROVAL.

FIN602 Fundamentals of Finance
3 credits
Fall & Spring Semester & First Summer Session
This is a core MBA course, devoted primarily to the area of finance. No prior background in finances is assumed. The course objective is to provide students with a conceptual framework for appreciating and understanding the problems facing the financial manager.
PREREQUISITE: PRINCIPLES OF ECONOMICS, STATISTICS AND FINANCIAL ACCOUNTING.

FIN603 Advanced Corporate Finance
3 credits
Fall & Spring Semester & First Summer Session
Applications in corporate finance. This class builds on the core MBA courses in our executive MBA program, especially Fundamentals of Finance (Finance 602). Topics include working capital management, financial planning, basic option valuation, agency theory, capital structure management, mergers and acquisitions, liabilities management and leasing. Note: required for Finance concentration.
PREREQUISITE: FIN 602.

FIN604 Cases in Corporate Finance
3 credits
Offered By Announcement Only
A case course in the financial management of cash, accounts receivable, inventory, fixed assets, working capital, and capital structure.
PREREQUISITE: FIN 603.

FIN605 Corporate Financial Planning and Strategy
3 credits
Offered By Announcement Only
Strategic planning during periods of volatile business and monetary conditions. Includes understanding why these conditions exist and how to deal with the effect of inflation, demographic trends, and business cycle on practical business decisions.
PREREQUISITE: FIN 603.

FIN611 Commercial Banking Theory
3 credits
Offered By Announcement Only
The theory of operation of a successful commercial bank. The interrelation of various departments, loan and investment mix, marketing and public relations, statement preparation, reserves management, audit and examination, and deposit analysis of a commercial bank. The effect of business cycles, location, and the regulatory agencies upon a commercial bank are also analyzed.
PREREQUISITE: FIN 602.
FIN612 Money and Capital Markets
3 credits  Offered By Announcement Only
Course topics include money and capital markets, their composition, regulation, the influence of the money and capital markets in modern business, source of funds and their use, certificates of deposit, treasury securities, commercial paper, banker's acceptances, bank loans, the bond market, and central banks and their operation. Emphasis is placed on the Federal Reserve and its monetary policies.
PREREQUISITE: FIN 602.

FIN615 Financial Planning I
3 credits  Offered By Announcement Only
Fundamentals of personal financial planning for accountants. Overview of the financial planning process including regulation and ethical considerations. Introduction to tax planning, insurance planning, investment planning, retirement planning, and estate planning is also included.

FIN616 Financial Planning II
3 credits  Offered By Announcement Only
This course extends the knowledge gained in Financial Planning I to enable the accountant-financial planner to analyze a client's insurance needs with respect to an overall financial plan. Includes a study of risk management, employee health, and welfare plans.
PREREQUISITE: FINANCIAL PLANNING I

FIN620 Investment Analysis
3 credits  Fall Semester
This course deals with theory and application of investment analysis. Topics include general stock trading, portfolio and risk-return theory, models of stock valuation, portfolio diversification, market efficiency, options and futures, bond valuation and bond portfolio strategy, general commodity investing, and personal financial planning.
PREREQUISITE: FIN 602.

FIN621 Portfolio Construction and Management
3 credits  Offered By Announcement Only
The evolution of portfolio theory and practice and its role in modern investment management. Individual constraint models within the general capital market theory are included as well as empirical evidence, theoretical discussion, and practical exercises.
PREREQUISITE: FIN 602, 620.

FIN622 Financial Options and Futures
3 credits  Offered By Announcement Only
Study of the theoretical development of models for pricing contingent claims in the field of finance. Application of theoretical results to the hedging of current and future assets and liabilities and to speculative strategies for the risk-averse, profit-maximizing entity are included.
PREREQUISITE: FIN 602, 620.
FIN630 International Finance
3 credits
Offered By Announcement Only
The financing of international trade and capital placements. Restrictions on capital retrieval and problems of international liquidity related to the U.S. and non-U.S. firms is discussed as well as current developments in international banking, theory, and policy. Cases involving foreign capital commitments and transactions, especially Latin America are also included.
PREREQUISITE: FIN 602.

FIN631 International Financial Management
3 credits
Offered By Announcement Only
Sources and uses of long and short term capital for international business applications and foreign currency markets. Financial decisions associated with international cash and capital budgeting, capital repatriation and taxation strategies, capital exposure and coverage, and multinational firm financial strategies are discussed.
Lectures and cases are included.
PREREQUISITE: FIN 630.

FIN641 Valuation and Financial Decision Making
2 credits
Fall & Spring Semester
Basic financial valuation. This is one of the core classes in finance for our regular MBA program. Topics include the financial environment; the time value of money; capital market efficiency; basic security valuation; risk, return and asset pricing; cost of capital; and an introduction to capital budgeting.

FIN642 The Financial Environment
2 credits
Fall & Spring Semester
A continuation of FIN 641. Topics include an introduction to the global securities markets and foreign exchange, basic derivatives, real options, the securit trading process, fixed income securities markets, the term structure, investment banking, and short-term financial management and planning.
PREREQUISITE: FIN 641.

FIN644 Real Estate Investment and Appraisal
3 credits
Fall Semester
This course will introduce you to the theoretical concepts and analytical techniques used to make a decision to purchase an ownership interest in a commercial real estate project. There is heavy reliance on Excel applications and the use of the Argus database that is a standard resource in the commercial real estate market.
PREREQUISITE: FIN641 OR SCORE OF 80% OR ABOVE ON FIN641 WAIVER EXAM

FIN645 Real Estate Finance
3 credits
Spring Semester
This course will introduce you to the theoretical concepts and analytical techniques used to make a decision to loan money for the purchase or development of a commercial real estate project.
PREREQUISITE: FIN641 OR SCORE OF 80% OR ABOVE ON FIN641 WAIVER EXAM

FIN650 Financial Investment
2 credits
Fall & Spring Semester
This course builds on FIN 641 and FIN 642 to provide a more advanced knowledge of the field of investments, particularly the fixed income markets, portfolio construction, asset pricing, and behavioral biases affecting financial decisions.
PREREQUISITE: SECOND YEAR MBA STATUS. FIN 641
FIN651 Advanced Topics in Investments
2 credits
Fall & Spring Semester
This course is about applying finance theory to the practice of investments. Topics include building a term structure model, building a fixed income portfolio, performance standards and measurement, and the role of futures and options in portfolios.
PREREQUISITE: FIN 650. SECOND YEAR MBA STATUS.

FIN660 International Finance
2 credits
Fall & Spring Semester
Finance 660 builds on Finance 641 and 642, and introduces students to the concepts that are important in today's dramatically changing global economy. The course covers the international monetary system; the interrelationship between national economies through the balance of payments; the economic relationships that determine a currency's value relative to other currencies and real goods; the markets and instruments of international finance; currency crises and contagion; the hedging of international risk exposure; and international portfolio investment.
PREREQUISITE: FIN 641, 642. SECOND YEAR MBA STATUS.

FIN661 Advanced Topics in International Finance
2 credits
Fall & Spring Semester
Finance 661 builds directly on Finance 660 and on the MBA core classes, Finance 641 and 642, using a variety of techniques, including group projects and class discussion. A number of special topics are covered including measuring and managing the many additional risk exposures faced by a multi-national enterprise, investment decisions in a global framework, and financing the multi-national firm.
PREREQUISITE: FIN 641, 642. SECOND YEAR MBA STATUS.

FIN670 Corporate Finance
2 credits
Fall & Spring Semester
Finance 670 builds on Finance 641 and 642 and focuses on financial decision making from a corporation's perspective. Issues addressed include capital structure, management of corporate liabilities, leasing and other asset-based financing techniques, advanced treatment of capital budgeting and some of the complex issues involved, and corporate mergers and acquisitions.
PREREQUISITE: FIN 641 AND 642. SECOND YEAR MBA STATUS.

FIN671 Advanced Topics in Corporate Finance
2 credits
Fall & Spring Semester
This course builds directly on Finance 670 and on the MBA core classes, Finance 641 and Finance 642, and relies mainly on the analysis and vigorous class discussion of a variety of real-world cases. The cases cover a broad range of topics, including short-and long-term financing, capital budgeting decisions, corporate valuation, hedging with options and futures, dividend policy and share repurchases, corporate financial strategy, and other current issues in corporate finance.
PREREQUISITE: FIN 670. SECOND YEAR MBA STATUS.

FIN674 Financial analysis of mergers and acquisitions
2 credits
Fall Semester
This course is designed to develop an understanding of (1) the economic and financial issues involved in the acquisition of a company; (2) the analytical valuation tools used to evaluate an acquisition; and (3) potential and empirical stock market reaction to an acquisition. Students are then asked to apply their understanding of the issues to analyze cases involving various aspects of acquisition.
PREREQUISITE: FIN 670, FIN 642, FIN 641
FIN681 Financial Institutions  
2 credits  
Fall & Spring Semester  
Finance 681 builds on Finance 641 and 642 and focuses on the management of financial institutions, such as banks. Topics include risk management, deposits and deposit insurance, liquidity, reserve requirements, capital adequacy, liability management, investment interest rate risk, and current issues connected with financial institutions. 
PREREQUISITE: FIN 641, 642. SECOND YEAR MBA STATUS.

FIN685 Mathematics of Financial Derivatives  
2 credits  
Fall & Spring Semester  
Finance 685 builds on Finance 650, 660, and 670. This course provides an in-depth mathematical treatment of derivatives and is divided into three parts: (1) options; (2) futures and forwards; and (3) other derivative instruments, which include options on futures, foreign currency derivatives, swaps, exotic options, and financial engineering. The emphasis is placed on equity instruments, although there is also some coverage of short- and long-term interest bearing instruments. 
PREREQUISITE: FIN 650, 660, 670. SECOND YEAR MBA STATUS.

FIN698 Selected Topics in Finance  
3 credits  
Offered By Announcement Only  
Topics in selected areas of specialization. 
PREREQUISITE: FIN 602.

FIN699 Directed Readings and Study  
1-3 credits  
Offered By Announcement Only  
Individually supervised research or reading projects in selected fields. Evaluation of project and subject by the supervising professor is required at the time of registration. 
PREREQUISITE: FIN 602.

FIN700 Doctoral Seminar in Finance Theory  
3 credits  
Offered By Announcement Only  
The purpose of this seminar is to provide doctoral students in economics and business with a rigorous introduction to the theory of finance. 
PREREQUISITE: MBA, MS OR APPROVAL OF DEPARTMENT.

FIN705 Doctoral Seminar in Corporate Finance  
3 credits  
Offered By Announcement Only  
The purpose of this seminar is to provide doctoral students with a comprehensive review of theory, empirical methods, and results in the area of corporate finance. 
PREREQUISITE: MBA, MS OR APPROVAL OF DEPARTMENT.

FIN720 Doctoral Seminar in Investments  
3 credits  
Offered By Announcement Only  
The purpose of this seminar is to provide doctoral students with a comprehensive review of theory, empirical methods, and results in the area of investments. 
PREREQUISITE: MBA, MS OR APPROVAL OF DEPARTMENT.

MANAGEMENT  

MGT538 Labor-Management Relations  
3 credits  
Offered By Announcement Only  
Legal and institutional framework of labor relations both in the United States and globally. Topics include labor law, collective bargaining, contract administration, arbitration, and NLRB regulation. Additional emphasis is placed on dispute resolution, grievance machinery, and other methods of alternative dispute resolution. 
PREREQUISITE: UNDERGRADUATE MGT 302 + JUNIOR STANDING. GRADUATE MGT 602.
MGT540 Behavioral Aspects of Productivity
3 credits
Offered By Announcement Only
Productivity management impacts organizational strategy, efficiency, quality, and survival. Course examines these varied impacts and discusses the managerial issues related to productivity measurement, organizational values, incentives, gainsharing, motivation, organizational change, gainsharing, motivation, organizational change, and organizational politics. Course is taught from behavioral and systems theory viewpoints, focusing on how behavioral change impacts system productivity. Course is multidisciplinary and supplemented with examples of corporate applications.

MGT545 Self-Assessment and Career Development
3 credits
Offered By Announcement Only
Course provides a framework for individuals facing the complex process of making career decisions. Emphasis is placed on self-assessment to help students better understand their career motivations. Additional topics include job searches, interviewing, analyzing, choosing job offers, managing the first year on the job, developmental relationships such as mentoring, the early career experience, and managing a career over time.
PREREQUISITE: MGT 304 + SENIOR STANDING.

MGT550 MGT Internship
1 credits
Fall & Spring Semester & First & Second Summer Session
Student is individually assigned to operating business firm or other organization to gain insight into management practice in area of career interest. Periodic reports and conferences are required. Cannot be used toward major requirements.
PREREQUISITE: MAJOR/SPECIALIZATION IN MGT DEPARTMENT, MINIMUM 3.0 GPA, AND DEPARTMENT CHAIR APPROVAL PRIOR TO REGISTRATION.

MGT598 Selected Topics
3 credits
Fall & Spring Semester & First & Second Summer Session
Topics in selected areas of specialization.

MGT599 Directed Study
1-6 credits
Fall & Spring Semester & First & Second Summer Session
Individually supervised research projects in selected fields. Approval of supervising professor as to topic and evaluation of project required at time of registration. Only open to undergraduate students.
PREREQUISITE: SENIOR STANDING + MAJOR IN MGT DEPARTMENT.

MGT600 Managing Responsible Behavior in Organizations
3 credits
Fall & Spring Semester & First & Second Summer Session
For Executive MBA students only. Course covers organizational behavior and utilizes cases and lectures to explore topics such as personality, motivation, leadership, group processes, organizational structure/design, and social responsibility.
PREREQUISITE: EXECUTIVE MBA STATUS.

MGT602 Human Resource Management
3 credits
Fall & Spring Semester
Modern personnel administration: job analysis and design, evaluation and appraisal, recruitment and interviewing, training and development, wages and benefits, and health and safety. Unionization, regulation of wages, hours and working conditions, financial security for workers, job anti-discrimination legislation, and manpower planning is also discussed.
MGT603 Leading Teams  
3 credits  
Fall & Spring Semester  
The objectives of this course are to develop interpersonal communication and conflict management skills necessary to work in teams and/or exercise leadership in teams. Topics include team development, decision making, and diagnosing team process issues.  
PREREQUISITE: MGT 651.

MGT620 Managing Through People  
2 credits  
Fall & Spring Semester  
This core course in the MBA program introduces students to some of the key behavioral topics necessary to manage oneself and others in organizations. Specifically, the topics covered include individual attributes (personality, perception, motivation, relationship building), group processes (norms, roles, and team basics), leadership views, and organizational culture/change. An understanding of the relationship between each of these areas and organizational outcomes is enhanced through lecture, cases, and interactive exercises.  
PREREQUISITE: FULL-TIME MBA STATUS.

MGT621 High Performance Leadership  
2 credits  
Fall & Spring Semester  
Leadership skills are critical for high performing organizations. Course utilizes lecture, cases, exercises, self-assessments, and contemporary reading materials to present leadership approaches that both motivate and enable employees to perform beyond normal or ordinary expectations. Topics include followership and organizational culture, power, influence, rewards and punishments, path-goal and exchange theories, participation and empowerment, charismatic and transformational leadership, and contingency and cognitive resources theory.  
PREREQUISITE: FULL-TIME MBA STATUS; SPECIALIZATION IN LEADING THE HIGH PERFORMANCE ORGANIZATION.

MGT622 High Performance Teams  
2 credits  
Fall & Spring Semester  
This elective course highlights how to manage and construct effective teams to achieve strategic goals. Team-based organizations have been created to enhance organizational performance. The benefits of effective team leadership are performance beyond expectations and enhancement of learning for employees. Topics covered include team decision-making, team leadership, diversity in teams, conflict resolution, and team creativity.  
PREREQUISITE: FULL-TIME MBA STATUS; SPECIALIZATION IN LEADING THE HIGH PERFORMANCE ORGANIZATION.

MGT623 Human Resource Systems  
2 credits  
Fall & Spring Semester  
Leaders must manage their human resource assets effectively to achieve high performance organizations. Course topics include recruitment and selection of high performance employees, designing performance appraisal systems, implementing policies to satisfy legal issues impacting human resources, and instituting training/development systems.  
PREREQUISITE: FULL-TIME MBA STATUS; SPECIALIZATION IN LEADING THE HIGH PERFORMANCE ORGANIZATION.
MGT625 Entrepreneurship: Creating New Ventures  
2 credits  
Fall & Spring Semester  
This is a two-credit course for MBA students (only). The course is designed to help students understand the basic essentials for creating a new venture. Among some of the topics covered will be: preparation of a business plan, securing sources of capital, choosing and creating appropriate distribution channels, and understanding the complexities of selecting a management team. Students will be required to critique and develop business plans as a key evaluation component for this course.  
PREREQUISITE: MBA STANDING.

MGT643 Principles of Operations Management  
2 credits  
Fall & Spring Semester  
Introduction to operations management, forecasting, process analysis, aggregate planning, capacity management, waiting line management, system design, quality management, and inventory management.  
PREREQUISITE: FULL-TIME MBA STATUS.

MGT645 Principles of Supply Chain Management  
2 credits  
Fall & Spring Semester  
Course introduces students to the business discipline of Supply Chain Management (SCM) which centers on concepts and techniques that enables firms to better coordinate material and information flows, and non-material activities associated with logistical and marketing processes that occur within and across organizations. Course also discusses concepts and recent influential innovations in SCM (e.g., Cross-Docking, Vendor Managed Inventory (VMI), Third-Party Logistics (3PL), Efficient Consumer Response (ECR), and Quick Response (QR)).  
PREREQUISITE: MGT 643, MAS 632. SECOND YEAR MBA STATUS.

MGT651 Behavioral and Organizational Systems  
3 credits  
Fall & Spring Semester  
Exploration of relevant concepts, research findings, and pragmatic implications of the behavioral sciences for the management of complex socio-technical systems.

MGT652 Organizational Theory  
3 credits  
Offered By Announcement Only  
Concepts of contingency and systems management applied to contemporary organizations. The integrative function of management in terms of situational and environmental factors and analysis of selected organizational types is also included.  
PREREQUISITE: MGT 651.

MGT653 Operations Management  
3 credits  
Fall & Spring Semester  
Introduction to major managerial problems and decision processes of operations management. Topics include the design of operations, planning, scheduling, quality control, systems analysis and evaluation, resource allocation, materials requirement planning, and integration of operations management with the other functional areas.

MGT654  
3 credits  
Fall & Spring Semester  
PREREQUISITE: MGT 653.
MGT655 Research Methods

3 credits
Offered By Announcement Only
Course addresses the fundamentals of research in business including exploratory
designs, correlational and multivariate designs, experimental and non-experimental
studies, measurement theory, internal and external validity considerations, and
ethical requirements in conducting organizational research.
PREREQUISITE: MGT 656 AND DOCTORAL STUDENT STANDING.

MGT656 Seminar: Organizational Behavior

3 credits
Offered By Announcement Only
Seminar addresses the current research and theoretical foundations in organizational
behavior. Topics include individual attributes, job attitudes, leadership, motivation,
and group processes.
PREREQUISITE: DOCTORAL STUDENT OR PERMISSION OF INSTRUCTOR.

MGT657 International Supply Chain Management

3 credits
Offered By Announcement Only
This MBA course is designed to provide a broad overview of supply chain management
from an international perspective. This overview will include topics such as international
air transportation and issues such as channel intermediaries and documentation
from an international outlook.
PREREQUISITE: MBA STANDING.

MGT658 Strategic Management

3 credits
Fall & Spring Semester
The formulation and implementation of strategy, from a domestic and international
perspective, is explored through cases, readings, and decision simulation. An integration
of all the core areas of business is emphasized. This core course is required of
all MBA students.
PREREQUISITE: GRADUATING SEMESTER MBA STUDENTS ONLY.

MGT659 Management of Multinational Enterprise

3 credits
Fall & Spring Semester
Analysis of the management tasks confronting managers operating in the international
arena presented from both an environmental and an operational perspective. Alternatives
for overall corporate policy and strategy that accommodate global operations is
also included.

MGT660 Leadership and Motivation in Organizations

3 credits
Fall & Spring Semester & First Summer Session
Selected topics pertaining to leadership, motivation, and individual processes
are surveyed through selected readings, class discussions, and a guided research
project. Students' ability to conceptualize, integrate, and apply diverse approaches
to the leadership and motivation of people in organizations is emphasized.
PREREQUISITE: MGT 600 OR MGT 651 OR EQUIVALENT.
MGT661 Influence, Power and Politics in Organizations
3 credits Offered By Announcement Only
One of the basic realities of organizational life is that people continually attempt to control the actions of others and to successfully influence their behavior. This reality leads to a wide array of organizational politics aimed at enhancing one's own or one's group's personal agendas. This course focuses on preparing graduate business students for the challenges and "realities" they will ultimately face as managers. Given that most business students will eventually be leading the efforts of others, it is essential that they understand how to acquire power and exercise power within ethical bounds.
PREREQUISITE: MGT 651 OR EQUIVALENT.

MGT662 Managerial Judgment and Decision Making
3 credits Offered By Announcement Only
Decision-making methods are explored with an emphasis on the natural way managers make predictive judgments and exercise choice. The goal is to help students learn to make better decisions.

MGT665 Managing Cultural Differences
3 credits Offered By Announcement Only
Course is designed to help students develop the skills and attitudes necessary to work successfully in a multinational corporation or foreign environment. Students are exposed to conceptual frameworks for understanding various cultural patterns, and apply such frameworks through team and individual learning exercises.
PREREQUISITE: REQUIRED COURSE FOR THE MIBS PROGRAM

MGT670 Selection of Human Resources
3 credits Offered By Announcement Only
Approaches to the identification of high-performing individuals with focus on conceptual issues and the current legal, economic, and societal context within which human resource selection occurs. Emphasis is placed on practical techniques as well as the application of key concepts to real problems of human resource selection.
PREREQUISITE: MGT 602

MGT671 The Management of Innovation
3 credits Offered By Announcement Only
Course is designed for those students who see themselves in settings where they have to develop new products or processes, or who must implement change in existing products or processes. The management of innovation requires the creative synthesis of several functional areas and this course integrates literature and perspectives from strategy/policy, organization behavior, marketing, the management of research, development, and engineering. The course emphasizes research and practice. Each topical area is covered by both content material and case studies. Students are expected to have actively read the case and content material and are urged to participate in class discussion.
MGT675 Business Policy and Strategy
2 credits  Fall & Spring Semester
The objectives of the course are to improve the student's ability to think strategically and to provide an intellectual framework that enhances understanding of the MBA program. The course focuses on relationships among the firm, its strategy, and its environment; why firms choose certain businesses; which business strategies are successful; and how firms can change in response to a dynamic environment. Models for strategic formulation, implementation, and control are developed that facilitate an integrated understanding of the courses that comprise the MBA curriculum. Readings and lectures illustrate strategic management theories and frameworks while case discussions, experiential exercises, and team projects provide opportunities for application.
PREREQUISITE: FULL-TIME MBA STATUS.

MGT677 Corporate Strategy and Organization
2 credits  Fall & Spring Semester
This capstone course focuses on the perspective and skills of the general manager. Its purpose is to provide practice in diagnosing and identifying realistic solutions to complex strategic and organizational problems. Course builds on previous coursework by providing an opportunity to integrate various functional areas by providing a total business perspective. Since the course focus is on pragmatic, action-oriented general management skills, the course is taught primarily through the case method and requires both written analyses and case presentations.
PREREQUISITE: FULL-TIME MBA STATUS.

MGT678 Advanced Business Policy and Strategy
3 credits  Offered By Announcement Only
Current topics in strategic planning, implementation, and control are discussed. The goal is to provide students with the most up to date applications in strategic management. For advanced master's and doctoral candidates.
PREREQUISITE: MGT 658.

MGT679 Merger and Acquisition Strategies
0-2 credits  Fall Semester & Second Summer Session
This course examines the merger and acquisition growth of two sets of actors. First, it focuses on "financial buyers" (hedge funds, leveraged buy-out groups, private equity funds) that acquire with the intention of divesting the asset at a profit in the near or medium term. Second, it focuses on "strategic buyers" (corporations or companies) that acquire with the intention of operating the acquired asset as a stand-alone business or by integrating it into an on-going operation or set of businesses. The course utilizes lectures, case discussions, presentations, and guest speakers to examine issues of strategy formulation and subsequent execution.

MGT680 DOING BUSINESS IN CHINA
2 credits  Fall & Spring Semester
This course explores various business and management issues faced by international executives who are interested or active in various industries and markets in China, aiming to improve their understanding of this largest emerging market in the world. several case studies of business organizations and industries are used throughout the course. Emphasis of the course material and class discussion is on critical thinking, solutions, to problems, and evaluating different options.
MGT681 Essentials of Health Care Management and Policy  
3 credits  Offered By Announcement Only  
This course develops an understanding of the basic elements of the health Services industry in the United States. A systems approach will be used utilizing a historical perspective as a basis and moving on to current and potential future system dynamics. The various components of the health care system will be examined, including physician services, hospital and hospital systems, long-term care providers, mental health services, and pharmaceutical services. Various elements associated with the financing of health services will be examined as well as indemnity insurance, capitation, and the role of managed care and consumer driven health care in theory and practice. The role of government and its impact on our health care system will be explored as well.

MGT682 Issues in Health Care Administration  
3 credits  Offered By Announcement Only  
A seminar on current problems and issues in health care administration.

MGT683 Applied Health Planning  
3 credits  Offered By Announcement Only  
Theories and methods of health planning related to governmental legislation and institutional organizational needs. 
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGT687 Health Care Organization, Economics, and Ethics  
3 credits  Offered By Announcement Only  
Course provides the student insight into organizational and behavioral aspects of the various sectors and agents within the health care industry and understanding of how such aspects in turn affect performance measured in terms of both economic and ethical criteria. 
PREREQUISITE: FOR MBA HEALTH ADMINISTRATION STUDENTS.

MGT691 International Management  
2 credits  Fall & Spring Semester  
Course is designed to provide an overview of management problems and issues for organizations and executives operating internationally. Students learn how multinational enterprises are different, why they behave as they do, and how to apply management principles to problem-solving in such contexts.

MGT698 Selected Topics  
1- 6 credits  Offered By Announcement Only  
Topics in selected areas of specialization.

MGT699 Directed Study  
1- 6 credits  Fall & Spring Semester & First & Second Summer Session  
Individually supervised research project in selected field of management. Approval of supervising professor of the topic/scope of work/evaluation is required prior to registration. 
PREREQUISITE: SPECIALIZATION IN MGT DEPARTMENT.

MGT730 Doctoral Dissertation  
1-12 credits  Fall & Spring Semester & First & Second Summer Session  
Course is required of all candidates for the Ph.D. The student enrolls for credit as determined by his/her advisor.
MGT740 Qualifying Examination Preparation
3-9 credits  Fall & Spring Semester & First & Second Summer Session
Doctoral students who are preparing for their Qualifying Examinations may use this course designation. Enrolled students must develop, with the approval of their advisor, a "Plan of Study" for these credits. Students may enroll in MGT 740 for one semester only.
PREREQUISITE: ALL REQUIRED DOCTORAL COURSEWORK MUST BE COMPLETED PRIOR TO ENROLLMENT.

MGT750 Research in Residence
0-12 credits  Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D. after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. May be regarded as full-time residence as determined by the Dean of the Graduate School.

MANAGEMENT SCIENCE

MAS540 Quantitative Foundations for Management Science
3 credits  Offered By Announcement Only
A review of basic quantitative concepts for management. Topics include: linear and nonlinear functions, systems of equations, linear programs, financial applications, set theory, probability, differentiation, and integration.

MAS547 Computer Simulation Systems
3 credits  Fall Semester
Introduction to discrete-event computer simulation and hands-on development of simulation models. Topics include introduction to queuing theory, input and output analysis, random number generation, and variance reduction techniques. Students practice their modeling skills using commercial state-of-the-art simulation software. Assigned readings of real-life simulation projects complement the material learned in the classroom. Lecture, 3 hours.
PREREQUISITE: MAS/IEN 311 OR EQUIVALENT.

MAS548 System Dynamics Modeling and Analysis
3 credits  Offered By Announcement Only
The course involves building and analyzing simulation models of social, managerial, economic, physical, and biological systems. It focuses on modeling dynamically complex systems, strategic issues and human decision-making; and investigates case studies of successful applications in growth strategy, management of technology, operations, project management, and others.
PREREQUISITE: MTH 110-112 (OR 131-132) AND MAS 311 OR EQUIVALENTS.

MAS550 Management Science Internship
1-3 credits  Fall & Spring Semester & First Summer Session
Student is individually assigned to operating business firm or other organization to gain insight into management practice in area of career interest. Periodic reports and conferences are required. Permission of department chair is required prior to registration.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN. FOR CREDIT ONLY.

MAS595 Topics in Management Science
1-3 credits  Fall & Spring Semester & First Summer Session
Topics in selected areas of specialization.

MAS596 Topics in Management Science
1-3 credits  Fall & Spring Semester & First Summer Session
Topics in selected areas of specialization.
MAS601 Applied Regression Analysis
3 credits Fall Semester
Theory and practical application of regression modeling and analysis. Computer control language, text editing, data base manipulation, and use of various data scales are covered. Understanding the role and responsibility of a statistician is also included.
PREREQUISITE: CALCULUS, LINEAR ALGEBRA AND MAS 311 OR EQUIVALENT.

MAS602 Applied Multivariate Statistics
3 credits Spring Semester
Statistical analysis of simultaneous measurements on many variables. Topics include principle components, factor analysis, canonical correlation analysis, multivariate general linear model, discriminant analysis, clustering, multidimensional scaling, and statistical inference about mean vectors. Extensive use of computer packages is required.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAS603 Design of Experiments
3 credits Spring Semester
Statistical design, analysis of experimental data, randomized blocks, Latin Squares, factorial designs, response surfaces, and analysis of covariance are covered. Extensive use of computer packages is required.
PREREQUISITE: MAS 311 OR EQUIVALENT.

MAS606 Nonparametric Statistics
3 credits Offered By Announcement Only
Nonparametric techniques for testing hypotheses concerning proportions, attributes (enumeration statistics), two-sample and K-sample tests of location. Nonparametric correlation methods, two-sample variance tests, tests for runs and randomization, multiple comparisons, and linear and non-linear trend are also included. Emphasis is placed on utilization of techniques in research, and not formal theory.
PREREQUISITE: MAS 311 OR EQUIVALENT.

MAS607 Survey Sampling
3 credits Offered By Announcement Only
Course topics include random, stratified, systematic, and cluster sampling, applications in survey sampling design, and ratio estimation. Questionnaire design and administration including nonresponse problems, data analysis and presentation are also included.
PREREQUISITE: MAS 610 OR EQUIVALENT.

MAS610 Statistical Analysis for Managerial Decision Making
3 credits Fall & Spring Semester & First Summer Session
Data analysis, probability concepts, distributions, sampling, estimation, hypothesis testing, simple and multiple regression and correlation analysis. Required of all MBA students unless satisfied by a waiver examination or equivalent undergraduate course or courses.

MAS611 Principles of Quality Management
3 credits Fall Semester
The definition of quality management, its history, and comparison of various schools of thought. An introduction to the theories of systems, variation, knowledge, and psychology as they relate to quality management. Deming’s fourteen points for management are studied through examples and cases.
PREREQUISITE: MAS 610.
MAS612 Advanced Quantitative Analysis
3 credits  Fall & Spring Semester & First Summer Session
The application of probability theory to the formulation and analysis of mathematical models for decision making. Applications are taken from inventory control, forecasting, waiting lines, quality control, production, and operations management.
PREREQUISITE: MAS 201 AND 302 OR THEIR EQUIVALENTS.

MAS615 Statistical Methodology in Business Research I
3 credits  Offered By Announcement Only
Foundations of statistical methods used in business research. Topics include distribution theory, estimation theory, point estimates, methods and properties, interval estimates, hypothesis testing, relationship between interval estimation and hypothesis testing, fundamental normal tests, decision theory, Bayesian inference. The use of the SAS computer package is required. The first of two required core courses in Statistical Methodology for Ph.D. students in Business.
PREREQUISITE: MAS 311 AND MTH 112 OR EQUIVALENTS.

MAS616 Statistical Methodology in Business Research II
3 credits  Offered By Announcement Only
Advanced Statistical techniques as applied to Business Research. Topics include analysis of variance and covariance, multiple regression, correlation, discriminant analysis, factor analysis, canonical correlation, and nonparametric statistical methods. The second of two required core courses in Statistical Methodology for Ph.D. students in Business.
PREREQUISITE: MTH 210 AND MAS 615 OR EQUIVALENTS.

MAS620 Understanding the Theory of Variation
3 credits  Offered By Announcement Only
Introduction to graduate level statistics from a Quality Management perspective. Topical coverage includes definition of statistics, philosophy of statistics, types of statistical studies, types of data, visual and numeric presentation of data, probability concepts, probability distributions, interval estimation, hypothesis testing, and control charts. This course differs from MAS 610 in the following ways: (1) stress on the philosophical aspects of statistics (called statistical thinking), as opposed to statistical theory and calculation, (2) emphasis on process oriented statistical methods, as opposed to population oriented statistical methods, and (3) focus on the development of control charts in conjunction with a reduction in the coverage on confidence intervals and classical hypothesis testing.

MAS630 Quality Management in Practice
3 credits  Fall Semester
This course presents administrative systems necessary for an organization or an individual to pursue quality management. The course presents a functional model for quality management.
PREREQUISITE: MAS 611.

MAS631 Statistics for Managerial Decision Making
2 credits  Fall Semester
This course aims to familiarize the student with statistical theory, tools, and methods required for business systems analysis and improvement. Topics include descriptive methods, elementary probability, random variables and the distributions, hypothesis testing, confidence intervals, statistical modeling, and regression.
MAS632 Management Science Models for Decision Making

2 credits

Spring Semester

This course aims to familiarize the student with Management Science tools for business systems analysis and improvement. The coverage includes linear and integer programming models, project management, simulation, queuing, and decision analysis. Some widely used software are illustrated through examples and case studies derived from business applications.

PREREQUISITE: MAS 631.

MAS633 Introduction to Quality Management

2 credits

Fall Semester

Introduction to the major elements of Dr. Deming's theory of management, including Dr. Deming's System of Profound Knowledge and Fourteen Points for Management. Additionally, participants are introduced to "Six Sigma" tools and methods. These tools and methods have been adopted with great success by many of the largest organizations in the world, for example, General Electric, Allied Signal, Dupont, American Express, and J.P. Morgan. Additionally, the course is a prerequisite for the "Six Sigma" Green Belt certification examination.

PREREQUISITE: SECOND YEAR MBA STATUS.

MAS634 Administrative Systems for Quality Management

2 credits

Fall Semester

This course presents a model to pursue quality management (QM). It features administrative systems and structures necessary for Quality Management. The administrative systems and structures presented in this course are required to sit for the Six Sigma Management "Green Belt" certification examination.

PREREQUISITE: SECOND YEAR MBA STATUS AND MAS 633.

MAS635 Design of Experiments

2 credits

Fall Semester

This course presents tools and methodology useful in conducting experiments that provide valid answers to questions of interest to the experimenter. The course discusses an overall approach to obtaining and analyzing experimental data, the advantages of using structured multi factor experiments to screen for important factors, ways of minimizing the amount of data points needed to obtain desired information, and how to identify values of experimental factors that optimize the value of measured responses. Factorial designs, fractional factorial designs, screening designs, and response surface designs are presented. Emphasis is placed on the knowledge required for proper application of these methods through many examples in business and quality management.

PREREQUISITE: MAS 631. SECOND YEAR MBA STATUS.

MAS636 Statistical Process Control and Reliability

2 credits

Fall Semester

This course aims to introduce some fundamental concepts of statistical process control and reliability with an emphasis on business applications. The first part of the course focuses on control charts and other tools that are used to monitor and improve business processes. The second part of the course introduces some basic ideas of reliability models and presents methods used in identifying failure modes in products and in business systems.

PREREQUISITE: MAS 631. SECOND YEAR MBA STATUS.
MAS637 Applied Regression Analysis and Forecasting
2 credits  Fall Semester
This course aims to familiarize the student with statistical prediction. It covers simple and multiple regression methods as well as time series and forecasting models in business. Instead of theoretical development, the course emphasizes the application of these methods in business systems analysis and improvement.
PREREQUISITE: MAS 631. SECOND YEAR MBA STATUS.

MAS638 Management Science Consulting
2 credits  Offered By Announcement Only
The purpose of this course is to enhance students' consulting skills in management science. In addition to skills of modeling and choosing appropriate tools for analysis, these include the communication skills of presenting quantitative and analytical material in business settings. The course is structured around a set of case studies that are based on real applications of management science models and methods discussed in MAS 631 and MAS 632.
PREREQUISITE: MAS 631 AND 632.

MAS641 Operations Research Models in Management
3 credits  Fall & Spring Semester & First Summer Session
The application of Operations Research techniques in Management. Topics include linear programming, PERT/CPM, queuing theory, forecasting, inventory models, statistical quality control, decision theory, and Simulation.
PREREQUISITE: MAS 610.

MAS642 Linear Programming and Extensions
3 credits  Fall Semester
Formulation, solution, and postoptimality analysis of linear programming problems. Topics include revised simplex, parametric programming, and decomposition large-scale systems. The use of computer packages is required. Introduction to integer programming, network flows, and nonlinear programming applications is also included.
PREREQUISITE: LINEAR ALGEBRA OR EQUIVALENT.

MAS643 Integer Programming and Network Flows
3 credits  Spring Semester
Solutions and applications of network flow problems, shortest path, maximum spanning tree, single, and multi-commodity flows are discussed. Computationally effective approaches to integer optimization, cutting planes, and implicit enumeration are also covered.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

MAS644 Nonlinear and Dynamic Programming
3 credits  Offered By Announcement Only
Solution of nonlinear optimization problems by classical procedures and search algorithms. Recursive optimization using computationally effective techniques is also addressed.
PREREQUISITE: MTH 112 OR EQUIVALENT.

MAS645 Stochastic Processes
3 credits  Fall Semester
Introduction to discrete state Markov processes and renewal processes with applications to queueing, replacement, and reliability problems.
PREREQUISITE: MAS 311 OR MTH 524 OR EQUIVALENT.
MAS657 Supply Chain Management
3 credits
Spring Semester
This course covers models and techniques for design and implementation of distribution and supply chain networks, and how they relate to manufacturing. Topics include inventory management, resource and capacity planning, material planning, forecasting, routing and scheduling, and plant location. An overview of how these are incorporated in an integrated ERP system is provided.
PREREQUISITE: MGT 653 OR EQUIVALENT.

MAS661 Forecasting Methods
3 credits
Offered By Announcement Only
Business and economic forecasting, time series analysis, regression, classical decomposition, smoothing, Box-Jenkins methodology, use of index numbers, other indicator variables, and forecasting in functional business areas are discussed. The use of case studies and interactive computer packages is also included.
PREREQUISITE: MAS 610 OR EQUIVALENT.

MAS663 Project Management and Modeling
2 credits
Spring Semester
This course considers the various methods, techniques, and software tools of project management and modeling with special emphasis on real estate projects and development. Topics include: project selection and strategy, risk assessment, conflict and negotiation, budgets, costs, and resource allocation, monitoring and information systems, project control and auditing, and project closure. The course is designed to show the integration of the various roles of owners, developers, builders, architects, and engineers in the project management process.

MAS693 Directed Study in Operations Research
1-3 credits
Offered By Announcement Only
Investigation and research in special areas of interest. Offered by special arrangement.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

MAS694 Directed Study in Operations Research
1-3 credits
Offered By Announcement Only
Investigation and research in special areas of interest. Offered by special arrangement.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

MAS695 Directed Study in Operations Research
1-3 credits
Offered By Announcement Only
Investigation and research in special areas of interest. Offered by special arrangement.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

MAS696 Directed Study in Statistics
1-3 credits
Offered By Announcement Only
Investigation and research in special areas of interest. Offered by special arrangement.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

MAS699 Directed Study
1-3 credits
Offered By Announcement Only
Offered by special arrangement.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.
MAS710 Master’s Thesis
1-6 credits Offered By Announcement Only
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

MAS720 Research in Residence
0 credit Offered By Announcement Only
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in MAS 710 (usually six credits). Credit not granted. May be regarded as full time residence.

MAS725 Continuous Registration--Master's Study
0 credit Offered By Announcement Only
To establish residence for non-thesis master's students who are preparing for major examinations. Credit not granted. Regarded as full time residence.

MAS730 Doctoral Dissertation
1-12 credits Offered By Announcement Only
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor but not for less than a total of 24. Not more than 12 hours of MAS 730 may be taken in a regular semester, nor more than six in a summer session. Where a student has passed his/her (a) qualifying examinations, and (b) is engaged in an assistantship, he/she may still take the maximum allowable credit stated above.

MAS750 Research in Residence
0 credit Offered By Announcement Only
Used to establish research in residence for the Ph.D., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

MARKETING
MKT601 Marketing Internship
1 credits Fall Semester
The student is individually assigned to an operating business firm or other organization to gain insight into management practices in the area of their career interest. The internship cannot be used to satisfy course requirements for marketing majors and periodic reports and conferences are required. May be taken only for "S" satisfactory - "U" unsatisfactory.
PREREQUISITE: DECLARED MARKETING MAJOR, A MINIMUM OF 3.0 GPA AND APPROVAL OF SUPERVISING PROFESSOR AND DEPARTMENT CHAIRMAN.

MKT602 Marketing Internship
1 credits Fall Semester
The student is individually assigned to an operating business firm or other organization to gain insight into management practices in the area of their career interest. The internship cannot be used to satisfy course requirements for marketing majors and periodic reports and conferences are required. May be taken only for "S" satisfactory - "U" unsatisfactory.
PREREQUISITE: DECLARED MARKETING MAJOR, A MINIMUM OF 3.0 GPA AND APPROVAL OF SUPERVISING PROFESSOR AND DEPARTMENT CHAIRMAN.
MKT640 Foundations of Marketing Management
2 credits
Fall & Spring Semester
Course introduces students to the analytical concepts and tools of marketing management. Special emphasis is placed on the relationships between marketing and overall company strategy, the development of a customer orientation, the integration of marketing throughout the organization, and the implementation of systems for planning and controlling the marketing effort. Students consider problems of consumer analysis, product planning, integrated communication, distribution, and pricing. The discovery and application of marketing management skills are developed through the use of readings, case exercises, and class discussions.

MKT641 Marketing Research
2 credits
Fall & Spring Semester
The objective of the course is to allow students to understand functional analysis of consumer and market behaviors utilizing statistical tools. The course will cover topics of secondary sources of data, sampling, questionnaire design, and analysis and interpretation of data. Project and case analysis methods will be used for instruction.
PREREQUISITE: SECOND YEAR MBA STATUS.

MKT644 Services Marketing
2 credits
Fall & Spring Semester
Course develops skills necessary to manage companies in an increasingly service-oriented and technology-driven economy and to gain sustainable competitive advantage through delivering superior quality services. Course covers the special marketing challenges posed by the unique characteristics of services and discusses their managerial implications. The need and strategies for synergistic management of operations, systems, and people to satisfy customers in order to achieve marketing excellence and superior financial performance is also included.
PREREQUISITE: SECOND YEAR MBA STATUS.

MKT645 International Marketing
2 credits
Fall & Spring Semester
Course analyzes the theories and practice of international marketing management. Course allows students to understand markets and aid in the development of marketing plans based on the nature of national as well as international markets. Issues of globalization, standardization, intermarket segments, trading blocks, global marketing strategies, local branding, global branding in the context of customer movements, product development, pricing, distribution, communication, and segmentation in global markets are also discussed.
PREREQUISITE: SECOND YEAR MBA STATUS.

MKT646 Consumer Behavior
2 credits
Fall & Spring Semester
Overview of psychological and normative principles of consumer decision-making and judgment through focusing on underlying behavioral research and theory. How people process information, make decisions involving risk and uncertainty, conflicting objectives, and imperfect information is discussed. The implications of consumer behavior on marketing strategy are highlighted.
PREREQUISITE: SECOND YEAR MBA STATUS.
MKT647 Advertising and Communication Management
2 credits  
Fall & Spring Semester
Billions of dollars are wasted every year on ineffective advertising and communication campaigns. This problem is due to an absence of a compelling strategy to serve as a foundation for developing creative executions and media plans. The course provides a balanced analysis of strategy and execution of integrated marketing communication campaigns. The effectiveness of existing and emerging communication vehicles to attain strategic marketing goals are assessed. Special emphasis is placed on advertising, sales promotions, and online communications. Current and historical campaigns are also reviewed. Course requirements include case reports, projects, and class participation. PREREQUISITE: SECOND YEAR MBA STATUS.

MKT648 NEW PRODUCT DEVELOPMENT
2 credits  
Fall Semester
Few activities undertaken by firms are more challenging than that of developing and launching new products and services. The activity is one that is fraught with risk; once a firm decides to embark upon a new-product venture, the outcome could just as easily prove to be the financial demise of the firm as its financial salvation. Yet long-term viability is impossible without on-going commitment to active innovation. The purpose of this course is to provide an overview of the current state-of-the-art in tools and strategies for reducing risk in product development strategies. Although the course will cover all phases of new-product development from idea generation and valuation to launch, an emphasis will be placed on tools for lowering risk at the concept-development phase, before major capital investments in development are typically undertaken. In this course you will be learning by doing. Early in the course each student, working in small groups, will be asked to develop an original new-product concept (an original good or service) of their own choosing. Throughout the course you will be then asked to apply the various concepts and tools discussed in class to both the concept and formulate a forecast of its financial viability. The culminating product, due during the last week of the course, will be a new-product...

MKT649 STRATEGIC BRAND MARKETING
2 credits  
Fall Semester
More and more firms have come to realize that their brands are among their most valuable assets. The goal of this course is to teach students the strategic significance of brands in creating shareholder value. Students should develop fluency with the core principles associated with branding including: an understanding of how to develop a brand positioning; managing total brand experience; how to manage the brand relevancy over time; familiarity with the various qualitative and quantitative methodologies that are used to evaluate brand equity; how to achieve growth through brand extension; brand design and brand messaging. The basic philosophy for this course is to blend theory and practice of brand management. Branding is both an art and a science. Few branding situations have a definitive, unqualified "right" answer as to what is the best approach. However, when armed with relevant and comprehensive theories, appropriate frameworks and models, and familiarity with past successful and unsuccessful branding strategies, managers can make better and more informed decisions that are more likely to yield successful implementation.
MKT650 Strategic Marketing  
2 credits  
Fall & Spring Semester  
Course develops the skills necessary to strategically manage business-unit level marketing activities in a multi-brand firm. This necessitates examining all marketing mix elements, R&D, financial and production considerations simultaneously in the context of the many markets, products, and services that may concern a typical firm. The emphasis is placed on understanding internal capabilities, market competitors, and customers. Market simulation exercise, cases, and readings are utilized.  
PREREQUISITE: MKT 640.

MKT660 Foundations of Marketing Management  
3 credits  
Fall & Spring Semester  
Marketing problems experienced by top executives are examined and fundamental problem-solving concepts are developed. Students consider problems of consumer needs, product planning, promotion, distribution and pricing. The discovery and application of marketing management skills are developed through the use of cases and a major planning project.

MKT662 Advanced Marketing Management  
3 credits  
Fall Semester  
Case analysis of management decisions on product policy, distribution channels, promotion, selection, control, compensation of sales force, and pricing strategy are discussed. Interrelationships of marketing and other business functions and rational decision-making is also covered.  
PREREQUISITE: MKT 660 OR EQUIVALENT.

MKT665 International Marketing  
3 credits  
Fall & Spring Semester  
Analysis of major U.S. foreign markets, marketing policies, and techniques are discussed.  
PREREQUISITE: MKT 660.

MKT672 Services Marketing  
3 credits  
Fall & Spring Semester  
Course develops the skills necessary to manage services marketing and compete through delivering quality service. The unique characteristics of services and their managerial implications are examined. Importance of the synergistic management of operations, environment, systems and people to satisfy the customer is highlighted.  
PREREQUISITE: MKT 660.

MKT680 Ph.D. Seminar: Special Topics  
3 credits  
Offered By Announcement Only  
Topics in selected areas of Marketing.

MKT681 Ph.D. Seminar: Special Topics  
3 credits  
Fall & Spring Semester  
Topics in selected areas of Marketing.

MKT682 Ph.D. Seminar: Special Topics  
0-3 credits  
Fall & Spring Semester  
Topics in selected areas of Marketing.

MKT683 Ph.D. Seminar: Special Topics  
0-3 credits  
Fall & Spring Semester  
Topics in selected areas of Marketing.
MKT684 Ph.D. Seminar: Special Topics
0-3 credits
Fall & Spring Semester
Topics in selected areas of Marketing.

MKT685 Ph.D. Seminar: Special Topics
0-3 credits
Fall & Spring Semester
Topics in selected areas of Marketing.

MKT695 Topics in Marketing
1-3 credits
Offered By Announcement Only
Topics in selected areas of Marketing.

MKT696 Topics in Marketing
1-3 credits
Offered By Announcement Only
Topics in selected areas of Marketing.

MKT697 Topics in Marketing
1-3 credits
Offered By Announcement Only
Topics in selected areas of Marketing.

MKT698 Topics in Marketing
1-3 credits
Offered By Announcement Only
Topics in selected areas of Marketing.

MKT699 Directed Study
1-6 credits
Fall & Spring Semester & First & Second Summer Session

MKT730 Doctoral Dissertation
1-12 credits
Offered By Announcement Only
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor but not for less than a total of 24. Not more than 12 hours of MKT 730 may be taken in a regular semester, nor more than six in a summer session. Where a student has passed his/her (a) qualifying examinations, and (b) is engaged in an assistantship, he/she may still take the maximum allowable credit stated above.

MKT750 Research in Residence
0 credit
Offered By Announcement Only
Used to establish research in residence for the Ph.D. after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.
COM 598 Special Topics in Communication  
3 credits Offered By Announcement Only  
This course subject matter varies according to announced special topic. See class schedule for details.  
PREREQUISITE: 12 CREDITS IN COMMUNICATION AT 300 LEVEL OR ABOVE OR EQUIVALENT.

COM 601 Theories of Communication  
3 credits Fall Semester  
Comparison of theories dealing with the processes and effects of communication is discussed.

COM 602 Methods of Communication Research  
3 credits Fall Semester  
A comprehensive survey of communication research methods. Qualitative and quantitative approaches will be explained and practiced.  
PREREQUISITE: COM 601 OR PERMISSION OF INSTRUCTOR.

COM 603 Qualitative Research Methodologies  
3 credits Spring Semester  
Research methods and theories for participant-observation, phenomenology, symbolic interactionism, ethnomethodology, content analysis, and historical-critical interpretation.

COM 604 Advanced Communication Research Methods and Statistics  
3 credits Offered By Announcement Only  
Provides an advanced examination of the problems and methods found in quantitative communication research.  
PREREQUISITE: COM 601 and 602.

COM 609 Special Topics in Communication  
3 credits Offered By Announcement Only  
This course subject matter varies according to announced special topic. See class schedule for details.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

COM 610 Doctoral Colloquium  
0 credit Fall Semester  
This course will introduce students to the nature and scope of doctoral study.

COM 613 History of Communication  
3 credits Fall & Spring Semester  
Course will cover the historical analysis of the entire field of communication (interpersonal, intercultural, mass, etc.) from the pre-Aristotle period to the present.

COM 615 Social Effects of Mass Communication  
3 credits Fall Semester  
Roles, functions, and consequences of mass communication in American society.  
PREREQUISITE: COM 601.
COM672 Seminar in Persuasive Communication
3 credits
Offered By Announcement Only
This course is designed to provide students with a basic understanding of the role of communication in the persuasion process. This will be achieved by exploring historical and contemporary theories of persuasion as well as examining research that has focused on persuasion.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

COM695 Directed Readings
1-3 credits
Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: PERMISSION OF INSTRUCTOR.

COM698 Seminar in Communication
3 credits
Fall & Spring Semester
An in-depth, hands-on course in which students conduct a research project using the specified research method. May include experimental design, advanced qualitative methods, content analysis, or survey methods. Repeatable up to 6 credits.
PREREQUISITE: COM 602, 603.

COM710 Master's Thesis
1-6 credits
Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

COM720 Research in Residence
0 credit
Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in COM 710 (usually six credits). Credit not granted. May be regarded as full-time residence.

COM725 Continuous Registration--Master's Study
0 credit
Fall & Spring Semester & First & Second Summer Session
To establish residence for non-thesis master's students who are preparing for major examinations. Credit not granted. Regarded as full time residence.

COM730 Doctoral Dissertation
1-12 credits
Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor, but for not less than a total of 12 hours.

COM750 Research in Residence
0 credit
Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

COMMUNICATION STUDIES
COS560 The Executive Communicator
3 credits
Offered By Announcement Only
Audience analysis, speech writing, delivery in professional presentations and theory and history of great speeches are covered. Detailed critiques of student speaking styles and performances are also included.
PREREQUISITE: JUNIOR STANDING OR PERMISSION OF INSTRUCTOR.
COS591 Graduate Special Topics in Communication and Social Interaction
3 credits
Offered By Announcement Only
This course subject matter varies according to announced special topic. See class schedule for details.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

COS599 Advanced Projects and Directed Research
1–6 credits
Fall & Spring Semester & First & Second Summer Session
Individual study. Course may be repeated to a maximum of six credits.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

COS674 Seminar in Interpersonal Communication
3 credits
Offered By Announcement Only
This course focuses on theoretical approaches to interpersonal communication. Emphasis is placed on current research including fundamentals of relationships, developmental issues, interaction management, and interpersonal competence.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

COS682 Seminar in Organizational Communication
3 credits
Offered By Announcement Only
This course explores theoretical perspectives and the impact of communication in organizations. Critical analysis includes management styles, decision-making, group interaction, conflict resolution, and diffusion of innovations.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

COS684 Organizational Communication Audit Procedures
3 credits
Offered By Announcement Only
Measurement of communication variables in the organization focusing on analyses using message diffusion, cross-section survey, communication network, and communication audit procedures.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ELECTRONIC MEDIA

CEM531 Audio Production Techniques
3 credits
Fall Semester
Writing, preparation, and production of material for auditory presentation, live or recorded, broadcast on open or closed circuit radio systems. Familiarization with magnetic and optical recording procedures, both double and single system sound, in television and motion picture production is discussed. Lecture and laboratory are included.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CEM534 Practicum in Communication
3 credits
Fall Semester
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CEM535 Telecommunication Systems
3 credits
Fall Semester

CEM592 Special Topics in Electronic Media
3 credits
Fall Semester
This course subject matter varies according to announced special topic. See class schedule for details.
PREREQUISITE: PERMISSION OF INSTRUCTOR AND PROGRAM DIRECTOR.
CEM599 Advanced Projects and Directed Research
1-6 credits Fall Semester
Individual study. Course may be repeated for a maximum of six credits.
PREREQUISITE: PERMISSION OF SUPERVISING INSTRUCTOR.

CEM605 News Technologies.
3 credits Fall Semester
This course emphasizes how television, digital, and multimedia technologies contribute to the storytelling process. Understanding of production theories and news processes will be gained through hands on work with television and multimedia projects.
PREREQUISITE: NONE.

CEM606 Broadcast Journalism
3 credits Fall Semester
An introduction to professional operating practices in electronic journalism with emphasis on news writing and news production skills.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CEM607 Broadcast Journalism II
3 credits Fall Semester
Advanced instruction in techniques of news writing and field reporting, including conducting research for stories, preparing complete field packages for newscasts, filing live remotes, and conducting interviews.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CEM608 Long-Form Public Affairs Programming
3 credits First Summer Session
Development and production of longer form news, information magazine, and documentary style programming.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CEM609 Internship in Electronic Media Journalism
1-3 credits Fall Semester
The internship program is a supervised activity in which graduate students advance their skills and acquire professional experience by working with a sponsoring organization. Students learn through observation, discussions with supervising personnel, and performance of professional activities.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CEM630 Topics in Electronic Communication
3 credits Fall Semester
This course subject matter varies according to announced special topic. See class schedule for details.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CEM635 The Broadcasting, Cable, and Electronic Media Industry
3 credits Fall Semester
Examination of broadcasting, cable, and related electronic media from a business perspective.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
CEM641 Information Processing for Video-Audio Systems
3 credits  Fall Semester
Use of non-print media, by corporate, social, political, and educational institutions
to convey information to internal and external audiences.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CEM643 Managing Video-Audio Information Systems
3 credits  Fall Semester
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CEM653 Producing Television News
1-3 credits  Fall Semester
The mechanics of planning and executing professional style newscasts and/or long-form
television news program.
PREREQUISITE: CONCURRENT ENROLLMENT IN CEM 606, 607 OR 608.

JOURNALISM
CNJ510 Comparative Media Systems
3 credits  Offered By Announcement Only
This course deals with issues in international news gathering and distribution,
giving special attention to Latin America and the Caribbean. The class takes a
comparative approach, looking at media systems in the United States and other
nations.
PREREQUISITE: SENIOR OR GRADUATE STANDING. SIX CREDITS IN COMMUNICATION OR LATIN
AMERICAN STUDIES.

CNJ511 Global Media
3 credits  Offered By Announcement Only
An analysis of issues and practices surrounding globalization, regionalization
and global/local (global) as they relate to media industries, journalism and communication.
PREREQUISITE: SENIOR OR GRADUATE STANDING

CNJ513 Computer-Assisted Reporting
3 credits  Offered By Announcement Only
Use of computer applications for newsgathering with emphasis on the World Wide
Web, commercial online services, and database tools.
PREREQUISITE: CNJ 216 OR PERMISSION OF INSTRUCTOR

CNJ515 Reporting and the Internet
3 credits  Offered By Announcement Only
Overview of uses of online computer services for newsgathering and distribution
with emphasis on the Internet.
PREREQUISITE: CNJ 216 OR PERMISSION OF INSTRUCTOR

CNJ523 Sports Reporting
3 credits  Offered By Announcement Only
An analysis of sports journalism that will develop students' skills in sports reporting
and sports writing. Discussions range across the entire field of sports reporting,
including broadcasting, but the greatest emphasis is concentrated on sports reporting
and writing for newspapers and magazines.
PREREQUISITE: CNJ 216 OR PERMISSION OF INSTRUCTOR
CNJ544 Feature Writing
3 credits Offered By Announcement Only
Analyzing and writing feature articles for magazines, newspapers, and other news media.
PREREQUISITE: CNJ 216.

CNJ595 Special Topics in Journalism
3 credits Offered By Announcement Only
This course subject matter varies according to announced special topic. See class schedule for details.
PREREQUISITE: PERMISSION OF INSTRUCTOR OR PROGRAM DIRECTOR.

CNJ599 Advanced Projects and Directed Research
1-6 credits Fall & Spring Semester & First & Second Summer Session
Individual study. Course may be repeated to a maximum of six credits.
PREREQUISITE: PERMISSION OF SUPERVISING INSTRUCTOR.

CNJ609 Graduate Internship in Print Journalism
1-3 credits Fall Semester
Prescribed study and supervised work with professionals in newspapers, magazines, web sites or related news media.
PREREQUISITE: GRADUATE STANDING, CNJ 611, 614 AND 619, OR SIGNIFICANT JOURNALISM EXPERIENCE, CUMULATIVE GPA OF 3.0 IN ALL GRADUATE COURSES TAKEN, AND/OR PERMISSION OF THE PROGRAM DIRECTOR.

CNJ611 Newswriting and Reporting Seminar
3 credits Fall Semester
Development of newswriting and reporting skills for news media.

CNJ612 History of Journalism Seminar
3 credits Offered By Announcement Only
The development and impact of journalism in America traced through industry leaders and events.

CNJ614 Media Law and Regulation
3 credits Offered By Announcement Only
Selected problems and legal research concerning First Amendment theories involving libel, privacy, privilege, freedom of information, free press versus fair trial, access to the media, pornography, copyright, and broadcasting.

CNJ617 International Journalism
3 credits Offered By Announcement Only
News gathering, transmission, and distribution outside the United States, with emphasis on Latin America.
PREREQUISITE: COM 601.

CNJ619 Advanced Newsgathering and Writing Seminar
3 credits Spring Semester
Refining news writing and reporting skills for the media.
PREREQUISITE: CNJ 611.
CNJ620 Online Journalism (in Spanish)  
3 credits  
Spring Semester  
This course should help journalism students develop the necessary skills to work online, including posting breaking news, writing for the Web, gathering and uploading multimedia content and creating/writing blogs. This course is taught in Spanish.  
PREREQUISITE: THIS COURSE IS TAUGHT IN SPANISH.

CNJ622 Seminar in News Ethics and Problems  
3 credits  
Offered By Announcement Only  
Critical analysis of ethical issues and problems facing practicing journalists. Discussion of differences in philosophical ethics and practical ethics in journalism.  
PREREQUISITE: CNJ 611.

CNJ624 Editing and Layout Seminar  
3 credits  
Offered By Announcement Only  
Theory and practice in news media copy editing, layout, and design.  
PREREQUISITE: CNJ 611.

CNJ626 Specialized Writing and Reporting Seminar  
3 credits  
Offered By Announcement Only  
Techniques in writing and reporting about specialized and complex subjects for news media.  
PREREQUISITE: CNJ 611.

CNJ654 Writing for Publication  
1-3 credits  
Fall & Spring Semester & First Summer Session  
This course focuses on writing principles and practices of the news media. It is designed to give the student exposure and practical experience in writing for the print media.  
PREREQUISITE: CONCURRENT ENROLLMENT IN CNJ 611, 619 OR COMPLETION OF BOTH.

CNJ655 Media Management and Entrepreneurship (in Spanish)  
3 credits  
Spring Semester  
This course is designed to give students an understanding of the major trends in the news media business and to give them the tools to initiate and manage media projects. This course is taught in Spanish.  
PREREQUISITE: THIS COURSE IS TAUGHT IN SPANISH.

MOTION PICTURES

CMP503 Film Directors  
3 credits  
Fall Semester  
This course will address the conditions of authorship in film through an intensive study of the films of two or more directors, whose careers will serve as case studies. These directors will be historically important and their work will represent significant achievements in the art of film.  
PREREQUISITE: CMP 204 AND 205.

CMP504 Aspects of Contemporary Cinema  
3 credits  
Spring Semester  
The study of the ways in which film communicates. Intensive analysis and criticism of cinematic techniques exemplified through particular films.  
PREREQUISITE: JUNIOR STANDING; CMP 204 OR 205; NON-MAJORS BY PERMISSION OF PROGRAM DIRECTOR.
SCHOOL OF COMMUNICATION

MOTION PICTURES

**CMP506 American Movie Genres**
3 credits  
Fall Semester
A study of selected movie genres from a variety of critical perspectives. Issues pertaining to selfhood, sexual difference, and other concerns of present-day film criticism will be examined. 
PREREQUISITE: CMP 204 AND 205. NON-MAJORS BY PERMISSION OF INSTRUCTOR.

**CMP507 Film, Society, and Culture**
3 credits  
Spring Semester
Selected films from Europe, Asia, Africa and Latin America will be studied in relation to their diverse social/political and cultural contexts. 
PREREQUISITE: CMP 204 AND 205. NON-MAJORS BY PERMISSION OF INSTRUCTOR.

**CMP509 Legal Aspects of Motion Pictures**
3 credits  
Spring Semester
The law, contracts, and negotiating techniques of the business affairs aspects of the production of motion pictures. 
PREREQUISITE: MOTION PICTURE GRADUATE OR SENIOR UNDERGRADUATE STANDING. NON-MOTION PICTURE GRADUATES OR UNDERGRADUATES BY WRITTEN PERMISSION OF THE DIRECTOR OF THE MOTION PICTURE PROGRAM.

**CMP529 Nonfiction Film**
3 credits  
Fall & Spring Semester
An examination of American and world nonfiction films. 
PREREQUISITE: NON-MAJORS BY PERMISSION OF INSTRUCTOR.

**CMP550 Motion Graphics and Compositing**
3 credits  
Spring Semester
Methods, techniques and aesthetics of 2D computer animation and compositing including animated text, title design and green screen. 
PREREQUISITE: PERMISSION OF INSTRUCTOR.

**CMP551 Advanced Motion Graphics and Compositing**
3 credits  
Spring Semester
Extend the 2D skills of students who have taken CMP 550 to 3D motion graphics and animation. Emphasis on title design and animation. 
PREREQUISITE: CMP 550

**CMP552 Motion Picture Marketing and Distribution**
3 credits  
Fall & Spring Semester
Economic and marketing considerations in the production and distribution of motion pictures. 
PREREQUISITE: JUNIOR STANDING AND 12 COMMUNICATION- MOTION PICTURES CREDITS.

**CMP553 Advanced Motion Picture Marketing**
3 credits  
Fall & Spring Semester
Advanced marketing considerations in the distribution of motion pictures. 
PREREQUISITE: JUNIOR STANDING AND CMP 552

**CMP555 Producing the Motion Picture**
3 credits  
Fall Semester
A practical examination of the development, production, and marketing responsibilities involved in producing theatrical feature films. Focus is placed on the processes involved including the ethical considerations that confront the producer. 
PREREQUISITE: JUNIOR STANDING AND 12 CMP CREDITS.
CMP558 Documentary Production
3 credits Offered By Announcement Only
An introduction to the documentary genre including the production of a documentary from start to finish.
PREREQUISITE: CMP 103, 222, 204 OR 205 FOR UNDERGRADUATES; PERMISSION OF INSTRUCTOR FOR GRADUATE STUDENTS.

CMP565 The Structure of Dramatic Art
3 credits Offered By Announcement Only
An investigation into structural forms widely employed by screenwriters with emphasis on Syd Field’s three-act paradigm and Joseph Campbell’s hero monomyth.
PREREQUISITE: GRADUATE STATUS

CMP566 Character and Dialogue
3 credits Offered By Announcement Only
An examination of the craft and techniques of creating original characters and dialogue.
PREREQUISITE: MFA SCREENWRITING STATUS OR CMP 126 AND 326.

CMP586 Online Screenwriting
3 credits Fall & Spring Semester & First & Second Summer Session
The student will prepare and complete the first act of a feature-length screenplay or the student will prepare and commence the rewrite of an existing screenplay.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CMP594 Special Topics in Motion Picture
3 credits Offered By Announcement Only
This course subject matter varies according to announced special topic. See class schedule for details.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CMP599 Advanced Projects and Directed Research
1-6 credits Fall & Spring Semester & First & Second Summer Session
Individual study. May be repeated for a maximum of six credits.
PREREQUISITE: PERMISSION OF SUPERVISING INSTRUCTOR

CMP605 Production Management
3 credits Spring Semester
A comprehensive examination of the skills and techniques employed by line producers and production managers in the preproduction, production, and post-production of motion pictures.

CMP627 Scriptwriting
3 credits Fall Semester
Study of and practice in writing feature-length, narrative motion picture scripts. Focus is placed on cinematic structure and presentation of character.
PREREQUISITE: CMP 227 OR APPROVED EQUIVALENT.

CMP628 Rewriting the Screenplay
3 credits Offered By Announcement Only
The preparation for and completion of the rewrite of a feature-length screenplay.
PREREQUISITE: CMP 627.
CMP637 Motion Picture Workshop I
3 credits
Offered By Announcement Only
A course designed to provide an understanding and appreciation of the technical, aesthetic, and theoretical aspects of filmmaking. The use of lectures, laboratory, and demonstration to develop an awareness of the nature of film production is included.
PREREQUISITE: LIMITED TO MFA SCREENWRITING CANDIDATES.

CMP638 Writing the Short Film
3 credits
Fall Semester
A course in the fundamentals of screenwriting focused on the creation of a 15-30 page screenplay suitable for an MFA project film.
PREREQUISITE: LIMITED TO MFA PRODUCTION CANDIDATES.

CMP639 Writing for Series Television
3 credits
Offered By Announcement Only
Advanced examination of the techniques and elements of television writing. Focus is placed upon both the situation comedy and the dramatic series.
PREREQUISITE: CMP 627.

CMP640 Exhibition and Programming
3 credits
Offered By Announcement Only
An historical examination of the theatrical exhibition of motion pictures. Focus is placed on contemporary business practices within the exhibition industry, with particular attention to a definition of good programming practices.

CMP645 Analysis of the Screenplay
3 credits
Fall Semester
An examination of the narrative structure and character development of selected screenplays. Focus is placed on the screenplay's contribution to both the finished film and the process employed to arrive at the finished film.

CMP650 Analysis of Cinematic Styles
3 credits
Offered By Announcement Only
A concentration on four distinctive film directors and their work. Utilization of techniques from film theory, film criticism, and film history to arrive at a definition of their unique cinematic styles.

CMP651 Cinematography
3 credits
Fall Semester
Aesthetic and technical aspects of motion picture photography including color, black and white, silent, and synchronous sound techniques.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CMP652 Advanced Cinematography
3 credits
Spring Semester
Advanced technical and photographic principles begun in CMP 651. Preparation for the filming of the MFA project film.
PREREQUISITE: CMP 651.

CMP656 Motion Picture Post-Production Procedures
3 credits
Fall Semester
An examination of the esthetics of editing, recording, re-recording, and laboratory procedures following completion of principal photography.
PREREQUISITE: LIMITED TO MFA PRODUCTION CANDIDATES.
CMP661 Directing the Film
3 credits  Fall & Spring Semester
Directorial techniques and methods in the narrative film: conceptualizing scripted material, staging, and directing the performer.

CMP666 Film Culture I
3 credits  Fall Semester
An introductory immersion in the culture, history, and theory of cinema.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CMP667 Film Culture II
3 credits  Spring Semester
Readings in classical and contemporary film theory, with critical analysis of current as well as historically significant movies representing a diversity of cinematic traditions.
PREREQUISITE: CMP 666.

CMP734 MFA Project - Production
1-6 credits  Fall & Spring Semester & First & Second Summer Session
Film production in which the student functions as a minimum, in the capacity of a producer, director, or a screenwriter. Course may be repeated to a maximum of six credits.

CMP736 MFA Project - Screenwriting
1-6 credits  Fall & Spring Semester & First & Second Summer Session
The writing and re-writing of a full-length narrative film screenplay. Course may be repeated to a maximum of six credits.

PUBLIC RELATIONS
CPR517 Media Relations
3 credits  Fall & Spring Semester & First Summer Session
The practice of media relations within the public relations milieu.
PREREQUISITE: ADMISSION TO MAJOR, CPR 311, SENIOR STANDING OR PERMISSION OF INSTRUCTOR

CPR582 International Public Relations
3 credits  Fall & Spring Semester
History, theory, and practice of public relations in a global, multi-cultural environment.
PREREQUISITE: ADMISSION TO MAJOR; SENIOR STANDING OR PERMISSION OF INSTRUCTOR

CPR584 Public Relations Management
3 credits  Fall Semester
Principles and practice of public relations management in a variety of contexts including agency, consultancy, corporate, and nonprofit.
PREREQUISITE: ADMISSION TO MAJOR, CPR 311 AND SENIOR STANDING OR PERMISSION OF INSTRUCTOR

CPR590 Special Projects: Public Relations
3 credits  Offered By Announcement Only
This course subject matter varies according to announced special topic. See class schedule for details.
PREREQUISITE: ADMISSION TO THE MAJOR, CPR 311 AND SENIOR STANDING, PERMISSION OF INSTRUCTOR AND PROGRAM DIRECTOR.
CPR599 Advanced Projects and Directed Research in Public Relations
1-6 credits  Fall & Spring Semester & First & Second Summer Session
Individual study. May be repeated to a maximum of six credits.
PREREQUISITE: ADMISSION TO MAJOR, CPR 311 AND SENIOR STANDING, PERMISSION OF SUPERVISING INSTRUCTOR AND PROGRAM DIRECTOR.

CPR620 Public Relations Fundamentals
3 credits  Fall Semester
A seminar to explore the theories and methodologies of public relations encompassing writing, principles and campaigns.
PREREQUISITE: GRADUATE STUDENTS AND PERMISSION OF INSTRUCTOR.

CPR625 Seminar in Public Relations Administration
3 credits  Spring Semester
Course analyzes organizational principles, internal budgeting, and evaluation of public relations departments and counseling firms.
PREREQUISITE: GRADUATE STUDENTS, CPR 620 OR PERMISSION OF INSTRUCTOR.

CPR629 Public Relations Seminar
3 credits  Fall & Spring Semester
A seminar to Identify and discuss the role of fundraising in the not-for-profit sector.
PREREQUISITE: COM 601 AND 602 OR 603.

CPR632 Seminar in Public Relations and Political Campaigns
3 credits  Fall & Spring Semester
A seminar to examine the role of public relations in American political campaigns.
PREREQUISITE: COM 601 AND 602 OR 603 OR PERMISSION OF INSTRUCTOR.

CPR633 Seminar in Public Relations: Lobbying and Pressure Groups
0-1 credit  Fall Semester
3 credits. A seminar to focus on public relations by lobby groups, pressure groups, and corporate institutions.
PREREQUISITE: COM 601 AND 602 OR 603, CPR 620 OR PERMISSION OF INSTRUCTOR.

CPR634 Seminar in Public Relations: Non-profit Groups and Governmental Institutions
3 credits  Fall & Spring Semester
A public seminar that focuses on non-profit organizations and governmental institutions.
PREREQUISITE: COM 601 AND 602 OR 603, CPR 620 OR PERMISSION OF INSTRUCTOR.

CPR644 Seminar in Public Relations Ethics
3 credits  Fall & Spring Semester
To explore through readings, discussion and research contemporary ethical issues in public relations.
PREREQUISITE: COM 601 AND 602 OR 603, CPR 620 OR PERMISSION OF INSTRUCTOR.

CPR690 Public Relations Practicum I
3 credits  Fall & Spring Semester
Professional functions related to public relations requirements in a professional environment acting as an account executive.
PREREQUISITE: COM 601, 602 OR 603, CPR 620 AND 12 HOURS IN PUBLIC RELATIONS SEQUENCE; PERMISSION OF INSTRUCTOR AND DIRECTOR.
CVJ519 Interactive Storytelling
3 credits  
Fall & Spring Semester
Digitization allows us to merge several forms of media that were not connected in the past. This course is intended as an exploration of how storytelling is re-inventing itself utilizing the new digital communication tools available to us today. This course will cover linear and non-linear storytelling techniques and production processes.
PREREQUISITE: CVJ 209, 341, 419, AND 422 OR PERMISSION OF INSTRUCTOR

CVJ521 Seminar in Visual Story-Telling
3 credits  
Fall & Spring Semester
An advanced seminar class designed to enhance the knowledge and practice of the visual story telling narrative. This seminar stresses the importance of converging media, still images, video and sound. Particular emphasis will be placed upon the creation of multimedia portfolio.
PREREQUISITE: CVJ 209, 309, 361 AND 435 OR PERMISSION OF INSTRUCTOR

CVJ522 Design Portfolio Seminar
3 credits  
Spring Semester
The course will require an advance use of typography, architecture of design and creative style for layout and design for the print or on line media. This is a portfolio design class. Each student will concentrate on an area of specialty within print or electric design. All portfolios will be reviewed by outside art and design directors.
PREREQUISITE: CVJ 209, 331, 342, 409, 419 OR PERMISSION OF INSTRUCTOR

CVJ596 Special Topics in Visual Journalism (1-6 credits)
1- 6 credits  
Fall Semester
This course subject matter varies according to announced special topic. See class schedule for details.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CVJ599 Advanced Projects and Directed Research
3 credits  
Fall Semester
PREREQUISITE: PERMISSION OF SUPERVISING INSTRUCTOR
EPS505 Lifespan Human Development
3 credits    Fall Semester
Theories and research relating to the biophysical, cognitive, and psychosocial domains of human lifespan development.
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR

EPS506 Foundations of Mental Health Counseling
3 credits    Offered By Announcement Only
Students will learn basic concepts and skills for mental health counselors in a multicultural world.
PREREQUISITE: ADVANCED UNDERGRADUATE OR GRADUATE STANDING.

EPS509 Field Studies in Education
1-6 credits    Fall & Spring Semester
Individual study of a school or school system, identifying its strengths and weaknesses, and making positive recommendations.
PREREQUISITE: APPROVAL OF ADVISOR

EPS510 Professional, Legal and Ethical Issues in Counseling
3 credits    First Summer Session
Professional, legal, ethical, and licensing issues in the counseling profession.
PREREQUISITE: GRADUATE STANDING IN THE COUNSELING PROGRAM

EPS511 Lifestyle and Career Counseling
3 credits    Spring Semester
An introductory course in career development and career counseling, focusing on theories of career development, counseling tools, strategies, and sociological, economic, and psychological influences on the American worker.
PREREQUISITE: EPS 513 OR PERMISSION OF INSTRUCTOR

EPS512 Assessment Strategies for Counselors I
3 credits    Spring Semester
This course places emphasis on diagnosis, appraisal, assessment, and testing for individual and interpersonal disorders. It addresses statistical procedures and psychometric principles necessary for responsible test use and exposes the student to a variety of test and non-test assessment techniques in marriage and family, and mental health counseling.
PREREQUISITE: GRADUATE STANDING IN COUNSELING PROGRAM

EPS513 Counseling Process and Practice
3 credits    Fall Semester
The development of basic communication and clinical skills necessary for establishing the counseling relationship and conducting therapy.
PREREQUISITE: GRADUATE STANDING IN COUNSELING PROGRAM

EPS514 Psychosocial Bases of Social and Cultural Diversity
3 credits    Fall Semester
Interrelationship between psychology and sociology in understanding development of diversity in human social systems. Implications for counseling and therapy.
PREREQUISITE: EPS 505 OR EQUIVALENT OR PERMISSION OF INSTRUCTOR
EPS515 Dynamics of Marriage and Family Systems  
3 credits  
*Fall Semester*  
Introduction to the history and development of marriage and family systems theory as a method for understanding individuals' behavior and functioning. Introduction to several modes of family therapy. Throughout the course, lectures will also be integrated with other topics including race, culture, gender, sexual orientation, ability.  
PREREQUISITE: GRADUATE STANDING IN COUNSELING PROGRAM OR PERMISSION OF INSTRUCTOR

EPS526 Counseling in Community Settings  
3 credits  
*Fall Semester*  
Exploration of a variety of perspectives on community services relevant to mental health counselors. Topics include: the variety of community settings; community, national, and international diversity in mental health services; diversity of clients (e.g., cultures, religions, GLBT, elderly, social classes, disabilities); mental health funding; the role of politics, policy, advocacy, and research; interviewing across cultures.  
PREREQUISITE: GRADUATE STANDING OR PERMISSION OF INSTRUCTOR

EPS531 Organization Development  
3 credits  
*Offered By Announcement Only*  
Techniques, strategies, and models of Organizational Development as they relate to various kinds of institutions. Simulations and actual interventions are stressed.

EPS533 Organization and Administration of Higher Education I  
3 credits  
*Fall Semester*  
Theoretical approaches from organizational analysis. Applications to problems, processes, and patterns of higher education institutions. Consideration given to legal status, governance patterns, and external relations. Administrator, faculty, trustee, and student roles are also explored.

EPS534 Theories of Supervision  
3 credits  
*Offered By Announcement Only*  
Examination of the elements of human behavior involved in successful supervision of instruction. Survey of current supervisory practices in the schools. Consideration of leadership theory.

EPS539 Effective Teaching and Learning in the Community College  
3 credits  
*Offered By Announcement Only*  
Preparation for community college teachers in classroom issues using a theoretical base. Items covered will include teaching performance, teaching and learning styles, motivating learners, educational factors relating to cultural and ethnic variables, and discovery of instructional resources.

EPS543 The Community College  
3 credits  
*Offered By Announcement Only*  
An overview of American community colleges including historical evolution, purposes and functions, characteristics of students and faculty, organization and administration, curricula, current issues, and trends.
EPS544 Assessing Learning in the Community College
3 credits
Offered By Announcement Only
Assessment and analysis of learning processes and outcomes in higher education.
Formative and summative assessment, data analysis and interpretation are included.
Class activities include: lectures, group projects, collaborative learning experiences,
reports, participation in assessment strategies, role playing, and demonstration
of assessment techniques.

EPS545 Administration of Student Affairs
3 credits
First Summer Session
History and philosophy of student affairs will be addressed as well as principles
and organization of student affairs administration, current problems, procedures,
and recent developments.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EPS550 Educational Measurement and Evaluation
3 credits
Offered By Announcement Only
Basic principles of measurement as they apply to the construction of teacher-made
tests and the selection and use of standardized tests. Attention is also given
to the use of measurement instruments in connection with both formative and summative
evaluation. Behavioral objectives are considered in the context of criterion-referenced
and mastery tests.
PREREQUISITE: TAL 260 OR PERMISSION OF INSTRUCTOR.

EPS553 Introductory Statistics
3 credits
Fall Semester & Second Summer Session
Basic Statistical procedures will be discussed including measures of central tendency,
variability and relationship, sampling, and basic tests of statistical significance.

EPS554 Essentials of Research in Social and Behavioral Sciences
3 credits
Fall Semester
Study of the standards methods and techniques of research in the behavioral and
social sciences. Brief orientation to quantitative and qualitative procedures
used in the analysis and interpretation of research data are emphasized.

EPS565 Family Therapy with Ethnic Minority Families
3 credits
Offered By Announcement Only
A course in special issues and strategies in family therapy with minority populations
focusing on African American and Hispanic clients.
PREREQUISITE: EPS 280 OR 515 OR 612 OR PERMISSION OF INSTRUCTOR.

EPS568 Computer Applications in Educational and Behavioral Science Research
3 credits
Offered By Announcement Only
An introduction to the use of microcomputer statistical packages in social science
research, with emphasis given to SPSS for Windows. Course content will cover a
broad range of activities encountered in the data analytic process including planning
and creating a database, data coding, file manipulation tasks, data screening,
and statistical analysis.
PREREQUISITE: EPS 553 OR EQUIVALENT WITH PERMISSION OF INSTRUCTOR.
EPS570 Basic skills in Counseling and Interviewing
3 credits Spring Semester
Introductory course on essential skills used in counseling and interviewing. Through lectures, discussions, and small group exercises, students will explore their natural style of helping and learn effective listening and communication skills. This course is not intended to train students to become a professional counselor.
PREREQUISITE: ADMISSION IN THE HIGHER EDUCATION PROGRAM OR PERMISSION OF INSTRUCTOR

EPS590 Workshop in Education
1- 3 credits Offered By Announcement Only
Study in special interest areas in education.

EPS591 Workshop in Education
1- 3 credits Offered By Announcement Only
Study in special interest areas in education.

EPS592 Workshop in Education
1- 3 credits Offered By Announcement Only
Study in special interest areas in education.

EPS593 Workshop in Education
1- 3 credits Offered By Announcement Only
Study in special interest areas in education.

EPS594 Workshop in Education
1- 3 credits Offered By Announcement Only
Study in special interest areas in education.

EPS595 Workshop in Education
1- 3 credits Offered By Announcement Only
Study in special interest areas in education.

EPS596 Workshop in Education
1- 3 credits Offered By Announcement Only
Study in special interest areas in education.

EPS597 Workshop in Education
1- 3 credits Offered By Announcement Only
Study in special interest areas in education.

EPS598 Workshop in Education
1- 3 credits Offered By Announcement Only
Study in special interest areas in education.

EPS599 Workshop in Education
1- 3 credits Offered By Announcement Only
Study in special interest areas in education.

EPS601 Philosophy of Education
3 credits Offered By Announcement Only
Analysis of the works of major educational theorists--both historical and contemporary. The role of education in shaping and defining people and culture will be emphasized.
SCHOOL OF EDUCATION
EDUCATIONAL & PSYCHOLOGICAL STUDIES

EPS603 Higher Education in the United States: From Harvard to Present
3 credits  Fall Semester
Broad view of issues and problems in higher education. Fundamental ideas and significant literature are analyzed from historical, philosophical, and societal perspectives.

EPS604 Group Dynamics and Communication Skills
3 credits  Offered By Announcement Only
Emphasis on group dynamics, group procedures and communication skills.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EPS605 Psychological Bases of Education
3 credits  Fall Semester
Review and extension of basic principles of psychology underlying educational practice. Basic concepts of educational psychology which contribute to effective education will be discussed.
PREREQUISITE: TAL 260 OR EQUIVALENT.

EPS607 Advanced Individual Study
1-3 credits  Fall & Spring Semester
Individual work on a special project under faculty guidance.
PREREQUISITE: APPLICATION FOR ADVANCED INDIVIDUAL STUDY FORM REQUIRED.

EPS608 Advanced Individual Study
1-3 credits  Fall & Spring Semester
Individual work on a special project under faculty guidance.
PREREQUISITE: APPLICATION FOR ADVANCED INDIVIDUAL STUDY FORM REQUIRED.

EPS610 Therapeutic Group Procedures
3 credits  First Summer Session
This course examines both the theory and practice of group counseling. The course covers therapist issues, patient selection criteria, group structuring as well as basic therapeutic techniques. The course prepares students to design structured counseling groups, to prepare group counseling materials, and to lead counseling groups of various types.
PREREQUISITE: EPS 612 OR EQUIVALENT.

EPS611 Assessment Strategies for Counselors II
3 credits  First Summer Session
This course emphasizes use of procedures that facilitate preparation for, and evaluation of, mental health interventions. This course involves intensive study of theory and research relating to various models and processes of clinical assessment and practice in the performance of psychological evaluations.
PREREQUISITE: EPS 612 AND 613 OR EQUIVALENT.

EPS612 Counseling Theories and Practice
3 credits  Spring Semester
Study of theories and concomitant practices in counseling and therapy.
PREREQUISITE: EPS 510 OR EQUIVALENT.
EPS613 Psychopathology for Counselors
3 credits
In depth introduction to abnormal human behavior patterns of concern to mental health professionals. Clinical conditions will be examined within the context of currently most viable theory and research relating to etiology, assessment, diagnosis and treatment.
PREREQUISITE: EPS 505 AND 514

EPS614 Counseling and Sexuality
3 credits
Emphasis is placed on self-awareness and acceptance of all dimensions of human sexuality. Readings and classroom activities focus on biological aspects of sexuality, an understanding of sexual dysfunctions, and their treatment.
PREREQUISITE: EPS 505 AND 513

EPS615 Family Therapy
3 credits
Concentrated study of several approaches to family therapy including systemic and psychosocial perspectives. Theory and techniques of family therapy are taught in lecture, videotape, and simulation.
PREREQUISITE: EPS 515 OR PERMISSION OF INSTRUCTOR.

EPS616 Therapy for Couples
3 credits
Theory and technique linked to working with couples, in marriage and in other relationships.
PREREQUISITE: EPS 515 AND 612 OR PERMISSION OF INSTRUCTOR

EPS617 Seminar in Counseling Psychology
2-9 credits
A rotating-topic seminar in which various special topics will be presented. The particular topic being covered in a particular semester will be announced in the published class schedule.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EPS618 Practicum in Counseling I
1-3 credits
Supervised experience at the Institute for Individual and Family counseling and other appropriate clinical settings relating theoretical formulations to intervention strategies appropriate to specialization.
PREREQUISITE: PERMISSION OF PROGRAM COORDINATOR

EPS619 Practicum Laboratory I
1-3 credits
Individual, dyad, and small group supervision.
PREREQUISITE: PERMISSION OF PROGRAM COORDINATOR

EPS620 Counseling Psychology: Theory, Research and Practice
3-6 credits
Orientation to counseling psychology as a discipline including theories, research methodology, contemporary research, lifestyle and career development theory, and professional issues. Required of all first year counseling psychology students. May be taken for 3 or 6 credits to a maximum of 12 credits.
PREREQUISITE: ADMISSION TO COUNSELING PSYCHOLOGY DOCTORAL PROGRAM.
EPS621 Psychological Appraisal I  
3 credits Fall Semester  
Orientation to psychological appraisal with emphasis on development of skill in assessment of intellectual functioning.  
PREREQUISITE: DOCTORAL STUDENT IN COUNSELING OR CONSENT OF INSTRUCTOR.

EPS622 Psychological Appraisal II  
3 credits Spring Semester  
Orientation to psychological appraisal with emphasis on use of procedures which facilitate preparation for, and evaluation of, intervention efforts in the personality and social-behavioral areas.  
PREREQUISITE: EPS 621.

EPS623 Substance Abuse and Addictions: Theories and Counseling  
3 credits Fall Semester  
Theories and research on individual, systemic causes, and outcomes of substance abuse, and concomitant practices in counseling and therapy.  
PREREQUISITE: EPS 612 OR PERMISSION OF INSTRUCTOR.

EPS624 Theory and Practice with Children and Adolescents  
3 credits Second Summer Session  
Course prepares students to provide preventive and therapeutic interventions with children and adolescents including theory, research, and practice.  
PREREQUISITE: EPS 612 OR PERMISSION OF INSTRUCTOR.

EPS625 Research and Program Evaluation in Counseling  
3 credits Spring Semester  
Course focuses on the interpretation and application of research data as applied to clinical practice. Skills in using behavioral research-based literature to identify, evaluate and interpret appropriate interventions are also emphasized.  
PREREQUISITE: EPS 510, 512, 514, 612 AND 613 OR EQUIVALENTS OR PERMISSION OF INSTRUCTOR.

EPS628 Doctoral Practicum I  
2-9 credits Fall & Spring Semester  
Supervised counseling experiences with clients at the Institute for Individual and Family Counseling. Individual and small group supervision by program faculty.  
PREREQUISITE: ADMISSION TO COUNSELING AND PSYCHOLOGY DOCTORAL PROGRAM.

EPS629 Doctoral Practicum II  
1-9 credits Fall & Spring Semester  
Supervised counseling and assessment experience in outside agencies, hospitals and community settings. Small group case conference conducted by program faculty.  
PREREQUISITE: EPS 628.

EPS630 Advanced Practicum in Counseling Psychology  
1-9 credits Fall & Spring Semester & First & Second Summer Session  
Supervised experience appropriate to the work of the counseling psychologist.  
PREREQUISITE: EPS 629 AND PERMISSION OF INSTRUCTOR.

EPS631 Student Diversity in American Higher Education  
3 credits Fall Semester  
Emphasis on the diversity of today's undergraduate students. An examination of the sociological context and philosophical orientation of contemporary college students is included.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.
EPS633 Organization of Higher Education II: Governance, Leadership and Finance
3 credits Fall Semester
Provides an overview of selected topics in governance, administrative leadership and finance in higher education.
PREREQUISITE: EPS 533 OR PERMISSION OF INSTRUCTOR.

EPS634 Supervision in Counseling Psychology
1 - 2 credits Fall & Spring Semester
The course includes a didactic presentation of theories of supervision and consultation. Application of supervision theories with opportunities to practice beginning supervisor skills.
PREREQUISITE: EPS 628

EPS635 College Student Development: Theory, Research and Practice
3 credits Spring Semester
Emphasis on student growth and development during college and an analysis of the factors which affect development along cognitive and affective dimensions. An in-depth examination of college student development theories is included.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EPS636 Critical Issues in Student Affairs
3 credits Offered By Announcement Only
Emphasis on the most pressing issues facing the profession of student affairs today including diversity, funding, staff retention and the law and student affairs.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EPS637 Seminar in Curriculum and Supervision
3 credits Offered By Announcement Only
Laboratory course for developing curriculum materials and making curriculum changes. Students will develop materials and plans needed in their institutions.

EPS640 Enrollment Management: Theory and Practice
3 credits Fall Semester
Comprehensive overview of principles and practices of a strategic process that begins with recruitment and continues through graduation.

EPS641 Advanced Seminar in Enrollment Management
3 credits Spring Semester
In-depth exploration of topics in enrollment management, including market research, market testing, pricing strategies, strategic planning, and development of a future vision.
PREREQUISITE: EPS 640.

EPS642 Curricula in Higher Education
3 credits Offered By Announcement Only
Consideration of the philosophical, psychological, and social bases of general, liberal, and graduate education. Analytical review of research on collegiate curriculums, programmatic innovations, and their effect are also included.

EPS643 Nature of Collegiate Instruction
3 credits Offered By Announcement Only
Role of the college professor, academic freedom, and tenure. Organization and presentation of knowledge in one's discipline will be emphasized. Use of micro-teaching and other advanced techniques as well as the development of course outlines and evaluation of self-instructional procedures will also be covered.
EPS646 Seminar in Higher Education/Enrollment Management: Contemporary Issues
3 credits Fall Semester

EPS647 Seminar in Higher Education Administration: Contemporary Issues
3 credits Spring Semester
ONLINE course: Special refund policy apply. No refunds given after the start of the course. Open to only students admitted to the Online Graduate Certificate Program. Please contact Carol Wilson at umiamionline@miami.edu regarding registration.
PREREQUISITE: ADMISSION TO DOCTORAL OR SPECIALIST PROGRAM OR PERMISSION OF INSTRUCTOR.

EPS650 Meta-analytic methods for research synthesis.
3 credits Fall Semester
Meta-analysis is the general practice of combining, comparing, and interpreting statistics across a set of studies that investigate the same (or similar) phenomena using a properly motivated theoretical framework. Meta-analysis has become a popular tool in a variety of research disciplines, including the social sciences, education, medicine, and business. This course provides a thorough introduction to the theoretical foundations of meta-analysis, discusses commonly used statistical techniques, and analyzes several examples of the existing meta-analysis. Emphasis is placed on application, so that students are trained to independently perform a meta-analysis, from start to finish, in whatever substantive area interests students the most.
PREREQUISITE: EPS 671 (ANOVA) AND EPS 672 (REGRESSION ANALYSIS), OR EQUIVALENT COURSES.

EPS651 Survey Research Methods
3 credits Fall Semester
Focus on standards and practical strategies for designing different types of survey instruments and conducting survey research. Students are required to develop a proposal for survey research, develop a survey instrument, and conduct small pilot study by collecting, analyzing, and reporting survey data.
PREREQUISITE: EPS 670 AND 533 OR EQUIVALENTS.

EPS652 Nonparametric Methods for Quantitative Analysis
3 credits Offered By Announcement Only
A course in univariate nonparametric statistical techniques for applications in the behavioral and social sciences. These "sturdy" statistical methods will be developed by analogy with the corresponding parametric models. The SPSS-X statistical package will be used to analyze data sets provided by the instructor.
PREREQUISITE: EPS 553.

EPS653 Advanced Statistical Methods
3 credits Offered By Announcement Only
A course in univariate parametric statistical inference, topics included are hypothesis testing, estimation, sampling, analysis of variance, correlation analysis, simple, and multiple regression.
PREREQUISITE: A BASIC COURSE IN STATISTICS AND A BASIC COURSE IN MEASUREMENT.

EPS654 Program Evaluation
3 credits Fall Semester
Terminology, models, standards, practices, and common problems associated with program evaluation in Educational and Social Service settings. Prerequisite: EPS 670 and 553 or equivalents.
PREREQUISITE: EPS 670 AND 553 OR EQUIVALENTS.
**EPS659 Field Experience in Educational Research**  
2-6 credits  
*Fall & Spring Semester*  
A total of 125 hours of supervised practical experiences in educational research. Emphasis is placed on actual participation in a wide variety of on-going research projects through associations with an approved educational R & D center. Normally taken in two or three credit blocks.  
PREREQUISITE: PERMISSION OF ADVISOR.

**EPS661 Measurement and Psychometric Theory**  
3 credits  
*Spring Semester*  
This course provides an introduction to the theory and application of measurement and psychometric models used in the behavioral sciences.  
PREREQUISITE: EPS 672 OR EQUIVALENT COURSE ON REGRESSION ANALYSIS.

**EPS662 Item Response Theory**  
3 credits  
*Fall Semester*  
The purpose of the course is to provide training in the theory and application of item response theory (IRT) as it pertains to educational and psychological measurements. Focus will be given to discussing IRT as a measurement model used to measure the properties of items and individuals. Particular attention will be given to contrasting the properties of the IRT model to the classical test theory, and the application of IRT to actual data sets.  
PREREQUISITE: EPS 672, EPS 661.

**EPS663 Professional Psychological Spanish**  
3 credits  
*Second Summer Session*  
Acquisition of Spanish language skills necessary for functioning as a psychologist or mental health professional. Implications of language for the therapy process. Professional roles of bilingual counselors and psychologists.  
PREREQUISITE: SPANISH FLUENCY.

**EPS664 Hispanic and Latino Psychology**  
3 credits  
*Offered By Announcement Only*  
Human psychological functioning from an Hispanic and Latino perspective with a focus on Hispanic and Latino scholars in psychology.  
PREREQUISITE: MULTICULTURAL COUNSELING OR EQUIVALENT.

**EPS665 Psychological Interventions with Hispanic/Latino Populations**  
3 credits  
*Fall Semester*  
Explores the diversity of experiences among Hispanics and their implications for therapy. Topics include: racial diversity among Hispanics, sociopolitical factors in mental health, the impact of immigration on mental health, special psychological treatments: trauma treatment, family interventions and bilingual counseling.  
PREREQUISITE: COURSE IN MULTICULTURALISM OR DIVERSITY OR PERMISSION OF INSTRUCTOR.

**EPS667 Seminar in Educational Research**  
3-6 credits  
*Offered By Announcement Only*  
Seminar providing intensive study of contemporary advanced research methodologies in education for example, multivariate statistical models, qualitative analysis, latent trait theory, and causal models. Topics and faculty rotate. Students can enroll in this course for two semesters.  
PREREQUISITE: ADMISSION TO DOCTORAL PROGRAM OR PERMISSION OF INSTRUCTOR.
EPS670 Introduction to Research Methods
3 credits  Fall Semester
The nature of disciplined inquiry in behavioral and social sciences. Includes philosophy of science, quantitative and qualitative research, basic concepts in sampling and measurement, and systematic searches of the research literature. Students required to complete literature search on a topic of their interest and submit a report of their findings.
PREREQUISITE: PREREQUISITE OR COREQUISITE: EPS 553 OR EQUIVALENT.

EPS671 Group Comparative Research Designs and ANOVA Methods
3 credits  Fall & Spring Semester
Group comparative designs, univariate parametric and nonparametric methods and statistical inference will be discussed. Topics include probability, sampling, estimation, ANOVA, ANCOVA. Students will be required to use computer packages (SAS/SPSS).
PREREQUISITE: EPS 670 OR EQUIVALENT OR PERMISSION OF INSTRUCTOR.

EPS672 Regression Methods
3 credits  Fall & Spring Semester
This course will provide: (1) a conceptually-oriented introduction to regression methods and (2) opportunities to learn related data-analytic techniques.
PREREQUISITE: EPS 670 OR EQUIVALENT OR PERMISSION OF INSTRUCTOR.

EPS673 An Introduction to Structural Equation Modeling for Multivariable Data
3 credits  Spring Semester
This course will provide (1) a conceptually-oriented introduction to Structural Equation Modeling for multivariate data and (2) opportunities to learn related data-analytic techniques.
PREREQUISITE: EPS 670; 671 AND 672.

EPS674 Introduction to Multilevel Modeling
3 credits  Fall Semester
This course will provide: (1) a conceptually-oriented introduction to multilevel modeling and (2) opportunities to learn related data-analytic techniques.
PREREQUISITE: EPS 671 & EPS 672 OR PSY631 & PSY632

EPS675 Qualitative Methods I
3 credits  Fall Semester
An overview of the history, nature, characteristics, strategies, and ethics of qualitative research methods. Critical analysis and evaluation of various types of qualitative studies, including design, sampling, processes of data collection and analysis, and reporting results.
PREREQUISITE: EPS 670 AND (671 OR 672) OR EQUIVALENTS OR PERMISSION OF INSTRUCTOR

EPS676 Qualitative Methods II: Case Studies and Grounded Theory
3 credits  Spring Semester
Types and designs of case studies, development of protocol, field work, data analysis, and report writing. Practical procedures and techniques for conducting grounded theory studies, including data coding and analysis, and reporting of results.
PREREQUISITE: EPS 675 OR EQUIVALENTS.
EPS677 Qualitative Methods II: Interviews and Content Analysis
3 credits                     Spring Semester
Sociological and oral history interview methods, including methodological issues, computer-based coding, decoding, and interpreting data. Visual and text based content analysis, scoring schemas, and inter-rated reliability are also covered.
PREREQUISITE: EPS 675 OR EQUIVALENT.

EPS678 Applied Multivariate Statistics
3 credits                     Spring Semester
The aim of this course is to provide a solid foundation in the basic concepts of multivariate statistics, and its application to practical research questions. This course extends the content of EPS 671 (ANOVA methods) and EPS 672 (regression methods) to cover methods used when there are multiple dependent variables to be modeled simultaneously. This course focuses on the traditional multivariate methods (as opposed to the contemporary models of structure equation modeling) that see wide use in the behavioral sciences. The general topics covered in the course include, but are not limited to: introductory matrix algebra, multivariate analysis of variance (MANOVA), factorial MANOVA, discriminant function analysis, and exploratory factor analysis. In all cases, this course is intended to provide a solid conceptual background of these topics, as well as a thorough description/practice of the application of these topics to real data scenarios.
PREREQUISITE: EPS 671, EPS 672

EPS679 Research Practicum
1-6 credits                   Fall & Spring Semester
Hands on experience in various aspects and processes in research.
PREREQUISITE: DOCTORAL STANDING OR PERMISSION OF INSTRUCTOR

EPS680 Cultural Diversity and Mental Health
3 credits                     Fall Semester
Advanced training in conceptualizing the individual within cultural and sociopolitical contexts with purpose of creating more reflective and intentional clinicians. Includes learning skills for improving the lives of clients in these areas.
PREREQUISITE: ADMISSION TO THE COUNSELING PSYCHOLOGY DOCTORAL PROGRAM OR PERMISSION OF THE INSTRUCTOR.

EPS685 Dissertation Seminar
3 credits                   Offered By Announcement Only
The development and analysis of dissertation proposals will be required. Detailed coverage of the research process, proposal elements, dissertation writing and all aspects of doctoral research will be emphasized. Extensive feedback on research ideas and writing is involved.
PREREQUISITE: COMPLETION OF RESEARCH COMPETENCIES AND/OR MAJOR PORTION OF ALL COURSES IN DOCTORAL PROGRAM.

EPS687 Internship in College Teaching
3 credits                     Fall & Spring Semester
A program in observation and supervised teaching in the community junior or liberal arts college. The student spends 15-20 hours per week. Included is a seminar held with the college supervisor which meets several times during the semester.
PREREQUISITE: APPROVAL OF COMMITTEE ON INTERNSHIP.
EPS688 Practicum: Administration of Higher Education
1-6 credits  
Fall & Spring Semester & First & Second Summer Session
This course is designed to provide students with an opportunity to develop professional competencies while they apply theory to practice. Opportunities can be pursued in enrollment management or student affairs related offices either on campus or at other higher education institutions. Students will contract for the type of experience desired and a formal research paper and presentation will culminate this activity.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EPS698 Advanced Individual Study
1-3 credits  
Fall & Spring Semester & First & Second Summer Session
Individual work on a special project under faculty guidance.
PREREQUISITE: APPLICATION FOR ADMISSION TO ADVANCED INDIVIDUAL STUDY FORM REQUIRED.

EPS699 Advanced Individual Study
1-3 credits  
Fall & Spring Semester & First & Second Summer Session
Individual work on a special project under faculty guidance.
PREREQUISITE: APPLICATION FOR ADMISSION TO ADVANCED INDIVIDUAL STUDY FORM REQUIRED.

EPS702 Advanced Practicum in Counseling
1-6 credits  
Fall & Spring Semester
Group supervision meetings in which students present case conceptualizations, review information from professional sources regarding their clients, and discuss the supervisory and organizational dynamics of their outplacements settings.
PREREQUISITE: EPS618

EPS703 Internship in Counseling Psychology
1-6 credits  
Fall & Spring Semester
Supervised internship in Counseling Psychology in an approved facility.
PREREQUISITE: PERMISSION OF PROGRAM FACULTY.

EPS710 Master's Thesis
1-6 credits  
Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

EPS720 Research in Residence
0 credits  
Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in EPS 710 usually six credits. Credit not granted. May be regarded as full time residence.

EPS725 Continuous Registration--Master's Study
0 credits  
Fall & Spring Semester & First & Second Summer Session
To establish residence for non-thesis master's students who are preparing for major examinations. Credit not granted. Regarded as full time residence.
EPS730 Doctor of Philosophy Dissertation
1-12 credits                 Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor but not for less than a total of 24. Not more than 12 hours of EPS 730 may be taken in a regular semester, nor more than six in a summer session. Where a student has passed his/her (a) qualifying examinations, and (b) is engaged in an assistantship, he/she may still take the maximum allowable credit stated above.
PREREQUISITE: ADMISSION TO DOCTORAL PROGRAM.

EPS735 Doctor of Education Dissertation
1-12 credits                 Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ed.D. The student enrolls for credit as determined by his/her advisor. Credit is not awarded until the doctoral project has been accepted. Total enrollment may not exceed 12 credits.
PREREQUISITE: ADMISSION TO DOCTORAL PROGRAM.

EPS750 Research in Residence
0 credit                     Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D. and Ed.D., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

EXERCISE & SPORT SCIENCES
ESS515 Nutrition Diet and Exercise
3 credits                                                      First Summer Session
Students will learn the latest concepts in weight management, physical fitness, and healthy eating. They will be able to understand the complex interplay of carbohydrates, protein, fat, water, fiber, vitamins, and minerals in the nourishment of their body and overall well-being. They will also examine serious health issues such as the use/misuse of anabolic steroids, weight control, and eating disorders.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ESS520 Cellular Exercise Physiology
3 credits                                                             Spring Semester
The course examines Bioenergetics and Muscular Physiology in training and detraining. Topics include the energy systems and their functional application during exercise, muscle structure and function, cellular and sub-cellular modifications of organelles and contractile mechanisms as a result of training and physiological bases of training techniques.

ESS521 Systemic Exercise Physiology
3 credits                                                             Fall Semester
The study of the physiological effects of acute vs. chronic training on homeostatic function, musculoskeletal systems, energy system function, cardiovascular and the pulmonary systems. Student will be able to understand and interpret terminology and research literature published in the field.
PREREQUISITE: ONE YEAR OF UNDERGRADUATE CHEMISTRY AND ONE YEAR OF UNDERGRADUATE HUMAN BIOLOGY.

ESS522 Basic Statistics in Exercise and Sport Sciences
3 credits                             Fall Semester & First & Second Summer Session
Introduction to basic statistical techniques commonly used in the Exercise and Sport Sciences. Designed as a prerequisite for ESS 646.
ESS523 Athletic Training Techniques - Assessment
3 credits Fall Semester
This course will introduce the basic concepts related to injury evaluation. With this information, and with the development of basic skills, the student should be able to form an impression of the nature of most musculoskeletal injuries.
PREREQUISITE: ESS 525 AND 588.

ESS524 Athletic Training Techniques - Rehabilitation
3 credits Fall Semester
This course will introduce theoretical concepts that must be understood in order to be able to rehabilitate a musculoskeletal injury. Regarding actual rehabilitation techniques, the emphasis will be on therapeutic exercise with only a brief introduction to therapeutic modalities.
PREREQUISITE: ESS 525 AND 588.

ESS525 Advanced Kinesiology
3 credits Fall & Spring Semester
In-depth study of the human skeletal and muscular systems with a focus on the mechanics of movement as related to physical activity, sports, and athletics.
PREREQUISITE: ESS 245 OR PERMISSION OF INSTRUCTOR.

ESS530 Laboratory Techniques in Functional Evaluation of Skeletal Muscle
3 credits Spring Semester
This course examines the theories of data collection and collection techniques used to evaluate musculo-skeletal and neuromuscular function. The application of both computerized and non-computerized collection systems for performance evaluation is covered. The course is also designed to establish a clear linkage between the acute and chronic musculo-skeletal and neuromuscular changes that occur during exercise and the laboratory methods used to assess those changes. Collection theory, musculoskeletal and neuromuscular function, methods of strength evaluation, anaerobic power testing, electromyography, and a number of other functional parameters will be discussed.
PREREQUISITE: ESS 520.

ESS531 Laboratory Experiences in Systemic Exercise Physiology
3 credits Fall Semester
This course provides a laboratory assessment of physiological principles and theories learned in the classroom setting. Focus will be on systemic application to exercise as an acute or chronic stressor. Corequisite: ESS 521.
PREREQUISITE: COREQUISITE ESS 521.

ESS532 Sports Injuries: Prevention and Treatment
3 credits Fall & Spring Semester
Prevention, diagnosis, treatment and rehabilitation of sports injuries. Anatomical and kinesiological applications to sports injuries.

ESS534 Contemporary Issues in Sports Medicine
3 credits Offered By Announcement Only
The study of special problems and contemporary issues associated with sports medicine.
PREREQUISITE: BACKGROUND AND EXPERIENCE OR PERMISSION.
ESS540 Exercise Psychobiology  
3 credits  
Fall & Spring Semester  
This course is designed primarily for graduate level Exercise and Sport Science students who are interested in the biochemical basis of personality as affected by exercise and sport. The course involves interdisciplinary integration and comprehensive reviews of ancient and current literature dealing with exercise, stress, emotional, personality, immune system function and neuroendocrine function.  
PREREQUISITE: ESS 521.

ESS541 Neurophysiology in Exercise Science  
3 credits  
Spring Semester  
Examination of the functions of the central, peripheral, and autonomic nervous systems in regulating exercise homeostasis and the structural and functional modifications to the systems through training. NOTE: This course is a writing intensive course. This means that all examinations and papers include a critical evaluation of the student's ability to convey information using the written word.  
PREREQUISITE: ESS 520.

ESS545 Special Sport Populations  
3 credits  
Spring Semester  
This course presents an in-depth examination of chronic conditions and medical problems commonly observed in athletes. Students will learn about the etiology of the medical condition, how exercise affects the condition, and the most recent therapeutic treatments prescribed for the condition.  
PREREQUISITE: ESS 521.

ESS555 Exercise Biochemistry  
3 credits  
Fall Semester  
This course presents an in-depth examination of the biochemical basis of exercise. Topics include neural control of movement, neuro-endocrine control of metabolism, the kinetics of glucose, lactate, free fatty acids, and amino acids, and the influence of contractile activity on skeletal muscle gene expression. Both the instructor and the students will incorporate current peer-reviewed research in the field.  
PREREQUISITE: ONE YEAR OF CHEMISTRY AND BIOCHEMISTRY RECOMMENDED.

ESS561 Advanced Tests and Measurements in Exercise and Sport Sciences  
3 credits  
Fall Semester  
Advanced techniques of testing, measurement, and evaluation in exercise and sport sciences. Individual projects.  
PREREQUISITE: PERMISSION.

ESS562 Fiscal Management in Sports Administration  
3 credits  
Fall Semester  
Fiscal management as related to athletic sports administration, recreation and leisure sports administration, and physical education.  
PREREQUISITE: BACKGROUND AND EXPERIENCE IN EXERCISE SCIENCE OR PERMISSION.

ESS563 Facilities and Event Management  
3 credits  
Spring Semester  
This course is designed to introduce students to principles and practices of planning, funding and managing facilities associated with sports participation including professional sport venues, college sports, parks, recreational sport and health/fitness clubs. Students will gain an understanding of promoting, marketing, and maintaining sport facilities.  
PREREQUISITE: ESS 566.
ESS564 Principles of Sports Marketing  
3 credits  Fall & Spring Semester  
This course will focus on the vast world of sports marketing. The basic principles of marketing and marketing management will be introduced and integrated with application of these principles to sport and sports-related organizations.  
PREREQUISITE: ESS 301 OR PERMISSION OF INSTRUCTOR.

ESS565 Legal Aspects of Sports and Exercise Science  
3 credits  Spring Semester  
Legal liability, personal injury, negligence and other related legal aspects of sports and exercise science.  
PREREQUISITE: BACKGROUND AND EXPERIENCE OR PERMISSION.

ESS566 Organization and Administration of Sports Programs  
3 credits  Fall Semester  
Administrative and organizational procedures and problems specific to athletic administration, recreation and leisure sports administration, and physical education.  
PREREQUISITE: BACKGROUND AND EXPERIENCE IN EXERCISE SCIENCE OR PERMISSION.

ESS567 Elements of Sports Psychology  
3 credits  Fall & Spring Semester  
Introduction to the study of sport and exercise psychology including theory, current research and practical application.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ESS568 Developmental Sports Psychology  
3 credits  Offered By Announcement Only  
Examination of the concept of sport psychology which includes but is not limited to performance, enhancement, student performance and academic application.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ESS571 Sport Industry in South Florida  
3 credits  Spring Semester  
This course will examine the various sport based organizations/events that are part of the sport industry in South Florida. Study of these organizations/events will include (a) products/services produced, (b) organizational structure, (c) economic impact on the local community, (d) key management personnel, (e) physical facilities, and (f) internship/employment opportunities.

ESS572 Creative Approaches to Problem Solving and Conflict Management  
3 credits  Spring Semester  
This hands-on course will examine the concepts of problem solving and conflict management from both personal and organizational perspectives. Students will have the opportunity to study in-depth both of these concepts (and the relationship between them) through a combination of lecture, theory, individual and group activities, readings, practical exercises, and self-assessment tools.

ESS573 Sport Governance  
3 credits  Spring Semester & Second Summer Session  
This course provides the student with an examination of the governing organizations of sport at the youth, secondary, intercollegiate, professional, international, sport specific and Olympic levels. In addition, policy development in sport management will be explored.  
PREREQUISITE: GRADUATE STANDING.
ESS574 Ethical Decision Making in Sports and the Professions
3 credits  Fall & Spring Semester
This course will examine ethical decision-making in a variety of environments with an emphasis on sport professions. Real and hypothetical situations will be utilized, and the course will combine theory with practical application. The case method in sport ethics will be incorporated.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ESS575 Essential Leadership in Sports and the Professions
3 credits  Fall & Spring Semester
This course will examine the concept of leadership as it pertains to sports and other professions. Various leadership and management skills will be included with a focus on practical applications in a work environment. Theory and self-assessment strategies will be incorporated.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ESS576 Practical Approach to Motivation and Ethical Decision Making
1- 3 credits  Spring Semester
A critical study of practical problems of professionals in Exercise and Sport Sciences.
PREREQUISITE: BACKGROUND AND EXPERIENCE OR PERMISSION.

ESS577 Advanced Nutrition for Sports and Fitness
3 credits  Spring Semester
This course presents an in-depth study of the nutritional concerns of today's recreational and competitive athlete. Topics include Dehydration, Classic Carbohydrate Loading, Protein needs, Ergogenic Aids, and more. State-of-the-art research in the field is provided. This is also a writing intensive course. Thus, writing skills will represent an integral part of one's grade.
PREREQUISITE: ESS 155 AND 221 OR 521.

ESS578 Pharmacology for Allied Health Professionals
3 credits  Spring Semester
The study of drug families and drugs in common use across spectrums of age, illness, disease, and disability. Students will understand body systems treated with current pharmaceuticals over-the-counter (OTC) medications, and nutraceuticals. Actions, key adverse effects, and influences on individuals undergoing physical activity will be emphasized.
PREREQUISITE: ESS 521.

ESS579 Principles of Exercise Prescription/Assessment: Cardiovascular
3 credits  Spring Semester
This course presents a comprehensive overview of the physical, physiological and metabolic responses of the human body to exercise testing and training both in health and disease. The successful student will gain an understanding of the process involved in prescribing safe and effective therapeutic exercise in healthy individuals as well as patients with heart and lung disease, diabetes and obesity. An overview of environmental and legal considerations in the prescriptive process will also be discussed.
PREREQUISITE: ESS 521.
ESS580 Principles of Exercise Prescription: Neuromuscular
3 credits Fall Semester
An examination of the scientific bases of modern training techniques designed to optimize performance, their functional application and potential impact on performance in sport and everyday activity.
PREREQUISITE: ESS 520 AND 521 OR PERMISSION OF THE INSTRUCTOR.

ESS585 Advanced Topics in Exercise and Sport Sciences
3 credits Spring Semester & First & Second Summer Session
This course will provide a synthesis of essential concepts in specialty subjects relevant to one's field of interest.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

ESS586 Exercise Prescription/Assessment Laboratory
3 credits Fall Semester
PREREQUISITE: ESS 579.

ESS587 Laboratory Experience in Sports Nutrition
3 credits Spring Semester
This laboratory class provides case study analyses and computerized nutrient analysis systems designed to evaluate nutrition and hydration needs of the recreational and competitive athlete. From urinalysis and blood work to body composition and computerized nutrient data base systems, this laboratory provides a clinical approach to evaluating the nutrition status of the exercising individual. Corequisite: ESS 577.
PREREQUISITE: COREQUISITE ESS 577.

ESS588 Gross Anatomy in Exercise and Sport Sciences
3 credits Spring Semester
Human dissection of the major muscles, arteries and nerves of the body. Course is held at the University of Miami, Medical Campus, cadaver laboratory. Special consideration is given to injury sites in sports such as the knee, shoulder, elbow, neck and spinal areas. Students are required to pay a laboratory fee for this class.

ESS589 Directed Readings in Exercise and Sport Sciences
1-3 credits Fall & Spring Semester & First & Second Summer Session
Directed Readings focusing on research and contemporary trends.
PREREQUISITE: PERMISSION OF CHAIRPERSON.

ESS590 Special Topics in Exercise and Sport Sciences
1-3 credits Fall & Spring Semester & First & Second Summer Session
This course is designed for students wishing to focus on a specific area of study within the umbrella of the Exercise and Sport Sciences curriculum. Students will be given supervision and support in a direction relevant to their needs and interests in a structured setting.
PREREQUISITE: BACKGROUND AND EXPERIENCE OR PERMISSION.

ESS602 Athletics in the United States
3 credits Fall Semester
An assessment of athletics in the United States. Focus on historical perspectives, contemporary issues, interface with international athletics, and future trends.
PREREQUISITE: BACKGROUND AND EXPERIENCE IN ATHLETICS OR PERMISSION OF INSTRUCTOR.
ESS603 Contemporary Issues in Exercise and Sport Sciences
3 credits
Spring Semester
Problem identification, investigation, analysis, and problem solving approaches in Exercise and Sport Sciences.

ESS604 Recreation in the United States
3 credits
Offered By Announcement Only
An assessment of recreation and leisure in the United States. Focus on past, present, and future trends, problems, and issues.
PREREQUISITE: BACKGROUND AND EXPERIENCE IN RECREATION OR PERMISSION OF INSTRUCTOR.

ESS612 Applied Sport Psychophysiology
3 credits
Fall Semester
The study of the physiological effects of acute vs. chronic training on homeostatic function, musculoskeletal systems, energy system function, cardiovascular system, and the pulmonary system. Students will be able to understand and interpret terminology and research literature published in the field.
PREREQUISITE: ESS 541

ESS640 Seminar in Exercise Science
3 credits
Offered By Announcement Only
Contemporary topics and relevant issues in exercise science.
PREREQUISITE: BACKGROUND AND EXPERIENCE IN EXERCISE SCIENCE OR PERMISSION.

ESS641 Aging: Physiological Changes and Their Implications of Training
3 credits
Spring Semester
The physiological changes that occur due to aging and their impact on fall prevention, independence and the application of prophylactic exercise prescriptions.
PREREQUISITE: ESS 520 OR PERMISSION OF THE INSTRUCTOR.

ESS642 Cardiac Rehabilitation: Phases I-IV
3 credits
Spring Semester
This course represents an in-depth review and evaluation of the cardiac patient according to sound physiological procedures. Students must understand the methods of stress testing and how to use stress test results to implement a cardiac rehabilitation program. Phase I through Phase IV review of Cardiac Rehabilitation is fully examined.
PREREQUISITE: ESS 521.

ESS643 Laboratory Experiences in Cardiac Rehabilitation
3 credits
Spring Semester
This class provides hands-on clinical experiences in preparation of patient for testing, assessment of pre-existing medical conditions and risk factors as well as appropriate procedures for stress testing. Student will, in addition, have the opportunity to view Thallium stress tests, echocardiography and cardiac surgical procedures such as angioplasty and bypass surgery.
PREREQUISITE: ESS 521.

ESS644 Interpretation of the ECG
3 credits
First Summer Session
This class will provide information of the electrophysiology of the heart, medicines used to improve heart function, and critical examination of waveform analyses in interpreting the electrocardiogram. Prerequisite: ESS 642 or permission of the instructor.
PREREQUISITE: ESS 642 OR PERMISSION OF THE INSTRUCTOR.
ESS646 Research Methods in Exercise and Sport Sciences  
3 credits  Fall Semester

ESS647 Analytic Methods in Exercise and Sport Sciences  
3 credits  Spring Semester
Methods of analyzing research data in exercise and sport sciences.  
PREREQUISITE: ESS 646 OR PERMISSION.

ESS681 Issues Specific to Women's Health  
3 credits  Spring Semester
This course focuses upon clinical health issues relevant to women. Students will acquire a body of knowledge concerning the specific biological and physiological changes women experience from birth to maturity, and from the pre- to postmenopausal state. Women will learn significant issues related to women’s health and be able to make more educated decisions regarding their health and treatment options.  
PREREQUISITE: ESS 521 OR PERMISSION OF THE INSTRUCTOR

ESS682 Psychosocial Issues in Women’s Health  
3 credits  Spring Semester
This course covers a broad perspective of women and their self-esteem, their femininity, and their role in family household. Attention will be paid to the historical, cultural, and anthropological development of women and their role in society. The influence of gender will explore several areas which include a) pregnancy, b) menopause, c) menstrual cycle, d) stress and career vs. family, e) depression, and f) body image.

ESS683 Sports Medicine for the Female Athlete  
3 credits  Fall Semester
This course focuses upon the physiological effects of exercise on the female athlete as it relates to her performance and health. Physiological differences between male and females will be examined as it impacts the woman’s performance abilities and potential. Gender specific problems regarding the exercising female will be explored.  
PREREQUISITE: ESS 521

ESS684 Obesity: Prevention and Treatment  
3 credits  Fall Semester
This course is designed to evaluate dieting, rebound effect, set point theory, brown fat, and adaptive thermogenesis, as they relate to the etiology of obesity. The course will cover a step by step approach in the recognition, and management of the overweight patient. This includes determination of basal metabolic rate, thyroid function, percent body fat, quantification of adipocyte number and mass, and research on exercise as a therapeutic intervention. Students will learn to design exercise programs for hypothetical obese patients and the impact of both diet and exercise on long-term weight management.  
PREREQUISITE: ESS 521 AND 577 OR PERMISSION OF INSTRUCTOR

ESS693 Research Colloquium.  
1-3 credits  Fall & Spring Semester
This course presents graduate students with the theoretical and practical tools necessary for presenting their scientific research in an organized, logical, and analytical manner.  
PREREQUISITE: ESS 646.
ESS694 Advanced Individual Study
1- 3 credits                 Fall & Spring Semester & First & Second Summer Session
The Application for Admission to Individual Study Form will be required.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN AND FACULTY MEMBER INVOLVED.

ESS696 Graduate/Clinical Field Experience in Exercise and Sport Sciences
1- 9 credits                 Fall & Spring Semester & First & Second Summer Session
Practical experience not ordinarily available through coursework sequences. Placement in a variety of settings, clinics, public and private voluntary agencies and schools. Supervised by a faculty member of the department.
PREREQUISITE: PERMISSION OF CHAIRPERSON.

ESS697 Graduate/Clinical Field Experience in Exercise and Sport Sciences
1- 3 credits                 Fall & Spring Semester & First & Second Summer Session
Practical experience not ordinarily available through coursework sequences. Placement in a variety of settings, clinics, public and private voluntary agencies and schools. Supervised by a faculty member of the department.
PREREQUISITE: PERMISSION OF CHAIRPERSON.

ESS698 Field Experience in Sport Administration
1- 3 credits                                          First & Second Summer Session
Practical experience not ordinarily available through coursework sequences. Placement in a variety of settings, clinics, public and private voluntary agencies and schools. Supervised by a faculty member of the department.
PREREQUISITE: NONE

ESS699 Special Project in Exercise and Sport Sciences
1- 3 credits                 Fall & Spring Semester & First & Second Summer Session
This course represents the capstone course in a student's field and should represent a culmination of all information learned in class.

ESS710 Master's Thesis
1- 6 credits                 Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

ESS720 Research in Residence
0 credit                     Fall & Spring Semester
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in ESS 710 (usually six credits). Credit not granted. May be regarded as full time residence.

ESS725 Continuous Registration--Master's Study
0 credit                     Fall & Spring Semester & First & Second Summer Session
To establish residence for non-thesis master's students who are preparing for major examinations. Credit not granted. Regarded as full time residence.
ESS730 Doctor of Philosophy Dissertation  
1-12 credits  
Fall & Spring Semester & First & Second Summer Session  
Required of all candidates for the Ph.D. The student will enroll for credit as  
determined by his/her advisor but not for less than a total of 12. Not more than  
12 hours of ESS 730 may be taken in a regular semester, nor more than six in a  
summer session. Where a student has passed his/her (a) qualifying examinations,  
and (b) is engaged in an assistantship, he/she may still take the maximum allowable  
credit stated above.  
PREREQUISITE: ADMISSION TO THE DOCTORAL PROGRAM.

ESS750 Research in Residence  
0 credit  
Fall & Spring Semester & First & Second Summer Session  
Used to establish research in residence for the Ph.D. student, after the student  
has been enrolled for the permissible cumulative total in appropriate doctoral  
research. Credit not granted. May be regarded as full-time residence as determined  
by the Dean of the Graduate School.

TEACHING AND LEARNING  
TAL501 Classroom Based Assessment  
3 credits  
Fall & Spring Semester  
Principles and classroom applications of educational measurement and assessment.

TAL502 Classroom Based Research  
3 credits  
Offered By Announcement Only  
Application of research principles to evaluation and improvement of teacher effectiveness.  
Use of scientific methods in problem solving and decision making in the classroom.  
Student experiences in the planning, conduct, analysis and reporting of classroom  
research are included.

TAL503 Micro-Computer Applications in Education  
3 credits  
Spring Semester  
Microcomputer applications in early childhood, elementary, and secondary English,  
Social Studies, Science, and Mathematics education.

TAL504 Building Positive Relationships in Inclusive Secondary Schools  
3 credits  
Fall & Spring Semester  
Designed to assist general education teachers in meeting the needs of diverse secondary  
school students. Focus on students with disabilities, language and culture in the  
classroom, and developing culturally competent classroom management methods.  
PREREQUISITE: TAL 101

TAL506 Issues and Strategies for ESOL  
3 credits  
Offered By Announcement Only  
This course provides a comprehensive foundation in ESOL (English for Speakers of  
Other Languages) competencies based on Florida's mandates and TESOL standards.  
Theory and practice will be emphasized in the areas of applied linguistics, cross  
cultural communication and understanding, methods of teaching, assessment, and  
curriculum and material development.  
PREREQUISITE: TAL 101 AND 204 OR PERMISSION OF INSTRUCTOR.

TAL508 Teaching English Grammar for TESOL  
3 credits  
Offered By Announcement Only  
This course is designed to provide participants with a knowledge of the rules of  
modern English grammar and an ability to teach and test application of those rules  
in a range of language skill contexts to students whose native language is not  
English. Analysis of grammar texts and tests are emphasized.
TAL517 Curriculum, Assessment, Teaching and Learning for Physical Science
3 credits Fall Semester
Analysis of content knowledge, pedagogy, and materials appropriate for teaching physical science in the elementary school. The course content focuses on instructional practice with an emphasis on developing teacher content knowledge in physical science, pedagogy, and student literacy in physical science.

TAL518 Curriculum, Assessment, Teaching and Learning for Number, Operations, and Algebra
3 credits Fall Semester
This course examines topics that address the mathematical ideas underlying number, operations and algebra. Related curriculum, instructional and assessment issues will be also discussed.

TAL520 Curriculum, Assessment, Teaching and Learning for Measurement and Geometry
3 credits Fall & Spring Semester & First & Second Summer Session
Topics involving measurement and geometry in the K-16 mathematics curriculum, how students learn and reason, assessment, instructional strategies.
PREREQUISITE: GRADUATE STUDENT; ADVANCED UNDERGRADUATE WITH CONSENT OF PROFESSOR.

TAL521 Curriculum, Assessment, Teaching and Learning for the Life Sciences
3 credits Fall Semester
Analysis of content knowledge, pedagogy, and materials appropriate for teaching life science in the elementary school. The course content focuses on instructional practice with an emphasis on developing teacher content knowledge in life science, pedagogy, and student literacy in life science.

TAL522 Curriculum, Assessment, Teaching and Learning in the Earth Sciences
3 credits Fall Semester
Analysis of content knowledge, pedagogy, and materials appropriate for teaching Earth science in the elementary school. The course content focuses on instructional practice with an emphasis on developing teacher content knowledge in Earth science, pedagogy, and student literacy in life science.
PREREQUISITE: ADMISSION TO THE GRADUATE SCHOOL

TAL523 Curriculum, Assessment, Teaching and Learning for Data Analysis and Probability
3 credits Fall & Spring Semester & First & Second Summer Session
Data in the elementary school: how to gather (biased and unbiased samples), store, manage, represent, analyze. Probabilistic inferences in elementary school: chance, odds, counting, related topics.
PREREQUISITE: GRADUATE STUDENT; ADVANCED UNDERGRADUATE WITH CONSENT OF PROFESSOR.

TAL524 Education and the Arts
3 credits Fall Semester
Exploration of the fine and performing arts and their relation to PreK-12 education. Emphasis is placed on experiential learning and methods of incorporating the arts in school curricula. The course also includes a focus on the value of the arts to the individual and society.

TAL526 Practicum in Reading
3 credits Fall & Spring Semester
Supervised practicum in reading and writing. Emphasis is on assessment and interventions for elementary students with a range of academic, linguistic and cultural challenges in becoming proficient readers.
PREREQUISITE: TAL 320, TAL 321
TAL527 Language and Assessment in ESOL
3 credits
Offered By Announcement Only
Study of language systems with a focus on understanding and applying linguistic terms. Course prepares teachers to conduct informal and formal assessment procedures with English language learners. Field experience with English language learners is required.
PREREQUISITE: TAL 531, 550 OR 620, 603, 622.

TAL528 ESOL Curriculum, Methods, and Assessment.
3 credits
Offered By Announcement Only
This course focuses on applying TESOL theories, principles, and current research to the development and use of instructional materials, curriculum, and methods. The course will enhance participant's knowledge of the regular English language arts curriculum in comparison with the ESOL curriculum.
PREREQUISITE: TAL 506.

TAL531 Educating Exceptional Students
3 credits
Fall & Spring Semester
A survey course in special education emphasizing characteristics and problems associated with various categories of exceptional learners. Policy, issues, and trends in special education will be discussed.

TAL540 Instruction and Assessment in the Secondary School.
3 credits
Fall & Spring Semester
Research-based instructional processes in the secondary school.
PREREQUISITE: APPLICATION TO TEACHER CANDIDACY.

TAL541 Instruction in Secondary English.
2-3 credits
Fall Semester
Analysis of methods, materials, and content appropriate for teaching language arts in the secondary school.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

TAL542 Instruction in Secondary Mathematics.
3 credits
Offered By Announcement Only
Analysis of methods, materials, and content appropriate for teaching mathematics in the secondary school.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

TAL543 Instruction in Secondary Science.
3 credits
Offered By Announcement Only
Analysis of methods, materials, and content appropriate for teaching science in the secondary school.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

TAL544 Instruction in Secondary Social Studies.
2-3 credits
Fall Semester
Analysis of methods, materials, and content appropriate for teaching the social sciences in the secondary school.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
TAL550 Language and Early Reading Instruction
3 credits Fall Semester
Factors related to emergent literacy with an emphasis on diverse aspects of language that influence literacy and learning; development of emergent literacy and word perception; emergent literacy curriculum development; appropriate assessment and instructional techniques. Understanding of reading as a process of student engagement in fluent decoding and construction of meaning. Writing intensive.

TAL551 Word Perception in Reading
3 credits Offered By Announcement Only
Administration and interpretation of a standard reading inventory. An examination of the word recognition and vocabulary curriculum as well as appropriate assessment devices and instructional techniques.

TAL552 Reading Comprehension
3 credits Spring Semester
Development of comprehension, rate, and study skills; reading in the content areas; evaluation of materials, organization of programs; issues, problems, and exceptional readers. Emphasis is placed on understanding reading as a process of student engagement in fluent decoding of words and construction of meaning.

TAL554 Literacy and Learning Strategies in the Content Area
3 credits Fall & Spring Semester
Literacy instruction in content areas for grades 6 through 12; instructional methods and materials for development of language arts, reading, and study skills. Emphasis on appropriate materials, motivation, and support for students with exceptional needs and English language learners.

TAL570 Associate Teaching in the Elementary School.
6-9 credits Offered By Announcement Only
A comprehensive semester-long program in observation and supervised teaching in the elementary school. The student spends full-time in an elementary school participating in all activities of the teacher under the guidance of school and university personnel. PREREQUISITE: ACCEPTANCE TO ASSOCIATE TEACHING.

TAL572 Associate Teaching in the Secondary School.
6-9 credits Offered By Announcement Only
A comprehensive program in observation and supervised teaching in the secondary school. The student spends full-time in a secondary school participating in all activities of the teacher under the guidance of school and university personnel. PREREQUISITE: ACCEPTANCE TO ASSOCIATE TEACHING.

TAL580 Seminar on Teaching
1-3 credits Offered By Announcement Only
Topical seminar to accompany associate teaching.

TAL584 Topics in the Professional Development and Supervision of Teachers.
3 credits Offered By Announcement Only
Topics include the preparation of clinical teachers to induct, guide, and supervise the field experiences of students and associate teachers; techniques in the observation and supervision of in-service teachers; creation and implementation of professional development plans; reading in the research on teacher development across the career. PREREQUISITE: TEACHING EXPERIENCE.
TAL590 Topics in Education
3 credits
Spring Semester
Review of emerging policy, practice, empirical research and scholarly writing on important educational issues for which formal course title and syllabus have not been developed and formalized in the UM Bulletin. Allows for experimental instructional formats. Course number indicates appropriate student audience. See Course Notes for specific topic.

TAL591 Workshop in Education
1-6 credits
Offered By Announcement Only
A critical study of practical problems of teachers. Significant problems are defined, literature and research are reviewed, and individual or small group projects are required.

TAL592 Seminar in Teaching English as a Foreign Language
3 credits
Offered By Announcement Only
This course is designed to provide prospective international teachers of English as a new language with essential strategies and multiple models of teaching techniques; and the theoretical framework to apply these strategies and techniques. PREREQUISITE: ADMISSION TO GRADUATE PROGRAM.

TAL593 Workshop in Education
1-6 credits
Offered By Announcement Only
A critical study of practical problems of teachers. Significant problems are defined, literature and research are reviewed, and individual or small group projects are required.

TAL594 Workshop in Education
1-6 credits
Offered By Announcement Only
A critical study of practical problems of teachers. Significant problems are defined, literature and research are reviewed, and individual or small group projects are required.

TAL595 Workshop in Education
1-6 credits
Offered By Announcement Only
A critical study of practical problems of teachers. Significant problems are defined, literature and research are reviewed, and individual or small group projects are required.

TAL596 Workshop in Education
1-6 credits
Offered By Announcement Only
A critical study of practical problems of teachers. Significant problems are defined, literature and research are reviewed, and individual or small group projects are required.

TAL597 Workshop in Education
1-6 credits
Offered By Announcement Only
A critical study of practical problems of teachers. Significant problems are defined, literature and research are reviewed, and individual or small group projects are required.
TAL598 Workshop in Education
1-6 credits
Offered By Announcement Only
A critical study of practical problems of teachers. Significant problems are defined, literature and research are reviewed, and individual or small group projects are required.

TAL599 Workshop in Education
1-6 credits
Offered By Announcement Only
A critical study of practical problems of teachers. Significant problems are defined, literature and research are reviewed, and individual or small group projects are required.

TAL601 Instructional Leadership
3 credits
Offered By Announcement Only
An examination of the components of effective supervision of instruction. Leadership theories which apply to educational settings; legal rights and responsibilities of students, teachers and administrators will be covered, as well as the examination of various models of teaching.

TAL602 Effective Teaching
3 credits
Offered By Announcement Only
A study of the theory and practice of effective teaching grades K-12. Attention is given to those teaching behaviors supported by research, and emphasis placed on the development of effective teaching behaviors.
PREREQUISITE: GRADUATE STANDING.

TAL603 Teacher in American Society
3 credits
Spring Semester
An historical, philosophical, and sociological analysis of the teaching profession in American society. The role and status of teachers in American culture will be discussed. Contemporary issues such as the union movement, status assignment, rewards and incentives, and the role of the teacher as an instrument in the definition of the culture will also be covered.

TAL605 Seminar in Human Resource Development
3-12 credits
Offered By Announcement Only
Contemporary topics in human resource development and technology. Rotating topics and faculty. Open only to advanced graduate students in human resource development programs pursuing the masters, specialist, or doctoral degrees. Course may be repeated for a total of twelve credits. Subtitles describing the topics to be offered will be shown in parentheses in the printed schedule, following the title.
PREREQUISITE: ADMISSION TO MASTERS, SPECIALISTS, OR DOCTORAL STUDY OR PERMISSION OF INSTRUCTOR.

TAL609 Practicum in Reading
3 credits
Fall & Spring Semester
Practicum in an educational setting. Participants will apply effective practices in teaching Reading.
PREREQUISITE: TAL 550, 552, 651, AND 652.

TAL610 Early Childhood Curriculum Development
3 credits
First Summer Session
Development of curriculum for children from birth to eight years of age. Emphasis on application of research findings. 20 hours of field experience required.
TAL611 Issues and Trends in Early Childhood Education
3 credits
Spring Semester

TAL614 Typical and Atypical Child Development
3 credits
Spring Semester
Theories and research in the development of children from conception through eight years of age. Factors which influence development and the relationship of typical development to patterns of delayed and atypical development. Writing intensive course.

TAL615 Evaluation and Assessment in Infant and Early Childhood Special
3 credits
Fall Semester
Students will become familiar with a variety of formal and informal screening, evaluation, assessment instruments, and procedures currently in use with children birth to eight. They will learn criteria for selecting and using developmentally and culturally appropriate instruments and become familiar with the multi-, inter-, and trans-disciplinary team approaches. Students will write formal reports and develop an IEP and an IFSP. May require field experience.
PREREQUISITE: TAL 614, OR PERMISSION OF INSTRUCTOR.

TAL616 Intervention Strategies in Infant and Early Childhood Special Education
3 credits
Spring Semester
The focus of this course will be the implementation of IEPs and IFSPs through the use of developmentally appropriate curriculum, methods, and intervention strategies for infants, toddlers, and young children with special needs. This will include implementation and adaptation of existing curriculum and materials for young children to meet the special needs of this population. May require field experience. Writing Intensive course.
PREREQUISITE: TAL 615, OR PERMISSION OF INSTRUCTOR.

TAL620 Reading in the Elementary School
3 credits
First Summer Session
Extending competencies in teaching reading, including exceptional children in the regular classroom, with emphasis on applying findings from research in reading to classroom practices. 20 hours of field experience required for all students who are not currently teaching.

TAL621 Language Arts and Culture in the Classroom
3 credits
Spring Semester
Extending competencies in the language arts including linguistic and cultural diversity and children with disabilities in elementary classrooms. Emphasis on research applications. 20 hours of field experience required for all students who are not currently teaching.
Writing intensive course.

TAL622 Mathematics in the Elementary School
3 credits
Spring Semester
Content, methods, and research appropriate for teaching mathematics in the elementary school, including exceptional children in the regular classroom. Content is defined as a pre-algebra mathematics. 20 hours of field experience required for all students who are not currently teaching. Writing intensive course.
TAL623 Science in the Elementary School
3 credits
First Summer Session
Extending competencies of elementary school teachers in teaching science to children, including exceptional children in the regular classroom. Development of science programs based on research which has classroom applications. 20 hours of field experience required for all students who are not currently teaching.

TAL624 Social Studies in the Elementary School
3 credits
Fall Semester
Extending competencies in teaching social studies to children, including exceptional children in the regular classroom, with an emphasis on research applications. 20 hours of field experience required for all students who are not currently teaching.

TAL625 Literature for Children and Adolescents.
3 credits
Fall Semester
Study of literature for children and adolescents emphasizing multicultural literature and use of literature across the curriculum. Twenty hours of field experience required.
PREREQUISITE: GRADUATE STANDING.

TAL626 Instructing Students Who Have Literacy Challenges
3 credits
Fall & Spring Semester
Administration and interpretation of instructional assessments with instructional strategies and materials based upon scientifically based reading research for the prevention and remediation of reading difficulties.
PREREQUISITE: TAL 550 AND 552 OR 620 AND 621.

TAL628 Seminar in Elementary Education
3-12 credits
Offered By Announcement Only
Study in special interest areas in elementary education. May be taken for up to 12 credits.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

TAL630 Learning Disabilities
3 credits
Fall Semester
A comprehensive study of theoretical issues, research, diagnosis, planning, and organization of instruction for children with learning problems. Curriculum adjustment, development of programs of differential instruction, specialized methods of evaluation, and team relationships will be emphasized. This is a writing intensive course.
PREREQUISITE: TAL 531 OR EQUIVALENT.

TAL631 Theory and Instructional Practices for Exceptional Student Education
3 credits
Spring Semester
Theoretical issues, research, diagnosis, planning, and organization of instruction for exceptional students. Programs of differential instruction, ongoing assessment, and team relationships will be covered.
PREREQUISITE: TAL 531 OR EQUIVALENT, OR PERMISSION OF INSTRUCTOR.

TAL632 Classroom and Behavior Management
3 credits
Spring Semester
An examination of the principles of various theoretical perspectives of classroom management and discipline. Applications to the management of behavior problems of children and adolescents. Contemporary research analyzed and discussed. Writing intensive course.
TAL633  Theories and Models of Teaching Students with Behavior/Emotional Disorders
3 credits  Spring Semester
Characteristics, issues, research, diagnosis, planning, and organization of instruction for children with behavior disorders. Curriculum design evaluation methods and instructional strategies are also included.
PREREQUISITE: TAL 531 OR EQUIVALENT.

TAL634  Prescriptive Teaching of Exceptional Students
3 credits  Fall Semester
Techniques for individualization of instruction for exceptional students, including educational prescription, and curriculum adaptation.
PREREQUISITE: TAL 630 OR 631, 633 OR PERMISSION OF INSTRUCTOR.

TAL635  Seminar in Special Education
3-12 credits  Offered By Announcement Only
Study in special interest areas in special education. May be taken for up to 12 credits.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

TAL637  Assessment in Exceptional Student Education
3 credits  Fall Semester
Administration and interpretation of assessment tools used to assess and evaluate reading and learning difficulties; includes a survey of instructional strategies and materials for the prevention and remediation of reading difficulties based on the results of the assessments.

TAL638  Communication and Consultation Skills in Exceptional Student Education
3 credits  Spring Semester
A course for professionals who will be teaching, counseling, or interacting directly or indirectly with exceptional students. An overview of community agencies, organizations, and services, counseling and consulting models, skills associated with various educator roles; and techniques for interacting with parents.

TAL641  Principles of Curriculum Development and Classroom Management for TESOL
3 credits  Spring Semester
Components of curriculum and instructional management in ESOL classrooms. Pupil/teacher interaction, curriculum organization, student assessment and evaluation, materials development and adoption, utilization of resources, and classroom organization will be covered.

TAL642  Equity in STEM Education.
3 credits  Offered By Announcement Only
Issues of unequal student achievement, course taking, degree-seeking, and careers that rely on mathematics, science, and technology. Focus is on social-demographic groups defined along lines of race, ethnicity, social class, gender, language, and their interactions. Historical and social antecedents, current day policies and practices, extant research consequences and future trends.
PREREQUISITE: GRADUATE STUDENT STATUS.

TAL643  Introduction to Theories and Practice of Teaching English to Speakers of Other Languages
3 credits  First Summer Session
Introduction to theories and practice of ESOL.
TAL645 Language Assessment
3 credits
Fall Semester
Nature and methodologies of language assessment within a framework of psychometric and linguistic criteria.
PREREQUISITE: TAL 643.

TAL646 Principles of First and Second Language Acquisition
3 credits
Spring Semester
Theories and principles of language acquisition. Phenomena of language interference related to linguistic and cultural criteria.
PREREQUISITE: TAL 643 AND/OR 640.

TAL647 Understanding Culture in the Classroom
3 credits
Spring Semester
This course explores the conflicts and the strategies for resolution between the patterns of culture in the classroom and the patterns of culture that school children bring to the classroom - patterns which are learned in their families and communities.

TAL648 Educational Issues in Immigration
3 credits
Spring Semester
An historical, philosophical, and sociological analysis of issues involving education and immigration, cultural identity, diversity, and congruity. A topical approach is emphasized.

TAL651 Assessment of Reading and Related Learning Disabilities
3 credits
Fall Semester
Theories and procedures for screening, diagnosis, and progress-monitoring of reading and related learning disabilities. Includes instruction and supervised clinical experiences in administration and interpretation of assessments with an emphasis on prevention, identification, and remediation of reading and related learning disabilities.
PREREQUISITE: TAL 550, 552

TAL652 Intervention for Reading and Related Learning Disabilities
3 credits
Spring Semester
Theories and procedures for screening, diagnosis, and progress-monitoring of reading and related learning disabilities. Includes instruction and supervised clinical experiences in administration and interpretation of assessments with an emphasis on prevention, identification, and intervention of reading and related learning disabilities.
PREREQUISITE: TAL 651 (OR COULD BE TAKEN CONCURRENTLY).

TAL653 Applied Linguistics in Education
3 credits
Fall Semester
Survey of phonology, morphology, and syntax of language system, especially as they apply to learning disabilities, common language disorders, programs in preschool, reading, and bilingual education.
TAL655 Seminar in Reading/Learning Disabilities
3-12 credits 
Contemporary topics in reading and learning disabilities. Rotating topics and faculty.
Open only to advanced graduate students in reading and learning disabilities pursuing specialist or doctoral degrees. Specialist students enroll for a total of six hours, and doctoral students for a total of 12 hours. Course may be repeated for a total of 12 credits. Subtitles describing the topics to be offered will be shown in parentheses in the printed schedule, following the title.
PREREQUISITE: ADMISSION TO SPECIALIST OR DOCTORAL STUDY OR PERMISSION OF INSTRUCTOR.

TAL656 Seminar in Reading
3 credits 
Fall & Spring Semester
Seminar providing intensive study of contemporary topics in reading. Open to advanced graduate students in reading.
PREREQUISITE: TAL 550/552

TAL660 Theories and Analyses of Instruction
3 credits 
Offered By Announcement Only
A survey of current instructional theories with; a consideration of the relationship to what is known about learning and a selection, examination, and discussion of the techniques derived from them.
PREREQUISITE: EPS 605 (OR EQUIVALENT) OR PERMISSION OF INSTRUCTOR.

TAL662 Issues and Trends in Multicultural Education
3- 6 credits 
Offered By Announcement Only
The study and critical examination of the theory and practice of multicultural education. Development of a personal theory of effective education for pluralism is included.
PREREQUISITE: DOCTORAL STATUS.

TAL664 Curriculum and Computing
3 credits 
Offered By Announcement Only
Curriculum history and theory in the context of educational technologies from the spoken work, to text and textbook, and finally computing.
PREREQUISITE: DOCTORAL STATUS.

TAL665 Seminar in Special Education Research
3 credits 
Fall Semester
Critical analysis of empirical research studies in selected areas of special education research, focusing on research designs, data analysis methods, and interpretation of findings.

TAL667 Seminar in Current Special Education Issues
3 credits 
Fall Semester
Critical examination of selected current issues in special education from historical, social, policy, practice and research perspectives.

TAL670 Associate Teaching in the Elementary School (Semester-Long)
3- 6 credits 
Fall & Spring Semester
A comprehensive program in observation and supervised teaching in the elementary school. The student spends full-time in an elementary school, participating in all activities of the teacher under the guidance of school and university personnel.
PREREQUISITE: APPROVAL OF THE COMMITTEE ON FIELD EXPERIENCES.
TAL671 Associate Teaching in the Elementary School for K-12 Areas
3-6 credits Fall & Spring Semester
A comprehensive program of observations and supervised teaching in the elementary learning disabilities classroom. The student spends full time in an elementary learning disabilities classroom participating in all activities of the teacher under the guidance of school and university personnel.
PREREQUISITE: APPROVAL OF THE COMMITTEE ON FIELD EXPERIENCES.

TAL672 Associate Teaching in the Secondary School
6 credits Fall & Spring Semester
A comprehensive program in observation and supervised teaching in a school/center for children ages three to eight years. The student spends on hundred hours in the school/center, participating in all activities of the teacher under the guidance of school and university personnel.
PREREQUISITE: APPROVAL OF THE EARLY CHILDHOOD COMMITTEE.

TAL673 Associate Teaching in the secondary School for K-12 areas
3-6 credits Fall & Spring Semester
A comprehensive program of observations and supervised teaching in the secondary learning disabilities classroom. The student spends full time in a secondary learning disabilities classroom participating in all activities of the teacher under the guidance of school and university personnel.
PREREQUISITE: APPROVAL OF THE COMMITTEE ON FIELD EXPERIENCES.

TAL674 Internship in the Elementary School
3-6 credits Offered By Announcement Only
A comprehensive program of supervised teaching in a K-6 classroom in the elementary school. The student spends a full semester employed as a full-time teacher while under the guidance of school and university personnel.
PREREQUISITE: APPROVAL OF THE OFFICE OF STUDENT SERVICES.

TAL675 Internship in the Secondary School
3-6 credits Offered By Announcement Only
A comprehensive program of supervised teaching in the secondary school. The student spends two full semesters employed as a full-time teacher while under the guidance of school and university personnel.
PREREQUISITE: APPROVAL OF THE COMMITTEE ON FIELD EXPERIENCES.

TAL676 Internship in Special Education Settings
3-6 credits Offered By Announcement Only
A comprehensive program of supervised teaching in special education settings. The student spends two full semesters employed as a full-time teacher while under the guidance of school and university personnel.
PREREQUISITE: APPROVAL OF THE COMMITTEE ON FIELD EXPERIENCES.

TAL677 Practicum/Internship with Infants and Toddlers with Disabilities (0-3 yrs.)
1-6 credits Offered By Announcement Only
A comprehensive program in observations and supervised teaching in a school/center for infants and toddlers with disabilities (0-3 yrs.). The student spends full time in the school/center participating in all activities of the teacher under the guidance of school and university personnel.
PREREQUISITE: APPROVAL OF THE OFFICE OF STUDENT SERVICES.
TAL678 Practicum/Internship with Children with Disabilities (3-5 yrs.)
1-6 credits  Offered By Announcement Only
A comprehensive program in observation and supervised teaching in a school/center for children with disabilities (3-5 yrs.). The student spends full time in the school/center participating in all activities of the teacher under the guidance of school and university personnel.
PREREQUISITE: APPROVAL OF THE OFFICE OF STUDENT SERVICES.

TAL679 Specialized Placements in Exceptional Student Education
1-6 credits  Offered By Announcement Only
An alternative internship placement with specialists in non-classroom based and/or non-education based exceptional student education settings. The student spends full time in the program participating in all activities of the specialist under the guidance of program and university personnel.
PREREQUISITE: APPROVAL OF THE OFFICE OF STUDENT SERVICES.

TAL680 Working with Families of Young Children with Disabilities: Strategies & Med. Issues
3 credits  Fall Semester
This course will address issues related to working with families of young children with special educational and health needs. This will include strategies for effective communication and collaboration with all members of the interdisciplinary team. This is a writing intensive course.

TAL681 Methods for Communications and Language in Young Children with Disabilities
3 credits  Spring Semester
This course will focus on language theories, models, and methods for birth-eight year olds. The course will present an overview of normal development in communication and discuss conditions that might impede progress as well as signs that would suggest a problem is present. This course may require field experience.

TAL682 Adaptive Technology and Computers in Early Childhood
1 credits  First Summer Session
Applications of adaptive technology and computers in the education of young children with special needs.

TAL689 Internship in the Elementary School for K-12 Areas
3 credits  Offered By Announcement Only
A comprehensive program of supervised teaching in the elementary school. The student spends one full semester employed as a full-time teacher while under the guidance of school and university personnel.
PREREQUISITE: APPROVAL OF THE COMMITTEE ON FIELD EXPERIENCE.

TAL690 Advance Topics in Education
1-3 credits  Spring Semester
Review of emerging policy, practice, empirical research and scholarly writing on important educational issues for which formal course title and syllabus have not been developed and formalized in the UM Bulletin. Allows for experimental instructional formats. Course number indicates appropriate student audience. See Course Notes for specific topic.

TAL693 Advanced Individual Study
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Individual work on a special project under faculty guidance. Application for Admission to Advanced Individual Study form will be required.
PREREQUISITE: PERMISSION OF THE DIRECTING FACULTY MEMBER AND DEPARTMENT CHAIRMAN.
TAL694 Advanced Individual Study
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Individual work on a special project under faculty guidance. Application for Admission to Advanced Individual Study form will be required.
PREREQUISITE: PERMISSION OF THE DIRECTING FACULTY MEMBER AND DEPARTMENT CHAIRMAN.

TAL695 Doctoral Project/Dissertation Seminar
2 credits Offered By Announcement Only
Required of all students admitted to advanced graduate standing until completion of doctoral program. Discussion and analysis of student projects and dissertations. New trends in the areas of research and educational development in Elementary Education considered.
PREREQUISITE: ADMISSION TO DOCTORAL PROGRAM.

TAL696 Practicum/Internship: Elementary Exceptional Student Education Classroom
1-6 credits Fall & Spring Semester
A comprehensive program of observations and supervised teaching in an elementary exceptional student education classroom. The student spends full time in the classroom participating in all activities of the teacher under the guidance of school and university personnel.
PREREQUISITE: APPROVAL OF THE OFFICE OF STUDENT SERVICES.

TAL697 Practicum/Internship: Secondary Exceptional Student Education Classroom
1-6 credits Fall & Spring Semester
A comprehensive program of observations and supervised teaching in a secondary exceptional student education classroom. The student spends full time in the classroom participating in all activities of the teacher under the guidance of school and university personnel.
PREREQUISITE: APPROVAL OF THE OFFICE OF STUDENT SERVICES.

TAL710 Pre-Candidacy Thesis Research
1-12 credits Offered By Announcement Only
Masters-degree and Ed.S. students enrolled for credit as determined by advisor. Credit awarded when thesis is accepted.
PREREQUISITE: ADMISSION TO CANDIDACY IN EITHER MASTER'S DEGREE OR ED.S. PROGRAM.
REQUIRES APPROVAL OF ADVISOR AND DEPARTMENT CHAIR.

TAL715 Post-Candidacy Thesis Research
1-12 credits Offered By Announcement Only
Masters-degree and Ed.S. students enrolled for credit as determined by advisor. Credit awarded when thesis is accepted.
PREREQUISITE: ADMISSION TO CANDIDACY IN EITHER MASTER'S DEGREE OR ED.S.PROGRAM.
REQUIRES APPROVAL OF ADVISOR AND DEPARTMENT CHAIR.

TAL720 Research in Residence
0 credit Offered By Announcement Only
Masters-degree and Ed.S. students enrolled for credit as determined by advisor. Credit awarded when thesis is accepted.
PREREQUISITE: ADMISSION TO CANDIDACY IN EITHER MASTER'S DEGREE OR ED.S. PROGRAM.
FULFILLMENT OF OTHER RESEARCH REQUIREMENTS. REQUIRES APPROVAL OF ADVISOR AND DEPARTMENT CHAIR.
TAL721 Theory and Research in Reading  
3 credits  
Fall & Spring Semester  
Seminar that focuses on reading, critiquing, and synthesizing the research literature on reading theory and reading instruction to formulate testable hypotheses and explanations.  
PREREQUISITE: DOCTORAL STANDING

TAL722 Theory and Research in Writing  
3 credits  
Fall & Spring Semester  
This course explores research and theory that informs an understanding of the writing process, the development of writing abilities, and writing instruction and assessment.  
PREREQUISITE: ADMISSION TO GRADUATE STUDIES OR CONSENT OF INSTRUCTOR.

TAL723 Language, Literacy and Cultural Policy  
3 credits  
Fall & Spring Semester  
This is a course in Literacy, Language and Cultural Policy. We will examine literacy in its broadest terms, considering not only traditional text literacy, but alternate literacies such as oral literacy, signage, pictographic writing, graffiti, rebuses and hieroglyphics. We will address the transformation of traditional textual forms of literacy through the computer—specifically looking at issues such as the augmentation of intelligence through machine-mediated processes, and the cultural significance of simulation, hyperreality and hypertext. The course will then proceed to an analysis of language policy in light of both traditional and new literacies. A strong emphasis will be placed on historical and semiotic analysis. Students will co-author, with the instructor, a monograph dealing with Alternative Literacies.  
PREREQUISITE: DOCTORAL STATUS

TAL724 Applied Linguistics  
3 credits  
Fall Semester  
The study of phonology, morphology, syntax, semantics of language systems, and pragmatics of oral and written discourse with a focus on the understanding of linguistic theories and concepts and their application to second language/ dialect acquisition.  
PREREQUISITE: ADMISSION TO DOCTORAL PROGRAM OR INSTRUCTOR’S APPROVAL.

TAL725 Theory and Research in Writing  
3 credits  
Offered By Announcement Only  
This course explores research and theory that informs an understanding of the writing process, the development of writing abilities, and writing instruction and assessment.  
PREREQUISITE: ADMISSION TO GRADUATE STUDIES OR CONSENT OF INSTRUCTOR

TAL729 Topics in Language and Literacy Learning  
1-3 credits  
Spring Semester  
Review of emerging policy, practice, empirical research and scholarly writing on important educational issues for which formal course title and syllabus have not been developed and formalized in the UM Bulletin. Allows for experimental instructional formats. Course number indicates appropriate student audience.  
PREREQUISITE: PERMISSION OF INSTRUCTOR AND DOCTORAL STANDING

TAL730 Pre-Candidacy to Dissertation Research  
1-12 credits  
Fall & Spring Semester  
Doctoral students enrolled for credit as determined by advisor. Credit is awarded when dissertation is accepted.  
PREREQUISITE: ADMISSION TO DOCTORAL PROGRAM. REQUIRES APPROVAL OF ADVISOR AND DEPARTMENT CHAIR.
TAL735 Doctor of Education Dissertation
1-12 credits Offered By Announcement Only
Required of all candidates for the Ed.D. The student enrolls for credit as determined
by his/her advisor. Credit is not awarded until the doctoral project has been accepted.
Total enrollment may not exceed 12 credits.
PREREQUISITE: ADMISSION TO DOCTORAL PROGRAM.

TAL740 Post-Candidacy Dissertation Research.
1-12 credits Fall & Spring Semester
Doctoral students enrolled for credit as determined by advisor. Credit is awarded
when dissertation is accepted.
PREREQUISITE: ADMISSION TO CANDIDACY IN DOCTORAL PROGRAM. REQUIRES APPROVAL OF
ADVISOR AND DEPARTMENT CHAIR.

TAL741 Teaching and Teacher Education in Mathematics and Science
3 credits Spring Semester
More advanced and specialized topics in research on the teaching and learning of
mathematics and science, including the development of teachers across their careers,
professional development, design experiments, learning in and out of school.
PREREQUISITE: ADMISSION TO PH.D. PROGRAM OR INSTRUCTOR'S APPROVAL.

TAL742 Research on Learning in Mathematics and Science
3 credits Fall Semester
Provides an overview of the historical roots and current state of the learning
sciences, as they apply to the study of learning in science and mathematics. Organized
around reading, discussion and synthesis of research. Pre-requisite: Admission
to Ph.D. program or instructor's approval.
PREREQUISITE: ACCEPTANCE TO PH.D. PROGRAM OR APPROVAL OF INSTRUCTOR.

TAL743 Mathematics and Science Curriculum
3 credits Spring Semester
Study of mathematics and science curricula and the competing forces that shape
them, including standards documents, state and national policy, conceptions of
the disciplines, modern and postmodern analyses of curriculum theory. Pre-requisite:
Admission to Ph.D. program or instructor's approval.
PREREQUISITE: ADMISSION TO PH.D. PROGRAM OR INSTRUCTOR'S APPROVAL.

TAL744 Assessment in Mathematics and Science
3 credits Fall Semester
Overview of the theoretical and research frameworks for student assessment in mathematics
and science. Classroom-based assessment, testing for high stakes and other purposes,
national and international comparisons in mathematics and science.
PREREQUISITE: ADMISSION TO PH.D. PROGRAM OR INSTRUCTORS APPROVAL.

TAL745 Mathematics and Science Education Research Practicum
3 credits Fall Semester
Defining an empirical or theoretical research issue, arguing for its importance;
framing the study based on related research; designing, implementing and documenting
appropriate research methods; reporting and interpreting the results; writing and
submitting a manuscript - in mathematics and/ or science education.
PREREQUISITE: DOCTORAL STUDENT IN MATHEMATICS AND SCIENCE EDUCATION, COMPLETION
OF AT LEAST 3 RESEARCH METHODS COURSES, COMPLETION OF AT LEAST 2 MATH/SCIENCE
EDUCATION CORE DOCTORAL COURSES, OR CONSENT OF INSTRUCTOR.
TAL749 Topics in Math and Science Education
1- 3 credits  Spring Semester
Review of emerging policy, practice, empirical research and scholarly writing on important educational issues for which format course title and syllabus have not been developed and formalized in the UM Bulletin. Allows for experimental instructional formats. Course number indicates appropriate student audience. See Course Notes for specific topics.
PREREQUISITE: PERMISSION OF INSTRUCTOR AND DOCTORAL STANDING.

TAL750 Research in Residence
0 credit  Fall & Spring Semester & First & Second Summer Session
Doctoral students enrolled for credit as determined by advisor. Credit awarded when dissertation is accepted.
PREREQUISITE: ADMISSION TO CANDIDACY IN DOCTORAL PROGRAM. FULFILLMENT OF OTHER RESEARCH REQUIREMENTS. REQUIRES APPROVAL OF ADVISOR AND DEPARTMENT CHAIR.

TAL751 Theoretical and Psychological Bases of Teacher Education
3 credits  Offered By Announcement Only
The philosophical, theoretical, and psychological bases of teacher education pertaining to the student's area of concentration (TESOL, Special Education or Reading). Subtitles describing the topics to be covered will be provided for individual course selections.
PREREQUISITE: ADMISSION TO DOCTORAL PROGRAM.

TAL752 Issues and Trends in Teacher Education
3 credits  Offered By Announcement Only
Study of contemporary topics in teacher education. Consideration is given to the philosophicaal, psychological, and sociological bases of teacher education.Analytic review of research on teacher education curricula, program innovations, policy issues, and their effects will also be covered.
PREREQUISITE: DOCTORAL STUDENT STANDING OR CONSENT OF INSTRUCTOR.

TAL753 The Social and Cultural Foundations of Education
3 credits  Fall Semester
This course is an interdisciplinary seminar reviewing the major literature in the Social and Cultural Foundation of Education. Classic, Modern and Post-Modern texts will be read with an emphasis on the literature written after 1980 (Post-Modern). Emphasis will be placed on the exploration of key policy questions, as well as the analysis of key sociological concepts related to the field such as hegemony, cultural reproduction, social capital and privilege. The course is intended to provide a "baseline" for understanding the field.
PREREQUISITE: DOCTORAL STUDENT STANDING OR CONSENT OF INSTRUCTOR. FULFILLS THE SOCIAL FOUNDATIONS REQUIREMENT FOR DOCTORAL STUDENTS.

TAL755 Professional Seminar.
1- 3 credits  Offered By Announcement Only
Seminar providing study of contemporary topics and professional issues in teacher education.
PREREQUISITE: ADMISSION TO DOCTORAL PROGRAM.
TAL761 Cognitive Psychology in Special Education
3 credits Fall Semester
Learn about different cognitive theorists and discuss various theoretical positions as to their strengths and weaknesses within and across theories. Address theory refinement over time and the application of theory to research practice. Review literature in a systematic manner and write an integrated and purposeful review of research. Develop a research proposal that is theory-based. Participate in the peer review process.
PREREQUISITE: ADMISSION TO DOCTORAL PROGRAM

TAL762 Research in Special Education
3 credits Fall Semester
Critical analysis of empirical research studies in selected areas of special education research, focusing on research designs, data analysis methods, and interpretation of findings.
PREREQUISITE: ADMISSION TO DOCTORAL PROGRAM

TAL763 Current Issues in Special Education
3 credits Fall Semester
Current issues and trends in special education from historical, societal, policy, practice and research perspectives. Topics may include identification, referral and eligibility, inclusion and Least Restrictive Environment, parent involvement, participation of students with disabilities in high-stakes testing-cultural/linguistic diversity, and teacher qualifications, certification and education.
PREREQUISITE: ADMISSION TO A DOCTORAL PROGRAM.

TAL764 Issues and Trends in Multicultural Education
3 credits Fall Semester
PREREQUISITE: ADMISSION TO DOCTORAL PROGRAM

TAL765 Disability and Diversity: Critical Views
3 credits Fall Semester
Examines the cultural/historical conceptualization of the field of Special Education.
PREREQUISITE: 1 OF TAL 761, 763 OR 764

TAL769 Topics in Special Education
1-3 credits Spring Semester
Review of emerging policy, practice, empirical research and scholarly writing in important educational issues for which format course title and syllabus have not been developed and formalized in the UM Bulletin. Allows for experimental instructional formats. Course number indicates appropriate student audience. See Course Notes for specific topics.
PREREQUISITE: PERMISSION OF INSTRUCTOR AND DOCTORAL STANDING

TAL770 Associate Teaching in the Elementary School (Semester-Long)
3-6 credits Fall & Spring Semester
A comprehensive semester-long program in observation and supervised teaching in the elementary school. The student spends full time in an elementary school participating in all activities of the teacher under the guidance of school and university personnel.
PREREQUISITE: APPROVAL OF THE COMMITTEE ON FIELD EXPERIENCES.
TAL774 Associate Teaching in the Secondary School (Semester-Long)
3-6 credits  
Fall Semester
A comprehensive semester-long program in observation and supervised teaching in the secondary school. The student spends full time in a secondary school participating in all activities of the teacher under the guidance of school and university personnel.
PREREQUISITE: APPROVAL OF THE COMMITTEE ON FIELD EXPERIENCES.

TAL778 Associate Teaching in the Elementary School (Year-Long)
3-6 credits  
Offered By Announcement Only
A comprehensive year-long program in observation and supervised teaching in the elementary school. The student spends full time in an elementary school participating in all activities of the teacher under the guidance of school and university personnel following the calendar of the school system.
PREREQUISITE: APPROVAL OF THE COMMITTEE ON FIELD EXPERIENCES.

TAL786 Ph.D. Dissertation in Teaching and Learning / Science Education
1-12 credits  
Fall Semester
Student enrolled for credit as determined by his/her advisor. Credit is not awarded until the doctoral dissertation has been accepted.
PREREQUISITE: ADMISSION TO DOCTORAL PROGRAM

TAL787 Ph.D. Dissertation in Teaching and Learning/Special Education
1-12 credits  
Fall Semester
Student enrolled for credit as determined by his/her advisor. Credit is not awarded until the doctoral dissertation has been accepted.
PREREQUISITE: ADMISSION TO DOCTORAL PROGRAM

TAL794 Advanced Individual Study for Doctoral Students
1-3 credits  
Fall Semester
Individual work on a special project under faculty guidance. Application for Admission to Advanced Individual Study form will be required.
PREREQUISITE: PERMISSION OF THE DIRECTING FACULTY MEMBER AND DEPARTMENT CHAIR.
BME501 Unified Medical Sciences I
3 credits
Fall Semester
Treatment of the basic biological and medical elements in physiological systems. The anatomy, physiology, biophysics, biochemistry and certain aspects of clinical medicine are unified with an emphasis on cellular and subcellular systems. Not open to BME undergraduates.
PREREQUISITE: PERMISSION OF COURSE COORDINATOR.

BME502 Unified Medical Sciences II
3 credits
Fall Semester
Treatment of the basic biological and medical elements in physiological systems. The anatomy, physiology, biophysics, biochemistry, and certain aspects of clinical medicine are unified with an emphasis on cardiovascular, renal, digestive, endocrine, and reproductive systems. Not open to BME undergraduates.
PREREQUISITE: PERMISSION OF COURSE COORDINATOR.

BME503 Unified Medical Science III
3 credits
Spring Semester
Treatment of the basic biological and medical elements in physiological systems. The anatomy, physiology, biophysics, biochemistry, and certain aspects of clinical medicine are unified with an emphasis on neural, sensory, and muscular systems. Not open to BME undergraduates.
PREREQUISITE: PERMISSION OF COURSE COORDINATOR.

BME506 ProEngineer Applications for Biomedical Engineering
1 credits
Spring Semester
Laboratory course for computer based two and three dimensional drawing and design based on ProEngineer. Parametric design, parts, features, assemblies for complex modeling. Applications in biomedical engineering design.
PREREQUISITE: BME 112, EEN 118

BME507 LabView Applications for Biomedical Engineering
1 credits
Spring Semester
Laboratory course for computer based instrumentation and design based on Labview. Virtual instrumentation, data acquisition and display, GPIB instrument control, biomedical applications in biosignal recording, and monitoring are discussed.
PREREQUISITE: BME 112, EEN 118.

BME511 Clinical Engineering
3 credits
Offered By Announcement Only
Clinical engineering concepts, medical instrumentation and systems, patient safety, requirements and regulations for medical devices, hospital organization, accreditation requirements, and related topics are discussed.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BME512 Regulatory Control of Biomedical Devices
3 credits
Spring Semester
Regulatory agencies and requirements, Food and Drug Administration, 510(k) and premarket approval (PMA), international regulatory requirements, ISO 9000 series, CE, UL, product and process validation, quality engineering, quality improvement programs, rapid prototyping, packaging and sterilization, and project management are discussed.
BME520 Medical Imaging Systems
3 credits
Offered By Announcement Only
Engineering and scientific principles of medical imaging systems. The concepts of instrumentation and diagnostic applications of different techniques and systems are presented. Demonstrations or exhibitions of medical systems are given in the visits to clinic and research laboratories. Topics include digital image and image processing fundamentals, radiographic (X-ray, CT), magnetic resonance(MRI) and radio-isotopic (PET) systems, and associated image reconstruction techniques. Basic concepts and simulation of imaging systems are emphasized.
PREREQUISITE: EEN 118, 201, 307, BME 570 (CO-REQUISITE) OR EQUIVALENT.

BME521 Medical Imaging Applications
3 credits
Fall Semester
Medical applications of imaging systems and image processing techniques. Topics include image fundamentals (resolution, format, and storage), image processing fundamentals (transformation, compression, enhancement, segmentation, registration, and reconstruction), and image analysis fundamentals (calibration, quantification, correlation, linearity and depiction). Course includes dedicated computer laboratory projects and demonstrations given in clinical and research laboratories at the medical campus. Corequisite: BME 570 or equivalent.
PREREQUISITE: EEN 118, 201, 307. COREQUISITE: BME 570 OR EQUIVALENT.

BME522 Scanning Electron Microscopy in Biomedical Devices
3 credits
Fall & Spring Semester
Physics and operating principles of scanning electron microscope (SEM), transmission electron microscope (TEM), and optical light microscope. Biological tissue preparation, storage, fixation and digital image storage. Each student will learn to use the SEM in the design and/or analysis of a biomedical device.
PREREQUISITE: PERMISSION OF INSTRUCTOR

BME525 Special Problems
1-3 credits
Fall & Spring Semester & First & Second Summer Session
Research and/or design projects consisting of an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: SENIOR OR GRADUATE STANDING; PERMISSION OF INSTRUCTOR

BME526 Special Problems
1-3 credits
Fall & Spring Semester
Research and/or design projects consisting of an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR

BME527 Special Problems
1-3 credits
Fall & Spring Semester
Research and/or design projects consisting of an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR
BME528 Engineering Hemodynamics
3 credits
Offered By Announcement Only
Fluid mechanics of circulation with emphasis given to function of the heart and its valves, systemic circulation including arterial flow, capillary, venous flows, pulmonary circulation including alveolar sheet flow. Particular stress is placed on the modeling of physiological events related to blood flow in cardiovascular devices and prostheses.
PREREQUISITE: MEN 309 OR EQUIVALENT.

BME529 Special Problems
1-3 credits
Fall & Spring Semester & First & Second Summer Session
Research and/or design projects. Individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

BME531 Technical Entrepreneurship I
1 credits
Fall & Spring Semester
The first half of a two-semester sequence that simulates the work of a product development team to gain experience in technical entrepreneurship. The students propose product ideas, assess those collectively, select a few, form teams, define the product, and perform market analysis. The course is concluded with a business and technical development plan for the team's project. Lectures are presented on a variety of entrepreneurial topics.
PREREQUISITE: JUNIOR OR HIGHER STANDING.

BME532 Technical Entrepreneurship II
2 credits
Fall & Spring Semester
The second half of a two-semester sequence that simulates the work of a product development team to gain experience in technical entrepreneurship. The students complete the development of a working prototype and refine their marketing and business plan based on experience gained during the development phase. Lectures are presented on relevant entrepreneurial topics.
PREREQUISITE: JUNIOR OR HIGHER STANDING.

BME535 Advanced Biomaterials
3 credits
Offered By Announcement Only
Applications of biomaterials in different tissue and organ systems. Relationship between physical and chemical structure of materials and biological system response are discussed as well as choosing, fabricating, and modifying materials for specific biomedical applications.
PREREQUISITE: BME 335 OR PERMISSION OF INSTRUCTOR.

BME540 Microcomputer-Based Medical Instrumentation
3 credits
Offered By Announcement Only
Principles and design of microcomputer-based biomedical instruments, analog and digital signal conversion, microcomputer hardware and software design, algorithm development for medical applications, medical signal processing with microcomputers, software safety in life support systems, and current applications are discussed.
PREREQUISITE: EEN 304 AND 315, OR PERMISSION OF INSTRUCTOR.

BME541 Medical Electronic Systems Laboratory
2 credits
Spring Semester
PREREQUISITE: COREQUISITE BME 540.
BME545 Biomedical Optical Instruments
3 credits  
Fall Semester
Introduction to geometrical optics, light sources, detectors, and fiber optics with an emphasis on engineering aspects and medical applications. Fiber-optic delivery systems for medical applications, optics of the eye and visual instruments, and optical instruments used in medicine (microscopes, endoscopes, ophthalmic instruments) are discussed. Hands-on sessions in the laboratory are included.  
PREREQUISITE: PHY 207, MTH 311 OR PERMISSION OF THE INSTRUCTOR.

BME546 Medical Applications of Lasers
3 credits  
Spring Semester
Review of geometrical optics, fiber optics, wave optics, laser physics, and technology. Medical laser systems, optical properties of tissue, light propagation in tissue, laser-tissue interactions, and surgical applications of lasers are also covered. Hands-on sessions in the laboratory are included.  
PREREQUISITE: PHY 207, MTH 311 OR PERMISSION OF THE INSTRUCTOR.

BME550 Rehabilitation Engineering
3 credits  
Fall Semester
Principles of rehabilitation engineering with emphasis on currently used assistive devices for ambulation and hand motion. Human neural and muscle physiology, electromyography, functional electrical stimulation, artificial and biological sensors, control, and design aspects of active assistive devices for the handicapped are discussed.  
PREREQUISITE: EEN 305 OR PERMISSION OF INSTRUCTOR.

BME560 Biomedical Transport Phenomena
3 credits  
Fall & Spring Semester
Fundamentals of transport phenomena in biological systems including diffusion, osmosis, convection, electrophoresis, and transport with binding. Applications to cell electrophysiology and drug delivery. Introduction to physiological fluid flow in tissues.  
PREREQUISITE: BME 310 OR PERMISSION OF INSTRUCTOR.

BME565 Principles of Cellular and Tissue Engineering
3 credits  
Fall Semester
Introduction to cellular and tissue engineering. Current therapeutic approaches for lost/damaged tissue or organ function, tissue engineering strategies to replace/repair tissue or function: infusion of cells, production and delivery of tissue-inducing substances, cells placed on or within biomaterial scaffolds, examples of tissue engineering applications: skin, heart muscle, blood vessels, and blood.  
PREREQUISITE: BIL 150, BME 335 OR PERMISSION OF INSTRUCTOR.

BME570 Introduction to Biosignal Processing
3 credits  
Fall & Spring Semester
Course topics include quantitative description, analysis, and processing of biophysical and physiological (cardiovascular, neural, sensory, muscular, respiratory and other) signals using computers. Survey of time-frequency representations, correlation, convolution, coherence, filtering, averaging, and classification is also included.  
PREREQUISITE: EEN 118, PRE OR CO REQUISITE: BME 440 OR PERMISSION OF INSTRUCTOR

BME571 Introduction to Biosignal Processing Lab
1 credit  
Fall & Spring Semester
Laboratory course in conjunction with BME 570 course. Corequisite: BME 570.  
PREREQUISITE: COREQUISITE BME 570.
BME575 Biomechanics II
3 credits
Offered By Announcement Only
Applications of linear and nonlinear viscoelastic concepts to the biomedical characteristics of biological tissues and structures at small and large deformations of blood flow, experimental methods of analysis, artificial organs, and life-support systems.
PREREQUISITE: BME 375.

BME581 Radiation Biology and Physics
3 credits
Fall Semester
The principles, methods, and results of radiation biology with physics applications in radiation therapy will be introduced in the course. The course will focus on mechanisms of radiation and biological system interaction, biological aspects of the foundation of radiation therapy, and mathematical models for radiobiological analysis. Corequisite or prerequisite: BME 502 or permission of instructor.
PREREQUISITE: PREREQUISITE OR COREQUISITE: BME 502 OR PERMISSION OF THE INSTRUCTOR.

BME582 Radiation Dosimetry
3 credits
Spring Semester
The principles and instrumentation of radiation dosimetry with focus on the applications in radiation therapy will be introduced in this course. The course will emphasize radiation dose computation algorithms and applications in treatment dose planning. The course will also cover a categorized dosimetric analysis of radiation therapy to different clinical conditions.
PREREQUISITE: BME 310, 581.

BME585 Bioelectromagnetism
3 credits
Offered By Announcement Only
Historical review of the discovery of the role of electric, magnetic, and electromagnetic fields in living systems. The survey of electro, magneto, and therapeutic devices are included as well as the interactions between electromagnetic fields and living tissues in both harmful and beneficial ways.
PREREQUISITE: EITHER BME 502 OR 503, OR PERMISSION OF INSTRUCTOR.

BME586 Dynamic Analysis of Biological Tissues
3 credits
Offered By Announcement Only
Dynamic analysis of biological tissues including characterization of viscoelastic properties of biological tissues using a Dynamic Mechanical Analyzer. Lab experiments are included.
PREREQUISITE: BME 375, 335 OR CONSENT OF INSTRUCTOR.

BME587 Finite Element Analysis for Engineers
3 credits
Fall & Spring Semester
Introduction to the finite-element method. Hands-on applications of FEMLAB software to the analysis of structural, thermal, chemical, electro-magnetic, optical, and fluid flow problems.
PREREQUISITE: MTH311 OR PERMISSION OF INSTRUCTOR.

BME590 Special Topics
1-3 credits
Fall & Spring Semester & First & Second Summer Session
Sub-titles describing the topics to be offered will be shown in parentheses in the printed class schedule following the title Special Topics.
PREREQUISITE: JUNIOR OR HIGHER STANDING.
BME595 Graduate Research in Biomedical Engineering.  
1-3 credits  Fall & Spring Semester & First & Second Summer Session  
Research and design projects consisting of an individual investigation of current problems. Subject and credit to be arranged with the instructor.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BME599 Cooperative Education.  
1 credits  Offered By Announcement Only  
Practical application of classroom theory through alternating semester or summer employment with firms offering positions consistent with the student's field of study. Course may be repeated. Periodic reports and conferences are required.  
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

BME605 M.S. Design Project I  
3 credits  Fall & Spring Semester & First & Second Summer Session  
Comprehensive M.S. design project in biomedical engineering. Open only to students in the BS/MS program.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BME606 M.S. Design Project II  
3 credits  Fall & Spring Semester & First & Second Summer Session  
Continuation of BME 605 or additional M.S. design project in biomedical engineering. Open only to students in the BS/MS program.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BME613 Application of Computers in Medicine  
3 credits  Offered By Announcement Only  
Applications in the clinical and medical research laboratories for physiological data acquisition, analysis, and management of patient records. Differences among computer systems and languages for clinical and research activities are also covered.  
PREREQUISITE: KNOWLEDGE OF PROGRAMMING AND PERMISSION OF INSTRUCTOR.

BME615 Advanced Engineering Hemodynamics  
3 credits  Offered By Announcement Only  
Derivation and description of flow phenomena in the circulatory system from a fluid mechanical viewpoint. Topics include rheology of blood, arterial flow, aortic-valve phenomena, micro-circulation, venous flow, collapsible vessels, and blood flow in the lung.  
PREREQUISITE: MEN 512 OR PERMISSION OF INSTRUCTOR.

BME617 Principles of Artificial Internal Organs  
3 credits  Offered By Announcement Only  
Engineering and scientific principles applied to design and function of artificial internal organs. Devices that replace partial function of the renal, pulmonary, cardiovascular, urinary, and endocrine systems are examined. Corequisite: BME 502. Permission of instructor.  
PREREQUISITE: COREQUISITE: BME 502. PERMISSION OF INSTRUCTOR.
BME620 Engineering Hemorheology
3 credits
Offered By Announcement Only
Course topics include rheological concepts, general properties of flowing blood, blood viscosity and viscometers, flow properties of red and white blood cells, deformation of red blood cells and its effects on blood flow, viscoelastic property of blood cell membranes, blood cells in shear field, hemolysis, platelets and endothelial cells, platelet activation and aggregation, thrombosis formation and dissolution, cell/wall and cell/cell interactions, and sickle cell rheology.
PREREQUISITE: BME 501 OR PERMISSION OF INSTRUCTOR.

BME622 Biomedical Signal Processing
3 credits
Offered By Announcement Only
Applications of the digital signal processing techniques to biomedical signals originating from cardiovascular, respiratory, neural, sensory, and motor systems. Digital filtering, averaging, spectral analysis, signal estimation, detection, and classification are covered. Emphasis is placed Real-time and on-line applications.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BME623 Neural Engineering
3 credits
Fall & Spring Semester
Biophysics of neural communication, quantitative electroencephalography and evoked potentials, sleep, seizure, anesthesia and intraoperative monitoring, neural stimulation, artificial and biological neural networks, cochlear and visual implants, brain and muscle stimulation.
PREREQUISITE: BME 503, 570 OR CONSENT OF INSTRUCTOR.

BME625 Special Problems
1-3 credits
Fall & Spring Semester & First & Second Summer Session
Research and/or design projects through an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

BME626 Special Problems
1-3 credits
Fall & Spring Semester
Research and/or design projects through an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

BME627 Special Problems
1-3 credits
Fall & Spring Semester
Research and/or design projects through an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

BME628 Advanced Topics
1-3 credits
Fall & Spring Semester
Subject matter offerings based upon student demand and availability of faculty. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Advanced Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.
BME629 Advanced Medical Imaging
3 credits Offered By Announcement Only
Analysis of contemporary medical imaging systems and the associated technologies. The course focuses on principles of advanced medical imaging systems. Topics include multimodality imaging, three-dimensional image reconstruction and visualization, clinical and research applications, and derivation and comparison of algorithms.
PREREQUISITE: BME 520 OR EQUIVALENT.

BME630 Advanced Topics
1- 3 credits Fall & Spring Semester
Subject matter offerings based upon student demand and availability of faculty. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Advanced Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BME631 Advanced Topics
1- 3 credits Fall & Spring Semester
Subject matter offerings based upon student demand and availability of faculty. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Advanced Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BME632 Advanced Topics
1- 3 credits Fall & Spring Semester
Subject matter offerings based upon student demand and availability of faculty. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Advanced Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BME640 Implantable Biomedical Devices
3 credits Offered By Announcement Only
Development and advances in implantable materials and devices especially those used as electrically driven protheses. Topics include pacemakers, defibrillators, catheters, neurological stimulators, heart assist, bone repair, and other diagnostic and therapeutic devices. The historical, medical significance, business, economic, and technical aspects of these devices and the associated instruments for monitoring are discussed. Fundamentals of electrochemical corrosion and stimulation as well the technology of implantable power sources are reviewed.
PREREQUISITE: PREREQUISITE OR COREQUISITE: BME 502 OR 503.

BME645 Biomedical Optical Imaging and Diagnostics
3 credits Offered By Announcement Only
Review of geometrical optics, fiber optics, and tissue optics. Introduction to physical optics: interference, diffraction, and polarization; optical imaging resolution limits, super-resolution imaging, advanced optical microscopy, and optical coherence tomography (OCT). Imaging throughscattering tissue, imaging and diagnostics with polarized light, fluorescence, infrared, and Raman spectroscopy and applications are also discussed. Optical diagnostics using scattered light: laser Doppler flowmetry, and dynamic light scattering; and opto-chemical and evanescent wave sensors are also covered.
PREREQUISITE: BME 545 OR 546, AND PERMISSION OF THE INSTRUCTOR.
BME650 Biotransport in Porous Media
3 credits  Fall & Spring Semester
Continuum mixture theory and applications to mass transport in biological tissues, hydrogels, and other porous media. Mechano-electrochemical coupling phenomena in biological tissues and cells.
PREREQUISITE: MTH311, BME310, BME560, OR PERMISSION OF INSTRUCTOR

BME660 Fundamentals of Cellular and Tissue Engineering
3 credits  Spring Semester
Principles and advanced topics on cellular and tissue engineering. Topics include biodegradable and non-biodegradable biomaterials, cytokines, the traditional and stem cell-based tissue engineering approaches, bioreactors and special topics such as bone, cartilage and other tissues.
PREREQUISITE: BME 501 OR PERMISSION OF INSTRUCTOR.

BME680 Biomedical Engineering Seminar
0 credit  Fall & Spring Semester
Presentation of biweekly seminars by selected speakers and graduate students on current topics of interest in biomedical engineering. Attendance is required of all graduate students registered in biomedical engineering graduate programs.
PREREQUISITE: GRADUATE STANDING.

BME681 Radiation Therapy Physics
3 credits  Fall & Spring Semester
Application of radiation physics in the field of radiation therapy. The course will cover the relevant subjects of modern physics, the basic modalities and basic instrumentations of radiation therapy, the principles of particle transport and radiation dose computation and quality assurance of radiation therapy instruments. The subject of radiation protection will also be discussed.
PREREQUISITE: BME 581.

BME683 Radiation Therapy Physics Clinical Rotation
3 credits  Fall & Spring Semester
Students will observe clinical activities at a designated radiation therapy center for ten hours per week. Rotation includes observation of daily treatment, simulation, dose planning, physics quality assurance and routine physics support activities (special physics consultation, weekly physics chart check, monitoring radiation safety activities, support of brachytherapy procedures). Students will meet with the course instructor one and a half hours/week to discuss the schedule and the progress of the rotation activities. Students need to submit reports on each radiation therapy category.
PREREQUISITE: BME 681 OR PERMISSION OF INSTRUCTOR.

BME710 Master's Thesis
1-6 credits  Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

BME720 Research in Residence
0 credit  Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in BME 710 (usually six credits). Credit not granted. May be regarded as full time residence.
BME725 Continuous Registration--Master's Study
0 credit                     Fall & Spring Semester & First & Second Summer Session
To establish residence for non-thesis master's students who are preparing for major examinations. Credit not granted. Regarded as full time residence.

BME730 Pre-candidacy Doctoral Dissertation
1-12 credits                 Fall & Spring Semester & First & Second Summer Session
Doctoral dissertation credits taken prior to Ph.D. student's candidacy. The student will enroll for credit as determined by his/her advisor. Not more than 12 hours of BME 730 may be taken in a regular semester, nor more than six in a summer session.

BME740 Post-Candidacy Doctoral Dissertation
1-12 credits                 Fall & Spring Semester & First & Second Summer Session
Doctoral dissertation credits taken after Ph.D. student has been admitted to candidacy. The student will enroll for credit as determined by his/her advisor. Not more than 12 credits in BME 740 may be taken in a regular semester, nor more than six credits in a summer session.
PREREQUISITE: ADMISSION TO CANDIDACY

BME750 Research in Residence
0 credit                     Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

CIVIL, ARCHITECTURAL, & ENVIRONMENTAL ENGINEERING

CAE510 Structural Mechanics
3 credits
Analysis of stress and deformation of solids. Application to systems in the elastic and inelastic range. Topics include beams of special geometry and support, stress concentrations, stresses in elastic foundations, torsion, energy methods, failure theories, and brittle fracture.
PREREQUISITE: CAE 310 AND SENIOR STANDING.

CAE511 Advanced Structural Analysis
3 credits                                   Fall Semester
General methods of indeterminate analysis. Elements of energy method in indeterminate analysis of axial, flexural torsional, and composite members. Basic flexural and stiffness methods and matrix development are also included.
PREREQUISITE: CAE 310.

CAE520 Advanced Design of Concrete Structures
3 credits                                   Spring Semester
Design of reinforced concrete flat plates, flat slabs, two-way slabs, long columns, and slab-column connections are discussed. Deflections, crack widths, and background of current ACI Building Code are also included.
PREREQUISITE: CAE 320.

CAE521 Advanced Design of Steel Structures
3 credits                                   Fall Semester
Steel framing systems, design of members and connections of braced and rigid frames, design for torsion, and design of steel-concrete composite members are discussed.
PREREQUISITE: CAE 321.
CAE522 Design of Prestressed Concrete Structures
3 credits  
Offered By Announcement Only
Materials and systems for prestressing, design of prestressed concrete members for flexure and shear, camber, deflection, and crack control are discussed. Design of continuous beams, compression members, two-way concrete floor systems, and the loss of prestress are also included. Prerequisite: CAE 320.
PREREQUISITE: CAE 320.

CAE523 Design of Masonry Structures
3 credits  
Offered By Announcement Only
Masonry construction. Design of flexural and compression members, bearing walls, shear walls, diaphragms, and connections of masonry structures. Arches, vaults, and buttresses are also included.
PREREQUISITE: CAE 320.

CAE524 Design of Bridge Structures
3 credits  
Offered By Announcement Only
Engineering principles of analysis and design of highway bridges. Topics include load types, failure modes, and design philosophies. Computation of design force envelopes via influence lines. Design of slabs, rolled beam, plate girder, reinforced concrete, and prestressed concrete bridges.
PREREQUISITE: CAE 310, 320, 321 OR PERMISSION OF INSTRUCTOR.

CAE525 Timber Structural Systems
3 credits  
Offered By Announcement Only
Engineering properties of timber, design of tension, compression, and flexural members are covered. The design and detail of connections and hardware, and the design of timber systems and heavy timber construction is also included.
PREREQUISITE: CAE 310

CAE530 Water-Quality Control in Natural Systems
3 credits  Spring Semester
Water quality regulations, fate and transport processes, water-quality control in rivers, lakes, wetlands, oceans, and ground water are discussed.
PREREQUISITE: CAE 430. PREREQUISITE OR COREQUISITE: CAE 440.

CAE531 Surface-Water Hydrology
3 credits  
Offered By Announcement Only
Rainwater characteristics, abstraction processes, surface-runoff, routing, and water-quality models. Design of stormwater-management systems, evapotranspiration, and regional water-management is also included as well as case studies.
PREREQUISITE: PREREQUISITE OR COREQUISITE: CAE 430.

CAE532 Ground-Water Hydrology
3 credits  
Offered By Announcement Only
PREREQUISITE: CAE 330.
CAE 540 Environmental Chemistry
3 credits, Spring Semester
Kinetics, equilibrium, acid-base, oxidation-reduction, and reaction chemistry applied to water and wastewater engineering.
PREREQUISITE: CHM 112 OR PERMISSION OF INSTRUCTOR.

CAE 541 Environmental Microbiology
3 credits, Spring Semester
Classification of microorganisms. Microbial agents of infectious diseases and modes of disease transmission. Control of pathogens through water and waste treatment, food protection, and insect control. Microbial ecology and bioremediation systems. Laboratory exercises in microbiology.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE 542 Solid and Hazardous Waste Engineering
3 credits, Fall Semester
Solid-waste characteristics, recycling, incineration, hazardous waste characteristics, prevention, and physical and chemical treatment are covered. Design projects are also included.
PREREQUISITE: CAE 340.

CAE 543 Air Pollution Control Engineering
3 credits, Spring Semester
Fundamentals of air pollution and air quality; properties and control of particulates, volatile organic compounds, carbon monoxide, sulfur oxides, and nitrogen oxides; motor vehicle emissions; health and aesthetic effects (acid rain, visibility), laws and regulations, meteorology and pollutant transport in the atmosphere; indoor air pollution.
PREREQUISITE: MAE 303 AND CAE 330 OR MAE 309 OR PERMISSION OF INSTRUCTOR.

CAE 550 Advanced Highway Design
3 credits, Fall Semester
Functional classification and design volumes; Reviews of traffic, vehicle and roadway characteristics; Design controls, criteria and standards; Vertical alignments; Horizontal alignments; Compound curves; Cross sections; Climbing lanes; Earthwork computation; At-grade intersection; Interchange; Design consistency; GeoPak software implementation; Use of traffic simulation software as a design aid.
PREREQUISITE: CAE 450 OR EQUIVALENT.

CAE 551 Urban Traffic Control
3 credits, Spring Semester
Traffic control devices; Detection systems; Installation and maintenance; Design of signal timing plans; Performance analysis of signalized intersections; Signal coordination; Actuated controllers; Computer simulation/optimization models; Adaptive traffic control and predictions; Ramp metering.
PREREQUISITE: CAE 450.

CAE 553 Transportation Systems Planning and Demand Modeling
3 credits, Offered By Announcement Only
Transportation demand analysis and forecasting. Sampling techniques, collection and analysis of survey data. Disaggregate and aggregate models. Trip generation, distribution, modal split and assignment. Transportation network equilibrium. Transportation system management.
PREREQUISITE: IEN 311 OR CONSENT OF INSTRUCTOR.
CAE560 Sustainable Construction
3 credits Offered By Announcement Only
PREREQUISITE: SENIOR STANDING IN ARCHITECTURE OR ENGINEERING AND PERMISSION OF INSTRUCTOR

CAE570 Advanced Foundation Engineering
3 credits Spring Semester
PREREQUISITE: CAE 470 OR PERMISSION OF INSTRUCTOR.

CAE580 Hospital and Health Care Facility Design
3 credits First Summer Session
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE581 Energy-Efficient Building Design
3 credits Offered By Announcement Only
Concepts and methods of energy-efficient and environmentally-friendly building design. Topics include energy and sustainable design strategies, climate, passive and active solar design, passive cooling systems, day lighting, and computer simulation of energy flows in buildings. A quantitative understanding of energy fundamentals, examples from practice, and design exercises using computer simulation programs are emphasized.
PREREQUISITE: MAE 303 OR PERMISSION OF INSTRUCTOR.

CAE590 Special Topics
1-3 credits Offered By Announcement Only
Sub-titles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE591 Special Topics
1-3 credits Offered By Announcement Only
Sub-titles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE592 Special Topics
1-3 credits Offered By Announcement Only
Sub-titles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.
CAE593 Special Topics
1-3 credits Offered By Announcement Only
Sub-titles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE594 Special Topics
1-3 credits Offered By Announcement Only
Sub-titles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE595 Special Problems
1-4 credits Offered By Announcement Only
Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

CAE599 Cooperative Education
1 credit Offered By Announcement Only
Practical application of classroom theory through alternating semester or summer employment with industries offering positions consistent with the student's field of study. Course may be repeated. Periodic reports and conferences are required.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

CAE601 Engineering Scholarship
0 credit Fall Semester
Principles of research in civil, architectural, and environmental engineering. Survey of current department research, basics of literature review, writing engineering documents, presenting seminars, and research methodologies.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE602 Finite Element Methods
3 credits Offered By Announcement Only
Variational principles and their application to finite element methods. Applications to: plane stress and plane strain, three-dimensional stress analysis, bending of plates, and axi-symmetric shells. Lecture, 3 hours.
PREREQUISITE: 500 LEVEL STRUCTURAL MECHANICS COURSE AND PERMISSION OF INSTRUCTOR.

CAE603 Master's Design Project I
3 credits Fall & Spring Semester & First & Second Summer Session
Comprehensive design project in civil, architectural, or environmental engineering.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE604 Master's Design Project II
3 credits Fall & Spring Semester & First & Second Summer Session
Continuation of CAE 603.
PREREQUISITE: CAE 603.

CAE605 Master's Project
3 credits Fall & Spring Semester & First & Second Summer Session
Project in civil, architectural, and environmental engineering. Course is required for the non-thesis master's student.
PREREQUISITE: PERMISSION OF ADVISORY COMMITTEE
CAE611 Theory of Elasticity
3 credits
Offered By Announcement Only
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE612 Structural Reliability
3 credits
Offered By Announcement Only
Development of structural safety concepts, design code applications, load process analysis, and interaction of load and resistance variability. Consideration is given to structural system serviceability and safety.
PREREQUISITE: IEN 311 AND PERMISSION OF INSTRUCTOR.

CAE613 Stability of Structures
3 credits
Offered By Announcement Only
Elastic and inelastic buckling of columns, frames and plates, lateral buckling of beams, beam-columns, and built-up columns. Energy methods (stability) background of various buckling provisions in the AISC and AISI specifications are discussed.
Lecture, 3 hours.
PREREQUISITE: CAE 321, MTH 311.

CAE614 Structural Dynamics
3 credits
Offered By Announcement Only
Dynamic responses of structural elements in both the elastic and inelastic ranges. Lagrange's equations, energy models, numerical and analytical methods, vibrations of continuous systems (beams and plates) are discussed. Assigned readings.
PREREQUISITE: 500 LEVEL STRUCTURAL MECHANICS COURSE AND PERMISSION OF THE INSTRUCTOR.

CAE615 Plates and Shells
3 credits
Offered By Announcement Only
Analysis and design of plate structures. General Theory of circular and rectangular flat plates under lateral loads, membrane stresses and displacements in shells of revolution, symmetrically and unsymmetrically loaded, bending stresses in shells (rigorous and approximate solutions) are discussed. Lecture, 3 hours.
PREREQUISITE: 500-LEVEL STRUCTURAL MECHANICS COURSE.

CAE616 Fracture Mechanics
3 credits
Offered By Announcement Only
Theory of fracture mechanics for linear elastic and nonlinear material behavior, energy release rate, stress intensity factor, and J-integral with practical application to brittle fracture and fatigue. Case studies involving civil infrastructure such as bridges, buildings, pipelines and ships. Metallurgical aspects of fatigue and fracture.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE630 Environmental Fluid Mechanics
3 credits
Offered By Announcement Only
The physical processes of mixing in aquifers, reservoirs, rivers, estuaries, and in the ocean. An introduction to the mathematical models used to simulate these processes is included.
PREREQUISITE: GRADUATE STUDENT STATUS, AND PERMISSION OF INSTRUCTOR.
CAE631 Wastewater Treatment and System Design
3 credits Offered By Announcement Only
Characterization of domestic wastewater and flows. Sources of wastewater and health considerations. Unit processes for treatment of wastewater including screening, sedimentation, filtration, flocculation floatation, activated sludge, disinfection, sludge digestion, and sludge disposal.
PREREQUISITE: CAE 440, 540, AND 541 OR PERMISSION OF INSTRUCTOR.

CAE632 Water Treatment and System Design
3 credits Offered By Announcement Only
Drinking water treatment standards, philosophy of setting standards, public health aspects of organic and inorganic contaminants, basis for design of treatment facilities, design of unit processes for aeration, sedimentation, coagulation, filtration, softening, disinfection, and oxidation are covered. Theory of membrane processes, ion exchange, and water treatment plant residuals are also included.
PREREQUISITE: CAE 440, 540, AND 541 OR PERMISSION OF INSTRUCTOR.

CAE640 Treatment Kinetics and Unit Operations
4 credits Offered By Announcement Only
A study of unit operations in which students test various water and waste treatment processes in the laboratory. Lecture material focuses on data interpretation and description of rate mechanisms.
PREREQUISITE: CAE 540, 542.

CAE643 Risk Analysis
3 credits Offered By Announcement Only
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE680 Indoor Environmental Modeling
3 credits Offered By Announcement Only
Prediction of indoor environment using computational fluid dynamics techniques. Advanced topics in thermal comfort and indoor air quality. Basic concepts of turbulence modeling and numerical methods for natural, forced, and mixed convection and jet flows indoors. Simulation of air velocity, temperature, and contaminant concentrations in buildings. Comparison of the simulated results with measured data.
PREREQUISITE: CAE 330 OR PERMISSION OF INSTRUCTOR.

CAE690 Special Problems
1-3 credits Offered By Announcement Only
Research and/or design projects. Individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE695 Advanced Topics
1-3 credits Offered By Announcement Only
Subject matter offerings based upon student demand and availability of faculty. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Advanced Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.
CAE696 Advanced Topics
1-3 credits
Offered By Announcement Only
Subject matter offerings based upon student demand and availability of faculty.
Subtitles describing the topics to be offered will be shown in parentheses in
the printed class schedule, following the title "Advanced Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE697 Advanced Topics
1-3 credits
Offered By Announcement Only
Subject matter offerings based upon student demand and availability of faculty.
Subtitles describing the topics to be offered will be shown in parentheses in
the printed class schedule, following the title "Advanced Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE698 Advanced Topics
1-3 credits
Offered By Announcement Only
Subject matter offerings based upon student demand and availability of faculty.
Subtitles describing the topics to be offered will be shown in parentheses in
the printed class schedule, following the title "Advanced Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.

CAE710 Master's Thesis
1-6 credits
Fall & Spring Semester & First & Second Summer Session
The student working on his/her Master's thesis enrolls for credit, in most departments
not to exceed six, as determined by his/her advisor. Credit is not awarded until
the thesis has been accepted.

CAE720 Research in Residence
1-6 credits
Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the Master's degree
after the student has enrolled for the permissible cumulative total in CAE 710
(usually six credits). Credit not granted. May be regarded as full-time residence.

CAE725 Continuous Registration--Master's Study
0 credit
Fall & Spring Semester & First & Second Summer Session
To establish residence for non-thesis master's students who are preparing for major
examinations. Credit not granted. Regarded as full-time residence.

CAE730 Pre-Candidacy Doctoral Dissertation
1-12 credits
Fall & Spring Semester & First & Second Summer Session
Doctoral dissertation credits taken prior to Ph.D. student's candidacy. The student
will enroll for credit as determined by his/her advisor. Not more than 12 hours
of CAE 730 may be taken in a regular semester, nor more than six in a summer session.

CAE740 Post-Candidacy Doctoral Dissertation
1-12 credits
Fall & Spring Semester & First & Second Summer Session
Doctoral dissertation credits taken after Ph.D. student has been admitted to candidacy.
The student will enroll for credit as determined by his/her advisor. Not more than
12 credits in CAE 740 may be taken in a regular semester, nor more than six credits
in a summer session.
PREREQUISITE: ADMISSION TO CANDIDACY
CAE750 Research in Residence
0 credit                     Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D. and D.A., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

ELECTRICAL & COMPUTER ENGINEERING

EEN500 Engineering Analytical Techniques
3 credits                                              Offered By Announcement Only
Complex variables, analytic functions, power series, residue theorem, conformal mappings, series solution, Bessel functions, Legendre polynomials. singular value decomposition, vector, and matrix norms are discussed.
PREREQUISITE: MTH 311.

EEN502 Engineering Acoustics
3 credits                                                             Fall Semester
Introduction to basic principles of acoustics, methods of sound measurement, physiological, psychological acoustics, the acoustics of the major classes of musical instruments and speech, fundamentals of transducers, architectural acoustics, and the effects and control of noise are covered.
PREREQUISITE: EEN 336 OR PERMISSION OF INSTRUCTOR.

EEN503 Principles of Electro-optics
3 credits                                                             Fall Semester
Principles of optics, optical fibers, electro-optics, light wave propagation in anisotropic and periodic media, guided waves, and integrated optics are discussed. Electro-optic devices including sources and detectors, optical fiber communication, and optics for medical and biomedical applications are also covered.
PREREQUISITE: PHY 206, 207 AND EEN 301 OR EQUIVALENT.

EEN504 Optics and Fiber Communication
3 credits                                                           Spring Semester
Introduction to optics and fiber communication, light propagation in free space and waveguides, imaging, wave phenomena and diffraction, interferometer, spectrometer, holography, fiber coupling, and fiber communication are covered. Lecture, 1 1/2 hours; laboratory, 3 hours.
PREREQUISITE: EEN 301 OR PREREQUISITE OR COREQUISITE: BME 545.

EEN506 Solid-State Devices
3 credits                                              Offered By Announcement Only
Principles of operation, properties and applications of semiconductor devices, junction, metal-semiconductor, metal-oxide-semiconductor, optoelectronic, bulk-effect, and charge-coupled are covered.
PREREQUISITE: EEN 405 OR PHY 520.

EEN507 Active Filter Design
3 credits                                                           Spring Semester
Active lowpass filter design, gain-tuning and passive-tuning, immittance calculations, high-frequency lowpass filters, frequency and time domain analysis of lowpass, highpass, bandpass, and bandstop filters are discussed. Classical filters and Active filter classification including gain-sensitivity limitations are also included.
PREREQUISITE: EEN 307.
EEN508 Digital Control Systems
3 credits Offered By Announcement Only
Basic concepts relevant to the analysis and design of digital computer controlled systems. Sampling, z-transform, discrete transfer functions, discrete-time state space modeling, stability, reachability, and observability are discussed. Analysis and design in time and frequency domains, state feedback and observers, optimal control, estimation, and linear quadratic Gaussian design are also included.
PREREQUISITE: EEN 308.

EEN510 Passive Filter Design
3 credits Offered By Announcement Only
Design of RLC passive filters, properties of positive-real functions, and Brune test are discussed. Design of driving-point and transfer immittances of RC, RL, LC, and RLC one-port and two-port networks are also covered as well as the design of Butterworth, Chebyshev, and elliptic ladder filters.
PREREQUISITE: EEN 307.

EEN511 Software Engineering
3 credits Spring Semester
Software Development: Specification and analysis, methodologies, management and control. Advanced programming techniques: dynamic programming, fast data retrieval and sorting, enumerators, data structures, and data management. The limits of software engineering, computability and complexity analysis.
PREREQUISITE: EEN 318.

EEN512 Software Architecture
3 credits Spring Semester
Examination of the building blocks of software systems. Design techniques to meet functional requirements. Component-based designs. Model representations. Analysis of designs for functionality, performance, reliability, reusability, and maintainability.
PREREQUISITE: EEN 318.

EEN513 Software Design and Testing
3 credits Fall Semester
PREREQUISITE: EEN 318 AND SENIOR STANDING.

EEN514 Computer Architecture
3 credits Spring Semester & First Summer Session
Computer data and instruction types, survey of existing architectures, and the interaction between hardware and software sub-systems are discussed. Advanced topics in computer architecture.
PREREQUISITE: EEN 414.

EEN516 Analog Integrated Circuits
3 credits Fall Semester
Analysis and design of analog integrated circuits with emphasis on MOS technology. Design of operational amplifiers, comparators, sample and hold circuits, and voltage references are discussed. Fundamentals of data converters and CAD methods for analog integrated circuits are also covered.
PREREQUISITE: EEN 306.
EEN518 Modern Control Theory
3 credits Offered By Announcement Only
State-space modeling of continuous-time systems, stability, reachability, observability, performance, robustness measures in controller design, State feedback and observers are discussed. Optimal control, estimation, and Linear quadratic Gaussian design are also included.
PREREQUISITE: EEN 308.

EEN519 Design of Computing Languages
3 credits Offered By Announcement Only
Major features of modern programming languages with emphasis on design and software efficiency. Interaction between language design and the design of its compiler are included.
PREREQUISITE: EEN 218.

EEN521 Computer Operating Systems
3 credits Fall Semester
The design and implementation of operating systems. Virtual memory and memory management, resource allocation, device drivers, process creation, control, communications and scheduling, file systems, data protection, security, parallel processing and time-sharing. The class includes a significant operating system implementation project.
PREREQUISITE: EEN 318

EEN525 Antennas and Propagation
3 credits Offered By Announcement Only
Principles of electromagnetic radiation and diffraction, fundamentals of antennas, wire, loop, and micro-strip antennas, array antennas, beam-forming. propagation characteristics in the mobile and indoor environments, path loss, link budget, fading, and diversity are covered.
PREREQUISITE: EEN 301.

EEN532 VLSI Systems
3 credits Fall Semester
Fundamentals of MOS Technology in VLSI. System data, control flow, structures, design, layout, maskmaking, fabrication, packaging, and testing of VLSI chips are discussed. Highly concurrent Very Large Scale Integration computational systems are also covered.
PREREQUISITE: EEN 304 AND 305.

EEN533 Random Signals and Noise
3 credits Fall Semester
Probability models, Bayes' theorem, Limit theorems of Laplace and Poisson, functions of random variables, Central limit theorem, conditional expectation and estimation, Stochastic processes, stationarity and ergodicity, cross-spectral analysis, filtering, and prediction are discussed.
PREREQUISITE: IEN 310 OR EEN 310.

EEN534 Communication Networks
3 credits Fall Semester
Principles of digital communications, Local Area Networks (LANs), Wide Area Networks (WANs), Open systems Intercommunication (OSI), Internet reference models, internet architecture and protocols, packet switching and routing, and network performance are discussed.
PREREQUISITE: EEN 310 OR IEN 310.
EEN536 Digital Signal Processing
3 credits
Offered By Announcement Only
Fast Fourier transform, design, implementation, realization of digital filters, finite wordlength effects, decimation, interpolation, multirate signal processing, and Discrete Hilbert transform are covered.
PREREQUISITE: EEN 436.

EEN537 Principles of Artificial Intelligence
3 credits
Fall Semester
Search techniques, game trees, exhaustive vs. cutoff search, natural language processing, augmented transition networks, knowledge representation, cognitive aspects, semantic networks, problem-solving, expert systems, and AI machines are covered.
PREREQUISITE: EEN 218.

EEN538 Introduction to Digital Image Processing
3 credits
Fall Semester

EEN539 Digital Communications
3 credits
Offered By Announcement Only
Principles for the analysis and design of digital communications systems. Nyquist sampling, signal space representation, digital modulation techniques and optimal receiver design, ISI channels, error control coding, convolutional codes, Viterbi decoder, and wireless applications.
PREREQUISITE: EEN 404

EEN540 Digital Speech and Audio Processing
3 credits
Spring Semester
Introduction to human speech production, hearing, and perception. Digital speech and audio signal analysis in time and frequency, speech and audio coding, speech synthesis and recognition, language modeling, design of systems for human-machine interaction are also covered.
PREREQUISITE: EEN 436 OR CONSENT OF INSTRUCTOR.

EEN542 Digital Integrated Circuits
3 credits
Spring Semester
Design and operation of state-of-the-art digital integrated circuits. Circuit simulation methods using CAD programs, various TTL, CMOS, ECL, and I2L families are discussed.
PREREQUISITE: EEN 304, 306.

EEN546 Reliable Digital System Design
3 credits
Offered By Announcement Only
Topics include descriptive technique for digital systems, synchronizer failure and metastability estimation, design for testability, and estimating digital system reliability. Computer-Aided Engineering (CAE) tools are also covered. Not open to students with credit in EEN 454. Offered only for Graduate students.
PREREQUISITE: EEN 316.
EEN548 Machine Learning
3 credits  Offered By Announcement Only
Fundamentals of intelligent system design and strategies of learning capability simulation. Selected case studies of learning systems for engineering applications are included.
PREREQUISITE: EEN 218 AND MTH 309 OR PERMISSION OF INSTRUCTOR.

EEN552 Power Electronics
3 credits  Fall Semester
Analysis and design of solid-state power electronic circuits including DC/DC, AC/DC and DC/AC converters, controller design, power electronics applications, and associated laboratory experiments.
PREREQUISITE: EEN 306, EEN 311

EEN553 Neural Networks
3 credits  Offered By Announcement Only
Artificial neural network algorithms and structures, learning process, perceptron, least-mean-square algorithms, multilayer perceptron, error back-propagation, radial-basis function networks, the Hopfield network, and self-organizing systems are discussed.
PREREQUISITE: IEN 310 OR EEN 310.

EEN555 Microwave Transistor Amplifier Design
3 credits  Fall Semester
Analysis and design of transistor amplifiers and oscillators at microwave frequencies. Scattering parameter methods, stability considerations, matching networks, and narrowband and broadband techniques are discussed. Computer aided design methods for microwave transistor amplifiers are also included.
PREREQUISITE: EEN 306.

EEN562 Wireless and Cellular Communication
3 credits  Fall Semester
Wireless Channel Characterization: path loss, shadowing, fading, frequency-selective channels, Doppler spread, and delay spread. Diversity techniques: frequency, time and space diversity. Multiple Antenna Systems: space-time coding, beamforming and layered space-time system. Digital Modulation: adaptive modulations and Orthogonal Frequency Division Multiplexing (OFDM). Cellular Concept: frequency reuse, co-channel interference and handoff. Multiple Access Methods: Frequency Division Multiple Access (FDMA), Time Division Multiple Access (TDMA), Code Division Multiple Access (CDMA) and random access. CDMA: spreading codes, RAKE receiver, multiuser detection and power control.
PREREQUISITE: EEN 404.

EEN563 Wireless Communication Lab
1 credits  Offered By Announcement Only
Computer simulation of path loss, shadowing and fading in wireless channels, performance of various digital modulation methods in both Gaussian and wireless channels, diversity methods, equalization methods including zero-forcing, minimum mean-square error (MMSE) and decision-feedback equalization (DFE), co-channel interfacing in cellular systems, space-time coding. Orthogonal Frequency Division Multiplexing (OFDM) systems, spreading codes for Code Division Multiple Access (CDMA) systems, and matched-filter receiver and multiuser detector for CDMA systems. Measurement of wireless signals in various environments.
PREREQUISITE: PREREQUISITE OR COREQUISITE: EEN 562.
**EEN564 Wireless Networks**  
*3 credits*  
*Spring Semester*  
Introduction of wireless channels and network. Introduction of medium access control: Frequency Division Multiple Access (FDMA), Time Division Multiple Access (TDMA), Code Division Multiple Access (CDMA) and Carrier Sense Multiple Access. Wireless data networks: IEEE 802.11 (WiFi), IEEE 802.16 (WiMax) and Bluetooth. Wireless network layer: mobile IP and mobile ad-hoc networks. Wireless transport layer: mobile TCP. Wireless Cellular systems: network structure and call processing of GSM and CDMA systems.  
**PREREQUISITE:** EEN 534 OR 575 OR PERMISSION OF THE INSTRUCTOR

**EEN565 Introduction to Information Theory and Coding**  
*3 credits*  
*Offered By Announcement Only*  
Entropy, conditional entropy, mutual information, source coding, Huffman code arithmetic code, channels and channel capacity, error detection, error correction, and Hamming codes are discussed. An introduction to linear block codes and cyclic codes is included.  
**PREREQUISITE:** IEN 310 OR EEN 310.

**EEN567 Database Design and Management**  
*3 credits*  
*Spring Semester*  
Database systems design, modeling, implementation, management methodologies, and techniques. Different database systems are addressed including relational, object-oriented, object-relational, and distributed database systems. Internet (WWW) technology, data warehousing, and online analytical processing applications of database management systems and hands-on experience with commercial database systems is also included.  
**PREREQUISITE:** EEN 218

**EEN568 Internet Computing II**  
*3 credits*  
*Fall Semester*  
Java programming for client/server networking, multi-threading, database connectivity, and servlets. Principles and practices used for accessing back-end databases through web applications. Use of eXtensible Markup Language (XML) for processing.  
**PREREQUISITE:** EEN 368.

**EEN570 Network Client-Server Programming**  
*3 credits*  
*Spring Semester*  
Introduction to server-client systems and programming. Advanced server-client design and implementation based on distributed component object model in Windows and UNIX.  
**PREREQUISITE:** EEN 218 OR EQUIVALENT.

**EEN571 Interactive Multimedia Computing**  
*3 credits*  
*Spring Semester*  
Multimedia fundamentals including hardware, software, standards, concepts and issues, compression, decompression, user interface design, query by content and multimedia indexing are discussed.  
**PREREQUISITE:** EEN 318

**EEN572 Object-Oriented and Distributed Database Management Systems**  
*3 credits*  
*Offered By Announcement Only*  
**PREREQUISITE:** EEN 567 OR EQUIVALENT.
EEN573 Network Computing
3 credits
Spring Semester
PREREQUISITE: EEN 368 AND 567.

EEN574 Agent Technology
3 credits
Offered By Announcement Only
Agent definition and applications, agent modeling, theories, agent representation using KIF (Knowledge Interchange Format), agent behavior, ethical and emotional agents, agent communication languages (KQML (Knowledge Query and Manipulation Language)), agent development environments and tools, agent systems (cooperative agents, interface agents, information agents, learning agents, believable agents, agents for workgroups, mobile agents), and agent case studies are covered.
PREREQUISITE: EEN 537 OR EQUIVALENT.

EEN575 Data Network Design and Management
3 credits
Spring Semester
Networking fundamentals and current technologies. Data network planning, analysis, design, and management techniques. Different network technologies are addressed and contrasted in terms of topology, performance, and scope of real applications. Network management systems are investigated including fault, configuration, security, and performance management. Network management information bases, protocols, and hands-on experience with network equipment and network management systems are also included.
PREREQUISITE: EEN 310 OR IEN 310.

EEN576 Internet and Intranet Security
3 credits
Fall Semester
Security issues and applications for securing internet and intranet-based information exchange. Secure information models, security tools, security services, security protocols, electronic commerce, virtual private networks, firewalls, and security versus cost tradeoffs are covered.
PREREQUISITE: EEN 368.

EEN577 Data Mining
3 credits
Offered By Announcement Only
Introduction to the general principles of inferring useful knowledge from large data sets. Data mining algorithms, including inferring rules, linear regression, decision trees, association rules, and predictive models. Evaluation of data mining algorithms, including training, testing, prediction, comparison, cost, and cross-validation. Data mining applications.
PREREQUISITE: EEN 567 OR EQUIVALENT.

EEN578 E-Commerce Technology
3 credits
Offered By Announcement Only
Tools and techniques providing the foundation for the design, implementation, and deployment of e-commerce systems. Search engines, information retrieval for e-commerce, e-commerce interfacing design, and e-commerce systems case studies are also included.
PREREQUISITE: EEN 368
EEN579 Mobile Computing
3 credits
Offered By Announcement Only
Mobile computing and proxy architectures, mobile web protocols, mobile user interfaces, applications, systems-ware adaptations, mobile databases, transactions, data synchronization, privacy, authentication, and security are covered.
PREREQUISITE: EEN 368.

EEN580 Electrical and Computer Engineering Internship
1-3 credits
Fall & Spring Semester
Analysis, design, and research experience obtained at an operating and recognized industry. Approved project jointly supervised and assessed by departmental faculty and industrial partner.
PREREQUISITE: PERMISSION OF ADVISOR.

EEN581 Special Problems
1-3 credits
Fall Semester
Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

EEN582 Special Problems
1-3 credits
Spring Semester
Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

EEN583 Special Problems
1-3 credits
First Summer Session
Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

EEN584 Special Problems
1-3 credits
Second Summer Session
Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

EEN585 Special Problems
1-3 credits
Offered By Announcement Only
Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

EEN586 Multimedia Networking
3 credits
Fall Semester
PREREQUISITE: EEN 534 OR 575.
EEN587 Multimedia Databases
1-3 credits
Fall Semester
Introduction to the fundamental concepts and techniques pertinent to multimedia databases. Introduction to a variety of techniques and emerging innovative solutions to represent, store, index, retrieve, integrate, and manipulate data in various media type(s) to construct multimedia databases.
PREREQUISITE: EEN 567 OR PERMISSION OF INSTRUCTOR. PREREQUISITE OR COREQUISITE: EEN 571.

EEN590 Special Topics in Information Technology
1-3 credits
Offered By Announcement Only
Lecture courses in selected areas of specialization within Information Technology.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN591 Special Topics in Information Technology
1-3 credits
Offered By Announcement Only
Lecture courses in selected areas of specialization within Information Technology.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN592 Special Topics in Audio Engineering
1-3 credits
Offered By Announcement Only
Lecture courses in selected areas of specialization within Audio Engineering.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN593 Special Topics in Audio Engineering
1-3 credits
Offered By Announcement Only
Lecture courses in selected areas of specialization within Audio Engineering.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN594 Special Topics in Computer Engineering
1-3 credits
Offered By Announcement Only
Lecture courses in selected areas of specialization within Computer Engineering.
PREREQUISITE: PERMISSION OF INSTRUCTOR - 1 COUPON

EEN595 Special Topics in Computer Engineering
1-3 credits
Offered By Announcement Only
Lecture courses in selected areas of specialization within Computer Engineering.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN596 Special Topics in Computer Engineering
1-3 credits
Offered By Announcement Only
Lecture courses in selected areas of specialization within Computer Engineering.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN597 Special Topics in Electrical Engineering
1-3 credits
Offered By Announcement Only
Lecture courses in selected areas of specialization within Electrical Engineering.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN598 Special Topics in Electrical Engineering
1-3 credits
Offered By Announcement Only
Lecture courses in selected areas of specialization within Electrical Engineering.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
EEN599 Special Topics in Electrical Engineering
1-3 credits Offered By Announcement Only
Lecture courses in selected areas of specialization within Electrical Engineering.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN607 Advanced Active Filter Design
3 credits Offered By Announcement Only
Continuation of EEN 507. Design of active high-pass, band-stop, and all-pass filters, tunable filters, frequency discriminators, and oscillators. Optimum filters and frequency transformations are also included.
PREREQUISITE: EEN 507.

EEN608 Adaptive Control Theory
3 credits Offered By Announcement Only
Stochastic control, parameter estimation, system identification techniques, Kalman filtering, design and model-reference, self-tuning, and adaptive control systems for both continuous and discrete time systems based on Lyapunov and hyperstability techniques are discussed.
PREREQUISITE: EEN 508 OR 518.

EEN615 M. S. Design Project I
3 credits Fall & Spring Semester
Comprehensive M.S. design project in electrical or computer engineering. Open only to students in the BS/MS dual-degree program.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN616 M.S. Design Project II
3 credits Fall & Spring Semester
Continuation of EEN 615. Open only to students in the BS/MS dual-degree program.
PREREQUISITE: EEN 615.

EEN634 Modeling and Analysis of Computer Networks
3 credits Offered By Announcement Only
Elements of queueing theory, performance analysis of protocols, flow and congestion control, random access schemes, routing algorithms, and integrated services digital networks (ISDN) are discussed.
PREREQUISITE: EEN 534.

EEN635 Advanced Electronics
3 credits Offered By Announcement Only
Current topics in electronic design including filter design using striplines and microstrip structures, switching, mixing, and modulation using microwaves transistors. Advanced computer aided design methods are also included.
PREREQUISITE: EEN 555.

EEN636 Advanced Digital Filter Design
3 credits Offered By Announcement Only
Continuation of EEN 536. Adaptive digital filter design, frequency and time domain analysis using discrete transforms including Walsh, Haar, and slant optimum filters and frequency transformations are covered.
PREREQUISITE: EEN 536.
EEN638 Computer Vision
3 credits Spring Semester
Principles of computer vision. Segmentation, shape and texture analysis, 3D scene analysis, polyhedral scenes, time-varying image analysis, parallel processing algorithms, matching, and recognition are covered.
PREREQUISITE: EEN 538 OR PERMISSION OF INSTRUCTOR

EEN653 Pattern Recognition and Neural Networks
3 credits Offered By Announcement Only
Statistical pattern classification, feature extraction, cluster analysis, neural net models, Hopfield net, competitive learning, multi-layer perceptron, and the Boltzmann machine are discussed.
PREREQUISITE: EEN 538 OR PERMISSION OF INSTRUCTOR.

EEN656 Information Theory
3 credits Offered By Announcement Only
Measure of uncertainty and entropy, two dimensional sources, noisy channels, mutual and transinformation, equivocation, efficiency and channel capacity, minimum redundancy coding, error-detecting, error-correcting codes, continuous channel without memory. Gaussian additive noise, sampling theorem, and vector space are covered.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN671 Advanced Interactive Multimedia Information Systems
3 credits Fall Semester
Multimedia data models, advanced content-based retrieval, indexing, architecture design, management of networked multimedia systems, simultaneous access, and display of audio, video, and graphics information in centralized and distributed environments are covered.
PREREQUISITE: EEN 571.

EEN681 Advanced Problems
1-3 credits Fall Semester
Research and/or design projects through an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN682 Advanced Problems
1-3 credits Spring Semester
Research and/or design projects through an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN683 Advanced Problems
1-3 credits First Summer Session
Research and/or design projects through an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN684 Advanced Problems
1-3 credits Second Summer Session
Research and/or design projects through an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
EEN689
1- 3 credits                          Fall Semester
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN690 Advanced Topics in Information Technology
1- 3 credits                          Offered By Announcement Only
Subject matter offering in information technology based upon student demand and
availability of faculty. Subtitles describing the topics to be offered will be
shown in parentheses in the printed class schedule, following the title "Advanced
Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN691 Advanced Topics in Information Technology
1- 3 credits                          Offered By Announcement Only
Subject matter offering in information technology based upon student demand and
availability of faculty. Subtitles describing the topics to be offered will be
shown in parentheses in the printed class schedule, following the title "Advanced
Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN692 Advanced Topics in Audio Engineering
1- 3 credits                          Offered By Announcement Only
Subject matter offerings in audio engineering based upon student demand and availability. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Advanced Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN693 Advanced Topics in Audio Engineering
1- 3 credits                          Offered By Announcement Only
Subject matter offerings in audio engineering based upon student demand and availability. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Advanced Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN694 Advanced Topics in Computer Engineering
1- 3 credits                          Offered By Announcement Only
Subject matter offerings in computer engineering based upon student demand and availability of faculty. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Advanced Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN695 Advanced Topics in Computer Engineering
1- 3 credits                          Offered By Announcement Only
Subject matter offerings in computer engineering based upon student demand and availability of faculty. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Advanced Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.
EEN696 Advanced Topics in Computer Engineering
1- 3 credits Offered By Announcement Only
Subject matter offerings in computer engineering based upon student demand and availability of faculty. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Advanced Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN697 Advanced Topics in Electrical Engineering
1- 3 credits Offered By Announcement Only
Subject matter offerings in electrical engineering based upon student demand and availability of faculty. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Advanced Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN698 Advanced Topics in Electrical Engineering
1- 3 credits Offered By Announcement Only
Subject matter offerings in electrical engineering based upon student demand and availability of faculty. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Advanced Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN699 Advanced Topics
1- 3 credits Offered By Announcement Only
Subject matter offerings based upon student demand and availability of faculty. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Advanced Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.

EEN710 Master's Thesis
1- 6 credits Fall & Spring Semester
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

EEN720 Research in Residence
0 credit Fall & Spring Semester
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in EEN 710 (usually six credits). Credit not granted. May be regarded as full time residence.

EEN725 Continuous Registration--Master's Study
0 credit Fall & Spring Semester
To establish residence for non-thesis master's students who are preparing for major examinations. Credit not granted. Regarded as full time residence.

EEN730 Pre-Candidacy Doctoral Dissertation
1-12 credits Fall & Spring Semester & First & Second Summer Session
Doctoral dissertation credits taken prior to Ph.D. student's candidacy. The student will enroll for credit as determined by his/her advisor. Not more than 12 hours of EEN 730 may be taken in a regular semester, nor more than six in a summer session.
EEN740 Post-Candidacy Doctoral Dissertation
1-12 credits                 Fall & Spring Semester & First & Second Summer Session
Doctoral dissertation credits taken after Ph.D. student has been admitted to candidacy.
The student will enroll for credit as determined by his/her advisor. Not more than
12 credits in EEN 740 may be taken in a regular semester, nor more than six credits
in a summer session.
PREREQUISITE: ADMISSION TO CANDIDACY

EEN750 Research in Residence
0 credit                                                     Fall & Spring Semester
Used to establish research in residence for the Ph.D., after the student has been
enrolled for the permissible cumulative total in appropriate doctoral research.
Credit not granted. May be regarded as full-time residence as determined by the
Dean of the Graduate School.

INDUSTRIAL ENGINEERING
IEN501 Manufacturing Analysis and Design I
3 credits                                              Offered By Announcement Only
Analysis of Production Systems stressing diagnosis of problems associated with
work measurement, manufacturing methodologies, and their interaction with cost
factors.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

IEN502 Manufacturing Analysis and Design II
3 credits                                              Offered By Announcement Only
Analysis of production systems stressing diagnosis of problems of quality and production
control, utilizing quantitative techniques and analytical methods.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

IEN505 Robotics
3 credits                                                             Fall Semester
Fundamentals of robotics including kinematics and dynamics, trajectory planning,
sensors and actuators, robotic vision, and case studies. Building your own robot
is an integral part of hands-on laboratory exercises. Matlab control toolbox and
image analysis toolbox will be extensively used for design and analysis.
PREREQUISITE: IEN 306 OR PERMISSION OF INSTRUCTOR.

IEN507 Design of Manufacturing Systems
3 credits                                                           Spring Semester
State-of-the-art techniques and tools relevant to the design, analysis, and control
of modern manufacturing systems. Topics include modeling of manufacturing systems,
tools for manufacturing system analysis, manufacturing system planning and scheduling,
and lean manufacturing systems.
PREREQUISITE: IEN 465 OR PERMISSION OF INSTRUCTOR.

IEN509 Automated Assembly
3 credits                                                             Fall Semester
Fundamentals of automated assembly including parts transfer systems and feeders,
parts orientation and grasping techniques, product design for automated assembly
(DFA), assembly robots, and performance and economics of assembly systems.
PREREQUISITE: IEN 406 OR PERMISSION OF INSTRUCTOR.
IEN512 Statistical Quality Control and Quality Management
3 credits  Fall Semester
Principles and practices of quality control in industry. Engineering and administrative aspects of quality control programs, process control, and acceptance sampling. Application of quantitative methods to the design and evaluation of engineering and industrial systems and processes are discussed as well as concepts of Total Quality Management.
PREREQUISITE: IEN 311 (MAS 311) OR IEN 312 (MAS 312).

IEN513 Quality Management in Service Organizations
3 credits  Fall Semester
Course examines the issues of quality and productivity management in the service sector. Topics covered include the development and use of questionnaires, service industry applications of quality such as in banking, insurance, healthcare, transportation, government, public utilities, and retail trade.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

IEN524 Decision Support Systems in Industrial Engineering
3 credits  Spring Semester
Theory and application of decision support systems in industrial engineering. Topics include the study of model-based, data-based, knowledge-based, and communication-based decision support systems. Emphasis is placed on the selection process of the appropriate systems for various decision problems in industrial environments.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

IEN547 Computer Simulation Systems
3 credits  Spring Semester
Computer simulation and the development of simulation models. Application of discrete and continuous system simulation languages to systems studies is also included.
PREREQUISITE: IEN 442 (MAS 442) OR PERMISSION OF INSTRUCTOR.

IEN551 Accident Prevention Systems
3 credits  Spring Semester
Introduction to the basic principles of accident prevention and how to apply the safety engineering approach to the design of industrial accident prevention systems.
PREREQUISITE: IEN 351 OR PERMISSION OF INSTRUCTOR.

IEN557 Ergonomics and Human Factors Engineering
3 credits  Fall Semester
The study of human capacities and limitations with emphasis on human performance in system design. Topics include design of displays and controls, workload, job design, human information processing, anthropometry, workplace design, biomechanics, task analysis, and research techniques in human factors engineering. Lecture, 3 hours.
PREREQUISITE: IEN 312 (MAS 312) OR PERMISSION OF INSTRUCTOR.

IEN558 Industrial Hygiene I
3 credits  Fall Semester
Recognition of occupational chemical health hazards. Evaluation methods and analytical procedures used to determine level of exposure to chemical and toxic hazards. Control measures and compliance with OHSA requirements with special emphasis on industrial ventilation, and other methods of control are included.
PREREQUISITE: ((CHM 111 OR 151) AND SENIOR STANDING) OR PERMISSION OF INSTRUCTOR.
IEN559 Industrial Hygiene II
3 credits Spring Semester
Recognition of physical occupational health hazards and evaluation methods and instruments used in measuring exposure levels with special emphasis on physical hazards. Protective measures and compliance with OHSA requirements is also included. Lecture, 3 hours.
PREREQUISITE: ((CHM 111 OR 151) AND SENIOR STANDING) OR PERMISSION OF INSTRUCTOR.

IEN565 Design of Integrated Manufacturing Systems
3 credits Offered By Announcement Only
The design of integrated manufacturing systems including concepts of production planning and control, forecasting techniques, inventory systems, production planning and scheduling methods, material requirement planning, plant layout and facility location, design principles of material handling, new trends in batch, and discrete-parts are discussed.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

IEN568 Materials Handling and Facilities Planning
3 credits Spring Semester
Analysis and design of production and service facilities, emphasis on material handling requirements. Capacity requirements, facility location, layout, storage systems and warehousing are discussed.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

IEN570 Engineering Management
3 credits Spring Semester
Integrating engineering discipline into the social and economic considerations of managing systems. Tools and techniques used by engineering managers including engineering project life cycle, role playing, communication, decision-making in engineering management, and managing change in engineering organizations are discussed.
PREREQUISITE: IEN 311 (MAS 311) OR IEN 312 (MAS 312) OR PERMISSION OF INSTRUCTOR.

IEN571 Engineering Entrepreneurship
3 credits Spring Semester
The conversion of technological know-how and engineering theories into business enterprises. The role of technology in creating wealth, connecting technology with market, the role and characteristics of entrepreneurs, starting a business and the business plan, innovation, industrial and service organizations, and the new business environment.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

IEN572 Management of Technology
3 credits Fall Semester & Second Summer Session
Engineering, Science and Management Principles contributing to the development of a successful framework for Managing technology within an organization, nationally, or internationally. The process of technological innovations, technological planning and forecasting, and socio-economic changes.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

IEN590 Special Topics in Industrial Engineering
1-3 credits Offered By Announcement Only
Sub-titles describing the topics are shown in parentheses in the class schedule, following the title "Special Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.
IEN591 Dean's Seminar: Entrepreneurship
1 credits Offered By Announcement Only
Weekly seminar given by guest speakers on topics including process of management, marketing, planning, R & D, financing, taxation, governmental regulations, and international commerce.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

IEN594 Master's Capstone Design Project
3 credits Fall Semester
A capstone design project for students in the five-year BSIE/MSIE program. Integration of Industrial Engineering principles and techniques in the design and improvement of production and service systems is emphasized. Offered for students in this program only.
PREREQUISITE: METHODS ANALYSIS, APPLIED PROBABILITY AND STATISTICS AND SENIOR STANDING.

IEN595 Special Problems
1-3 credits Offered By Announcement Only
Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

IEN596 Special Problems
1-3 credits Offered By Announcement Only
Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

IEN599 Cooperative Education
1 credits Offered By Announcement Only
Practical application of classroom theory through alternating semester or summer employment with industries offering positions consistent with the student's field of study. Course may be repeated. Periodic reports and conferences are required.

IEN601 Advanced Industrial Engineering Concepts
3 credits Fall Semester
The application of advanced concepts of Industrial Engineering to modern systems with an emphasis on the solution of real world problems.
PREREQUISITE: IEN 301 OR PERMISSION OF INSTRUCTOR.

IEN607 New Product Development and Introduction
3 credits Fall Semester
Dynamics of converting ideas into marketable products, selecting products, and defining their specifications to achieve competitive advantage. Product development steps are examined critically in the context of real case studies. Topics include the process of fostering a creative environment for new products and processes, planning for innovation, process of product patenting, organizing the technical effort, integration of functions, risk assessment and evaluation, and management techniques for improving manufacturing operations.
PREREQUISITE: GRADUATE STANDING.
IEN612 Design of Experiments
3 credits
Design and analysis of experiments, randomized blocks, Latin Squares, factorials, multiple correlation and regression, and application to response surfaces are discussed.
3 hours.
PREREQUISITE: IEN 311 OR MAS 311 OR EQUIVALENT.

IEN613 Quality Through Planned Experimentation
3 credits
Sequential experimentation and guidance on how to build the sequence and use graphical methods to ascertain how much the planned changes contribute to the variation in the data. Experimentation is presented as a system in the context of a model to improve quality, and integrate statistical process control (SPC) with methods of design. Examples presented contain problems often encountered in actual experimentation in a manufacturing or a service facility. Not open to students with credit in IEN 612.
PREREQUISITE: IEN 311 OR PERMISSION OF INSTRUCTOR.

IEN614 Advanced Quality Control
3 credits
PREREQUISITE: IEN 512.

IEN617 Quality Through Design
3 credits
The integrated processes and teamwork essential to success with products are presented. All activities of product development are covered. Topics include concept of a new region, concurrent engineering, competitive benchmarking, house of quality, robust design, and production preparation. Special emphasis is placed on the integration of quality function deployment and Taguchi’s quality engineering into total development.
PREREQUISITE: IEN 612 or MAS 603.

IEN641 Applied Operations Research
3 credits
Inventory theory, queueing theory, optimization models, and linear and dynamic programming for deterministic and probabilistic cases. Emphasis is placed on applications.
PREREQUISITE: IEN 441 OR PERMISSION OF INSTRUCTOR.

IEN642 Linear Programming and Extensions
3 credits
Formulation, solution, postoptimality analysis of linear programming problems; revised simplex, parametric programming, decomposition of large-scale systems. Use of computer packages. Introduction to integer programming, network flows, and nonlinear programming applications.
PREREQUISITE: LINEAR ALGEBRA OR EQUIVALENT.

IEN643 Integer Programming and Network Flows
3 credits
Computationally effective approaches to integer optimization, cutting planes, implicit enumeration, network flows, single commodity, and multi-commodity flows are covered.
PREREQUISITE: MAS 647/ IEN642.
IEN644 Nonlinear and Dynamic Programming
3 credits
Offered By Announcement Only
Solution of nonlinear optimization problems by classical procedures and search algorithms. Recursive optimization using computationally effective techniques is also included.
PREREQUISITE: MTH 112 OR EQUIVALENT.

IEN645 Stochastic Processes
3 credits
Fall Semester
Introduction to discrete state Markov processes and renewal processes with applications to queueing, replacement, and reliability problems.
PREREQUISITE: MAS 311, IEN 311, MTH 524 OR EQUIVALENT.

IEN646 Queueing Models
3 credits
Offered By Announcement Only
Formulation, solution, and application of models useful in the analysis of waiting lines.
PREREQUISITE: MAS 311, IEN 311, OR MTH 524 OR EQUIVALENT.

IEN651 System Safety Engineering
3 credits
Fall Semester
Understanding system safety, evaluating a system for its state of safety over its life cycle, determining if that state is acceptable, and evaluating counter-measures for their effectiveness in bringing the system to an acceptable state are discussed. Presenting quantitative methods that may be used in safety data analysis is also included.
PREREQUISITE: IEN 311 AND 351.

IEN655 Human Factors in Management of Technology
3 credits
Offered By Announcement Only
Implications of the influx of computer and automation technologies into work settings for behavior within organizations. Human factors issues associated with the implementation of technology including hardware and software design, job design, and workplace design. Organizational issues such as decision-making, communication, and human centered design of products.

IEN656 Human Information Processing and System Design
3 credits
Spring Semester
Understanding the capabilities of humans as information processors in relation to system design, including job and equipment (hardware and software) design. Course topics include attentional capacity, vigilance, mental workload, verbal and non-verbal perception, speech recognition, decision making, skilled performance, human reliability, and process control.
PREREQUISITE: IEN 557.

IEN657 Ergonomics and Occupational Biomechanics
3 credits
Spring Semester
Effects of human factors in the improvement of performance of systems. Human capacities, capabilities, and limitations as derived from anatomical, physiological, and psychological principles are applied to the design of tools and equipment. Incorporation of all factors into systems design to achieve better system performance is emphasized.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
IEN658 Ergonomics and Special Populations
3 credits
Spring Semester
Ergonomic issues relevant to design for older adults and special populations such as the handicapped. Primary emphasis is placed on work environments, transportation and communication systems, and home environments. Topics include cognitive and physiological characteristics of special populations, workplace design, job and equipment design, rehabilitation engineering, clinical ergonomics, and legislation such as the ADA. Lecture, 3 hours.
PREREQUISITE: IEN 557.

IEN659 Work Physiology
3 credits
Offered By Announcement Only
Physiological responses to occupational work including aspects of endurance, fatigue, recovery, and the energy cost of work. Application of work physiology to job design and personnel assignment is included.
PREREQUISITE: IEN 557 OR PERMISSION OF INSTRUCTOR.

IEN660 Productivity Measurement and Evaluation
3 credits
Fall Semester
Basic concepts. Productivity measurement approaches at international, national, industry, and company levels. Latest measurement models for manufacturing companies. Relationships between total and partial productivities, profit and total productivity. Productivity evaluation: theory and methodology.
PREREQUISITE: IEN 360 OR PERMISSION.

IEN661 Engineering Cost Management
3 credits
Fall Semester
Issues of cost management, including activity based costing of engineering projects. A detailed study of how to separate, identify, understand and manage the major activities performed, and how these activities relate to customer needs. Overall view of costs associated with products, processes, and customers.
PREREQUISITE: Graduate standing.

IEN662 Productivity Planning and Improvement
3 credits
Fall Semester
Planning and improvement as part of the productivity cycle. Concepts and tools. Productivity planning and improvement in manufacturing and non-manufacturing companies: technology, materials, employee, product, and task based techniques. The PIP package.
PREREQUISITE: IEN 360 OR PERMISSION.

IEN663 Project Management Techniques
3 credits
Fall Semester
Techniques and Tools in Project Management. Use of network flow techniques including PERT/CPM, planning, systems concepts, time management, conflicts, cost and resource control, tradeoff analysis.
PREREQUISITE: IEN 311 OR EQUIVALENT.
IEN664 Supply Chain Management

3 credits

Offered By Announcement Only

Supply Chain Management focuses on the flow of products, information, and money throughout the supply chain. An overview of issues, opportunities, tools, and approaches is provided. Emphasis is placed on business processes, system dynamics, control, design and re-engineering, and on the relationship between the supply chain and the company's strategic position relative to its clients and its competition. The dimensions of inter-corporate relationships with partners, including decision-making, incentives, and risk are also covered.

PREREQUISITE: IEN 465 OR PERMISSION OF INSTRUCTOR.

IEN665 Advanced Production Systems

3 credits

Spring Semester


PREREQUISITE: IEN 465 OR PERMISSION OF INSTRUCTOR.

IEN672 Strategic Management of Technology

3 credits

Fall & Spring Semester

Advanced topics in the management of technology emphasizing the relationship between technology and competitiveness in the global marketplace. Technology development in the U.S., Japan, and Europe, industrial R & D, strategic technological planning, and conditions for successful implementations. Case studies are used with individual and group assignments.

PREREQUISITE: IEN 572 OR PERMISSION OF INSTRUCTOR.

IEN691 Industrial Engineering Seminar

0 credit

Spring Semester

Oral presentation and discussion of current topics in Industrial Engineering.

IEN692 Industrial Engineering Seminar II

0 credit

Spring Semester

Oral presentation and discussion of current topics of Industrial Engineering.

IEN694 Master's Project

3 credits

Fall & Spring Semester

A capstone project for M.S. students in the non-thesis option.

IEN695 Special Problems

1- 3 credits

Offered By Announcement Only

Research and/or design projects through an individual investigation of current problems. Offered by special arrangement only.

PREREQUISITE: PERMISSION OF INSTRUCTOR.

IEN696 Special Problems

1- 3 credits

Offered By Announcement Only

Research and/or design projects through an individual investigation of current problems. Offered by special arrangement only.

PREREQUISITE: PERMISSION OF INSTRUCTOR.
IEN699 Advanced Topics
1-3 credits Offered By Announcement Only
Subject matter offerings based upon student demand and availability of faculty. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Advanced Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.

IEN710 Master's Thesis
1-6 credits Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

IEN720 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in IEN 710 (usually six credits). Credit not granted. May be regarded as full time residence.

IEN725 Continuous Registration--Master's Study
0 credit Fall & Spring Semester & First & Second Summer Session
To establish residence for non-thesis master's students who are preparing for major examinations. Credit not granted. Regarded as full time residence.

IEN730 Pre-Candidacy Doctoral Dissertation
1-12 credits Fall & Spring Semester & First & Second Summer Session
Doctoral dissertation credits taken prior to Ph.D. student's candidacy. The student will enroll for credit as determined by his/her advisor. Not more than 12 hours of IEN 730 may be taken in a regular semester, nor more than six in a summer session.

IEN740 Post-Candidacy Doctoral Dissertation
1-12 credits Fall & Spring Semester & First & Second Summer Session
Doctoral dissertation credits taken after Ph.D. student has been admitted to candidacy. The student will enroll for credit as determined by his/her advisor. Not more than 12 credits in IEN 740 may be taken in a regular semester, nor more than six credits in a summer session.
PREREQUISITE: ADMISSION TO CANDIDACY

IEN750 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D. and D.A., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

MECHANICAL & AEROSPACE ENGINEERING
MAE501 Methods of Engineering Analysis
3 credits Fall Semester
Analysis of engineering systems in equilibrium and motion. Examples considered from mechanical, electrical, thermal and fluids engineering. Mathematical theory and computer methods for obtaining numerical solutions are developed for various cases involving discrete and continuous systems. Lecture, 3 hours.
PREREQUISITE: MAE 412, MTH 311 OR PERMISSION OF THE INSTRUCTOR.
MAE502 Vibrations
3 credits  Fall Semester
Basic theory of free and forced vibrations of mechanical systems with and without
damping. Applications to systems with one and several degrees of freedom are included.
PREREQUISITE: MAE 202, 207, 412 OR PERMISSION OF INSTRUCTOR.

MAE503 Internal Combustion Engines
3 credits  Fall Semester
Course discusses engine types, characteristics, and operation. Topics include performance
factors, fuel combustion, power cycles, knock and engine variables, exhaust emissions,
fuel metering, compressors, and turbines.
PREREQUISITE: MAE 303, SENIOR STANDING, OR PERMISSION OF INSTRUCTOR.

MAE505 Design for Manufacturability
3 credits  Fall Semester
Manufacturing concerns at design stage. Design theory and methodology. Statistical
considerations in geometric dimensioning, tolerances, reliability-based design,
and quality control. Producibility, design for assembly, and value engineering.
Life cycle costs and optimum design using nonlinear programming and Taguchi approaches.
Hands on projects on machine tools.
PREREQUISITE: MAE 341 AND 342 OR CONSENT OF INSTRUCTOR.

MAE506 Nuclear Engineering
3 credits  Offered By Announcement Only
Course topics include a review of neutron physics, chain reactions, reactor theory,
steady state operation, and reactor kinetics. Control, long term reactivity changes,
materials, heat transfer, and shielding are also included. Lecture, 3 hours.
PREREQUISITE: SENIOR STANDING IN MECHANICAL AND AEROSPACE ENGINEERING OR PERMISSION
OF INSTRUCTOR.

MAE507 Advanced Mechanics of Solids
3 credits  Spring Semester
Courses discusses the basic elements of elasticity, plasticity, and viscoelasticity.
Application to mechanical systems at rest and in motion are included.
PREREQUISITE: MAE 202, 207, SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

MAE508 Intermediate Heat Transfer
3 credits  Spring Semester
Course discusses steady and unsteady heat transfer by conduction, convective heat
transfer in laminar and turbulent fluid flow, natural convection, and heat transfer
by radiation.
PREREQUISITE: MAE 310.

MAE509 Hydrogen Energy
3 credits  Fall Semester
Evaluation of new energy sources, need for an intermediary system, hydrogen energy
system, hydrogen as energy carrier, hydrogen production methods, hydrogen storage
and distribution, utilization of hydrogen by residential, commercial, transportation,
and industrial sectors are discussed as well as environmental, safety, and economical
considerations.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.
MAE510 Fundamentals of Solar Energy Utilization  
3 credits  
Spring Semester  
Fundamentals basic to the design and performance analysis of thermal systems for the capture and utilization of Solar Energy.  
PREREQUISITE: MAE 303, MTH 211 AND PHY 207.

MAE511 Engineering Fracture Mechanics  
3 credits  
Offered By Announcement Only  
Course addresses the consequence of fracture including some illustrative applications of fracture mechanics, Griffith’s fracture theory, review of relevant results from solid mechanics, the three basic modes of fracture, stress intensity factor, introduction to elasto-plastic and dynamic fracture, fatigue crack propagation, fracture and non-destructive evaluation procedures.  
PREREQUISITE: MAE 207, SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

MAE512 Intermediate Fluid Mechanics  
3 credits  
Fall Semester  
Course topics include conservation of mass, momentum, and energy, potential flow, viscous laminar and turbulent flows, the Reynolds analogy, and Boundary-layer approximations. Gas dynamics are also discussed.  
PREREQUISITE: MAE 309.

MAE513 Kinematics for Robotics  
3 credits  
Offered By Announcement Only  
Geometry of unconstrained plane motion with applications to linkage design. Topics include type and number synthesis, introduction to 3-D mechanism with applications to robotics, graphical, analytical, and computer techniques, including the use of analysis software.  
PREREQUISITE: MAE 202, SENIOR STANDING, OR PERMISSION OF INSTRUCTOR.

MAE514 Advanced Internal Combustion Engines Experimental Studies  
3 credits  
Spring Semester  
Experimental mechanical engineering as it pertains to internal combustion engines. The principal measurements necessary to analyze the operation of an internal combustion engine are covered. Emphasis is placed on experiment planning, data interpretation, and error analysis.  
PREREQUISITE: MAE 503 OR PERMISSION OF INSTRUCTOR.

MAE516 Introduction to Composite Materials  
3 credits  
Offered By Announcement Only  
Course provides an introduction to composite materials and terminology. Topics include advantages offered by composite materials, current aerospace, automotive, and bio-mechanics applications, experimental results, analytical models, and effects of impact and fatigue loads. The environment’s impact on composite materials’ performance and design procedures are discussed. Case studies examining composite materials as efficient replacements are also included.  
PREREQUISITE: MAE 207, SENIOR STANDING, OR PERMISSION OF INSTRUCTOR.

MAE517 CAD Applications Using Interactive Computer Graphics  
3 credits  
Offered By Announcement Only  
Computer methods and graphics in the engineering design process. Introduction to available engineering analysis codes, principles of computer graphics, and interactive graphical methods in problem solving. Mathematics for 2-D and 3-D graphical manipulation. Programming project work is required.  
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.
MAE518 Chemical and Process Engineering A 3 credits
Course analyzes single and multi-stage concentration processes in the liquid-solid systems such as crystallization and drying. Processes apart from equilibrium, controlled diffusion, mathematical treatment, and equipment design are also discussed. PREREQUISITE: MAE 310, 311. COREQUISITE: MAE 508.

MAE519 Chemical and Process Engineering B 3 credits
Stagewise equilibrium separation processes in liquid-liquid systems such as distillation, rectification, absorption, and extraction. Application of phase equilibria and balance equations, mathematical treatment, and equipment design. PREREQUISITE: MAE 310, 311, 308.

MAE520 Air Pollution 3 credits
Course topics include fundamentals of air pollution, air quality, properties of air pollutants, effect of pollutants on the environment, analysis and modeling, diffusion of pollutants, and air pollution control. PREREQUISITE: MAE 303, 309/CAE 330 OR PERMISSION OF INSTRUCTOR.

MAE521 Exhaust Emission Control 3 credits
Course topics include automotive emissions, air pollution, combustion of homogeneous mixtures, emission control systems, Federal emission standards, and emission instrumentation and measurement. Lecture, 2 hours; Laboratory, 3 hours. PREREQUISITE: SENIOR ENGINEERING STANDING OR PERMISSION OF INSTRUCTOR.

MAE538 Computer-Aided Air Conditioning Design and Energy Management 3 credits
Course topics include equipment and components, air conditioning system, all-air systems, air-and-water systems, all water systems, heat recovery systems, cogeneration systems, heat pump systems, central heating and cooling, energy management, and computer applications. PREREQUISITE: MAE 405 OR 408 OR PERMISSION OF INSTRUCTOR.

MAE539 Heating, Ventilating and Air Conditioning System Design 3 credits
Course topics include basic HVAC systems, multizone systems, dual-duct systems, terminal reheat systems, variable air volume systems, induction and induction reheat systems, special applications, hydronic systems, unitary and heat pump systems, hydronic heat recovery systems, cooling and heating load calculation duct and piping design, overall system design, and integration. PREREQUISITE: MAE 405 OR 408 OR PERMISSION OF INSTRUCTOR.

MAE540 Energy Conversion 3 credits
Course topics include energy conversion, utilization, present and projected consumption of energy, thermodynamic principles, nuclear energy, fission and fusion reactions, hydroelectric power, and solar energy. Alternative energy sources, the hydrogen economy, and the energy-environment-economy system are also discussed. PREREQUISITE: SENIOR STANDING IN MECHANICAL AND AEROSPACE ENGINEERING OR PERMISSION OF INSTRUCTOR.
MAE541 Two-Phase Flow Fundamentals and Design  
3 credits  
Offered By Announcement Only  
Course topics include two-phase flow fundamentals for thermal design, heat transfer, pressure drop analysis of two-phase flows in tube and around tube bundles, heat transfer design correlations in boiling, evaporation, and condensation. Classifications of heat vapor generation and vapor condensation, heat exchangers for air-conditioning and refrigeration, enhancement of boiling, condensation, evaporation heat transfer, and fouling of heat exchangers are also discussed. Design examples are included.  
PREREQUISITE: MAE 303 AND 310 OR PERMISSION OF INSTRUCTOR.

MAE550 Product Safety Engineering  
3 credits  
Offered By Announcement Only  
Product safety for the designer and the design review process. Topics include hazard analysis of products including use of regulatory and voluntary standards and analytical tools such as fault tree analysis. Constraints imposed by product liability law, design techniques, and process requirements to minimize hazards are also discussed.  
PREREQUISITE: SENIOR STANDING IN ENGINEERING OR PERMISSION OF INSTRUCTOR.

MAE551 Special Problems  
1- 3 credits  
Fall & Spring Semester & First & Second Summer Session  
Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.  
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

MAE552 Special Problems  
1- 3 credits  
Fall & Spring Semester & First & Second Summer Session  
Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only.  
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

MAE570 Aero Propulsion  
3 credits  
Fall Semester  
Definition of the atmosphere, propulsion basics, rocket fundamentals, turbine fundamentals, gas turbine cycles, component matching, math and computer models, aircraft missions, cycle section, reliability, and durability are analyzed.  
PREREQUISITE: MAE 303, 309.

MAE571 Introduction to Aerospace Control  
3 credits  
Spring Semester  
Course topics include modeling of Aerospace systems, properties of state space realizations, coordinate transforms solution of state equations, controllability, observability, equivalent realizations, model reduction, stability, optimal control, and estimation.  
PREREQUISITE: MAE 415 OR PERMISSION OF INSTRUCTOR.

MAE590 Special Topics  
1- 4 credits  
Fall Semester  
Subtitles describing the topics will be shown in parentheses in the class schedule, following the "Special Topics."  
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MAE591 Special Topics
1-4 credits
Offered By Announcement Only
Subtitles describing the topics will be shown in parentheses in the class schedule, following the "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE592 Special Topics
1-4 credits
Offered By Announcement Only
Subtitles describing the topics will be shown in parentheses in the class schedule, following the "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE593 Special Topics
1-4 credits
Offered By Announcement Only
Subtitles describing the topics will be shown in parentheses in the class schedule, following the "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE594 Special Topics
1-4 credits
Offered By Announcement Only
Subtitles describing the topics will be shown in parentheses in the class schedule, following the "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE595 Special Topics
1-4 credits
Offered By Announcement Only
Subtitles describing the topics will be shown in parentheses in the class schedule, following the "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE596 Special Topics
1-4 credits
Offered By Announcement Only
Subtitles describing the topics will be shown in parentheses in the class schedule, following the "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE597 Special Topics
1-4 credits
Offered By Announcement Only
Subtitles describing the topics will be shown in parentheses in the class schedule, following the "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE598 Special Topics
1-4 credits
Offered By Announcement Only
Subtitles describing the topics will be shown in parentheses in the class schedule, following the "Special Topics."
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE599 Cooperative Education
1 credit
Fall & Spring Semester & First & Second Summer Session
Practical application of classroom theory through alternating semester or summer employment with industries offering positions consistent with the student's field of study. Course may be repeated. Periodic reports and conferences are required.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.
MAE601 Advanced Heat Transfer--Conduction and Radiation
3 credits
Spring Semester
Advanced analytical methods of solutions of boundary value problems of steady, periodic, and unsteady heat conduction. Topics include techniques of transient point, line, and plane sources and sinks, thermodynamics of radiative equilibrium, radiative exchange, geometrical factors, network, and other methods. Lecture, 3 hours.
PREREQUISITE: MAE 508 OR PERMISSION OF INSTRUCTOR.

MAE602 Advanced Heat Transfer--Convection
3 credits
Spring Semester
The analogy between heat, mass, and momentum transfers. Topics include the transfer mechanism, heat transfer to liquid metals, boiling and condensation mechanisms, heat transfer in two-phase flow, ablation heat transfer, transpiration, film cooling, and heat exchanges. Lecture, 3 hours.
PREREQUISITE: MAE 508 OR PERMISSION OF INSTRUCTOR.

MAE605 Finite Element Methods in Mechanical and Aerospace Engineering
3 credits
Spring Semester
Finite-element analysis methods for static and dynamic analysis of mechanical and aerospace structures, heat transfer analysis, and fluid flow applications. Primary emphasis is placed on underlying mechanics and numerical techniques. Consideration is also given to the use of existing programs, such as ANSYS, NASTRAN and FIDAP, designing proper meshes, and choosing the proper element. A term project is included.
PREREQUISITE: MAE 501, 507 OR PERMISSION OF INSTRUCTOR.

MAE606 Experimental Methods in Fluid Mechanics
3 credits
Offered By Announcement Only
Course topics include methods of flow visualization, laser techniques in measurement of wall motions, conduit compliance, Newtonian and non-Newtonian properties of fluids, measurement of unsteady flow and pressure, laser Doppler anemometry, ultrasound Doppler velocimetry, electro-magnetic flowmetry, measurement of steady and unsteady wall shear stresses and boundary layers.
PREREQUISITE: ADVANCED STANDING IN FLUID MECHANICS.

MAE610 Fluid Dynamics in Porous Media
3 credits
Offered By Announcement Only
Course discusses the properties and principles of flow in porous media. Topics include groundwater flow, with reference to transpiration cooling, use of flow nets for the computation of the velocity field, and how geohydrology affects groundwater flow. Groundwater resource evaluation, groundwater contamination, and discussion of field data are included.
PREREQUISITE: MAE 512, OR CAE 630.

MAE611 Gas Dynamics
3 credits
Offered By Announcement Only
Course analyzes one-dimensional compressible flow with effects of area change, friction, heat transfer, and combustion. Supersonic diffusers, wind tunnels, compression shocks, and methods of small perturbations are also discussed.
PREREQUISITE: MAE 512.
MAE612 Viscous Fluid Flow
3 credits
Spring Semester
Course discusses derivations and exact solutions of Navier-Stokes equations, approximations at low Reynolds numbers and low Mach numbers, boundary layer theory, stability, and turbulence. Lecture, 3 hours.
PREREQUISITE: MAE 512.

MAE613 Transport Phenomena
3 credits
Offered By Announcement Only
Course topics include laws of molecular transfer, the kinetic theory explanation of molecular transfer phenomena, introduction to turbulence, and molecular transfer in laminar and turbulent flows with experimental results. A unified treatment of salient aspects of momentum, heat, and mass transfer including the relationship between rate and conservation equations are also discussed.
PREREQUISITE: MAE 309, MTH 311 OR PERMISSION OF INSTRUCTOR.

MAE614 Computational Fluid Dynamics
3 credits
Spring Semester
Incompressible flow equations in rectangular co-ordinates. Topics include basic computational methods for incompressible flow, three dimensional flows, compressible flow equations in rectangular coordinates, basic computational methods for compressible flows, treatment of shocks, artificial viscosities, convergence, other mesh systems, programming, testing, and information processing.
PREREQUISITE: MAE 512.

MAE615 Turbulence
3 credits
Offered By Announcement Only
The nature and origin of turbulence. Topics include turbulent transport of momentum and heat, dynamics of turbulence, Boundary-free shear flows, Wall-Bounded shear flows, statistical description of turbulence, turbulent transport, Spectra dynamics, and methods and techniques of measurements in turbulent flows.
PREREQUISITE: MAE 512.

MAE620 Linear Robust Control
3 credits
Offered By Announcement Only
Analysis of multivariable systems in the frequency domain. Topics include norms on signals and systems, uncertainty models, closed loop transfer matrices for performer specifications, role of weighting matrices, and synthesis of Robust controllers in State-Space.
PREREQUISITE: EEN 518 OR PERMISSION OF INSTRUCTOR.

MAE625 Advanced Aerospace Structures
3 credits
Offered By Announcement Only
Elastic analysis of aerospace structures. Topics include failure modes and criteria, buckling, matrix methods for analysis, plane truss design, Energy and Castigliano methods for statically indeterminate structures, and torsion and bending of asymmetrical thin-walled open and closed sections. The use of computer packages to solve moderately sized problems of analysis and design of trusses, plane frames, torsion, plane stress, and combinations structures is also included.
PREREQUISITE: MAE 470 OR 507 OR PERMISSION OF INSTRUCTOR.
MAE630 Mechanical Systems Optimization  
3 credits  
Spring Semester  
Optimization as an element of the engineering design process. Topics include comparative examination of unconstrained algorithms, as well as development and application of methods for constrained optimization problems. Case studies which demonstrate the theory and application of mathematical programming as a design tool are also included. 
PREREQUISITE: MAE 501 OR PERMISSION OF INSTRUCTOR.

MAE635 Expert Systems in Mechanical and Aerospace Engineering  
3 credits  
Offered By Announcement Only  
Application of artificial intelligence techniques to problem solving in Mechanical Engineering. Coverage of AI programming languages and paradigms, expert systems technology, as well as applications of expert system to the processes of design, operations, maintenance, and simulation are included. 
PREREQUISITE: MAE 501 OR PERMISSION OF INSTRUCTOR.

MAE640 Continuum Mechanics  
3 credits  
Fall Semester  
Course discusses concepts that are common to all continuous media. Topics include elements of tensor analysis, motion, deformation, vorticity, material derivatives, mass and the continuity equation, and balance of linear and angular momentum as well as energy. Stress and its geometric characterization, constitutive equations of solid and fluid type behavior, virtual work, fundamental applications, and the Clausius-Duhem inequality are also covered. 
PREREQUISITE: MAE 507 OR 512 OR PERMISSION OF THE INSTRUCTOR.

MAE641 Vibration of Continuous Systems  
3 credits  
Fall Semester  
PREREQUISITE: MAE 502 OR CONSENT OF INSTRUCTOR.

MAE651 Master’s Project  
3 credits  
Fall & Spring Semester & First & Second Summer Session  
A required project for M.S. students in the non-thesis option. 
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE652 Master’s Capstone Project  
4 credits  
Fall & Spring Semester & First & Second Summer Session  
A required project for the five year BSME/MSME program. 
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE680 Graduate Colloquium  
0 credit  
Fall & Spring Semester  
Presentations by selected speakers of weekly programs dealing with topics of interest in Mechanical Engineering. Attendance is required of all students registered in Mechanical Engineering graduate programs. 
PREREQUISITE: GRADUATE STANDING.
MAE692 Special Problems
1-3 credits    Fall & Spring Semester & First & Second Summer Session
Research and/or design projects consisting of individual investigation of current problems. Offered by special arrangement only.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE697 Advanced Topics
1-3 credits    Offered By Announcement Only
Subject matter offerings based upon student demand and availability of faculty.
Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Advanced Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE698 Advanced Topics
1-3 credits    Offered By Announcement Only
Subject matter offerings based upon student demand and availability of faculty.
Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Advanced Topics".
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAE710 Master's Thesis
1-6 credits    Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

MAE720 Research in Residence
0 credit    Offered By Announcement Only
Fall Semester
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in MAE 710 (usually six credits). Credit not granted. May be regarded as full time residence.

MAE725 Continuous Registration--Master's Study
0 credit    Fall Semester

MAE730 Pre-Candidacy Doctoral Dissertation
1-12 credits    Fall & Spring Semester & First & Second Summer Session
Doctoral dissertation credits taken prior to Ph.D. student's candidacy. The student will enroll for credit as determined by his/her advisor. Not more than 12 hours of MAE 730 may be taken in a regular semester, nor more than six in a summer session.

MAE740 Post-Candidacy Doctoral Dissertation
1-12 credits    Fall & Spring Semester & First & Second Summer Session
Doctoral dissertation credits taken after Ph.D. student has been admitted to candidacy. The student will enroll for credit as determined by his/her advisor. Not more than 12 credits in MAE 740 may be taken in a regular semester, nor more than six credits in a summer session.
PREREQUISITE: ADMISSION TO CANDIDACY
MAE750 Research in Residence

0 credit  Fall Semester

Used to establish research in residence for the Ph.D. and D.A., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.
IGS517 Practicum in International Administration
3 credits Fall & Spring Semester & First & Second Summer Session
The practicum gives students the opportunity to apply academic theory and acquired skills in international administration under real world conditions. Students first complete an approved internship in an appropriate organization and then present a report/case study analysis under the supervision of the MAIA faculty.
PREREQUISITE: PERMISSION OF PROGRAM COORDINATOR

IGS599 Special Topics
3 credits Not Offered; Transfer Credit Only
The UM/MAIA program has a cooperation and student exchange program with St. Petersburg State University in St. Petersburg, Russia, Charles University in Prague, Czech Republic and Belgrano University in Argentina.
PREREQUISITE: PERMISSION OF PROGRAM COORDINATOR

IGS611 International Organizations
3 credits Spring Semester
Covers the entire spectrum of international organizations and the theoretical and practical issues relating to international organizations including peace and security, human rights, and economic development.
PREREQUISITE: GRADUATE STUDENTS ONLY

IGS612 International Administration
3 credits Spring Semester
Presents a broad overview of concepts, theories, processes, and practical global challenges confronting professional public/nonprofit managers; discusses contemporary issues facing multi-national corporations, non-government organizations, and public agencies; and analyzes the similarities and differences between public, non-profit and private management.
PREREQUISITE: GRADUATE STUDENTS ONLY

IGS613 World Cultures, Religions and Communications
3 credits Fall Semester
The course will overview the world religions and cultures as a backdrop of effective communication for international professionals. The study of comparative religions and cultures will make students aware of special challenges in international and intercultural communications, and the role of mass media in international relations.
PREREQUISITE: GRADUATE STUDENTS ONLY

IGS614 World Affairs
3 credits Fall & Spring Semester
This course introduces the conceptual basics of international relations and trains students in analytical and critical thinking skills through familiarity with the broad palette of issues and actors that make up today's world politics. Topics include the origins of the state and its changing role in today's world and an examination of the actors in international relations and the issues before them.
PREREQUISITE: GRADUATE STUDENTS ONLY

IGS615 International Economics for MAIA
3 credits Spring Semester
Reviews the essentials of International Economics. It then provides students with an operational understanding of the theory of comparative advantage and its application to policy issues.
PREREQUISITE: GRADUATE STUDENTS ONLY
IGS616 Administration of Organizations

3 credits
Fall Semester
Explores organizations from the strategic perspective of the leader, identifying common elements of thinking, structure, measures, outcomes, issues, and challenges faced by those who seek leadership roles in international administration.
PREREQUISITE: GRADUATE STUDENTS ONLY

IGS699 Directed Readings

3 credits
Fall & Spring Semester & First & Second Summer Session
There are no special notes for this course.
PREREQUISITE: PERMISSION OF PROGRAM COORDINATOR
University of Miami Bulletin, 2009-2010
Graduate Course Listing
MARINE AND ATMOSPHERIC SCIENCE
APPLIED MARINE PHYSICS

AMP509 Coastal Physics and Engineering
3 credits
Spring Semester
Course addresses linear wave theory, wave statistics, wave generation, tides, wind-driven currents, nearshore circulation, sediment transport by waves and currents, bedforms, bedload, and suspended load. Other topics include longshore and cross-shore transport, equilibrium beach profiles, coastal processes models, Pelnard-Considere model for shoreline change, and Escoffier model for inlet stability.
PREREQUISITE: CAE 330 OR AMP 575.

AMP515 Environmental Hydrology
3 credits
Fall Semester
An introduction to the physical processes of hydrological science. The principles of evapotranspiration, precipitation, infiltration, groundwater flow, seepage, overland flow, and stream flow are expounded. Areas of interrelation with environmental, marine, and geophysical sciences are emphasized. Measurement techniques for hydrological variables and the statistical analysis of hydrological data time series for runs and extremes are also described.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

AMP531 Ocean Measurements
3 credits
Spring Semester
Course topics include instrumentation, automatic data acquisition and analysis, time series analysis, signals and noise, filtering, and applied statistics.
PREREQUISITE: MTH 311.

AMP535 Introduction to Underwater Acoustics
3 credits
Spring Semester
Course topics include sound waves and pulses, harmonic analysis, sound propagation in the ocean, sonar systems, scattering and absorption, acoustic measurement of marine life and sea-floor properties, sound transmission in waveguides, ambient noise, transducers, and hydrophones.
PREREQUISITE: MTH 311.

AMP542 Physics of Remote Sensing
3 credits
Offered By Announcement Only
This course discusses basic physical principles of remote sensing. The main topics are (1) Introduction, (2) Sampling issues, (3) Fundamental laws of electromagnetic waves, (4) Passive sensing, (5) Active sensing, and (6) Brief survey of satellite sensors.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

AMP551 Special Topics
1-3 credits
Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Applied Marine Physics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

AMP552 Special Topics
1-3 credits
Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Applied Marine Physics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
AMP553 Special Topics
1-3 credits  Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Applied Marine Physics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

AMP554 Special Topics
1-3 credits  Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Applied Marine Physics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

AMP555 Special Topics
1-3 credits  Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Applied Marine Physics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

AMP575 Applied Ocean Hydrodynamics
3 credits  Fall Semester
The equations governing the dynamics of homogeneous fluids are derived. The concepts of deformation rates, vorticity, stream function, and ideal fluid flow are introduced and demonstrated in applications describing flows in the marine environment. Semi-empirical methods for analyzing viscous flows, boundary layers, and turbulence are presented. Eddy viscosity and more advanced turbulence closure schemes are discussed in the context of coastal circulation, bottom boundary layers and sediment transport.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

AMP576 Wave Propagation in the Ocean Environment
3 credits  Fall Semester
Wave equation models, acoustic and other elastic waves, surface gravity waves, boundary conditions, ray tracing, dispersion, diffraction, reflection attenuation, and radiation transport laws are discussed.
PREREQUISITE: MTH 311.

AMP577 Marine Soil Mechanics
3 credits  Spring Semester
Course topics include principles of soil and rock mechanics and dynamics, theories of poro-elasticity, sea-seabed and interactions, and measurement methods of physical properties of sediments. An introduction to wave propagation through porous media is included.
PREREQUISITE: AMP 576 AND 575 OR PERMISSION OF INSTRUCTOR.

AMP590 Sustainable Fisheries - Assessment and Conservation
3 credits  Spring Semester
This is the second of a three course series. This course will focus on advanced stock assessment techniques using acoustics and optics. It will cover, for example:
- History of sampling fish stocks - "from catching to measuring fish" - Measuring with underwater sound and light - Sounds and echoes in marine ecosystem - Survey of fish stocks and their habitat.
PREREQUISITE: MSC 471, OR EQUIVALENT.
AMP601 Analytical Methods in Marine Physics
3 credits                                                           Fall Semester
PREREQUISITE: CONSENT OF INSTRUCTOR.

AMP610 Environmental Optics and Electromagnetic Wave Propagation
3 credits                                                           Spring Semester
The course will allow students to understand the physical background of geophysical optical and microwave measurements, to learn how to carry out and interpret optical measurements, and how to work with microwave passive/active remote sensing platforms. The student will leave with a thorough understanding of existing physical background of optical instrumentation for underwater measurements as well as active/passive optical and microwave remote sensing.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

AMP631 Air-Sea Interaction
3 credits                                              Offered By Announcement Only
Course topics include the flux of momentum, heat, moisture, and salt, vertical distribution of energy sources and sinks near the interface, surface waves, mixed layers, and large scale interactions. (Same as MPO 631.)
PREREQUISITE: AMP 575 OR 576 AND PERMISSION OF INSTRUCTOR.

AMP636 Marine Vehicle Dynamics
3 credits                                              Offered By Announcement Only
Course topics include dynamics of floating bodies, free surface potential flow, boundary value problems, dynamics of marine vehicles, resistance and motions in waves, slender body hydrodynamics, strip theory of ship motions, seakeeping, and maneuvering.
PREREQUISITE: AMP 534, 575.

AMP640 Numerical Modeling in Applied Marine Physics
3 credits                                                           Spring Semester
Techniques and applications of numerical modeling in one of the following topical areas: sound propagation and scattering in the ocean; surface gravity wave propagation and scattering in regions of shallow and intermediate depths; and hydrodynamics in the coastal ocean environment. Emphasis (sound propagation versus gravity wave propagation or hydrodynamics) alternates from one year to the other.
PREREQUISITE: AMP 535, 575 OR 576 AND PERMISSION OF INSTRUCTOR.

AMP650 Coastal Ocean Circulation
3 credits                                                           Spring Semester
Circulation and stratification in the coastal ocean, including the dynamics of wind-driven, tidally-driven, and buoyancy-driven mean and transient flows over variable topography with density stratification. Design of numerical models and observing systems for coastal ocean circulation is also included.
PREREQUISITE: MPO 503, 511 OR AMP 575, AND 601 OR EQUIVALENT, CONSENT OF INSTRUCTOR.
AMP672 Advanced Underwater Acoustics
3 credits  
*Spring Semester*
Analysis and numerical modeling of sound propagation in the ocean: geometrical acoustics, normal mode theory, and the parabolic equation method. Recent advances in underwater acoustics: effects of oceanic variability, signal fluctuations, random medium propagation, ocean bottom interactions, and shallowwater propagation are also examined.
PREREQUISITE: AMP 535.

AMP673 Applied Underwater Acoustics
3 credits  
*Fall Semester*
Course topics include sonar systems and operating characteristics, scattering and reverberation, target strength, signal processing, transducers and arrays, detection and noise, and acoustic telemetry.
PREREQUISITE: AMP 535.

AMP675 Estuary Dynamics
3 credits  
*Offered By Announcement Only*
Course topics include water motions in estuaries, lagoons and inlets. shallow water tides including tide generation, harmonic analysis, and analytical solutions to the shallow waterwave equations. Classification of estuaries by topography, circulation, and stratification are also discussed as well as mixing concepts, diffusion, dispersion, and buoyancy effects. tide, wind, density induced circulation, and residence time.
PREREQUISITE: AMP 575.

AMP676 Advanced Wave Hydrodynamics
3 credits  
*Spring Semester*
Wave hindcasting/forecasting, one dimensional and directional wave spectra, probability distributions, transformations in shallow water, nonlinear analysis, and wave breaking.
PREREQUISITE: AMP 576.

AMP677 Advanced Geoacoustics
3 credits  
*Fall Semester*
Theory of elastic wave propagation in fluid filled porous media. Energy loss mechanisms in sediments, methods to measure geoacoustic properties and their spatial variability, and theory of scattering of elastic waves in random poroelastic media are discussed.
PREREQUISITE: AMP 577 OR INSTRUCTOR'S APPROVAL.

AMP680 Transport and Mixing Process in the Marine Environment
3 credits  
*Offered By Announcement Only*
Heat and constituent transport and mixing processes in the marine environment. Derivation of the fundamental equations governing heat and constituent transport and mixing processes, steady and unsteady state heat transfer by conduction, laminar and turbulent convection, and radiation, steady and unsteady state constituent transfer by diffusion and laminar and turbulent convection, mixing and flushing in tidally driven coastal waters are also discussed.
PREREQUISITE: AMP 575.

AMP686 Advanced Ocean Measurements
2 credits  
*Offered By Announcement Only*
Theory and techniques of ocean measurements, ocean data systems, and processing and ocean data transmission are discussed. Lecture, 2 hours.
PREREQUISITE: AMP 531 AND PERMISSION OF INSTRUCTOR.
AMP689 Applied Marine Physics Seminar

1 credits Offered By Announcement Only
Oral presentation and discussion of research and special topics by students, faculty, and visiting scientists. Attendance is required each semester for students in Applied Marine Physics.

AMP690 Mechanics and Thermodynamics of the Air-Sea Interface

3 credits Spring Semester
This course deals with the theory and practice of air-sea interaction. Two hours of lectures and one hour in the wind-wave laboratory provide an appropriate mix of theory and experiment. The topics covered include: thermodynamics of the interface; conservation equations; wave generation, propagation, and dissipation; boundary layer turbulence; heat, mass, and momentum transfer; energy dissipation, intermittency; turbulence closure; and wave prediction models.
PREREQUISITE: AMP 575 OR PERMISSION OF INSTRUCTOR.

AMP691 Sustainable Fisheries - Advanced Acoustic Surveying

3 credits Spring Semester
This is the third and final course in the three course series. It addresses graduate students with a strong research interest in measuring fish and their habitat on the stock and population level. This course will focus on advanced stock assessment techniques using acoustics and optics. It will cover, for example: - A critical review of classical and current research papers - Signal processing and laboratory experiments - Field surveys and stock assessment reports.
PREREQUISITE: AMP/MBF 590.

AMP694 Advanced Studies

1- 3 credits Offered By Announcement Only
Supervised study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

AMP695 Advanced Studies

1- 3 credits Offered By Announcement Only
Supervised study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

AMP696 Advanced Studies

1- 3 credits Offered By Announcement Only
Supervised study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

AMP697 Advanced Studies

1- 3 credits Offered By Announcement Only
Supervised study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

AMP698 Advanced Studies

1- 3 credits Offered By Announcement Only
Supervised study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

AMP700 Practical Training and Internship

1- 6 credits Offered By Announcement Only
Supervised internships or off-campus employment for students pursuing the M.A., M.S., or Ph.D. degree. Consists of work related to research in progress.
AMP705 Special Project
1-6 credits  
Fall & Spring Semester & First & Second Summer Session
Supervised project for students pursuing the Master of Arts degree. Consists of a paper which is researched and written on a topic approved by the student's advisory committee, and presented as a seminar to the student's division. Six credits are required for graduation.
PREREQUISITE: COMPLETION OF 24 GRADUATE COURSE CREDITS.

AMP706 Special Project-Post Candidacy
1-6 credits  
Fall Semester
Used to establish student has been admitted to candidacy for the MA Degree. The student working on his/her research paper enrolls for credit not to exceed 6 combined with 705. No credit is awarded until final paper has been accepted.

AMP710 Master's Thesis
1-6 credits  
Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

AMP715 Master's Thesis-Post Candidacy
1-6 credits  
Fall & Spring Semester & First & Second Summer Session
Used to establish student has been admitted to candidacy for the MS degree. The student working on his/her Master's Thesis enrolls for credit not to exceed 6 combined with 710. Credit is not awarded until the Thesis has been accepted.

AMP720 Research in Residence
0 credit  
Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in AMP 710 (usually six credits). Credit not granted. May be regarded as full-time residence.

AMP730 Doctoral Dissertation
1-12 credits  
Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor but not for less than a total of 12. Not more than 12 hours of AMP 730 may be taken in a regular semester, nor more than six in a summer session. Where a student has passed his/her (a) qualifying examinations, and (b) is engaged in an assistantship, he/she may still take the maximum allowable credit stated above.

AMP740 Doctoral Dissertation-Post Candidacy
1-12 credits  
Fall Semester
Used to establish student has been admitted to candidacy for the Ph.D. Degree. The student working on his/her Doctoral Dissertation enrolls for credit for a minimum of 12 combined with 730. Credit is not awarded until Dissertation has been accepted.

AMP750 Research in Residence
0 credit  
Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.
MAF501 Political Ecology of Marine Management
3 credits
Spring Semester
Course provides a grounding in political ecology as an important theoretical approach to resource policy and management. The social analysis of resource use, social change, and development are discussed. Models of development and concepts of nature relate to resource use and policy formation are also included. Within this framework, ethnicity, class, and the politics of conservation are explored.
PREREQUISITE: MAF 505.

MAF502 Economics of Natural Resources
3 credits
Fall Semester
Course brings together the approaches of natural resource and environmental economics to provide a comprehensive overview of the economics of national, international, and global environmental problems. A unifying theme throughout the course is the concept of sustainable development, defined as maximizing the net benefit to economic development while maintaining the services and quality of natural resources over time. Economic reasoning is used to examine the causes and consequences of environmental and resource problems and measures for dealing with them.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAF503 Marine Resource Economics
3 credits
Offered By Announcement Only
This course surveys the economics of international and global marine resource problems, with particular emphasis on biodiversity loss and climate change. The mainstream economics focus on efficiency--getting the most welfare out a given endowment of resources--in complemented with a range of social science and natural science interdisciplinary linkages. Three themes stand out. First, economic efficiency may not be the only or even dominant concern in the provision of environmental assets. Issues of fairness and access to those assets, both within a time frame period and over time, may be of greater importance to both individuals and societies. Second, if habitats and their non-human occupants have some form of "intrinsic" value unrelated to human preferences, then we face the problem of how to account for those values. Third, economics lacks a "sustainability" theorem that would ensure whatever economy we might devise would be ecologically sustainable. To be sure of sustainability, economic models must have sustainability conditions build into them.
PREREQUISITE: MAF 502, ECO 345, OR PERMISSION OF INSTRUCTOR.

MAF504 Fieldwork in Coastal Management
3 credits
Spring Semester
The field portion of this course will occur in Bocas del Toro, Panama, on the northwest Caribbean coast of Panama where the University of Miami has been involved in the development of a Coastal Management plan since 2004. The Bocas del Toro Archipeielago of over 20 nearshore islands boasts a rich diversity of cultures, as well as high quality coastal environments. The region is currently experiencing rapid tourist growth, as well as residential development projects for foreigners. The cultural and biological diversities of the region, as well as the development pressures they face, provide an excellent opportunity to study the socio-economic and environmental impacts of tourist development; regional attempts to create land use and coastal plans; conflicts among different uses and users; and various cultural perspectives on the current and evolving situation. The course allows students to develop projects tailored to their interests and skills.
PREREQUISITE: MAF 518 IS HIGHLY RECOMMENDED.
MAF505 Fieldwork in Coastal Cultures
3 credits Spring Semester
Field course in which the student participates in a social and economic analysis of a coastal culture (i.e., stone crab fishermen in Everglades City, spiny lobster fishermen in Key West, boat builders and commercial divers in the Abacos, Bahamas). Preliminary lectures and reading introduce the theory and method which the student then practices during a week-long field trip.
PREREQUISITE: MSC 310 OR PERMISSION OF INSTRUCTOR.

MAF506 Advance Fieldwork in Coastal Cultures
3 credits Spring Semester
Advanced field course in which the students participate in the social and economic analysis of a coastal culture (e.g. Louisiana bayou fishermen, Abacos boat builders, Tarpon Spring spongers). Students utilize field research techniques learned in MAF 505 and develop skills in framing a research problem. Students examine a coastal issue from an anthropological perspective, structuring a field research paper.
PREREQUISITE: MAF 505.

MAF510 Environmental Planning and the Environmental Impact Statement
3 credits Spring Semester
Course takes a broad view of environmental planning and analysis while focusing specifically on the preparation of environmental impact statements. Statutory requirements and procedures at the federal level are examined. Judicial opinions are studied that reflect environmental disputes and controversies. The course also considers some of the substantive requirements of environmental impact analyses such as the assessment of physical and biological environment and socioeconomic impacts.

MAF512 Aquaculture Management
3 credits Fall Semester
Course examines the various strategies of resource exploitation and utilization in developing aquaculture projects. Resources include environmental, technological, social, economical, and administrative aspects encountered in commercial aquaculture development. The course covers all stages of planning and development, with emphasis on determining the technical and economic feasibility of aquaculture projects.

MAF513 Aquaculture Management II
3 credits Spring Semester
Course is a complement to Aquaculture Management (MAF 512) and examines advanced aquaculture management techniques and strategies with emphasis on commercial operations. Course requires a background in either aquaculture or business. Prerequisite: MAF 512 or permission of instructor.
PREREQUISITE: MAF 512 OR PERMISSION OF INSTRUCTOR.
MAF514 Field Techniques in Prehistoric Underwater Archaeological Excavation
3 credits
First Summer Session
An introduction to specialized techniques of underwater excavation applicable to the excavation of Little Salt Spring (LSS), a prehistoric site owned and operated by Rosenstiel School of Marine and Atmospheric Science. All students participate in a one-week intensive lecture course in the prehistory of Florida and general techniques of underwater excavation. The field course begins after that. All students must be present for all of the field course in order to complete the basic requirements. Activities include daily underwater excavation in depths of 10-30 feet of water, as well as surface support activities relating to diving and the recording and basic conservation of recovered ecofacts and artifacts dating before 9,000 radiocarbon years before present.
PREREQUISITE: STUDENTS WHO INTEND TO DIVE (NOT REQUIRED) MUST HAVE ALREADY BEEN QUALIFIED AS RSMAS SCIENTIFIC DIVERS (BASIC), UNDER GUIDELINES ESTABLISHED BY THE AMERICAN ACADEMY OF UNDERWATER SCIENCES (AAUS) IN ORDER TO PARTICIPATE IN COURSE-RELATED SCUBA-DIVING ACTIVITIES.

MAF515 Techniques of Marine Archaeological Survey and Recording
3 credits
Offered By Announcement Only
The location and study of underwater archaeological sites is undergoing fundamental changes because of application of advanced technologies developed for other fields, notably remote sensing, and the general availability of computer power for individual users. This course introduces the student to the latest techniques of survey and recording, focusing on hardware and software that can greatly increase the efficiency of any underwater excavation.
PREREQUISITE: PREVIOUS COURSES IN ARCHAEOLOGY OR MARINE ARCHAEOLOGY OR PERMISSION OF INSTRUCTOR.

MAF516 Ocean Policy and Development and Analysis
3 credits
Fall Semester
Ocean policy development and analysis of issues such as: offshore oil drilling, fisheries resource conflicts, marine mammal protection, ocean dumping and incineration, multiple use conflicts in marine protected areas, pollution from land based sources, and oil spill contingency planning.

MAF517 Aquaculture and the Law
3 credits
Offered By Announcement Only
This course examines the substantive legal issues concerning Aquaculture and the Coastal Zone. Legal aspects of Aquaculture related to ownership and boundaries in the coastal zone, legal and regulatory constraints, international consideration private and public rights, risks and incentives. Fish and shellfish as personal property and conservation laws affecting the fish farmer.

MAF518 Coastal Zone Management
3 credits
Fall Semester
Development of a framework for formulation and assessment of coastal zone policy. Analysis of issues and conflicts in coastal zone management (CZM), such as: zoning and planning, coastal and beach protection, ecosystem protection, the federal flood insurance program, adaptations to sea level rise, coastal pollution from land-based sources, and tourism impacts.
MAF519 Aquaculture Management III (Fieldwork)  
3 credits  
First Summer Session  
Students will conduct fieldwork on environmental, technological, social, economical, and administrative aspects encountered in commercial aquaculture operations. This fieldcourse will complement Aquaculture Management I and II. Students will be able to apply most of the topics taught in MAF 512 and MAF 513. They will participate in all stages of the production process, including maturation, spawning, larval husbandry, nursery and growout techniques, as well as harvesting, processing and exporting. Students will visit several large commercial hatcheries, farms and processing plants currently producing processing, packing and exporting shrimp and fish (both marine and freshwater) for US and European and Asian markets.  
PREREQUISITE: MAF 512, 513 OR PERMISSION FROM THE INSTRUCTOR.

MAF520 Environmental Law  
3 credits  
Fall Semester  
An introductory course focusing on environmental problems. The study of Regulatory legislation, common law, and administrative law. Topics include toxic substances, air and water pollution, and habitat and species protection.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAF525 Fisheries Socioeconomics and Management  
3 credits  
Fall Semester  
This course applies microeconomic theory to fisheries resource problems and policies. Economic models with the value of production as their objective, will contrast economists' and biologists' definitions of maximum yield and show why an unregulated fishery will not operate at either level. We will use economic reasoning to examine causes and consequences of fisheries problems and measures for dealing with them.

MAF526 Marine Cultural Resource Management  
3 credits  
Spring Semester  
Submerged archaeological sites as exhaustible resources of a country’s cultural heritage. Policies and procedures for their protection or mitigation will be surveyed using as examples the statutes and regulations of foreign states, the federal government, and the US states.  
PREREQUISITE: APY 340.

MAF530 Port Operations and Policy  
3 credits  
Offered By Announcement Only  
The course will include: Introduction to ports; port geography; port operations; port administration; Federal port policy; free ports/free zones; port investment/tariffs; port marketing; Coastal Zone Management and ports; case studies, CZM; fostering economic development; and Port planning and development.  
PREREQUISITE: JUNIOR STANDING.

MAF560 Introduction to Marine Geographic Information Systems  
3 credits  
Fall Semester  
Marine Geographic Information Systems are emerging as a distinct subset of GIS, due to fundamental differences between terrestrial and underwater spatial information (2-D vs. 3-D, multiresolution, synoptic data collection, time depth (4-D) modeling). Approximately the first half of this course is a brief review of basic GIS, and the second half concentrates on aspects of marine data acquisition and manipulation in the GIS context.
MAF561 Introduction to Marine Geographic Information Systems - Laboratory
1 credits Fall Semester & First Summer Session
Introduction to Marine Geographic Information Systems - Laboratory introduces students to the basic methods and technology in Marine Geographic Information Systems. The course is taught with hands-on laboratory exercises following the evolution of Marine Geographic Information Systems, from basic cartography to topological and network modeling to internet access and application.

MAF562 Spatial Analysis: Intermediate Course in Marine GIS
3 credits Spring Semester
Course provides a general survey of available quantitative methods for spatial analysis using Geographic Information Systems (GIS). Although GIS has been widely used for mapping and database management, this course is focused on the functionality of GIS as an effective tool for modeling and analyzing complex spatial relationships. Quantitative methods suitable for analyzing different features types are discussed. Applications for such methods are also presented.
PREREQUISITE: MAF 560, 561 OR PERMISSION OF THE INSTRUCTOR.

MAF570 Conservation and Management of Large Marine Vertebrates
3 credits Fall Semester
This course emphasizes on the notion that proper conservation and management of large marine vertebrates (i.e., marine mammals, sea turtles, sharks and rays) require the understanding and integration of some important aspects of the (comparative) biology and ecology of these groups of animals with the multifaceted nature (e.g., social, economical, ethical and cultural dimensions) of these concerns.

MAF576 Special Topics
1- 4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to marine affairs.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAF577 Special Topics
1- 4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to marine affairs. Prerequisite: Permission of instructor.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAF578 Special Topics
1- 4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to marine affairs.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAF579 Special Topics
1- 4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to marine affairs.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAF580 Special Topics
1- 4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to marine affairs.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MAF610 International Ocean Law  
3 credits Spring Semester  
Course analyses how international and municipal law deals with navigation, pollution, fisheries, exploitation of natural resources, and other uses of the ocean. In addition to jurisdictional issues, sources of international law and scientific research in ocean areas are examined.

MAF620 Coastal Law and Policy  
3 credits Fall Semester  
Course examines the authority of different levels and agencies of government to make decisions affecting the coastal zone. Course also explores the coastal problems of shoreline use and development, uses of water areas and the seabed, and the related questions of environmental protection.

MAF630 Case Studies in Marine Policy  
3 credits Offered By Announcement Only  
This team-taught course is an interdisciplinary research and writing seminar for graduate students. The objective is to give students "hands on" problem solving and decision making experience under conditions of competing interests and scientific uncertainty. Each student team will develop an investigative report for inclusion into a document that will serve future courses as well as the policy and research communities at large.

MAF670 Advanced Studies  
1-4 credits Offered By Announcement Only  
Supervised study in areas of special interest to graduate students.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAF671 Advanced Studies  
1-4 credits Offered By Announcement Only  
Supervised study in areas of special interest to graduate students.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAF672 Advanced Studies  
1-4 credits Offered By Announcement Only  
Supervised study in areas of special interest to graduate students.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAF673 Advanced Studies  
1-4 credits Offered By Announcement Only  
Supervised study in areas of special interest to graduate students.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAF674 Advanced Studies  
1-4 credits Offered By Announcement Only  
Supervised study in areas of special interest to graduate students.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAF705 M.A. Internship  
1-6 credits Fall & Spring Semester & First & Second Summer Session  
The M.A. student must complete an approved six credit internship with an organization engaged in activities associated with marine affairs. Credits are not awarded until the internship has been successfully completed, a written report approved and a formal letter of evaluation received from the cooperating institution.  
PREREQUISITE: COMPLETION OF ALL OTHER REQUIREMENTS FOR M.A. DEGREE IN MARINE AFFAIRS.
MAF706 MA Internship-Post Candidacy
1-6 credits Fall Semester
Used to establish student has been admitted to candidacy for the MA Degree. The student working on his/her Internship enrolls for credit not to exceed 06 combined with 705. No credit is awarded until final Internship report has been accepted.

MAF710 Master's Thesis
1-6 credits Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

MAF715 Masters thesis-Post Candidacy
1-6 credits Fall Semester
Used to establish student has been admitted to candidacy for the MS Degree. The student working on his/her Master’s Thesis enrolls for credit not to exceed 06 combined with 710. Credit is not awarded until the Thesis has been accepted.

MAF720 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in MAF 710 (usually six credits). Credit not granted. May be regarded as full time residence.

MAF725 Continuous Registration--Master’s Study
0 credit Fall & Spring Semester & First & Second Summer Session
To establish residence for non-thesis master’s students who are preparing for major examinations. Credit not granted. Regarded as full time residence.

MARINE BIOLOGY & FISHERIES

MBF508 Biometrics in Marine Science
3 credits Fall Semester
Applied statistical analysis in marine biology and biological oceanography. Descriptive statistics, probability distributions, and hypothesis testing are discussed. Concepts of analysis of variance, simple linear regression, and computer statistical distribution-free methods are also included as well as principles and procedures with computer statistical packages for data analysis. Lecture and laboratory.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MBF511 Aquaculture
3 credits Offered By Announcement Only
Focus on techniques to culture marine organisms. The growth and physiology of early life stages, the culture of food organisms for larval stages, food requirements of larval and juvenile stages, water quality measurement, disease control, tank design, grow out, composition of artificial feeds and artificial spawning are discussed in detail. Applications of these techniques in commercial aquaculture, culture of animals for research, and for stock enhancement programs are examined. Practical examples are presented for laboratory and hands on rearing of fish larvae. Commercial aquaculture facilities are visited in field trips during the laboratory. Lecture, 2 hours; laboratory, 2 hours.
MBF512 Aquaculture Laboratory
2 credits  Offered By Announcement Only
Determining and monitoring water quality, culturing food organisms, larval rearing of shrimp and fish, feeding techniques, identifying parasites and diseases, and avoiding causes of mortality are discussed. Visits to local fish and shrimp hatcheries and farms is included. Corequisite: MBF 511.
PREREQUISITE: COREQUISITE MBF 511.

MBF513 Biology and Ecology of Mangroves
3 credits  Spring Semester
Recent research advances in the study of mangroves as a dynamic interface between terrestrial and marine systems. Topics include taxonomy, biogeography, morphology and physiognomy, water relations and mineral nutrition, and physiology and reproduction with emphasis on how mangroves modify tropical coastal environments and how they are affected by external stressors including global climate change. Lecture, 2 hours; field trips, 1 hour; field and laboratory work, minimum 2 hours.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MBF514 Tropical Marine Biology: A Field Course
3 credits  Spring Semester
General survey of marine flora and fauna of tropical marine ecosystems. Inhabitants and communities of the sandy shore, rocky shore, seagrass meadows, mangrove shoreline, coral and artificial reefs are collected, identified, maintained. Life histories of representatives are presented. Concepts of island biology and geology such as shore zonation local reef formation and the geological history of the lagoon are also discussed. The 10 day course involves 90 contact hours and approximately 40 hours of formal lectures. Grades are based on a laboratory practicum and written final exam. The course is given in its entirety at the University's field station at Bimini, Bahamas.
PREREQUISITE: BY PERMISSION OF INSTRUCTOR.

MBF515 Tropical Marine Ecology
3 credits  Offered By Announcement Only
Marine ecology with emphasis on tropical ecosystems and local habitats. Physical environmental and biotic adaptations, population, and community ecology are discussed. Field exercises in mangrove, sea grass, and coral reef ecosystems are also included.
PREREQUISITE: INVERTEBRATE ZOOLOGY AND ECOLOGY OR PERMISSION OF INSTRUCTOR.

MBF518 Ecology and Physiology of Coral Reef Systems
3 credits  Offered By Announcement Only
Coral reefs as integrated systems are examined from geological, ecological, and biological perspectives. The roles of global and local environmental fluctuations, physical disturbance, and biotic interactions in controlling reef formation and community structure is emphasized. The physiology of scleractinian corals and their algal symbionts is described and the prevalence of algal-invertebrate symbiosis on coral reefs related to nutrient cycling, productivity, and food webs on coral reefs.
PREREQUISITE: PERMISSION OF INSTRUCTORS.

MBF519 Tropical Marine Ecology Lab
1 credits  Offered By Announcement Only
Combined field-laboratory exercises in mangrove, sea grass, and coral reef ecosystems.
MARINE AND ATMOSPHERIC SCIENCE

MARINE BIOLOGY & FISHERIES

MBF520 Tropical Marine Ecology: A Short Course
2 credits Spring Semester
This tropical Marine Biology course established primarily for Florida high school marine biology teachers is taught from an interactive point of view where students are afforded the opportunity to both learn in the conventional way of classroom lectures, and more importantly to learn by involvement and participation. Students are exposed to the major marine communities found in Bimini and South Florida such as: 1) coral reef; 2) artificial reef; 3) mangrove; 4) seagrass flats; and intertidal zones. Students learn about the uniqueness of each of these ecosystems and the plants and animals which inhabit them. Lectures are divided up by habitat and are given in the morning. In the afternoon students go into the field and traverse on foot or snorkel in each ecosystem. Specimens are collected and identified at night and students are required to learn and identify 50 organisms found in six ecosystems. Field guides are used as reference material. A written exam and laboratory practical is given on the last day of class.
PREREQUISITE: COLLEGE BIOLOGY.

MBF525 Biology of Elasmobranch Fishes: A Field Course
2 credits Offered By Announcement Only
Course discusses the first aspects of elasmobranch biology including systematics of the major taxa, paleontology, and the evolutionary history of sharks as well as anatomical aspects. Course also addresses the physiology and biochemistry of sharks, circulatory, respiratory, developmental, skeletal, and sensory systems involving behavior, ecology, and life history strategies. Factors such as feeding, reproduction, and social and swimming behavior are also discussed. The relation between man and shark: overexploitation as it affects shark conservation, survival, and biodiversity is included. Course is given in its entirety at Bimini, Bahamas.
PREREQUISITE: By permission of instructor.

MBF531 Plankton
3 credits Spring Semester
Course topics include the drifting organisms, their central role in the economy of the sea, the influence of the environment, and their adaptations to it. The dynamic and productivity of the plant and animal plankton, the ecology and physiology of animal plankton, especially in connection with special distribution and nutrition, and an introduction to the taxonomy, and quantitative enumeration of the animal plankton is included. Lecture, 3 hours.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

MBF540 Introduction to Ecological Modeling
3 credits Offered By Announcement Only
An introduction to conceptual and mathematical model building methods for ecological processes at population, community, ecosystem, and landscape/seascape-level scales. Other topics include mathematical foundations, numerical modeling, holistic and structured population models, demography, density-independent and -dependent models, linear and nonlinear systems, community composition, competition, succession, and ecosystem structure and function are discussed. Gap-phase, process-based, compartmental, and coupled biological-physical ecosystem models at landscape scales are also examined.
PREREQUISITE: CALCULUS AND PERMISSION OF INSTRUCTOR.
MBF550 Analytical Techniques in Marine Biology
2 credits
Offered By Announcement Only
Theory and applications of selected analytical techniques necessary to conduct quantitative research in marine biology (e.g., electrophoresis, metabolite assays, enzyme assays, radioisotope methodology). One hour lecture followed by three hour laboratory per week.

MBF570 Special Topics
1-4 credits
Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine Biology and Fisheries.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MBF571 Special Topics
1-4 credits
Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine Biology and Fisheries.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MBF572 Special Topics
1-4 credits
Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine Biology and Fisheries.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MBF573 Special Topics
1-4 credits
Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine Biology and Fisheries.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MBF574 Special Topics
1-4 credits
Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine Biology and Fisheries.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MBF575 Current Applications of Ecological Theory
3 credits
Offered By Announcement Only
Course examines current applications of ecological theory. Topics include issues of stress ecology, methodologies for evaluating stress responses, methodologies for ecological risk assessment, general systems theory, and human/environmental interactions. Lecture, 3 hours.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

MBF576 Diseases of Marine Organisms
3 credits
Offered By Announcement Only
Infectious, genetic, and environmentally induced diseases of marine fishes and invertebrates as well as diagnostic methods, cellular, and molecular pathology. Lecture, 3 hours.
PREREQUISITE: GRADUATE STANDING, OR BIL 150, 160, 255 AND PERMISSION OF THE INSTRUCTOR.
MBF578 Evolutionary Genetics
3 credits \textit{Fall Semester}
A Graduate course that presents and overview from "New Evolutionary Synthesis" (1900) to Evolutionary Genomics. The critical points to emphasize is the importance of standing genetic variation, the role of neutral evolutionary process versus evolution by natural selection and how a evolution perspective provides meaning insights into the biology.

MBF586 Environmental Biology of Fishes
3 credits \textit{Offered By Announcement Only}
Ecology, dispersal, and modes of life of fishes. Adaptations by larvae and adults to various habitats are covered as well as the effects of man on fish faunas and the importance of fishes to various ecological systems. Lecture, 3 hours.

MBF590 Sustainable Fisheries - Assessment and Conservation
3 credits \textit{Spring Semester}
This is the second of a three course series. This course will focus on advanced stock assessment techniques using acoustics and optics. It will cover, for example:
- History of sampling fish stocks - "from catching to measuring fish" - Measuring with underwater sound and light - Sounds and echoes in marine ecosystem - Survey of fish stocks and their habitat.
PREREQUISITE: MSC 471, OR EQUIVALENT.

MBF602 Biological Oceanography Seminar
1 credits \textit{Fall & Spring Semester}
Participation is required of all students in Marine Biology and Fisheries department every semester they are in residence whether or not they are registered for the course. Students past their second semester must give one 20-minute presentation per year, on their research or other acceptable topic. Dates are be assigned by lottery. Course may be taken for credit only once.

MBF604 Biological Oceanography
3 credits \textit{Fall Semester}
A comprehensive course in Biological Oceanography, including energy flow, biogeochemical cycles, planktonic and benthic ecosystem structure, evolutionary ecology, adaptations of marine organisms, and paleoceanography. Course is required of all MBF students and should be taken in sequence with Oceanography I (MPO 501), Oceanography II (MAC 502), and Oceanography IV (MGG 504).
PREREQUISITE: NON-MARINE BIOLOGY MAJORS NEED PERMISSION OF INSTRUCTOR.

MBF607 Biochemical Toxicology
2 credits \textit{Offered By Announcement Only}
Biochemical mechanisms of absorption, distribution, metabolism, and excretion of natural and synthetic environmental toxicants. Methods for evaluation of acute and chronic toxicity, carcinogenesis, mutagenesis, and teratogenesis including in vivo, isolated organ, tissue culture, and subcellular approaches to toxicity testing are included.
PREREQUISITE: BMB 506 OR PERMISSION OF INSTRUCTOR.
MBF610 The Physical Environment of Marine Organisms  
3 credits  
Spring Semester  
The fluid environment of the sea influences the growth, distribution, and survival of marine organisms. The physical processes that affect organisms occur in space and time, ranging from the molecular properties of water to basin-wide linkages between oceanic regime and climate shifts are discussed. Course emphasis is placed on how physical processes affect the life of plankton to nekton. Students are required to present reviews based on the literature.

MBF613 Marine Population Dynamics  
3 credits  
Spring Semester  
The concepts of stocks, sub-populations, and populations as biological systems in the marine environment. Quantitative studies of growth, mortality, recruitment, and abundance of marine populations are discussed. Data requirements, experimental design, sampling, and mathematical procedures for estimating population parameters are included. Lecture and laboratory.  
PREREQUISITE: MBF 508, 510 OR PERMISSION OF INSTRUCTOR.

MBF614 Population Modeling and Management  
3 credits  
Fall Semester  
Mathematical and computer-intensive models of exploited populations fish, shellfish, marine mammals, and sea turtles. Stock production (surplus production), structured analytical yield (yield-per-recruit and age-size structured assessments), stock and recruitment, simulation modeling, adaptive control theory, risk assessments, and decision theoretic analyses are discussed. Techniques of management, concepts of resource allocation, and fishery management institutions with case studies are also included. Lecture and computer-based laboratory.  
PREREQUISITE: MBF 613 OR PERMISSION OF INSTRUCTOR.

MBF615 Advanced Biometrics in Marine Science  
3 credits  
Spring Semester  
An introduction to advanced statistical analysis of multivariate empirical observations with primary emphasis on applications in the assessment and interpretation of the dynamics of marine populations and communities in marine biology, biomedical sciences, fisheries, and biological oceanography. Advanced methods in linear, multiple and nonlinear regression analysis, probability and estimation theory, multiple partial correlation, ANCOVA, GLIM, general additive models, nonlinear optimization, multivariate statistics (classification and ordination), and sampling techniques. Exploratory data analysis and modeling are emphasized using the software SAS, S-PLUS, and MATLAB.  
PREREQUISITE: MBF 508 OR PERMISSION OF INSTRUCTOR.

MBF633 Physiological and Biochemical Adaptations of Marine Organisms  
2 credits  
Fall Semester  
Biochemical processes unique to marine organisms. Topics include ion transport and regulation, biochemical adaptations to high pressures and low temperatures, bioluminescence, biochemical aspects of migration and behavior, marine toxins and prostaglandins, and symbiotic associations.  
PREREQUISITE: BMB 506 OR BIL 255.

MBF640 Marine Phytoplankton and Primary Productivity  
3 credits  
Offered By Announcement Only  
Ecology of marine photoplankton and overview of major taxa including cyanobacteria. Distribution and magnitude of primary production in the sea and relationship to marine food webs and biogeochemical cycling is included.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MBF671 Advanced Studies
1- 4 credits Offered By Announcement Only
Supervised study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF DIVISION ACADEMIC COMMITTEE

MBF672 Advanced Studies
1- 4 credits Offered By Announcement Only
Supervised study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF DIVISION ACADEMIC COMMITTEE

MBF673 Advanced Studies
1- 4 credits Offered By Announcement Only
Supervised study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF DIVISION ACADEMIC COMMITTEE

MBF674 Advanced Studies
1- 4 credits Offered By Announcement Only
Supervised study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF DIVISION ACADEMIC COMMITTEE

MBF675 Advanced Studies
1- 4 credits Offered By Announcement Only
Supervised study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF DIVISION ACADEMIC COMMITTEE

MBF687 Biology and Systematics of Fishes
3 credits Offered By Announcement Only
Lectures and laboratories on comparative evolution, morphology, physiology, and ecology of fishes. Laboratory emphasis is placed on family level taxonomy and systematics of marine and estuarine fishes.
PREREQUISITE: GENERAL BIOLOGY; COMPARATIVE ANATOMY DESIRABLE; PERMISSION OF INSTRUCTOR

MBF690 Sustainable Fisheries - Advanced Acoustic Surveying
3 credits Fall Semester
This is the third and final course in the three course series. It addresses graduate students with a strong research interest in measuring fish and their habitat on the stock and population level. This course will include: This course will focus on advanced stock assessment techniques using acoustics and optics. It will cover, for example: - A critical review of classical and current research papers - Signal processing and laboratory experiments - Field surveys and stock assessment reports.
PREREQUISITE: MBF/AMP 571.

MBF700 Practical Training and Internship
1- 6 credits Offered By Announcement Only
Supervised internship or off-campus employment for students pursuing the M.A., M.S., or Ph.D. degree. Consists of work related to research in progress.

MBF705 Special Project
1- 6 credits Fall & Spring Semester & First & Second Summer Session
Supervised project for students pursuing the Master of Arts degree in Marine Studies. Consists of a paper, researched, and written on a topic approved by the student's advisory committee, and presented as a seminar to the student's division. Six credits are required for graduation.
PREREQUISITE: COMPLETION OF 24 GRADUATE COURSE CREDITS.
MBF706 Special Project-Post Candidacy
1-6 credits  
Fall Semester
Used to establish student has been admitted to candidacy for the MA Degree. The student working on his/her research paper enrolls for credit not to exceed 06 combined with 705. No credit is awarded until final paper has been accepted.

MBF710 Master’s Thesis
1-6 credits  
Fall & Spring Semester & First & Second Summer Session
The student working on his/her master’s thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

MBF715 Masters Thesis-Post Candidacy
1-6 credits  
Fall Semester
Used to establish student has been admitted to candidacy for the MS Degree. The student working on his/her Master’s Thesis enrolls for credit not to exceed 06 combined with 710. Credit is not awarded until the Thesis has been accepted.

MBF720 Research in Residence
0 credit  
Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master’s degree after the student has enrolled for the permissible cumulative total in MBF 710 (usually six credits). Credit not granted. May be regarded as full time residence.

MBF730 Doctoral Dissertation
1-12 credits  
Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor but not for less than a total of 12. Not more than 12 hours of MBF 730 may be taken in a regular semester, nor more than six in a summer session. Where a student has passed his/her (a) qualifying examinations, and (b) is engaged in an assistantship, he/she may still take the maximum allowable credit stated above.

MBF740 Doctoral Dissertation-Post Candidacy
1-12 credits  
Fall Semester
Used to establish student has been admitted to candidacy for the Ph.D. Degree. The student working on his/her Doctoral dissertation is not awarded until Dissertation has been accepted.

MBF750 Research in Residence
0 credit  
Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

MARINE BIOLOGY & FISHERIES

MARINE AND ATMOSPHERIC SCIENCE

MARINE GEOLOGY & GEOPHYSICS

MGG501 Oceanography I (Geological)
2 credits  
Fall Semester
The first section of the core course curriculum designed as an integrated and multidisciplinary view of ocean processes, covering the major disciplines of marine science and their applications to the study of the marine environment. To be taken in sequence with Oceanography II - Physical (MPO 502), Oceanography III - Chemical (MAC 501), and Oceanography IV - Biological (MBF 502). This course is for non-MGG majors only.

PREREQUISITE: UNDERGRADUATES REQUIRE PERMISSION OF INSTRUCTOR.
MGG511 Earth Surface Systems
3 credits  Fall Semester
An introduction to the elements of the earth surface environment and their interactions
with an emphasis on the application to understanding the geologic record. Course
includes discussions of the processes and agents that influence and shape the character
of the earth's surface, the attributes of the resultant sedimentary features, and
the use of these features to unravel geologic and geomorphic history. Focus is
placed on systems dynamics and interactions among sedimentologic, geomorphic, biotic,
and hydrologic processes.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG512 Marine Micropaleontology
3 credits  Fall Semester
An introduction to the field of marine micropaleontology with an emphasis on applications
in biostratigraphy, biochronology, paleoecology, and paleoceanography. Topics include
morphology, taxonomy, ecology, and geologic record of the major microfossil groups,
methods of environmental inference, and stable isotope and trace element geochemical
studies. Lab work includes a survey of the most important taxonomic groups. Lecture,
3 hours; laboratory, 2 hours.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG513 Introductory Geochemistry
3 credits  Fall Semester
Fundamentals of atomic structure and quantum mechanics applied to Chemistry. Topics
include origin and distribution of the elements, chemical bonding and substitution,
basic thermodynamics of solids, liquids, and gases. Applications of these concepts
to such geochemical processes as magmatic differentiation, rock-water interactions,
low temperature aqueous geochemistry, and the geochemical cycling of the elements
is also included.

MGG514 Geophysics
3 credits  Fall Semester
Course topics include seismology, gravity, heat flow, thermal history, geomagnetism,
plate tectonics, and their importance in understanding the Earth's crust, mantle,
and core.
PREREQUISITE: ONE YEAR OF CALCULUS AND ONE YEAR OF PHYSICS.

MGG515 Environmental Hydrology
3 credits  Fall Semester
Course offers an introduction to the physical processes of hydrological science.
The mechanisms of evaporation, condensation, precipitation, infiltration, groundwater
flow, overland flow, and stream flow are described. Areas of interrelation with
environmental science, marine science, and geophysical science is emphasized.
Description of appropriate measurement techniques and data interpretation methods
are important parts of the course.
PREREQUISITE: PHYSICS.

MGG520 Igneous Petrology
3 credits  Fall Semester
Origin and differentiation of magmas in oceanic and continental settings. Igneous
systems traced from the mantle and magma chambers to the eruptive stage. What we
can tell from textures and mineralogy of igneous rocks. Use of trace-element and
isotopes to understand igneous processes and magma source compositions. Magma types
and plate-tectonic cycle. Magmatism when the Earth was young. Extra-terrestrial
igneous rocks.
MARINE AND ATMOSPHERIC SCIENCE
MARINE GEOLOGY & GEOPHYSICS

MGG525 Applied Environmental Geophysics
3 credits
Offered By Announcement Only
Application of subsurface geophysical tools to environmental problems. Course includes the theory and application of shallow refraction and reflection seismology, conducting field experiments and processing both marine and land seismic data, other marine survey techniques such as side-scan sonar surveying, potential field techniques (gravity, magnetics, EM), ground penetrating radar, and borehole geophysics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG533 Environmental Geology
3 credits
Offered By Announcement Only

MGG541 Field Evaluation of Fossil Platforms, Margins, and Basins
2 credits
Offered By Announcement Only
Field investigation of classic rock sequences formed within ancient platform, margin, and basin environments. The use of ancient exposures as a guide to the interpretation of modern marine environments.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG550 Mathematical Methods for Geoscientists
3 credits
Fall Semester
Background mathematics needed to solve problems in the geosciences. Applications in tectonics, geodynamics, structural geology, seismology, and hydrology. Topics include linear inverse problems, least squares, linear algebra, matrix theory, vectors, dimensional analysis, probability and scientific inference, continuum mechanics, transform and numerical methods to solve differential, and partial differential equations.
PREREQUISITE: ONE YEAR OF CALCULUS AND ONE YEAR OF PHYSICS.

MGG570 Continental Tectonics
3 credits
Spring Semester
Reviews major research techniques used in the study of the structure and evolution of continental crust and topical discoveries, with an emphasis on the Neogene to Recent time. The course begins with brief introductions to the fields of structural geology, seismology, and geodesy as they relate to continental tectonics. New research in areas such as the rheology of the lithosphere, plate motion models, deformation of continental crust in plate boundary zones, oblique subduction, and earthquake hazard assessment are also discussed.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG579 Plate Tectonics
3 credits
Fall & Spring Semester
The theory of plate tectonics, sea floor spreading, and continental drift. Mathematical description of plate motions, finite and instantaneous rotation poles, consequences of plate tectonics, mountain building, rifting, erosion, and recycling of continental materials are also discussed.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MARINE AND ATMOSPHERIC SCIENCE
MARINE GEOLOGY & GEOPHYSICS

MGG580 Geological and Environmental Remote Sensing
3 credits            Spring Semester
This one semester course will cover major remote sensing techniques used in the
geological and environmental sciences. The course will begin with an introduction
to the basic physics of remote sensing, followed by a review of major remote sensing
techniques used in aircraft and satellite platforms, including IR and near IR,
optical and microwave systems. We will then discuss specific terrestrial and coastal
applications using a case history approach, including geologic, soil and biomass
mapping, environmental monitoring, and natural hazard assessment. The course is
aimed at graduate students and senior undergraduates with some background in math
and physics. Grades are based on problems sets (a minimum of three), a mid-term
test, and a report or lab exercise involving image processing, due at the end
of the semester.
PREREQUISITE: CALCULUS AND PHYSICS.

MGG581 Image Analysis and Interpretation
3 credits            Offered By Announcement Only
Course provides a hands-on approach to learning how to use aerial photography,
satellite imagery, and other remotely sensed data to derive information about the
physical environment. This course enables the student to process, interpret, and
analyze remotely sensed data for use in environmental research. Image Analysis
and Interpretation complements the course, MGG 580.

MGG583 Scanning Electron Microscopy
2 credits            Spring Semester
Theory and practical application of the SEM and the electron probe to research
problems. Lectures and laboratory with emphasis on independent operation of the
SEM, special preparation techniques, and interpretation of results are included.
Course is designed to provide students with a broad and thorough background in
scanning electron microscopy.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG584 Special Topics
1- 4 credits            Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine
Geology and Geophysics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG585 Special Topics
1- 4 credits            Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine
Geology and Geophysics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG586 Special Topics
1- 4 credits            Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine
Geology and Geophysics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG587 Special Topics
1- 4 credits            Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine
Geology and Geophysics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MARINE AND ATMOSPHERIC SCIENCE
MARINE GEOLOGY & GEOPHYSICS

MGG588 Special Topics
1-4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Marine Geology and Geophysics.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG601 Seminar in Marine Geology and Geophysics
1 credits Fall & Spring Semester
Oral presentation and discussion of research and special topics by students, faculty, and visiting scientists. Students receiving credit are required to present a seminar.

MGG620 Satellite Radar Interferometry in the Earth Sciences
3 credits Fall Semester
Spaceborne interferometric Synthetic Aperture Radar is an important technique for various disciplines in the Earth Sciences, such as geodesy, glaciology and hydrology. This course reviews the principles of radar, synthetic aperture radar of interferometric and differential radar interferometric techniques.
PREREQUISITE: PERMISSION OF INSTRUCTOR

MGG622 Geophysical Onverse Theory
3 credits Spring Semester
This course covers the principles of geophysical inverse theory as applies to problems in the Earth Sciences. Inverse theory is a set of mathematical techniques used to obtain inferences about the Earth from physical measurements. The focus of this class will be on formulating and solving inverse problems, and understanding the non-uniqueness and resolution associated with inversions. The emphasis will be on geodetic data (obtained from GPS and InSAR measurements).
PREREQUISITE: 514 AND/OR PERMISSION OF INSTRUCTOR

MGG650 Stable Isotopes in Biogeochemical Processes
3 credits Offered By Announcement Only
Theory of stable isotope fractionation, methods of measurement, and application of results to geological, biological, and oceanographic processes. Hands-on experience in the stable isotope laboratory is provided utilizing a range of techniques. A project chosen either by the student or instructor is required. All students who wish to use the stable isotope facility should take this course. Lecture, 2 hours; laboratory, 3 hours. Prerequisite: Permission of instructor.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG660 GIS Programming
1 credits Spring Semester
Course provides a hands-on approach to learning GIS programming using Avenue for ArcView GIS (ESRI). Avenue is an object-oriented programming language used to create customized graphical user interfaces, automated tasks, and spatial and spatially enabled applications. Students learn how to employ object-oriented programming techniques and modeling methods to develop spatially explicit applications. Prerequisite: MAF 561 or permission from the instructor.
PREREQUISITE: MAF 561 OR PERMISSION FROM THE INSTRUCTOR

MGG661 Sedimentary Petrology
3 credits Fall Semester
Composition, texture, fabric, and structures of sediments and sedimentary rocks. The occurrence and properties of the major clans of detrital and chemical sediments from a petrologic and historical perspective is discussed.
PREREQUISITE: MGG 520.
MGG662 Comparative Sedimentology
3 credits  
Spring Semester
The use of modern sediments to decipher processes of origin, accumulation, and early diagenesis as the basis for interpreting environments and architecture of ancient deposits in outcrop and in the subsurface. Evaluation of the sedimentary record of climate and sea level changes is included as well as the application of facies models for interpretation of seismic and log data.
PREREQUISITE: MGG 511.

MGG663 Deep Sea Sedimentation
3 credits  
Offered By Announcement Only
Course topics include classification and major constituents of deep-sea sediments, origin of red clay, production, dissolution, deposition of pelagic carbonate and silica, turbidite sedimentation, hemipelagic deposits, interpretation of the record (plate tectonics and plate stratigraphy, ancient deep-sea sediments and ancient oceans).
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

MGG668 Isotopic Processes in Earth Sciences
3 credits  
Offered By Announcement Only
The use of isotopic methods in geology, geochemistry, and geophysics, including oceanography and meteorology. General laws governing isotopic effects in chemical and physical processes are discussed. Specific problems in dating, tracing, and paleotemperatures are also included.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG669 Advanced Geophysics
3 credits  
Offered By Announcement Only
The application of geophysical methods, including seismic refraction, seismic reflection, heat flow, gravity, magnetic field and paleomagnetism, to the study of the structure of oceanic crust.
PREREQUISITE: MGG 514.

MGG670 Seismic Exploration
3 credits  
Spring Semester
Elementary theory of seismic waves. Topics include techniques of seismic data acquisition and processing, methods of geophysical and geological interpretation of seismic data, application to hydrocarbon exploration, principles of seismic stratigraphy, and other geophysical methods related to hydrocarbon exploration.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG671 Diagenesis of Carbonate Sediments
3 credits  
Spring Semester
Application of geochemical, mineralogical, and petrological principles to the behavior of carbonate minerals in sediments. Physical and chemical conditions responsible for cementation, dolomitization, and aragonite-calcite phase transitions are emphasized. Types of depositional and diagenetic information which may be preserved in carbonate sediments. Laboratory studies of sediments are included.
PREREQUISITE: MGG 513; PERMISSION OF INSTRUCTOR.
MGG672 Basin Analysis and Seismic Interpretation
3 credits Spring Semester
The processes of basin formation and filling. The principles of seismic facies analysis, seismic sequence stratigraphy, and their applications in basin analysis, groundwater management, and exploration for hydrocarbons are discussed.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG676 Paleoclimatology
3 credits Fall Semester
Climatic variables and their effects on geological and biological processes. The development of the paleoclimatic record, modeling of present climate, and the extrapolation to past and future climates are discussed.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG677 Submarine Volcanism and Its Products
3 credits Fall Semester
Course topics include classification of volcanoes, their activity and products, submarine versus subaerial volcanoes, historical submarine eruptions, and hydrothermal activities, origin and differentiation of magmas, petrology of submarine, volcanic rocks, geographic distribution of volcanoes, and their tectonic setting are also discussed.
PREREQUISITE: MGG 520 OR PERMISSION OF INSTRUCTOR.

MGG678 Modeling of Marine Biogeochemical Processes
3 credits Offered By Announcement Only
Diagenesis models, including bioturbation and dissolution in the CaCO3 and SiO2 systems. Energy balance climate models and oscillatory states of a simple air-water-ice system are discussed as well as modeling of sedimentation and transport processes.

MGG681 Advanced Studies
1-4 credits Offered By Announcement Only
Special study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG682 Advanced Studies
1-4 credits Offered By Announcement Only
Special study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG683 Advanced Studies
1-4 credits Offered By Announcement Only
Special study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG684 Advanced Studies
1-4 credits Offered By Announcement Only
Special study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MGG685 Advanced Studies
1-4 credits Offered By Announcement Only
Special study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MGG700 Practical Training and Internship
1-6 credits  Offered By Announcement Only
Supervised internship or off-campus employment for students pursuing the M.A., M.S., or Ph.D. degree. Consists of work related to research in progress.

MGG705 Special Report
1-6 credits  Fall & Spring Semester & First & Second Summer Session
Supervised project for students pursuing the Master of Arts degree in Marine Studies. Course consists of a research paper, researched, and written on a topic approved by the student's advisory committee, and presented as a seminar to the student's division. Six credits are required for graduation.
PREREQUISITE: COMPLETION OF 24 GRADUATE COURSE CREDITS.

MGG706 Special Project-Post Candidacy
1-6 credits  Fall Semester
Used to establish student has been admitted to candidacy for the MA Degree. The student working on his/her research paper enrolls for credit not to exceed 06 combined with 705. No credit is awarded until final paper has been accepted.

MGG710 Master's Thesis
1-6 credits  Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

MGG715 Masters Thesis-Post Candidacy
1-6 credits  Fall Semester
Used to establish student has been admitted to candidacy for the MS Degree. The student working on his/her Master's Thesis enrolls for credit not to exceed 06 combined with 710. Credit is not awarded until the Thesis has been accepted.

MGG720 Research in Residence
0 credit  Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in MGG 710 (usually six credits). Credit not granted. May be regarded as full time residence.

MGG730 Doctoral Dissertation
1-12 credits  Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor but not for less than a total of 12. Not more than 12 hours of MGG 730 may be taken in a regular semester, nor more than six in a summer session. Where a student has passed his/her (a) qualifying examinations, and (b) is engaged in an assistantship, he/she may still take the maximum allowable credit stated above.

MGG740 Doctoral Dissertation-Post Candidacy
1-12 credits  Fall Semester
Used to establish student has been admitted to candidacy for the Ph.D. Degree. The student working on his/her Doctoral Dissertation enrolls for credit for a minimum of 12 combined with 730. Credit is not awarded until Dissertation has been accepted.
MARINE AND ATMOSPHERIC SCIENCE

MARINE GEOLOGY & GEOPHYSICS

MGG750 Research in Residence
0 credit  Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D., after the student has been
enrolled for the permissible cumulative total in appropriate doctoral research.
Credit not granted. May be regarded as full-time residence as determined by the
Dean of the Graduate School.

MARINE & ATMOSPHERIC CHEMISTRY

MAC503 Principles of Marine and Atmospheric Chemistry
3 credits  Fall Semester
Introduction to the chemical aspects of the sea and atmosphere chemical composition,
physico-chemical properties and relationships, methodology of study, fundamental
aspects of marine and atmospheric chemistry.
PREREQUISITE: CHM 111 OR PERMISSION OF INSTRUCTOR.

MAC504 Analytical Methods in Marine and Atmospheric Chemistry
1 credits  Fall Semester
A survey of analytical methods as applied to oceanographic and atmospheric chemistry.
Course is taught in a multi-instructor format. Topics include trace organic analysis
by HPLC, GC, and GC-MS, laser induced fluorescence detection of gas phase atoms,
differential absorption detection of atmospheric species, aerosol sampling, ion
chromatography, photochemical techniques, oceanographic tracers, microbiological
techniques, and computational resources. Course is designed to be taught in conjunction
with MAC 503.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAC510 Biogeochemical Exploration of the Major Ocean Basins
3 credits  Fall Semester
This course will have students explore the basic hydrography and biochemistry of
the major ocean basins through use of several publicly available global ocean data
sets. Each ocean basin will be assessed for biogeochemical features that are unique
to that system. By the end of the course, students will have the skills necessary
to investigate and interpret marine biogeochemical processes throughout the global
ocean.
PREREQUISITE: PERMISSION OF INSTRUCTOR

MAC560 Tropospheric Chemistry I
3 credits  Spring Semester
Process-Oriented lower atmospheric chemistry. Topics include photochemical oxidant
formation, nighttime chemistry, air-sea exchange, cloud droplet and aerosol reactions,
physical properties of aerosols, and transport properties of the troposphere.
PREREQUISITE: MPO 552 OR AN UNDERGRADUATE METEOROLOGY COURSE, OR PERMISSION OF
INSTRUCTOR.

MAC581 Special Topics in Marine and Atmospheric Chemistry
1-4 credits  Offered By Announcement Only
Lectures, research projects or direct readings in special topics of marine and
atmospheric chemistry.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAC582 Special Topics in Marine and Atmospheric Chemistry
1-4 credits  Offered By Announcement Only
Lectures, research projects or direct readings in special topics of marine and
atmospheric chemistry.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MAC583 Special Topics in Marine and Atmospheric Chemistry
1-4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics of marine and atmospheric chemistry.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAC584 Special Topics
1-4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics of Marine and Atmospheric Chemistry.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAC585 Special Topics in Marine and Atmospheric Chemistry
1-4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics of marine and atmospheric chemistry.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAC605 Chemical Oceanography
3 credits Spring Semester
Course consists of lecture and discussions with renowned experts in the major disciplinary foci and topical issues dominating the field of Chemical Oceanography. Topics include the chemistry and biogeochemical processes of the carbon cycle, ocean tracers, photochemistry, and specific marine environments (geothermal vents, anoxic waters, sediments, air/sea interface).
PREREQUISITE: MAC 503 OR PERMISSION OF INSTRUCTOR.

MAC615 Tracers of Oceanographic Processes
3 credits Spring Semester
Course describes the various tracer techniques used by oceanographers to understand water transport and mixing, sedimentation, gas exchange, nutrient recycling, and transport. Tracers used are both natural occurring and anthropogenic. This course is of interest to students from various disciplines.

MAC620 Marine Physical Chemistry
3 credits Spring Semester
Physical-chemical principles applied to the marine environment, based on thermodynamics and the study of rate processes.
PREREQUISITE: TWO SEMESTERS OF PHYSICAL CHEMISTRY, CALCULUS THROUGH DIFFERENTIAL EQUATIONS.

MAC625 Marine Biochemical Cycles
3 credits Spring Semester
Course discusses the roles of bacteria in the transformation of compounds in the marine environment, their functions in the carbon, nitrogen, sulfur, and phosphorus cycles, and transformation of metals. Bacterial activities in the deep-sea environment and their involvement in corrosion and fouling is also discussed.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
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MAC630 Marine Organic Chemistry
3 credits Offered By Announcement Only
Organic chemistry of the marine environment. Inventory of organic constituents, their sources and sinks, sampling and analytical techniques, functions of and processes involving organic compounds in the ocean are discussed. Review of current research topics is included.
PREREQUISITE: MAC 502 AND TWO SEMESTERS OF UNDERGRADUATE ORGANIC CHEMISTRY OR BIOCHEMISTRY.

MAC640 Global Geochemical Fluxes
3 credits Offered By Announcement Only
Use of chemical and isotopic tracers to evaluate the pathways and rates at which dissolved and particulate material are cycled through the atmosphere and oceans. Course emphasizes the use of diagnostic computer models as tools for the study of geochemical systems.
PREREQUISITE: MARINE CHEMISTRY.

MAC645 Marine Trace Organic Analysis
3 credits Offered By Announcement Only
Application of modern liquid and gas chromatographic techniques to marine chemical problems. Stress is placed on determination of natural trace organic compounds in seawater and atmospheric samples. 50% reading and 50% lab project.
PREREQUISITE: MAC 504 OR 630.

MAC650 Reaction Kinetics and Molecular Dynamics
3 credits Spring Semester
Theories and experimental techniques for studying kinetics in the gas-phase, association, unimolecular and bimolecular reactions, chain reactions, flames, statistical theories, potential energy surfaces, collision dynamics, kinetics in solution and the solid-state, experimental methods, diffusion-controlled processes, transition state theory, thermal decomposition, and nucleation are discussed.
PREREQUISITE: THERMODYNAMICS, ELEMENTARY STATISTICAL MECHANICS.

MAC661 Tropospheric Chemistry II
3 credits Fall Semester
Chemical and physical properties of tropospheric aerosols. Topics include properties of aerosols, dynamics of single aerosol particles, thermodynamics of aerosols, nucleation theory, aerosol growth, heterogeneous processes, dynamics of aerosol populations, and radiative properties of atmospheric aerosols.
PREREQUISITE: TROPOSPHERIC CHEMISTRY I.

MAC662 Environmental Photochemistry
3 credits Offered By Announcement Only
Introduction to the principles of photochemistry and their application to understanding sunlight initiated processes in the region of the ocean-atmosphere interface. Organic and inorganic photochemical reactions and subsequent thermal reactions in solution, gas, and solid media are discussed.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAC665 Chemistry of Middle and Upper Atmosphere
3 credits Fall Semester
Course addresses the structure of the stratosphere, mesosphere, and ionosphere, ion chemistry, aurorae, meteoritic chemistry, the ozone layer and anthropogenic influences, techniques for making atmospheric observations, and development of chemical models with simple transport.
PREREQUISITE: ELEMENTARY GAS-PHASE KINETICS, THERMODYNAMICS
MAC668 Isotopic Processes in Earth Sciences
3 credits
Offered By Announcement Only
The use of isotopic methods in geology, geochemistry, and geophysics including
oceanography and meteorology. General laws governing isotopic effects in chemical
and physical processes are discussed as well as specific problems in dating, tracing,
and paleotemperatures. Same as MGG 668.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAC670 Seminar in Marine and Atmospheric Chemistry
1 credits
Fall & Spring Semester
Oral presentation of research and special topics by students, faculty, and visiting
scientists.

MAC671 Diagenesis of Carbonate Sediments
3 credits
Offered By Announcement Only
Application of geochemical and mineralogic principles to the behavior of carbonate
minerals in sediments. Physical and chemical conditions responsible for cementation,
dolomitization, and aragonite-calcite phase transitions are emphasized. Types of
depositional and diagenetic information which may be preserved in carbonate sediments
are also examined. Laboratory studies of sediments is included. Identical to MGG
671.
PREREQUISITE: MGG 511 AND 513 (OR 514).

MAC680 Advanced Studies
1-4 credits
Offered By Announcement Only
Supervised study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAC681 Advanced Studies
1-4 credits
Offered By Announcement Only
Supervised study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAC682 Advanced Studies
1-4 credits
Offered By Announcement Only
Supervised study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAC684 Advanced Studies
1-4 credits
Offered By Announcement Only
Supervised study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAC685 Advanced Studies
1-4 credits
Offered By Announcement Only
Supervised study in areas of special interest to graduate students.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MAC700 Practical Training and Internship
1-6 credits
Offered By Announcement Only
Supervised internships or off-campus employment for students pursuing the M.A.,
M.S., or Ph.D. degree. Consists of work related to research in progress.
MAC705 Special Report
1-6 credits Fall & Spring Semester & First & Second Summer Session
Supervised project for students pursuing the Master of Arts degree in Marine Studies. Consists of a paper, researched, and written on a topic approved by the student's advisory committee, and presented as a seminar to the student's division. Six credits are required for graduation.
PREREQUISITE: COMPLETION OF 24 GRADUATE COURSE CREDITS.

MAC706 Special Project-Post Candidacy
1-6 credits Fall Semester
Used to establish student has been admitted to candidacy for the MA Degree. The student working on his/her research paper enrolls for credit not to exceed 06 combined with 705. No credit is awarded until final paper has been accepted.

MAC710 Master's Thesis
1-6 credits Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

MAC715 Masters Thesis-Post Candidacy
1-6 credits Fall Semester
Used to establish student has been admitted to candidacy for the MS Degree. The student working on his/her Master's Thesis enrolls for credit not to exceed 06 combined with 710. Credit is not awarded until the Thesis has been accepted.

MAC720 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in MAC 710 (usually six credits). Credit not granted. May be regarded as full time residence.

MAC730 Doctoral Dissertation
1-12 credits Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor but not for less than a total of 12. Not more than 12 hours of MAC 730 may be taken in a regular semester, nor more than six in a summer session. Where a student has passed his/her (a) qualifying examinations, and (b) is engaged in an assistantship, he/she may still take the maximum allowable credit stated above.

MAC740 Doctoral Dissertation-Post Candidacy
1-12 credits Fall Semester
Used to establish student has been admitted to candidacy for the Ph.D. Degree. The student working on his/her Doctoral Dissertation enrolls for credit for a minimum of 12 combined with 730. Credit is not awarded until Dissertation has been accepted.

MAC750 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.
MPO 502 Oceanography II (Physical)  
2 credits  Fall Semester  
The second section of the course core curriculum designed as an integrated and multidisciplinary view of ocean processes, covering the major disciplines of marine science and their applications to the study of the marine environment. To be taken in sequence with Oceanography I - Geological (MGG 501), Oceanography III - Chemical (MAC 501), and Oceanography IV - Biological (MBF 502). This course is for non-MPO majors only.  
PREREQUISITE: UNDERGRADUATES REQUIRE PERMISSION OF INSTRUCTOR.

MPO 503 Physical Oceanography  
3 credits  Fall Semester  
Introduction to properties of seawater, instruments and methods, heat budget, general ocean circulation, formation of water masses, dynamics of circulation, regional oceanography, waves, tides, and sea level. A mathematical and problem solving course for majors in MPO.  
PREREQUISITE: PHY 202 OR 206, MTH 310 OR 311, OR PERMISSION OF INSTRUCTOR.

MPO 511 Geophysical Fluid Dynamics I  
3 credits  Fall Semester  
The basic equations of state, continuity, and motion. Topics include wave motions, group velocity, theory of stratified fluids and internal waves turbulence.  
PREREQUISITE: MPO 551, OR PERMISSION OF INSTRUCTOR.

MPO 518 Remote Sensing of the Atmosphere  
3 credits  Offered By Announcement Only  
Methods and techniques for remote sensing of the earth’s atmosphere. Absorption and scattering of radiation by atmospheric constituents, molecular line or band absorption, and radiative transfer equation are discussed. Application to microwave radar, laser, and optical radar, ground and satellite and optical radar and radiometry, scattering of acoustic waves by turbulence, and to acoustic echo sounding methods are also included.  
PREREQUISITE: EEN 533 AND/OR PERMISSION OF INSTRUCTOR.

MPO 531 Physical Meteorology  
3 credits  Offered By Announcement Only  
Electromagnetic and acoustic wave propagation, absorption, and emission. Application to remote sensing, basic physics of dry aerosols, clouds and precipitation, fundamentals of atmospheric electricity, charge separation processes, and electrical field effects are also discussed. Other topics include air pollution physics, dispersal, and removal of particulate and gaseous materials from natural and anthropogenic sources.  
PREREQUISITE: BASIC CALCULUS AND ORDINARY DIFFERENTIAL EQUATIONS.

MPO 542 Physics of Remote Sensing  
3 credits  Spring Semester  
Course discusses basic physical principles of remote sensing. Topics include an introduction, sampling issues, fundamental laws of electromagnetic waves, passive sensing, active sensing, and a brief survey of satellite sensors.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MPO551 Introduction to Atmospheric Science
3 credits Fall Semester
Thermodynamics of dry and moist processes; elementary dynamical meteorology; description of weather systems and phenomena on all scales; structure and mechanics of the general circulation. Corequisite: MPO 552.
PREREQUISITE: PHY 206, MTH 310 OR 311, OR PERMISSION OF INSTRUCTOR.

MPO552 Synoptic Meteorological Laboratory
1 credits Fall Semester
Analysis of the structure of atmospheric systems.
PREREQUISITE: PHY 206, MTH 310 OR 311, OR PERMISSION OF INSTRUCTOR.

MPO561 Tropical Meteorology
3 credits Spring Semester
Observed structure of large-scale tropical circulations, including the Trades, the Intertropical Convergence Zone, the Walker circulation, and equatorial wave disturbances. An overview of tropical climate, including El Nino/Southern Oscillation, and tropical monsoons is included as well as the formation, structure, and dynamics of tropical cyclone interactions between tropical convection and large-scale circulations, equatorial waves, and flow instabilities.
PREREQUISITE: MPO 511, 551, OR PERMISSION OF INSTRUCTOR.

MPO562 Synoptic Scale Meteorology
3 credits Offered By Announcement Only
Course topics include the structure and behavior of cyclones, anticyclones, and other temperate latitude synoptic scale disturbances. Objective analysis of synoptic observations, perturbation, stability analysis of large scale synoptic motions, and barotropic and baroclinic waves are also analyzed.
PREREQUISITE: MSC 405 OR MPO 551 AND PERMISSION OF INSTRUCTOR.

MPO563 Mesoscale Meteorology and Severe Storms
3 credits Offered By Announcement Only
Course topics include the structure and dynamics of clouds, thunderstorms, and mesoscale convective systems, radar and satellite observations of clouds and precipitation, severe storm forecasting, mesoscale disturbances, frontal and orographic clouds, and precipitation.
PREREQUISITE: MSC 405 OR MPO 551 AND PERMISSION OF INSTRUCTOR.

MPO581 Special Topics
1-4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Meteorology and Physical Oceanography.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MPO582 Special Topics
1-4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Meteorology and Physical Oceanography.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MPO583 Special Topics
1-4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Meteorology and Physical Oceanography.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
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MPO584 Special Topics
1-4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Meteorology and Physical Oceanography.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MPO585 Special Topics
1-4 credits Offered By Announcement Only
Lectures, research projects or directed readings in special topics related to Meteorology and Physical Oceanography.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MPO601 Seminars in Meteorology and Physical Oceanography
1 credits Fall & Spring Semester

MPO611 Geophysical Fluid Dynamics II
3 credits Spring Semester
The focus of this course is on the effects of stratification, on time variable phenomena, and on the interaction between large-scale circulation and mesoscale eddies. Course topics include quasi-geostrophic scale analysis, Rossby waves, barotropic and baroclinic instability, wave-mean flow interaction and non-geostrophic waves.
PREREQUISITE: MPO 511.

MPO612 Large Scale Ocean Circulation: Models and Observations
3 credits Spring Semester
Course topics include theoretical models of the oceanic current systems, wind-driven and thermohaline circulation, effects of bottom topography, and lateral bounding.
PREREQUISITE: MPO 611 OR PERMISSION OF INSTRUCTOR.

MPO615 Numerical Weather Prediction
3 credits Offered By Announcement Only
Review of fundamental equations and principal wave solutions. Course topics include finite differences, the filtering problem, the equivalent-baratropic model, multi-level primitive equation models, model initialization and verification, and models currently used by the weather service.
PREREQUISITE: MPO 551.

MPO621 Waves and Tides I
3 credits Fall Semester
Systematic development of equations governing long waves in the ocean. Course topics include tidal dynamics and tide-generating forces, inertio-gravity, planetary, and longs, presurface waves, waves trapped and scattered by topography, and equatorial waves.
PREREQUISITE: MPO 511 OR PERMISSION OF INSTRUCTOR.

MPO623 Statistical Analysis of Geophysical Data
3 credits Spring Semester
Review of statistical methods. Course topics include statistical description of wave fields, especially inertio-gravity waves, processing methods for general and hydrodynamically conditioned signals, time series analysis, objective analysis, and empirical spectral analysis.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
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MPO624 Statistical Modeling of Geophysical Fields
3 credits  Spring Semester
An advanced course in statistical modeling, analysis, and assimilation of geophysical data. Emphasis is placed on practical applications, computer software, and new nonstandard techniques.
PREREQUISITE: ONE LINEAR ALGEBRA CLASS AND MPO 623 OR PERMISSION OF INSTRUCTOR.

MPO631 Air-Sea Interaction
3 credits  Spring Semester
PREREQUISITE: MPO 611 OR PERMISSION OF INSTRUCTOR.

MPO632 Climate Dynamics
3 credits  Offered By Announcement Only
Basic understanding of the Earth's Climate System and its variability on time scales ranging from weeks to millennia. Topics include internal atmospheric variability, coupled ocean-atmosphere interactions, and the theory, observations and modeling of climate change.
PREREQUISITE: PREREQUISITE OR COREQUISITE: MPO 551.

MPO633 The Marine Atmospheric Boundary Layer
3 credits  Spring Semester
The marine atmospheric boundary layer plays a key role in the two-way interaction between the atmosphere and the ocean. This course will focus on describing and explaining marine atmospheric boundary layer structure and its evolution. This will include an emphasis on the cloud-topped boundary layer (marine stratocumulus) and the trade-wind boundary layer. Thus, in addition to turbulence, the physical processes considered in this treatment of the marine boundary layer will include shallow moist convection and radiation. The course will start with a basic description of the atmospheric boundary layer that will include a review of the relevant dynamics and thermodynamics. More advance topics will be covered in the second half of the course. Although the course will be a series of formal lectures, students will independently research selected topics, prepare a short review paper, and give an oral summary class.
PREREQUISITE: STUDENTS ENROLLING IN THIS CLASS SHOULD HAVE A BASIC KNOWLEDGE OF ATMOSPHERIC THERMODYNAMICS AND DYNAMICS (MPO 511 OR 551 OR EQUIVALENT).

MPO650 Coastal Ocean Circulation
3 credits  Spring Semester
Circulation and stratification in the coastal ocean, including the dynamics of wind-driven, tidally-driven, and buoyancy-driven mean and transit flows over variable topography with density stratification are discussed. Design of numerical models and observing systems for coastal ocean circulation are also in included. (AMP 650).
PREREQUISITE: AMP 535, 575 OR 576 AND PERMISSION OF INSTRUCTOR.

MPO651 Dynamic and Modeling of Weather and Climate Systems
1 credits  Fall & Spring Semester
This course will cover a number of advanced topics not currently covered in other courses, such as mesoscale meteorology, mesoscale modelling, cloud physics, and storm dynamics.
PREREQUISITE: MPO 551.
**MPO662 Computer Models in Fluid Dynamics**

3 credits  
**Spring Semester**

Course topics include numerical techniques of dealing with dynamic problems in meteorology and oceanography. Dynamic prediction models, initial data conditioning, computational stability, and error estimates are also included.  
PREREQUISITE: MPO 611 AND KNOWLEDGE OF COMPUTER PROGRAMMING.

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**MPO663 Convective and Mesoscale Meteorology**

3 credits  
**Spring Semester**

This course begins by establishing the dynamics, thermodynamics, and cloud microphysics fundamentals needed to understand convective clouds and storms. We also review the types of observations, both in situ and remote sensing, available for studying these storms. Observations of both tropical convection and more-vigorous midlatitude severe storms are presented and compared to numerical modeling results, with an emphasis on scientific understanding.  
PREREQUISITE: MPO 551 OR EQUIVALENT.

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**MPO664 Atmospheric and Oceanic Turbulence**

3 credits  
**Spring Semester**

Structure and dynamics of planetary boundary layers, turbulent transport processes, Fickian and statistical theories of turbulence, influence of stratification, and rotation on turbulent motion are discussed.  
PREREQUISITE: MPO 611 OR PERMISSION OF INSTRUCTOR.

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**MPO665 General Circulation of the Atmosphere**

3 credits  
**Spring Semester**

Course topics include structure and behavior of planetary scale motions, energy, momentum, and moisture budgets of the general circulation, and models of the general circulation and climatic change.  
PREREQUISITE: MPO 611 OR PERMISSION OF INSTRUCTOR.

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**MPO671 Advanced Studies in Meteorology and Physical Oceanography**

1-4 credits  
Offered By Announcement Only

Supervised study in areas of special interest to graduate students.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

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**MPO672 Advanced Studies**

1-4 credits  
Offered By Announcement Only

Supervised study of special interest to graduate students.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

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**MPO673 Advanced Studies in Meteorology and Physical Oceanography**

1-4 credits  
Offered By Announcement Only

Supervised study in areas of special interest to graduate students.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

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**MPO674 Advanced Studies**

1-4 credits  
Offered By Announcement Only

Supervised study of special interest to graduate students.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

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**MPO675 Advanced Studies**

1-4 credits  
Offered By Announcement Only

Supervised study of special interest to graduate students.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MPO700 Practical Training and Internship
1-6 credits
Offered By Announcement Only
Supervised internship or off-campus employment for students pursuing the M.A., M.S., or Ph.D. degree. Consists of work related to research in progress.

MPO705 Special Project
1-6 credits
Fall & Spring Semester & First & Second Summer Session
Supervised project for students pursuing the Master of Arts degree. Consists of a paper, researched and written on a topic approved by the student's advisory committee, and presented as a seminar to the student's division. Six credits are required for graduation.
PREREQUISITE: COMPLETION OF 24 GRADUATE COURSE CREDITS.

MPO706 Special Project-Post Candidacy
1-6 credits
Fall & Spring Semester & First & Second Summer Session
Used to establish student has been admitted to candidacy for the MA degree. The student working on his/her research paper enrolls for credit not to exceed 6 combined with 705. No credit is awarded until final paper has been accepted.

MPO710 Master's Thesis
1-6 credits
Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

MPO715 Master's Thesis-Post Candidacy
1-6 credits
Fall & Spring Semester & First & Second Summer Session
Used to establish student has been admitted to candidacy for the MS degree. The student working on his/her Master's Thesis enrolls for credit not to exceed 6 combined with 710. Credit is not awarded until the Thesis has been accepted.

MPO720 Research in Residence
0 credit
Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in MPO 710 (usually six credits). Credit not granted. May be regarded as full time residence.

MPO730 Doctoral Dissertation
1-12 credits
Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor but not for less than a total of 12. Not more than 12 hours of MPO 730 may be taken in a regular semester, nor more than six in a summer session. Where a student has passed his/her (a) qualifying examinations, and (b) is engaged in an assistantship, he/she may still take the maximum allowable credit stated above.

MPO740 Doctoral Dissertation-Post Candidacy
1-12 credits
Fall & Spring Semester & First & Second Summer Session
Used to establish student has been admitted to candidacy for the Ph.D degree. The student working on his/her Doctoral Dissertation enrolls for credit for a minimum of 12 combined with 730. Credit is not awarded until Dissertation has been accepted.
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MPO750 Research in Residence
0 credit                     Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D., after the student has been
enrolled for the permissible cumulative total in appropriate doctoral research.
Credit not granted. May be regarded as full-time residence as determined by the
Dean of the Graduate School.

RSMAS-GENERAL

RSM500 Research Diving Techniques
3 credits                                             Offered By Announcement Only
This course is designed to introduce students to the practices and policies of
scientific diving. The object is to prepare students to use SCUBA as a research
tool for the marine sciences. The course content will qualify students as RESEARCH
DIVERS under the UM/RSMAS Scientific Diving Program and will meet the standards
set by the American Academy of Underwater Sciences (AAUS).

RSM510 Environmental Ethics
3 credits                                                             Fall Semester
This course will introduce students to a variety of key issues and concepts in
environmental ethics. The course will be a joint scientific and philosophic collaboration,
exploring the ethical dimensions of controversial and emerging issues in biotechnology
and the environment. After students are exposed to the scientific background of
various actual case studies focusing on current environmental and social impact,
the ethical and philosophical issues raised by the discussions will be explored
using the tools and methods of analytic philosophy. The course will develop the
student's ability to construct and evaluate philosophical arguments in the field
of environmental ethics, and to reason philosophically on numerous questions in
contemporary applied ethics.
PREREQUISITE: ALTHOUGH THERE ARE NO PHILOSOPHY PREREQUISITES FOR THIS COURSE, PERMISSION
OF INSTRUCTOR IS REQUIRED.

RSM520 Climate and Society
3 credits                                                           Spring Semester
This course is designed to provide students from different disciplinary backgrounds
with an overview of physical processes, general concepts and policy debates surrounding
climate issues.

RSM560 Investigating Nature through Science Teacher Active Research (INSTAR)
2 credits                                             First & Second Summer Session
This is a graduate level marine science course that provides a hands-on approach
to education focused on geological and meteorological research in South Florida
environment. The course provides training in marine science content, field techniques,
state-of-the-art field, computer technology, and science educational reform measures.
Participants work collaboratively with marine and atmospheric scientists to bring
cutting edge marine science content and research to the classroom focusing on the
following coastal themes: geology, hydrology and meteorology. The course will be
applicable to all graduate and qualified undergraduate marine science students,
per-service teachers in colleges of education, and in-service teachers in school
systems throughout the country.
RSM561 INSTAR for Physical Sciences Follow-up
1 credits First & Second Summer Session
This is a follow-up course for participants in MGG 560 and is designed to test the application of the methods learned in MGG 560 to the teaching of high school students. Participants are expected to show evidence of teaching material learned in MGG 560.
PREREQUISITE: RSM 560.

RSM562 Investigating Nature through Science Teacher Active Research in Biological Science
2 credits First & Second Summer Session
This is a graduate level marine science course that provides a hands-on approach to education focused on marine science research and technology in South Florida coastal environments. The course provides training in marine science content, field techniques, state-of-the-art field and computer technology, and science educational reform measures. Participants work collaboratively with marine scientists to bring cutting edge marine science content and research to the classroom focusing on the following coastal themes: coral reefs and marine fisheries. The course will be applicable to all graduate and qualified undergraduate marine science students, per-service teachers in colleges of education, and in-service teachers in school systems throughout the country.

RSM563 INSTAR Biological Sciences Follow-up
1 credits First & Second Summer Session
This is a follow-up course for participants in RSM 562 and is designed to test the application of the methods learned in RSM 562 to the teaching of high school students. Participants are expected to show evidence of teaching material learned in RSM 562.
PREREQUISITE: RSM 562.

RSM570 Carbon and Climate
3 credits Offered By Announcement Only
This course is designed to provide students from different disciplinary backgrounds with an overview of the underlying processes, concepts, and policy debates surrounding the issue of carbon emissions and climate change. Individual faculty from RSMAS and elsewhere will lecture on cutting-edge research areas. Topics covered include: climate modeling; and climate policy.
PREREQUISITE: GRADUATE OR SENIOR STANDING AT RSMAS, OR PERMISSION OF INSTRUCTOR.

RSM571 Special Topics
1- 4 credits Offered By Announcement Only
Lectures and research projects in special topics related to Marine and Atmospheric Science.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

RSM572 Special Topics
1- 4 credits Fall & Spring Semester & First & Second Summer Session
Lectures and research projects in special topics related to Marine and Atmospheric Science.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
RSM600 Research Ethics  
0 credit  Fall Semester  
The NIH Guide for Grants and Contracts stipulates that Institutions receiving support for National Research Service Award Training Grants are required to develop a program in the principles of Scientific Integrity. The University of Miami Rosenstiel School has chosen to respond to this requirement with this course. This course must be taken during the first semester in the Department or Program. This is a six-hour course and will be given in two sessions of three hours each.

RSM610 Marine and Atmospheric Science Colloquia  
0 credit  Fall & Spring Semester  
An interdisciplinary series of seminars presented by various faculty on current research projects. Course consists of one 1-hour seminar per week. All students are required to register for this course at least once and be expected to attend two consecutive semesters.

RSM620 Object-oriented Programming and Agent-based Modeling  
3 credits  Spring Semester  
Basics of object-oriented programming using Java, including Java statistical packages, and hands-on development of agent-based simulation models for social, economic, biological and physical sciences. Includes introductions to automaton and individual-based models.  
PREREQUISITE: STUDENTS MUST BE COMMITTED TO RAPID LEARNING TO ADVANCED LEVELS IN A SHORT TIME. ONLY 8 STUDENTS PER CLASS DUE TO FACILITY LIMITATIONS.

RSM671 Advanced Studies  
1-4 credits  Offered By Announcement Only  
Supervised study or advanced special topics.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.
BMB501 Senior Seminars
1 credits Fall & Spring Semester
Students attend seminars by faculty or graduate students on recent research topics in Biochemistry and Molecular Biology. Students write short reports on these seminars and critically evaluate the presentations.
PREREQUISITE: PREREQUISITE OR COREQUISITE: BMB 506.

BMB502 Physical Biochemistry
3 credits Offered By Announcement Only
Thermodynamics of biochemical reactions including chemical potential and equilibrium constants. Principles of diffusion and viscosity with applications to the ultracentrifuge, electrophoresis and chromatography are included. Topics in spectroscopy including visible, UV, IR absorption, and fluorescence. Biochemical applications of ORD, CD, NMR, and ESR. X-ray crystallography.
PREREQUISITE: BMB 407.

BMB505 Metabolic Processes
2 credits Offered By Announcement Only
Intermediary metabolic processes. Catabolism of carbohydrates, lipids, and nitrogen compounds. Biosynthetic processes leading to amino acids, lipids, and isoprenoids, sugars, are addressed. Regulation of metabolism and cellular economy by various means, including hormones is also included. Lecture, 2 hours.
PREREQUISITE: BMB 506 OR PERMISSION OF INSTRUCTOR.

BMB506 Principles of Biochemistry and Molecular Biology
3 credits Fall Semester
Protein structure and function, enzyme mechanism and kinetics, and metabolism, focusing on energy metabolism and central concepts of metabolic regulation and of molecular biology including nucleic acid structure, protein synthesis, and DNA replication. Not open to students with credit in BMB 401 or 406; for undergraduate honors credit or graduate student not majoring in biochemistry.
PREREQUISITE: A GRADE OF C OR BETTER IN CHM 202, BIL 150 AND 160 OR PERMISSION OF INSTRUCTOR.

BMB507 Proteins and Enzymes
3 credits Spring Semester
Course analyzes the folding and binding of proteins, kinetics and mechanisms of enzyme action. For honors undergraduates. Not open to students in BMB 407.
PREREQUISITE: BMB 406 OR OR 506 OR PERMISSION OF INSTRUCTOR; FOR UNDERGRADUATE HONORS CREDIT OR GRADUATE STUDENTS NOT MAJORING IN BIOCHEMISTRY.

BMB508 Biochemistry and Molecular Biology Laboratory
1 credits Offered By Announcement Only
Experience in a spectrum of biochemical experiments ranging from enzyme chemistry to recombinant DNA. Laboratory, 3 hours.
PREREQUISITE: PRE OR COREQUISITE: BMB 258 OR CHM 202

BMB509 Molecular Biology of the Gene I
3 credits Fall Semester
Biochemical processes involved in the propagation and expression of genetic information in both prokaryotes and eukaryotes. Basic cellular processes of DNA replication, repair, genetic recombination, RNA transcription and processing, protein synthesis, control of gene expression, cell differentiation, and recombinant DNA technology. Reading includes both textbook assignments and original research papers.
PREREQUISITE: BMB 506 OR PERMISSION OF INSTRUCTOR.
BMB511 Topics in Applied BCH and Molecular Biology
1- 3 credits                 Fall & Spring Semester & First & Second Summer Session
Selected topics from the fields of applied and pure biochemistry and molecular biology taught as a tutorial.
PREREQUISITE: BMB 406 OR 506 AND PERMISSION OF INSTRUCTOR.

BMB545 Research Problems in Biochemistry and Molecular Biology
2- 3 credits                 Fall & Spring Semester & First & Second Summer Session
Laboratory research problems in various fields of biochemistry, including literature search, experiment design, data gathering, and evaluation or results.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

BMB601 Journal Club/Seminar
1 credits                                                    Fall & Spring Semester
All registered students must participate in the Journal Club/Seminar. Students are required to critically review published paper(s) of their choice and describe in detail the findings described therein.

BMB609 Advanced Biochemistry and Molecular Biology
3 credits                                                             Fall Semester
This course is a continuation course for BMB 616. It covers essentially the same topics as BMB 616 but at a more advanced level. It brings the student to the forefront of research in Molecular Biology. The course material is discussed exclusively in the form of original research papers. Based on this experience, students are required to propose experimental approaches to biological problems and defend them.
PREREQUISITE: BMB 616.

BMB610 Advanced Topics in Biochemistry
1- 5 credits                                                 Fall & Spring Semester
Senior seminars designed to cover in depth recent developments in the field of biochemistry with the purpose of keeping advanced graduate students abreast with new theoretical and experimental findings. General subjects such as mechanisms of enzyme action, oxidative phosphorylation, active transport, metabolic controls and disorders, steroid biochemistry, and biochemical genetics are discussed. The detailed program is announced annually. Majors in Biochemistry and Molecular Biology are expected to take this course each semester in their second and third years.
PREREQUISITE: BMB 506 AND DEPARTMENTAL PERMISSION.

BMB611 Accelerated Basic Science Medical Curriculum
1-18 credits                                                          Fall Semester
Beginning in the latter part of June each year, extending to the middle of February of the ensuing year, the following accelerated and intensive complete basic science medical curriculum is offered: Embryology, Gross Anatomy, Histology, Biochemistry, Neuroanatomy, Biophysics and Neurophysiology, Systemic Physiology, Pathology, Medical Microbiology, and Pharmacology. A single grade will be entered on the graduate transcript for this course.
PREREQUISITE: ADMISSION TO THE COMBINED M.D./PH.D. PROGRAM.
BMB614 Molecular Genetics
3 credits  Fall Semester
This course deals with mechanisms of inheritance with particular emphasis on fundamental genetic processes in bacteria, bacteriophage, fungi, and animal viruses. Topics include the nature of mutations and mechanisms of mutagenesis, genetic complementation, recombination, transposition, transcriptional and post-transcriptional regulation, yeast and other fungi as tools for eukaryotic molecular biology, human genetic analysis, and genetic mechanisms in bacterial and mammalian viruses.
PREREQUISITE: BMB 506 OR EQUIVALENT OR PERMISSION OF INSTRUCTOR.

BMB615 Structure and Function of Biological Macromolecules
4 credits  Spring Semester
The structure and function of proteins and their complexes with nucleic acids, carbohydrates, and lipids. Various biophysical methods used to investigate structure-function relationships are introduced and their applications illustrated by specific examples.
PREREQUISITE: BMB 506 OR EQUIVALENT, OR PERMISSION OF THE INSTRUCTOR.

BMB616 Biochemistry and Molecular Biology
4 credits  Offered By Announcement Only
The course begins with an introduction to the basic structures of proteins, protein folding, allostery, enzyme kinetics, and mechanisms of catalysis. This is followed by a thorough description of the molecular basis of cellular function and regulation in both prokaryotic and eukaryotic systems. The mechanisms of DNA replication, DNA repair, recombination, transcription, regulation of gene expression, and translation is discussed in detail. In addition, the methods of gene cloning, recombinant DNA technology, in vitro mutagenesis, DNA sequencing, and PCR applications are discussed. There are three hours of lecture and one hour of discussion per week. This course is designed for graduate students in the biological sciences and serves as a core course for several departments. A good background in Biology and Biochemistry is recommended.
PREREQUISITE: BMB 506 OR EQUIVALENT, OR PERMISSION OF INSTRUCTOR.

BMB617 Readings in Molecular Biology
1 credits  Fall Semester
Discussion of classical papers in molecular biology beginning with the concept of the gene and continuing into modern studies. Format consists of student presentations and group discussions.
PREREQUISITE: BMB 506 OR EQUIVALENT, OR PERMISSION OF INSTRUCTOR.

BMB631 Special Work
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Special work, lecture, or laboratory or a combination of these, as determined by advisor in accord with student's individual interest.
PREREQUISITE: APPROVAL OF COMMITTEE.

BMB645 Research Problems in Biochemistry, Cell and Molecular Biology
2-3 credits  Fall & Spring Semester & First & Second Summer Session
Laboratory research problems in various areas of biochemistry, cell biology, and molecular biology, including literature search, experimental design, data gathering, and evaluation of results. This course is the mechanism by which graduate laboratory rotations are done in preparation for selection of Ph.D. mentor.
PREREQUISITE: BMB 506 OR EQUIVALENT OR PERMISSION OF INSTRUCTOR.
BMB680 Research Ethics
0 credit Fall Semester
The NIH Guide for Grants and Contracts stipulates that Institutions receiving support for National Research Service Award Training Grants are required to develop a program in the principles of Scientific Integrity. This program should be an integral part of the proposed training effort. The University of Miami School of Medicine has chosen to respond to this requirement with this course. This course must be taken during the first semester in the Department or Program. This is a six-hour course and will be given in two sessions of three hours each.
PREREQUISITE: PERMISSION OF THE GRADUATE ADVISOR.

BMB710 Master's Thesis
1-6 credits Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

BMB720 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in BMB 710 (usually six credits). Credit not granted. May be regarded as full time residence.

BMB730 Doctoral Dissertation
1-12 credits Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor but not for less than a total of 24. Not more than 12 hours of BMB 730 may be taken in a regular semester, nor more than six in a summer session. Where a student has passed his/her (a) qualifying examinations, and (b) is engaged in an assistantship, he/she may still take the maximum allowable credit stated above.

BMB740 Doctoral Dissertation- Post Candidacy
1-12 credits Fall Semester
PREREQUISITE: NONE

BMB750 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

CANCER BIOLOGY
CAB601 CAB Student Seminar
1 credit Fall Semester
This course offers instruction about the fundamental elements of scientific speaking. The ability to communicate effectively is essential for scientists. Using a series of sample-based lectures and discussion groups students will be exposed to various oral presentations. In addition, during the first year, all students will be asked to present a 20 minute seminar following each of their rotation projects. Once students enter a research laboratory, students will be required to present their research each year as a one hour seminar.
CAB602 Approaches to Understanding Cancer

2 credits  
Fall Semester

This interactive lecture course will teach students specific methodologies used to solve problems in cancer research. By using specific examples of basic and clinical avenues of research students will be taught the use of various approaches to address problems in cancer biology, i.e., reasoning and logic. The overall goal is to expose students to how different approaches are used and integrated to solve specific research questions and the critically interpret experimental design and data. The use and advantages of various approaches, e.g., biochemical, molecular, genetic, immunological, epidemiology, and the use of model systems e.g., cell and animal models will be discussed. Methods used in clinical trials will be presented. Emphasis will be placed on research strategy and design, limitations and strengths of various techniques.

CAB603 CAB Clinical Oncology

2 credits  
Fall Semester

Year 1: During the first year students will attend a series of lectures by CAB physician mentors that will discuss clinical aspects of cancer treatment for specific patients with an emphasis on continuity of care of newly diagnosed patients between disciplines. Students will attend existing Sylvester Cancer Center tumor boards on a rotating monthly basis to understand how the treatment of cancers varies depending on histology.

CAB604 Scientific Reasoning and Logic in Cancer Biology: Bench to Bedside

3 credits  
Spring Semester

One aspect of the Cancer Biology PhD Program is to train students in the application of basic research to clinical problems i.e., translational research. The goal of this course is to expose students to the scientific reasoning the logic behind solving problems in clinical cancer research. The philosophy of this course is to teach students how knowledge obtained from basic research laboratories is applied to clinical problems including prevention, diagnosis, prognosis and therapeutic treatment of cancer. This course has 11 weekly segments, each of which has a different theme plus student presentations.

CAB605 Tumor Boards

1 credits  
Fall Semester

In the spring of their first year, students will attend Tumor Boards at UM/ Sylvester. This treatment planning approach in which a number of oncologists who are experts in different specialties review and discuss the medical condition and treatment options of a patient. It will allow the students to interact with physicians and learn how pathologists, surgeons, medical oncologists and radiation oncologists review specific cases and create customized treatment plans. Examples of cases include patients with Solid tumors (i.e., Breast, Colon, Liver, Prostate), Hematologic tumors (i.e., Leukemia, Lymphoma), and Sarcomas (i.e., osteosarcoma, soft tissue).

CAB606 Seminar Courses I

1 credits  
Fall Semester

FIRST YEAR students must attend the Program seminars and will be graded pass/ fail based on their attendance.
CAB611 Accelerated Basic Science Medical Curriculum
1-18 credits  Fall Semester
Beginning in the latter part of June each year, extending to the middle of February of the ensuing year, the following accelerated and intensive complete basic science medical curriculum is offered: Embryology, Gross Anatomy, Histology, Biochemistry, Neuroanatomy, Biophysics and Neurophysiology, Systemic Physiology, Pathology, Medical Microbiology, and Pharmacology. Single grade will be entered on the graduate transcript for this course.
PREREQUISITE: ADMISSION TO THE COMBINED M.D./PH.D. DEGREE PROGRAM.

CAB612 Special Topics in Cancer Research - Viral Oncology and Tumor Immunology Module
2 credits  Spring Semester
This module emphasized state of the art knowledge of each discipline, student participation in a problem based learning context. Topics include viral carcinogenesis and epidemiology, Hepatitis, Herpes, Epstein Barr and Human Papilloma Viruses, Kaposi's Sarcoma, viral induced lymphomas, viral oncolysis, and mechanisms of anti-tumor immunity.
PREREQUISITE: NONE

CAB613 Special Topics in Cancer Research - Molecular Cancer Therapeutics Module
2 credits  Spring Semester
This module explores the signal transduction pathways critical for cancer cell proliferation and survival that may provide new therapeutic targets, approaches for identification and validation of molecular targets within these pathways. Students are introduced to the strategies used in the discovery and design of biological and drug based therapies, and the implementation of clinical trials.
PREREQUISITE: NONE

CAB614 Special Topics in Cancer Research - Cancer Epidemiology, Prevention & Beh. Oncology
2 credits  Spring Semester
This module explains the goals and techniques of researchers in the fields of cancer epidemiology and biobehavioral oncology. These include understanding the social, environmental, and biological reasons for cancer disparities among different populations. Cancer epidemiologists seek to define the molecular and genetic mechanisms of cancer risk and progression with the aim of developing predictive models in treatment response. The following themes in biobehavioral oncology are explored: psychosocial intervention, biobehavioral and psychosocial intervention to the community; health behavior change and biobehavioral mechanisms in persons at risk for and diagnosed with cancer; predictors of QOL and late effects of cancer treatment and development of preventative interventions.
PREREQUISITE: NONE

CAB617 Advance Course on Viruses, Immunity, and Cancer
3 credits  Spring Semester
This is an advanced course on Viral Oncology and Tumor Immunology and Immunotherapy that emphasizes state of the art knowledge of each discipline, student active participation in a problem based learning-like context, and national expert visitor teaching. The structure of the classes is based on the concept of Problem Based Learning.
PREREQUISITE: OPEN TO 2ND YEAR STUDENTS FROM ANY GRADUATE PROGRAM
CAB620 Dialogues with Cancer Clinicians (PIBS Module)  
1 credits  
Fall & Spring Semester  
This module features physician mentors of the Cancer Biology Graduate Program who will discuss clinical aspects of cancer treatment with an emphasis on continuity of care of newly diagnosed patients between disciplines and will articulate unmet clinical needs and questions. Mentors will provide clinical perspectives on their areas of specialization as it relates to patient care including diagnosis, staging, therapy, and outcomes.  
PREREQUISITE: NONE

CAB630 Colloquia in Clinical Cancer Research  
2 credits  
Fall Semester  
Students will attend Colloquia at which faculty members present seminars on their current clinical research topics and methods of investigation. Here students will learn the rationale and methodologies that researchers are using to approach a problem in clinical cancer research. Topics will cover the areas of prevention, control, diagnosis (molecular and microscopic pathology), prognosis and therapeutics.

CAB631 Lab Rotations  
1-6 credits  
Fall Semester  
During the first year students will be required to carry out three research rotations. The students will then select their PhD advisor in June of their first year. The evaluation will be based on an oral presentation (20 minutes and 10 minutes for questions) by the student to a committee consisting of three faculty members, other than the rotation advisor. The rotation mentor will submit a confidential written evaluation of the student in a standard format to be designed by the Curriculum committee. It will include a statement regarding the willingness of the mentor to accept the student into the lab for their thesis research.

CAB650 Logic and Reasoning in Translational Cancer Research: Bench to Bedside Part 1  
3 credits  
Spring Semester  
PREREQUISITE: MCP 655, MINIMUM OF TWO CAB 610 MODULES, CAB 605, CAB 620

CAB651 Logic and Reasoning in Translational Cancer Research: Bedside to Bench Part 2  
3 credits  
Fall & Spring Semester  
An important facet of the Cancer Biology PhD Program is the training of students in the interrelationships between basic research and clinical medicine i.e., translational research. The goal of this advanced course is to expose students to the scientific reasoning and logic underlying problem solving in clinical cancer research. This course will instill in students the ability to integrate information and develop the thought processes necessary to critically evaluate information in the literature and experimental approaches, conceptualize problems in the field and identify areas for scientific exploration. This course is divided into two parts. In Part I Bench to bedside, students learn how the knowledge obtained from basic research laboratories is applied to clinical problems including prevention, diagnosis, prognosis and therapeutic treatment of cancer. Specific examples of translational research, i.e., laboratory to clinic will be emphasized. In part II Bedside to Bench, students learn the key role of clinical observation in identifying basic research problems.  
PREREQUISITE: MCP 665, MINIMUM OF TWO CAB 610 MODULES, CAB 605, CAB 620
CAB680 Research Ethics
0 credit  Fall Semester
The NIH Guide for Grants and Contracts stipulates that Institutions receiving support for National Research Service Award Training Grants are required to develop a program in the principles of Scientific Integrity. This program should be an integral part of the proposed training effort. The University of Miami School of Medicine has chosen to respond to this requirement with this course. This course must be taken during the first semester in the Department or Program. This is a six-hour course and will be given in two sessions of three hours each.
PREREQUISITE: PERMISSION OF THE GRADUATE ADVISOR.

CAB730 Dissertation Research
1-12 credits  Fall Semester
Required of all candidates for the Ph.D. The student will enroll for credits as determined by the Office of Graduate Studies but not less than a total of 24. Not more than six in the summer. If a student has a) passed qualifying exam(s) and (b) is engaged in an assistantship, he/she may still take the maximum allowable credits.

CAB740 Doctoral Dissertation- Post Candidacy
1-12 credits  Fall Semester

CAB750 Research in Residence
0 credit  Fall Semester
Used to establish research in residence for the Ph.D., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

Epidemiology & Public Health

EPH501 Medical Biostatistics I
3 credits  Fall Semester
Introduction to probability and statistics including descriptive statistics, tests of hypothesis, regression analysis, contingency tables, nonparametric tests, and life tables. Students gain hands-on experience in the analysis of medical data using several computer systems and at least one of the different statistical packages such as: BMDP, SAS, PSTAT, SYSTAT, and Minitab.
PREREQUISITE: ABILITY TO USE A SPREADSHEET PROGRAM ON A PERSONAL COMPUTER. OPEN ONLY TO EPH MAJORS.

EPH502 Biostatistics II
3 credits  Spring Semester
Continuation and elaboration of EPH 501. Topics include design of factorial experiments, analysis of variance and variance components, multiple linear regression, and life tables.
PREREQUISITE: EPH 501 OR PERMISSION OF INSTRUCTOR. OPEN ONLY TO EPH MAJORS.

EPH503 Applied Data Management and Analysis
3 credits  First & Second Summer Session
The course is designed to introduce students to applied quantitative methods through both lecture-based and experimental strategies. Emphasis will be placed on data collection, data management, and conceptual use of various analytic techniques.
PREREQUISITE: EPH 501, EPH 502 OR PERMISSION OF INSTRUCTOR.
EPH512 Global Health
3 credits
Fall Semester
This seminar examines current global public health issues, governance and decision-making challenges for the 21st Century across developing, transitioning, and developed countries. Topics of discussion include new actors for world health in the era of globalization; linking human development, poverty and health inequities; social, cultural and ethical considerations for health planning; role of industry, trade and public health; evidence based research for improved global health initiatives; foreign policy and health security challenges associated with emergence and re-emergence of infectious diseases and public and private partnerships in global health. Open only to EPH majors.
PREREQUISITE: OPEN ONLY TO EPH MAJORS.

EPH513 International Health Systems
3 credits
Fall Semester
Students will study international health from a broad prospective of global health issues and international health systems. This course will include a critical analysis of health systems in both developing and developed countries through comparison with the World Health Organization's model and the health system in the United States. A variety of health factors will be examined including the role of public health and public health funding.
PREREQUISITE: PERMISSION OF PROGRAM DIRECTOR OR ADMINISTRATOR FOR REGISTRATION

EPH514 Mental Health and Mental Illness: Public Health Perspective
3 credits
Fall Semester
The purpose of this course is to give an overview of mental health and illness as a public health issue. This will include an analysis of how mental illness became a major public health concern both in the United States and Globally. The use of population-based epidemiological studies to inform the development of public policy will also be explored. In addition, an analysis of mental health programs in various community settings such as schools, the workplace and in the context of disasters will provide an opportunity to understand how theories regarding the etiology of mental illness are applied in the development of prevention and intervention programs.
PREREQUISITE: PERMISSION OF PROGRAM DIRECTOR FOR NON-EPH MAJORS.

EPH520 Health Education and Behavior
3 credits
Spring Semester
Educational processes with special emphasis on the social and cultural determinants of health behavior, health education as a process of social change, and community based health education organizations. Open only to EPH majors.
PREREQUISITE: OPEN ONLY TO EPH MAJORS.

EPH521 Fundamentals of Epidemiology
3 credits
Fall Semester
Principles and methods of epidemiology. Descriptive epidemiology, environmental and other risk factors, detection of outbreaks, basic demography, and etiologic studies.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR. OPEN ONLY TO EPH MAJORS.
EPH522 Applied Health Education
3 credits
Fall Semester
The goal of this course is to introduce students to the principals of Applied Health Education utilizing the theoretical background they received in the course prerequisite, EPH 520. Means of affecting health behavior change will be examined as well as methods of health communication, needs assessment and issues of cultural competency. Students will explore various settings in which health educational material is distributed including clinical settings, the Internet and through the mass media. Students will develop their own binder of high quality health educational information and develop their own educational material on a topic of their choice.
PREREQUISITE: EPH 520. OPEN ONLY TO EPH MAJORS.

EPH525 Ethical Issues in Epidemiology
3 credits
Fall Semester
The course identifies and analyzes ethical issues in epidemiologic practice and research. Issues include data acquisition and management, confidentiality, valid consent, advocacy, public policy, subgroup stigma, research sponsorship, conflicts of interest, communication of risk, and international and intercultural difference.
PREREQUISITE: EPH 501 AND 521 OR PERMISSION OF INSTRUCTOR. OPEN ONLY TO EPH MAJORS.

EPH541 Integrated Aspects of Environmental Health
3 credits
Spring Semester
Interdisciplinary scope of environmental health problems. Development of a practical, dynamic model for integrating fundamental concepts from a variety of environmental disciplines. Open only to EPH majors.
PREREQUISITE: OPEN ONLY TO EPH MAJORS.

EPH561 Public Health Nutrition
3 credits
Spring Semester
This course provides a dynamic, interactive approach to public health designed to prepare students in basic policy, epidemiology, and health education related to nutrition. Recognizing the multiple social, cultural, environmental, and physiological factors leading to nutritional disease. The course includes experts from a variety of disciplines. Public health nutrition addresses issues germane to the public’s health by elucidating their extent, determinants and consequences, and the policies and programs to address them. Open only to EPH majors.
PREREQUISITE: OPEN ONLY TO EPH MAJORS.

EPH570 Bioterrorism: The Public Health Challenge
3 credits
Fall Semester
Studies the key elements of bioterrorism and the challenges to effective public health response. A principal focus of the course is the epidemiologic triad of agent, host, and environment applied to bioterrorism. The course explores the roles of epidemiologists and public health professionals working in tandem with medical, first-responder, law enforcement, Department of Defense and volunteer participants in prevention and response to bioterrorist attacks. This course is intended for graduate students in public health and social sciences, medical, and health care professionals.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR/PROGRAM.

EPH571 Maternal and Child Health
3 credits
Spring Semester
Preventative and therapeutic concepts pertinent to the reduction of morbidity and mortality among mothers and their children.
PREREQUISITE: EPH 521 OR PERMISSION OF THE INSTRUCTOR. OPEN ONLY TO EPH MAJORS.
EPH572 Public Health Law
3 credits
Fall & Spring Semester
This course is designed for non-law students studying in epidemiology and public health. The course will begin with a general overview of the fundamental principles and processes of the US legal system, focusing on public health law and ethics. Topics will include privacy, communications, screening and vaccinations, economic regulations and public health reform.
PREREQUISITE: PERMISSION OF INSTRUCTOR(S). OPEN ONLY TO EPH MAJORS.

EPH581 Advanced Topics
0-4 credits
Offered By Announcement Only
Subject matter offering based upon student demand and availability of faculty. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule following the title "Advanced Topics".
PREREQUISITE: CORE REQUIREMENTS FOR MPH PROGRAM OR PERMISSION OF INSTRUCTOR. OPEN ONLY TO EPH MAJORS.

EPH583 AIDS as a Public Health Issue
3 credits
First Summer Session
Course examines AIDS as a public health issue, including material on HIV epidemiology, etiology, treatments, co-factors, transmission, behavioral change, psychological factors, sociocultural factors, political aspects, legal issues, policy formulation, and medical ethics. The course primarily covers AIDS in North America and Africa, with some attention to other geographical areas. Open only to EPH majors.
PREREQUISITE: OPEN ONLY TO EPH MAJORS.

EPH584 Special Topics
3 credits
Fall & Spring Semester & First & Second Summer Session
This course is designed to allow the listing of special topics within the Department of Epidemiology and Public Health and cross-list topics with other departments' offerings.
PREREQUISITE: PERMISSION OF GRADUATE PROGRAM DIRECTOR. COURSE PRE-REQUISITES WILL VARY DEPENDING ON THE COURSE TOPIC ASSIGNED.

EPH585 Perinatal Epidemiology
3 credits
Fall & Spring Semester
This survey course includes vital statistics data and sources, prenatal care, the influence of maternal and paternal age, maternal obesity, smoking, and alcohol use in pregnancy outcomes, infertility and assisted conceptions - including multiple births, birth defects, cerebral palsy, prematurity, preeclampsia and maternal and infant mortality.
PREREQUISITE: EPH 521 AND PERMISSION OF INSTRUCTOR.
EPH590 Adolescent Substance Abuse: Etiology, Prevention, and Treatment
3 credits  
Spring Semester
This course covers the specialty of adolescent substance abuse. Approached from a systemic and multidisciplinary perspective, the course first provides an historical exploration of teen alcohol and drug abuse in the U.S. and other cultures. Next, we focus on the etiology or causes of teen alcohol and drug problems with a highlight-oriented review and summary of twenty years of research on the basic science aspects of adolescent substance misuse. Using this foundation, the focus shifts to more applied aspects of the field. The middle and last third of the course cover prevention and treatment. Here we cover contemporary prevention and treatment theory, how research has informed intervention thinking, philosophy, design and evaluation, and how prevention and treatment studies are influencing public policy in substance abuse and related areas such as juvenile justice and child welfare.
PREREQUISITE: JUNIOR, SENIOR OR GRADUATE STANDING.

EPH600 Research Seminar
1-3 credits  
Fall & Spring Semester & First & Second Summer Session
Course consists of bi-weekly research seminars. Seminar format is individual student-led presentations and discussions with faculty supervision. Topics may include epidemiologic methods, analytic strategies, study design, conduct of human subjects research, bio-ethics, and other pertinent topics. Ph.D. students are required to complete 3 credit hours of EPH 600 prior to graduation.
PREREQUISITE: ADMISSION TO THE PH.D. IN EPIDEMIOLOGY PROGRAM. OPEN ONLY TO EPH MAJORS.

EPH603 Statistical Methods in Epidemiology
3 credits  
Fall Semester
Advanced statistical methods used in analyzing data from epidemiologic investigations. Topics include Mantel-Haenszel chi-square, interaction, standardization of rates, incidence density, logistics regression, and other special topics.
PREREQUISITE: EPH 501 AND 521. OPEN ONLY TO EPH MAJORS.

EPH604 Clinical Trials
3 credits  
Spring Semester
Planning, design, analysis, and data management for clinical therapeutic and prophylactic trials. Illustrations are provided through case examples.
PREREQUISITE: EPH 502 AND PERMISSION OF INSTRUCTOR. OPEN ONLY TO EPH MAJORS.

EPH605 Statistical Methods in Epidemiology II
3 credits  
Spring Semester
Continuation and elaboration of EPH 603. Advanced statistical methods used in analyzing data from epidemiologic investigations. Topics include Kappa statistics, life tables, survival analyses, logistic regression, Poisson regression, log linear models, clusters, meta-analysis, and other special topics.
PREREQUISITE: EPH 603 AND PERMISSION OF INSTRUCTOR. OPEN ONLY TO EPH MAJORS.
EPH610 Public Health Surveillance Systems
3 credits  Fall Semester
The goal of this course is to make students aware of all aspects that must be considered when designing or working with a Public Health Surveillance System (PHSS). The lectures will concentrate on the different types of PHSS, data base structures, practical design elements, data gathering strategies, quality control and evaluation considerations and the role of PHSS within the public health community. Additionally, students will be given the opportunity to utilize their analytical skills and demonstrate their mastery of statistical software packages by performing three preliminary analysis of a real PHSS data set.
PREREQUISITE: EPH 501 AND 521 OR PERMISSION OF PROGRAM DIRECTOR

EPH611 Cancer Epidemiology
3 credits  Spring Semester
This course covers the basic epidemiology of cancer. Major sites and exposures are stressed, highlighting descriptive, etiologic and preventive aspects. A major course project and one final exam are included.
PREREQUISITE: PERMISSION OF INSTRUCTOR. OPEN ONLY TO EPH MAJORS.

EPH612 Forensic Epidemiology
3 credits  Fall Semester
The course emphasizes the analysis of forensic and medical investigative aspects of the subject as well as the epidemiologic patterns and significance. Topics include suicide, vehicular accidents, industrial deaths, drownings, drug related fatalities, abuse, and fire related deaths. Observations of autopsies are also incorporated into the course.
PREREQUISITE: EPH 501 AND 521 OR PERMISSION OF INSTRUCTOR.

EPH620 Cardiovascular Disease Epidemiology and Prevention
3 credits  Fall Semester
Course aims to teach and train MPH students in the epidemiology and prevention of cardiovascular and cerebrovascular diseases which are the leading causes of morbidity and mortality among the adult U.S. population. Essential knowledge for those working in the area of public health is emphasized.
PREREQUISITE: EPH 501 AND 521 OR PERMISSION OF INSTRUCTOR. OPEN ONLY TO EPH MAJORS.

EPH621 Chronic Disease Epidemiology
3 credits  Spring Semester
The major chronic diseases (e.g. Heart Disease, Cancer, diabetes) their population impact and methods of prevention. Specialized problems associated with chronic disease studies are also included.
PREREQUISITE: EPH 521. OPEN ONLY TO EPH MAJORS.

EPH622 Infectious Disease Epidemiology and Control
3 credits  Fall Semester
Surveillance, investigation, control, and problems related to infectious diseases.
PREREQUISITE: EPH 501 AND 521. OPEN ONLY TO EPH MAJORS.
EPH623 Epidemiology and Public Health Aspects of Diabetes Mellitus
3 credits
Spring Semester
This course presents an overview of the epidemiology and public health impact of an important chronic disease, diabetes mellitus (DM). Topics include the classification and descriptive epidemiology of DM and associated health complications, disease screening, evaluation of risk factors, methodological issues associated with DM research, DM among special populations, and the public health impact of DM in the U.S.
PREREQUISITE: EPH 521 OR PERMISSION OF INSTRUCTOR. OPEN ONLY TO EPH MAJORS.

EPH624 Advanced Applied Epidemiology
3 credits
Spring Semester
Principles and methods of analytical studies including case-control, cohort, and clinical trials. Emphasis is placed on quantitation of influences of change, bias, and confounding in design, conduct, analyses, and interpretation of epidemiologic studies. Evaluation of cause-effect relationships is included.
PREREQUISITE: EPH 521 OR PERMISSION OF THE INSTRUCTOR. OPEN ONLY TO EPH MAJORS.

EPH630 Drug Abuse Epidemiology
3 credits
Fall Semester
The purpose of this course is to educate students how to design, implement, and conduct studies of drug abuse epidemiology and its related scientific disciplines.
PREREQUISITE: EPH 501 AND 521. OPEN ONLY TO EPH MAJORS.

EPH631 Public Health Administration
3 credits
Fall Semester
An overview of the historical background, philosophy, and purpose of public health. Relationship between government, law, and public health. Organization, management, and intergovernmental relationships of public health agencies in the United States at the federal, state, and local level. Basic principles of management, decision making, and prioritizing in public health are discussed. Overview of programs and services provided by public health organizations with emphasis on current public health issues and problems are also included. Open only to EPH majors.
PREREQUISITE: OPEN ONLY TO EPH MAJORS.

EPH640 Basic Pathology and Patho-physiology
3 credits
Fall Semester
The course emphasizes basic patho-physiological mechanisms and diseases of particular interest to students of public health. Students obtain an understanding of basic pathological processes, nomenclature of pathological findings, and common natural and unnatural diseases affecting various body systems. Observations of autopsies and the gross pathology of selected organs are also incorporated in the course.
PREREQUISITE: EPH 521 AND PERMISSION OF INSTRUCTOR. OPEN ONLY TO EPH MAJORS.

EPH641 Research Methods
3 credits
Fall Semester
Purpose of the course is to provide students with a sound understanding of the fundamental concepts and methods for conducting public health research. After a brief introduction to the philosophy of science, the major emphasis in the early portion of the course is on research conceptualization, design and measurement, with a particular focus on the logic of minimizing rival alternative explanations of finding for experimental and quasi-experimental studies.
PREREQUISITE: EPH 501, 521 OR PERMISSION OF INSTRUCTOR. OPEN ONLY TO EPH MAJORS.
EPH642 Survey Methods: Planning and Conducting Health Surveys  
3 credits  
Spring Semester  
The purpose of this class is to introduce students to theories, principles, methods, and best practices of survey design, measurement, and sampling as applied to health surveys. Students develop an understanding of the survey research process including problem definition, strengths and limitations of survey research, survey design, survey sampling techniques, data entry and management, data analysis, and proper reporting of results.  
PREREQUISITE: EPH 501, 521, AND 641 OR PERMISSION OF INSTRUCTOR. OPEN ONLY TO EPH MAJORS.

EPH643 Qualitative Research Methods in the Social Sciences  
3 credits  
First Summer Session  
The course has been designed to provide an introduction to qualitative research methods. In addition to providing the student with the theoretical basis of a variety of qualitative methods, this course also includes practical experience in designing, conducting, and reporting on a qualitative research project.  
PREREQUISITE: EPH 521 AND 501 OR PERMISSION OF INSTRUCTOR.

EPH644 Fundamentals of Program Evaluation  
3 credits  
Spring Semester  
Fundamentals of Program Evaluation was developed as a survey course directed specifically at providing an overview of the broad area of program evaluation. At its base, program evaluation is the investigator of a program’s characteristics and merits. In context of health care, the purpose of program evaluation is to provide information in the effectiveness of programs or interventions so as to optimize the outcomes, efficiency and quality of health care. Evaluation of a program is an essential part of the successful implementation and conduct of any health care project or intervention, and should ideally be designed along with the project itself. Program evaluation activities can use a wide range of methodologies (e.g., qualitative, quantitative), analyze different aspects of a program (e.g., structure, activities, organization), and have a large number of intended outcomes (e.g., achievement or program’s goals objectives, extent of program impact, program cost).  
PREREQUISITE: SUCCESSFUL COMPLETION OF EPH 501 AND EPH 521

EPH645 Behavioral Epidemiology  
3 credits  
Fall Semester  
A sub-discipline of epidemiology with a principal focus on lifestyle behaviors that are health-enhancing or health-compromising. With a focus on health behavior rather than disease endpoints, behavioral epidemiology has a primary prevention orientation. This course explores epidemiologic approaches to description/intervention upon dietary behaviors, exercise, substance use behaviors (cigarettes, alcohol, illicit drugs), and sexual behaviors.  
PREREQUISITE: EPH 521 AND PERMISSION OF THE INSTRUCTOR. OPEN ONLY TO EPH MAJORS.

EPH647 Community-based Participatory Research  
3 credits  
Fall Semester  
Community-based participatory research (CBPR) is methodology, increasingly popular in public health and other disciplines, which invites community collaboration throughout the research process from conceptualization of study focus to dissemination of findings. This course will provide an opportunity for medical and graduate students to better understand the process by which community members and academic researchers work collectively to address health disparities and influence social change.  
PREREQUISITE: EPH 521 FUNDAMENTALS OF EPIDEMIOLOGY
EPH650 Health Economics for Evaluation and Policy
3 credits                      Spring Semester
This course centers on a discussion of the criteria used to evaluate the allocation of resources and analyze the behavior of two of the principal actors—consumers and firms. The principles of microeconomics are presented in the context of health care systems and markets. Numerous real-world issues and case studies are used to demonstrate economic decision-making techniques, especially for health care organizations and consumers.
PREREQUISITE: EPH 501 AND 521. OPEN ONLY TO EPH MAJORS.

EPH651 Survival Analysis in Clinical Trials
3 credits                      Fall Semester
Statistical methods for analysis and interpretation of survival data arising from clinical trials. Topics include survival curves, estimation of sample size, survival curves, proportional-hazard models, time dependent variables, and prognostic indices.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR AND EPH 501 AND 502. OPEN ONLY TO EPH MAJORS.

EPH652 Health Policy
3 credits                      Spring Semester
Part I will examine seven models encompassing different perspectives on public health: philosophy, political theory and politics, law, economic, science and information culture and religion, and organization and management, including how they relate and their relevance in formulating, implementing, and evaluating public policy.
Part II will examine the policy making process including how issues reach the government agenda, how laws are formulated, and how the process affects substance.
Part III describes the core elements of policy analysis including: problem definition; background; political, economic, and social landscape; development of policy options; and recommendation. It will also include discussions of how to find and analyze documents and data as well as discuss the financing of health care.
PREREQUISITE: PERMISSION OF PROGRAM DIRECTOR.

EPH680 Practical Field Experience
1-6 credits                    Fall & Spring Semester & First & Second Summer Session
Practical field experience for MSPH/MPH students, e.g. an internship with a physician, public health department, clinic, school system, Health Center, or an ongoing epidemiological project.
PREREQUISITE: CORE REQUIREMENTS FOR MPH PROGRAM. OPEN ONLY TO EPH MAJORS.

EPH681 Geographic Information Systems in Public Health
3 credits                      Spring Semester
Learn GIS techniques to interpret, analyze, and understand spatial patterns utilizing the software Arc View.
PREREQUISITE: OPEN ONLY TO EPH MAJORS.

EPH682 Advanced Individual Study
1-3 credits                    Fall & Spring Semester & First & Second Summer Session
Individual work on a special project under faculty guidance.
PREREQUISITE: PERMISSION OF THE DIRECTING FACULTY MEMBER AND THE DIRECTOR OF GRADUATE PROGRAMS. OPEN ONLY TO EPH MAJORS.
EPH699 Public Health Projects
1-6 credits Fall & Spring Semester & First & Second Summer Session
Research and/or design projects. Individual investigation of current public health problems. Required of all MPH students.
PREREQUISITE: PERMISSION OF MASTER'S PROGRAMS DIRECTOR AND COMPLETION OF AT LEAST 12 CREDITS IN EPH. OPEN ONLY TO EPH MAJORS.

EPH720 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in EPH 710 (usually six credits). Credit not granted. May be regarded as full time residence.

EPH725 Continuous Registration--Master's Study
0 credit Fall & Spring Semester & First & Second Summer Session
To establish residence for MPH students who are preparing for project presentation. Credit not granted. Regarded as full time residence.

EPH730 Doctoral Dissertation
1-12 credits Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the PhD. The student will enroll for credit as determined by his/her advisor but not for less than a total of 24. Not more than 12 hours of EPH 730 may be taken in a regular semester, nor more than six in a summer session.

EPH740 Doctoral Dissertation- Post Candidacy
1-12 credits

EPH750 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

HUMAN GENETICS & GENOMICS
HGG601 Seminar/Journal Club
1 credits Fall & Spring Semester
All registered students must participate in the Seminar/Journal Club. Students are required to review published papers and discuss in detail the findings described therein.
PREREQUISITE: NONE

HGG611 Accelerated Basic Science Medical Curriculum
1-18 credits Fall & Spring Semester
Beginning in the latter part of June each year, extending to the middle of February of the ensuing year, the following accelerated and intensive complete basic science medical curriculum is offered: Embryology, Gross Anatomy, Histology, Biochemistry, Neuroanatomy, Biophysics and Neurophysiology, Systemic Physiology, Pathology, Medical Microbiology, and Pharmacology. A single grade will be entered on the graduate transcript for this course.
PREREQUISITE: ADMISSION TO THE COMBINED M.D./PH.D. PROGRAM

HGG730 Doctoral Dissertation- Pre Candidacy.
1-12 credits
1-12 credit course for Doctoral candidates working on pre-candidacy dissertation.
PREREQUISITE: NONE
HGG740 Doctoral Dissertation - Post Candidacy
1-12 credits
Fall Semester
1-12 credit course for Doctoral Candidates working on dissertation post candidacy.

INTERDISCIPLINARY BIOMEDICAL STUDIES

IBS602 Interdisciplinary Biomedical Studies II
4 credits
Spring Semester
A continuation of IBS 602. Topics include cell organization, membrane structure, signal transduction, transport across cell membranes, protein sorting, nerve signaling, microfilaments and microtubules, cell-cell and cell-matrix interactions, cell cycle, cancer, and immunity.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

IBS603 Interdisciplinary Biomedical Studies II
1-4 credits
Fall Semester
PREREQUISITE: IBS 601 OR PERMISSION OF THE INSTRUCTOR.

IBS611 Accelerated Basic Science Medical Curriculum
1-18 credits
Fall & Spring Semester
The following accelerated and intensive basic science medical curriculum is offered: Biochemistry, Genetics and Cell Biology, Medical Microbiology and Immunobiology, Gross Anatomy, Histology and Pathology, Physiology and Pharmacology, Neuroscience and Behavioral Science, and the Cardiovascular System. A single grade will be entered on the graduate transcript for this course.
PREREQUISITE: ADMISSION TO THE COMBINED M.D./PH.D. PROGRAM.

IBS612 Accelerated Basic Science Medical Curriculum II
1-18 credits
Fall & Spring Semester & First & Second Summer Session
Beginning in the latter part of June each year, extending to the middle of May of the ensuing year, the following accelerated and intensive medical curriculum is offered: Respiratory System, Renal System, Dermatology and Ophthalmology, Gastrointestinal System and Human Nutrition, Human Anatomy, Problem based learning/Rheumatology, Hematology and Oncology. A single grade will be entered on the graduate transcript for this course.
PREREQUISITE: ADMISSION TO THE COMBINED M.D./PH.D. PROGRAM.

IBS620 Scientific Writing I
2 credits
Fall & Spring Semester
This course will help students to strengthen their scientific writing skills. We will review the standards and expectations of scientific discourse, focusing on the scientific paper as a refined tool for conveying research findings in a clear, objective fashion and positioning the author/s within a specific research community. Sequenced writing assignments will address the functions and conventions of the various forms of scientific communication, from short correspondences to full research reports to review articles. The proper use and presentation of graphs and illustrations will also be covered.

IBS631 Laboratory Research
1-6 credits
Fall & Spring Semester & First & Second Summer Session
Laboratory rotations to gain experience with a variety of modern techniques in molecular and cellular biology.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.
IBS680 Research Ethics
0 credit  Fall Semester

0 Credit. The NIH Guide for Grants and Contracts stipulates that Institutions receiving support for National Research Service Award Training Grants are required to develop a program in the principles of Scientific Integrity. This program should be an integral part of the proposed training effort. The University of Miami School of Medicine has chosen to respond to this requirement with this course. This course must be taken during the first semester in the department or program. This is a six-hour course and will be given in two sessions of three hours each.

PREREQUISITE: PERMISSION OF ADVISOR.

IBS683 Professional Skills and Ethics I
1- 3 credits  Fall & Spring Semester & First & Second Summer Session

Two-day intensive workshop involves a combination of lectures, discussions, readings and writing to enhance the professional development of beginning graduate students. Topics include strategies for selecting mentors, professional writing, giving oral presentations and research ethics.

IBS684 Professional Skills and Ethics II
1- 3 credits  Fall & Spring Semester & First & Second Summer Session

Two-day intensive workshop involves a combination of lectures, discussions, readings and writing exercises, and practical experiences to enhance the professional development of advanced graduate students, postdoctoral fellows and junior faculty. Topics include career choices, job search strategies and skills, fellowship/grant applications and research ethics.

MICROBIOLOGY & IMMUNOLOGY

MIC501 Medical Microbiology
5 credits  Offered By Announcement Only

Course discusses the nature of microbial agents of infectious disease as well as relationship of virulence to host resistance and fundamental immunologic concepts. Microbial physiology and genetics, the structure, design, and mechanism of action on antimicrobials are also.

PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

MIC523 Mechanisms of Microbial Virulence
3 credits  Spring Semester

This course will focus on the mechanisms employed by bacterial and viral pathogens to produce disease in animals and humans. The course is divided into two 3 week modules. The first module will cover bacterial pathogens with an emphasis on the bacteria-host cell interaction. Specific topics will include: bacterial attachment and invasion of eukaryotic cells, virulence gene regulation, secretion of virulence factors, bacterial toxins and obligate intracellular bacterial pathogens. The second module will cover viruses and human viral diseases with an emphasis on viral replication, gene expression, virus-host cell interactions and viral oncology. Classes will consist of a mixture of lectures and discussions of recent or classic papers. There will be 2 exams.

MIC605 Faculty Research and Discussions
1 credits  Fall Semester

Forum for the discussion of the current research projects and interests of the faculty. This course provides students with the opportunity to exchange ideas about important scientific questions and the technologies being applied to experimentally address the hypotheses being tested.
MIC611 Accelerated Basic Science Medical Curriculum
1-18 credits  
Fall & Spring Semester
Beginning in the latter part of June each year, extending to the middle of February of the ensuing year, the following accelerated and intensive complete basic science medical curriculum is offered: Embryology, Gross Anatomy, Histology, Biochemistry, Neuroanatomy, Biophysics and Neurophysiology, Systemic Physiology, Pathology, Medical Microbiology, and Pharmacology. Single grade will be entered on the graduate transcript for this course.
PREREQUISITE: ADMISSION TO THE COMBINED M.D./PH.D. PROGRAM.

MIC616 Advanced Molecular Biology
3 credits  
Fall Semester
The molecular basis of cellular function and regulation in both procaryotic and eucaryotic systems. The molecular genetics and biochemistry of the genetic material and its utilization during replication, transcription, translation, cellular growth, division, and differentiation. Recombinant DNA technology and molecular genetics are discussed. This course is designed for graduate students in biological sciences. A good background in biology or biochemistry is recommended.

MIC626 Laboratory Experimentation
4 credits  
Fall Semester
One or two laboratory training sessions of 6-12 weeks each. Each student rotates through faculty research laboratories in the areas of immunology, molecular biology, and microbiology, (bacteriology, virology, parasitology) where they receive "hands on" experience by participating in ongoing research projects.
PREREQUISITE: MIC 501 AND PERMISSION OF CHAIRMAN OF GRADUATE STUDIES COMMITTEE.

MIC627 Laboratory Experimentation
6 credits  
Spring Semester
Two or three laboratory training sessions of 6-12 weeks each. Each student rotates through faculty research laboratories in the areas of immunology, molecular biology and microbiology, (bacteriology, virology, parasitology) where they receive "hands on" experience by participating in ongoing research projects.
PREREQUISITE: MIC 501 AND PERMISSION OF CHAIRMAN OF GRADUATE STUDIES COMMITTEE.

MIC628 Principles of Immunology
3 credits  
Spring Semester
This team-taught course will present immunological concepts and reasoning in immunological research. The course is divided into 7 weekly modules. Each module has a common theme and consists of 3 lectures on immunological concepts and one session where students present and discuss a research paper related to the theme of each module. The paper discussion session will include use of disease models as a portal to understand the function of immune system in health and disease. The module topics are (a) lymphoid cell development, (b) antigen recognition, (3) initiation of immune responses, (4) T lymphocyte effector development and function, (5) T cell immunity versus tolerance, (6) B cell immunity, and (7) innate immunity. There will be one exam following the first 4 modules and the second exam after the remaining 3 modules.

MIC631 Special Work
1-5 credits  
Fall Semester
Special work, lecture, laboratory or a combination of these, as determined by advisor in accord with student's individual interest. Course is offered only on demand.
PREREQUISITE: PERMISSION OF ADVISOR AND DEPARTMENT CHAIRMAN.
MIC651 Advanced Molecular Immunology
3 credits Fall Semester
The molecular mechanisms for generation of antigen specific receptor diversity and the specific gene activation during lymphocyte differentiation.
PREREQUISITE: MIC 628.

MIC655 Infectious Agents and the Immune System
3 credits Spring Semester
This course is intended to explore, at an advanced level, the dynamic equilibrium that exists between microbial pathogens and host immune systems with emphasis on factors that influence progression to disease or sterilizing immunity. Mechanisms employed by the host and pathogen to shift that equilibrium in their favor will be discussed taking into account interactions at the cell system, cellular, and sub-cellular levels. To facilitate interaction between the two fields, both an immunological and a microbial/viral faculty member will be present at all classes.
PREREQUISITE: MIC 523 OR PERMISSION OF INSTRUCTOR.

MIC661 Advanced Topics in Molecular Biology of Animal Viruses
2 credits Offered By Announcement Only
This course is organized around four major themes of virological studies: (i) viral genome transcription, replication, and virus assembly; (ii) viral pathogenesis; (iii) virus cell interactions; and (iv) antiviral strategies. Most recent research developments in these areas are covered through lectures by participating faculty members as well as paper presentations by students.
PREREQUISITE: MIC 523 OR PERMISSION ON INSTRUCTOR.

MIC680 Research Ethics
0 credit Fall Semester
The NIH Guide for Grants and Contracts stipulates that Institutions receiving support for National Research Service Award Training Grants are required to develop a program in the principles of Scientific Integrity. This program should be an integral part of the proposed training effort. The University of Miami School of Medicine has chosen to respond to this requirement with this course. This course must be taken during the first semester in the Department or Program. This is a six-hour course and is given in two sessions of three hours each.
PREREQUISITE: PERMISSION OF THE GRADUATE ADVISOR.

MIC699 Advanced Topics
1- 3 credits Offered By Announcement Only
Subject matter offerings based upon student demand and availability of faculty. Subtitles describing the topics to be offered will be shown in parentheses in the printed class schedule, following the title "Advanced Topics".
PREREQUISITE: PERMISSION FROM INSTRUCTOR.

MIC710 Master's Thesis
1- 6 credits Offered By Announcement Only
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

MIC720 Research in Residence
0 credit Offered By Announcement Only
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in MIC 710 (usually six credits). Credit not granted. May be regarded as full time residence.
MIC730 Doctoral Dissertation
1-12 credits Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor but not for less than a total of 24. Not more than 12 hours of MIC 730 may be taken in a regular semester, nor more than six in a summer session. Where a student has passed his/her (a) qualifying examinations, and (b) is engaged in an assistantship, he/she may still take the maximum allowable credit stated above.

MIC740 Doctoral Dissertation - Post Candidacy
1-12 credits Fall Semester

MIC750 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

MOLECULAR CELL & DEVELOPMENTAL BIOLOGY
MDB601 Seminar
1-2 credits Fall & Spring Semester & First & Second Summer Session
For graduate students in Cell Biology and Anatomy, Graduate Program in Molecular Cell and Developmental Biology. Departmental Faculty and graduate student research seminars.
PREREQUISITE: PERMISSION OF DEPARTMENT CHAIRMAN.

MDB606 Computer Applications in Research
2 credits Offered By Announcement Only
Microcomputer programs beneficial to a wide variety of biomedical research applications.
PREREQUISITE: PERMISSION OF INSTRUCTOR AND DEPARTMENT CHAIRMAN.

MDB610 Readings in Cell Biology
1-6 credits Fall & Spring Semester
Current and classical research papers in cell, developmental, and molecular biology. Critical evaluation of papers and the methodologies used is included.
PREREQUISITE: PERMISSION OF COURSE SUPERVISOR AND DEPARTMENT CHAIRMAN.

MDB611 Accelerated Basic Science Medical Curriculum
1-18 credits Fall & Spring Semester
Beginning in the latter part of June each year, extending to the middle of February of the ensuing year, the following accelerated and intensive complete basic science medical curriculum is offered: Embryology, Gross Anatomy, Histology, Biochemistry, Neuroanatomy, Biophysics and Neurophysiology, Systemic Physiology, Pathology, Medical Microbiology, and Pharmacology. A single grade will be entered on the graduate transcript for this course.
PREREQUISITE: ADMISSION TO THE COMBINED M.D./PH.D.PROGRAM

MDB613 Topics in Cell Biology
1-6 credits Fall & Spring Semester & First & Second Summer Session
Formal seminar course in which each student presents a lecture relating to a specific theme. Topic areas include cell, developmental, and molecular biology with the subject changing each term.
PREREQUISITE: PERMISSION OF COURSE SUPERVISOR AND DEPARTMENT CHAIRMAN.
MDB617 Advanced Techniques in Molecular Biology  
2-3 credits  
Fall Semester  
Method/techniques type course.  
PREREQUISITE: BMB 506 OR EQUIVALENT, OR PERMISSION OF INSTRUCTOR.

MDB618 Cell Membranes  
2 credits  
Offered By Announcement Only  
Cell membrane structure and function including recent developments in intracellular targeting of membrane vesicles, mechanisms of exocytosis, receptor-mediated endocytosis, and regulation of intercellular recognition by cell surface molecules.  
PREREQUISITE: PERMISSION OF INSTRUCTOR AND DEPARTMENT CHAIRMAN.

MDB620 Introduction to Research in Cell Biology  
1-6 credits  
Fall & Spring Semester  
Direct laboratory experience as determined by the Departmental Graduate Committee.  
PREREQUISITE: PERMISSION OF COORDINATOR AND DEPARTMENT CHAIRMAN.

MDB645 Research Problems in Biochemistry, Cell and Molecular Biology  
2-3 credits  
Fall & Spring Semester & First & Second Summer Session  
Laboratory research problems in various areas of biochemistry, cell biology, and molecular biology. A literature search, experimental design, data gathering, and evaluation of results is included. Course is the mechanism by which graduate laboratory rotations are done in preparation for selection of Ph.D. mentor.  
PREREQUISITE: BMB 506 OR EQUIVALENT OR PERMISSION OF INSTRUCTOR.

MDB651 Advanced Molecular Cell Biology  
3 credits  
Spring Semester  
Structure, function, biogenesis of cellular organelles, and the cytoskeleton including its regulation and dynamic interactions are discussed.  
PREREQUISITE: BIL 255 AND BMB 401 OR 506 AND PERMISSION OF DEPARTMENT CHAIRMAN.

MDB652 Developmental Biology  
3 credits  
Fall Semester  
Continuation of MDB 651. Early developmental events, including fertilization, changes in transcriptional and translational activity, cleavage and gastrulation, nuclear-cytoplasmic interactions, and intercellular recognition. Events are treated at both the molecular and cellular levels, including changes in gene expression.  
PREREQUISITE: SUCCESSFUL COMPLETION OF MDB 651 AND PERMISSION OF DEPARTMENT CHAIRMAN.

MDB653 Histology  
1 credits  
Fall Semester  
This course will offer the student a virtual slide collection of histology with interactive lectures to support image-based learning. The course covers basic tissues, organs, and systems (vascular; heart; pancreas; eyes; brain; spinal cord; liver; lung; mouse embryo; GI track). The course will meet once a week for one hour.  
PREREQUISITE: 2ND. YEAR GRADUATE STUDENT, IBS

MDB654 Methods in Cell Biology  
2 credits  
Offered By Announcement Only  
Introduction to the basic biochemical and cytochemical laboratory techniques used in cell biological and biomedical research.  
PREREQUISITE: BASIC BIOLOGY AND CHEMISTRY AND PERMISSION OF INSTRUCTOR AND DEPARTMENT CHAIRMAN.
MDB663 Development and Regeneration of the Nervous System
3 credits  Fall Semester
Development of the nervous system in all its aspects: origins of neurons and glia; nerve cell differentiation; cellular interactions during neurogenesis; formation of synaptic connections and neuronal circuits; development of nervous functions and ontogeny of behavior; mechanisms of repair and reorganization in the nervous systems; and theories of neuronal plasticity.
PREREQUISITE: PERMISSION OF COURSE COORDINATOR AND DEPARTMENT CHAIRMAN.

MDB665 Tumor Biology
2- 3 credits  Fall Semester
Tumor Biology is intended to provide an overview and update of the most important topics in modern molecular and cellular aspects of cancer biology and research. The sessions are topical and include both lectures and discussions of current papers in the topic areas. A list of the topics is attached.
PREREQUISITE: NONE. REGISTRATION IS OPEN TO ANYONE ENROLLED IN A UM GRADUATE PROGRAM OR BY PERMISSION OF THE INSTRUCTORS.

MDB666 Advanced Microscopy and Image Analysis
2 credits  Fall Semester
This course will cover the acquisition, use and maintenance of advanced research microscopes including data analysis using the equipment and software already available in the instructors' labs. Topics to be covered include types, function and choice of optical and electron microscopes; sample preparation and synthesis of fluorescent and particle-labeled probes; transmitted light microscopy; fluorescent microscopy; confocal microscopy; real time cell and particle tracking; digital image analysis and quantitative fluorescence analysis; transmission and scanning electron microscopy, and digital image data interpretation. The course will meet twice a week for one hour, with one lecture and one hands-on laboratory session per week. Class registration is limited to 4-6 students.
PREREQUISITE: IBS 601 AND 601, AND SOME LABORATORY EXPERIENCE IN CELL BIOLOGY AND BASIC MICROSCOPY. ADMISSION IS WITH PERMISSION OF THE INSTRUCTORS.

MDB680 Research Ethics
0 credit  Fall Semester
The NIH Guide for Grants and Contracts stipulates that Institutions receiving support for National Research Service Award Training Grants are required to develop a program in the principles of Scientific Integrity. This program should be an integral part of the proposed training effort. The University of Miami School of Medicine has chosen to respond to this requirement with this course. This course must be taken during the first semester in the Department or Program. This is a six-hour course and will be given in two sessions of three hours each.
PREREQUISITE: PERMISSION OF THE GRADUATE ADVISOR.

MDB710 Master's Thesis
1- 6 credits  Offered By Announcement Only
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

MDB720 Research in Residence
0 credit  Offered By Announcement Only
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in MDB 710 (usually six credits). Credit not granted. May be regarded as full time residence.
MDB730 Doctoral Dissertation
1-12 credits                 Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. The student will enroll for credit as
determined by his/her advisor but not for less than a total of 24. Not more than
12 hours of MDB 730 may be taken in a regular semester, nor more than six in a
summer session. Where a student has passed his/her (a) qualifying examinations,
and (b) is engaged in an assistantship, he/she may still take the maximum allowable
credit stated above.

MDB740 Doctoral Dissertation- Post Candidacy
1-12 credits                                                          Fall Semester

MDB750 Research in Residence
0 credit                     Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D., after the student has been
enrolled for the permissible cumulative total in appropriate doctoral research.
Credit not granted. May be regarded as full-time residence as has determined by
the Dean of the Graduate School.

MOLECULAR & CELLULAR PHARMACOLOGY

MCP601 Seminar
1 credits                                                    Fall & Spring Semester
Review of the literature and discussion of specific topics. Course may be repeated
for a total of four credits.
PREREQUISITE: CONSENT OF INSTRUCTOR

MCP604 Mechanisms of Drug Action
2 credits                                                             Fall Semester
Mechanisms underlying the therapeutical and pharmacodynamic properties of pharmacological
agents. Emphasis is placed on cellular and molecular aspects and the quantitative
factors governing equilibration within multicompartment systems and drug control
of nervous and muscular function in relation to therapeutic action.
PREREQUISITE: CONSENT OF INSTRUCTOR

MCP605 Pharmacology and Therapeutics
4 credits                                              Offered By Announcement Only
Course places emphasis on the principles of action of drugs having therapeutic
value in medicine. The student is introduced to the scientific rationale of drug
administration. Topics include central nervous system pharmacology, peripheral
and autonomic nervous system, cardiovascular pharmacology, control of electrolyte
and metabolite balance, chemotherapy, mechanisms of toxicity, and pharmacogenetics.
PREREQUISITE: MCP 604.

MCP607 Toxicology, Its Principles and Environmental Application
2 credits                                                Offered By Announcement Only
The principles of toxicology, toxicity, and carcinogenic testing procedures, and
their interpretation. Relevance to man is stressed. Application of these principles
to environmental problems with the heavy metals, pesticides, poisonous plants,
animal toxins, environmental carcinogens, radioisotopes, the abuse of drugs, alcohol,
and mycotoxins is covered in detail.
PREREQUISITE: CONSENT OF INSTRUCTOR
MCP608 Drug Metabolism
2 credits
Offered By Announcement Only
Factors affecting the absorption, metabolic rate, excretion of drugs, chemicals, and toxic substances.
PREREQUISITE: CONSENT OF INSTRUCTOR.

MCP610 Membrane Biophysics Seminar
1 credits
Offered By Announcement Only
The student may be required to submit a term paper.
PREREQUISITE: PERMISSION OF DEPARTMENTAL GRADUATE STUDIES COMMITTEE.

MCP611 Accelerated Basic Science Medical Curriculum
1-18 credits
Fall & Spring Semester
Beginning in the latter part of June each year, extending to the middle of February of the ensuing year, the following accelerated and intensive complete basic science medical curriculum is offered: Embryology, Gross Anatomy, Histology, Biochemistry, Neuroanatomy, Biophysics and Neurophysiology, Systemic Physiology, Pathology, Medical Microbiology, and Pharmacology. A single grade will be entered on the graduate transcript for this course.
PREREQUISITE: ADMISSION TO THE COMBINED M.D./PH.D. PROGRAM

MCP612 Pathobiology I
3 credits
Offered By Announcement Only
Required for Physician Scientist Program students; open to graduate students. Two, three-hour sessions (first hour at multi-headed scope followed by two hours of laboratory) per week for eight weeks in the fall semester (September and October; days and times to be arranged). The purpose of the pathobiology course is to provide graduate students with knowledge of basic principles for understanding normal histomorphology and pathologic lesions associated with experimentally induced and naturally occurring diseases. The keystone of this innovative, short course is the small group's socratic study of a series of autopsy cases--each represented by a set of microscopic slides. The cases are preselected to allow the students to focus on specific, basic concepts early and organ-system lesions later. Students spend the first hour of the biweekly sessions at a multi-headed scope creating a profile of the patient--including age, sex, race, and chief disease. At the end of the first hour deliberations, students receive feedback regarding their conclusions by being provided with a summary of the patient's history and autopsy findings. Students review relevant gross specimens and kodachromes during the biweekly two-hour laboratory sessions.
PREREQUISITE: ADMISSION TO THE PHYSICIAN SCIENTIST PROGRAM OR THE GRADUATE PROGRAM OF ONE OF THE FIVE BASIC SCIENCE DEPARTMENTS LOCATED AT THE SCHOOL OF MEDICINE.

MCP620 Design and Evaluation of Drug Studies
1 credits
Offered By Announcement Only
Practical experience in the design and evaluation of drug studies making use of data from actual field trials conducted in the clinical facilities of the department. Drug evaluation studies in the literature are examined.
PREREQUISITE: MCP 604, 605 AND PERMISSION OF DEPARTMENTAL GRADUATE STUDIES COMMITTEE.

MCP621 Clinical Pharmacology
2 credits
Offered By Announcement Only
The application of pharmacologic principles of clinical situations. Basic concepts such as drug uptake, distribution, mechanics of action, metabolism, and elimination are discussed as they apply to proper therapeutic use of drugs. Clinical cardiovascular pharmacology is covered in particular depth.
PREREQUISITE: MCP 604, 605 AND PERMISSION OF DEPARTMENTAL GRADUATE STUDIES COMMITTEE.
MCP624 Research Opportunities in Human Disease
1 credits
Offered By Announcement Only
The course presents human diseases from a research perspective, with each disease forming the basis for four lecture/discussion sections (2 hrs./session; 1 session/wk.). Each disease is discussed with respect to: 1) Clinical presentation, epidemiology, and therapeutics, 2) Cellular and Molecular mechanisms, 3) Current treatment strategies, and 4) Prospects, challenges, and opportunities for research efforts.

MCP631 Special Topics
1-6 credits
Spring Semester
Directed readings on subjects not ordinarily treated in depth in specific courses. Course may also consist of special laboratory problems.

MCP632 Cardiovascular Pharmacology
2-3 credits
Spring Semester
A course for advanced students covering the mechanism of action of drugs on the cardiovascular system.
PREREQUISITE: CONSENT OF INSTRUCTOR.

MCP635 Biophysical Chemistry
2 credits
Offered By Announcement Only
This course teaches the physico-chemical principles basic to life science and complements MCP 641, "Principles in Membrane Physiology and Biophysics". The course is designed so that a student lacking previous exposure to physical chemistry can take the two courses concurrently. Topics include equilibrium and thermodynamics, mathematical descriptions of multiple equilibrium, electrolyte theory, rate theory, mathematical descriptions of the rates of enzymatic reactions, diffusion and permeation, mechanistic aspects of ion transport, and the application of fluorescent probe methods to the study of membrane phenomena. The courses uses a problem-solving approach.
PREREQUISITE: CONSENT OF INSTRUCTOR.

MCP641 Principles of Membrane Physiology and Biophysics I
2 credits
Offered By Announcement Only
Course emphasizes chemical and physical structure of membranes, model systems, permeability and transport, membrane potential, ionic channels, excitability in nerve and muscle, ionophores, active transport, and membrane receptors. Identical to Physiology and Biophysics 641.
PREREQUISITE: CHM 365; BMB 506; AND PERMISSION OF DEPARTMENTAL GRADUATE STUDIES COMMITTEE.

MCP642 Principles of Membrane Physiology and Biophysics II
2 credits
Offered By Announcement Only
Course discusses osmosis and cell volume, tracer analysis of permeability and compartmentation, theory of channels and carriers, and cable properties. The Hodgkin-Huxley formalism; Na, K, and Ca ion channels; regulation of cellular Na and Ca activities; single-channel analysis; chemical synapses; membrane receptors; cell junctions; excitation; and E-C coupling in muscle are also covered. Identical with Physiology and Biophysics 642.
PREREQUISITE: MCP 641.

MCP643 Methods in Membrane Research
3 credits
Fall Semester
Introduction to research and laboratory techniques. Molecular and membrane pharmacology, radio-tracers, cardiovascular, and neuropharmacology are covered.
PREREQUISITE: PERMISSION OF DEPARTMENTAL GRADUATE STUDIES COMMITTEE.
MCP644 Methods in Membrane Research
3 credits
Spring Semester
Introduction to research and laboratory techniques. Molecular and membrane pharmacology, radio-tracers, cardiovascular, and neuropharmacology are covered.
PREREQUISITE: PERMISSION OF DEPARTMENTAL GRADUATE STUDIES COMMITTEE

MCP645 Topics in Membrane Physiology and Biophysics
3 credits
Offered By Announcement Only
In-depth examination of selected topics introduced in MCP 641, 642. A term paper is required.
PREREQUISITE: MCP 641, AND PERMISSION OF DEPARTMENTAL GRADUATE STUDIES COMMITTEE.

MCP651 Cell Biology I
2 credits
Offered By Announcement Only
The dynamics of eukaryotic cells examined from the standpoint of structure and function, regulation of function and interactions of the subcellular organelles. Identical to PHS 651.

MCP652 Cell Signaling
3 credits
Fall Semester
Recent advances in the molecular biology of cellular activation by hormones and neurotransmitters. Hormone-regulated signal transduction mechanisms and the manner in which they interact to control cellular responses as they pertain to the pharmacology of drug and hormone action.
PREREQUISITE: PERMISSION OF THE DEPARTMENTAL GRADUATE STUDIES COMMITTEE.

MCP668 Neuropharmacology
2-3 credits
Fall Semester
A course for advanced students covering the mechanism of action of drugs on neural processes, including action potentials, neurotransmission (storage, release, reception, and metabolism of transmitters), and central nervous system activity.
PREREQUISITE: CONSENT OF INSTRUCTOR.

MCP680 Research Ethics
0 credit
Fall Semester
The NIH Guide for Grants and Contracts stipulates that Institutions receiving support for National Research Service Award Training Grants are required to develop a program in the principles of Scientific Integrity. This program should be an integral part of the proposed training effort. The University of Miami School of Medicine has chosen to respond to this requirement with this course. This course must be taken during the first semester in the Department or Program. This is a six-hour course and will be given in two sessions of three hours each.
PREREQUISITE: PERMISSION OF THE GRADUATE ADVISOR.

MCP710 Master's Thesis
1-6 credits
Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

MCP720 Research in Residence
0 credit
Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in MCP 710 (usually six credits). Credit not granted. May be regarded as full time residence.
MCP730 Doctoral Dissertation
1-12 credits 
Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor but not for less than a total of 24. Not more than 12 hours of MCP 730 may be taken in a regular semester, nor more than six in a summer session. Where a student has passed his/her (a) qualifying examinations, and (b) is engaged in an assistantship, he/she may still take the maximum allowable credit stated above.

MCP740 Doctoral Dissertation- Post Candidacy
1-12 credits 
Fall Semester

MCP750 Research in Residence
0 credit 
Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

NEUROSCIENCE
NEU600 Seminar in Neuroscience
1 credits 
Fall & Spring Semester
Students are required to present a short talk on a research area of interest. All students in the Neuroscience Program are required to register for this seminar, which also includes journal presentations. For other registrants, permission of the Departmental Graduate Studies Committee is required.

NEU601 Introduction to Neuroscience Techniques
1 credits 
Fall & Spring Semester
Hands-on exercises in research laboratories introduce first-year Neuroscience students to methodologies commonly used in the Neurosciences. The course includes selected techniques from electrophysiology, immunocytochemistry, fluorescent microscopy, recombinant DNA, protein immunoblotting, and functional imaging. Students are required to complete a lab notebook of each exercise. There is also a segment on database searches.

NEU609 Research
1-5 credits 
Fall & Spring Semester & First & Second Summer Session
Students work with individual members of the program faculty on research problems. Provides orientation as to the areas of research in the field and the techniques used.
PREREQUISITE: PERMISSION OF THE PROGRAM STEERING COMMITTEE OR ITS CHAIRMAN.

NEU611 Accelerated Basic Science Medical Curriculum
1-18 credits 
Fall & Spring Semester
From late June to mid-February, the following accelerated and intensive complete basic science medical curriculum is offered: Embryology, Gross Anatomy, Histology, Biochemistry, Neuroanatomy, Biophysics and Neurophysiology, Systemic Physiology, Pathology, Medical Microbiology, and Pharmacology. A single grade will be entered on the graduate transcript for this course.
PREREQUISITE: ADMISSION TO THE M.D./PH.D. DEGREE PROGRAM.
NEU631 Advanced Topics in Neuroscience
1-5 credits Fall & Spring Semester & First & Second Summer Session
Special work, lecture, laboratory, reading, seminar, or a combination of these
as determined by advisor in accordance with student's interest.
PREREQUISITE: PERMISSION OF THE PROGRAM STEERING COMMITTEE.

NEU641 Statistics in Neuroscience
1 credits Offered By Announcement Only
This course will provide basic information necessary to appropriately design experiments
and analyze and interpret data in the behavioral and biological sciences. A lecture/discussion
format will be used. The course will cover research methodology, basic statistical
concepts, and an in-depth discussion of descriptive (measures of central tendency,
variability and correlation) and inferential statistics (both parametric and non-parametric
tests of significance). In addition, various statistical computer programs will
be reviewed. Specific topics include: 1. Statistical terminology; 2. Measurement
scales; 3. Plotting your data for initial interpretation; 4. Measures of central
tendency and variability; 5. Type I and Type II errors and controlling power; 6.
Which statistical test do I use for my data? 7. What can I conclude from my data
and does it mean anything? Students will be evaluated based on their understanding
of statistical design and data interpretation.

NEU661 Neuroscience I
2 credits Spring Semester
An introduction to neuronal physiology, including synaptic transmission and integration,
sensory neurobiology, and cellular learning and memory. 2 credits.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

NEU662 Neuroscience II
3 credits Fall Semester
This course is designed to teach Neuroscience to individuals engaged in basic neuroscience
research. The course provides comprehensive coverage of Neuroscience. Neuroscience
II covers Network Neurobiology and Higher Nervous System Function. The course concentrates
on the experimental basis for our understanding of nervous system function. Course
utilizes both didactic lectures and discussions of current research literature.
PREREQUISITE: UNDERGRADUATES REQUIRE PERMISSION OF INSTRUCTOR.

NEU663 Developmental Neurobiology
2 credits Spring Semester
This course will explore nervous system development from early neural induction
and neurogenesis to the construction of neural circuits. Cellular and molecular
mechanisms of neural migration, neurite growth and guidance, and synaptogenesis
will be covered.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

NEU680 Research Ethics
0 credit Fall Semester
The NIH Guide for Grants and Contracts stipulates that Institutions receiving support
for National Research Service Award Training Grants are required to develop a program
in the principles of Scientific Integrity. This program should be an integral part
of the proposed training effort. The University of Miami School of Medicine has
chosen to respond to this requirement with this course. This course must be taken
during the first semester in the Program. This is a six-hour course and will be
given in two sessions of three hours each.
PREREQUISITE: PERMISSION OF THE GRADUATE ADVISOR OR PROGRAM DIRECTOR.
NEU697 Neuroanatomy
3 credits  
Fall Semester
This course is designed to teach functional neuroanatomy to individuals engaged in basic neuroscience research. An important feature of each class period is a laboratory segment in which the students perform dissections of human brains and sheep brains, examine models of the brain, and interact with laser videodiscs and Hypercard-based Macintosh programs which contain pictures, text, clinical examples, and 3-dimensional rotations of the nervous system.
PREREQUISITE: UNDERGRADUATES REQUIRE PERMISSION OF INSTRUCTOR.

NEU710 Master's Thesis
1-12 credits  
Offered By Announcement Only

NEU720 Research in Residence
0 credit  
Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in Master's Thesis (usually six credits). Credit not granted. May be regarded as full time residence.

NEU730 Doctoral Dissertation
1-12 credits  
Offered By Announcement Only
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor but not for less than a total of 24. Not more than 12 hours of NEU 730 may be taken in regular semester, nor more than six in a summer session. Where a student has passed his/her (a) qualifying examinations, and (b) is engaged in an assistantship, he/she may still take the maximum allowable credit stated above.

NEU740 Doctoral Dissertation- Post Candidacy
1-12 credits  
Fall Semester
PREREQUISITE: NONE

NEU750 Research in Residence
0 credit  
Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

PHYSICAL THERAPY

PTS501 Therapeutic Rehabilitation of Athletic Injuries
2 credits  
Spring Semester
Basic principles of rehabilitation of athletic injuries including, but not limited to, range of motion, strengthening, edema and pain control, balance, proprioception, endurance, and skill acquisition.
PREREQUISITE: FOR ATHLETIC TRAINING MAJORS ONLY, OR WITH PERMISSION OF THE INSTRUCTOR.
COREQUISITE: PTS 502.

PTS502 Therapeutic Rehabilitation of Athletic Injuries Clinical Laboratory
1 credits  
Spring Semester
Application of basic principles of rehabilitation of athletic injuries including, but not limited to range of motion, strengthening, edema and pain control, balance, proprioception, endurance, and skill acquisition.
PREREQUISITE: FOR ATHLETIC TRAINING MAJORS ONLY, OR WITH PERMISSION OF THE INSTRUCTOR.
COREQUISITE: PTS 501.
PTS503 Therapeutic Modalities in Athletic Training
2 credits Fall Semester
Basic principles of theory and application of various modalities encountered in athletic training practice, including but not limited to: infrared modalities, ultrasound, electrical stimulation, mechanical modalities, and hydrotherapy.
PREREQUISITE: FOR ATHLETIC TRAINING MAJORS ONLY, OR WITH PERMISSION OF THE INSTRUCTOR.
COREQUISITE: PTS 504.

PTS504 Therapeutic Modalities in Athletic Training Clinical Laboratory
1 credits Fall Semester
Basic principles of application of various modalities encountered in athletic training practice, including but not limited to: infrared modalities, ultrasound, electrical stimulation, mechanical modalities, and hydrotherapy.
PREREQUISITE: FOR ATHLETIC TRAINING MAJORS ONLY, OR WITH PERMISSION OF THE INSTRUCTOR.
COREQUISITE: PTS 503.

PTS505 Physical Therapy Private Practice Management
1 credits Fall Semester
Course focuses on establishing a private physical therapy practice, including initial development through marketing and management.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY OR WITH PERMISSION OF THE INSTRUCTOR.

PTS506 Issues in Women's Health: Gynecology
1 credits First & Second Summer Session
Introduction to physical therapy practice for evaluation and treatment of pelvic floor dysfunction.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY OR WITH PERMISSION OF THE INSTRUCTOR.

PTS507 Issues in Women's Health: Obstetrics, Osteoporosis and Breast Health
1 credits Fall Semester
Introduction to physical therapy practice for evaluation and treatment of problems related to pregnancy, osteoporosis, and other disorders specific to women.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY OR WITH PERMISSION OF THE INSTRUCTOR.

PTS508 Rape Aggression Defense for Women (RAD)
1 credits Fall Semester
A comprehensive self defense course for women including awareness, prevention, risk reduction and avoidance, and the basics of hands-on defense training.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY OR WITH PERMISSION OF THE INSTRUCTOR.

PTS509 Exercise for Persons with Spinal Cord Injuries
1 credits First & Second Summer Session
Course provides a review of etiology and pathology of spinal cord injury as well as current methods of exercise and electrical stimulation systems and their physiological effects on the individual.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY OR WITH PERMISSION OF THE INSTRUCTOR.

PTS510 Balance for the Neurologic Patient
1 credits Offered By Announcement Only
Introduction to balance evaluation and treatment concepts for patients with neurological deficits.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY OR WITH PERMISSION OF THE INSTRUCTOR.
PTS511 Positioning as a Pediatric Therapeutic Modality
1 credits
Introduction to adaptive seating and positioning in pediatric physical therapy, neurophysiological, biomechanical, and functional rationale.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY OR WITH PERMISSION OF THE INSTRUCTOR.

PTS512 Sports Physical Therapy
1 credits
Spring Semester
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY OR WITH PERMISSION OF THE INSTRUCTOR.

PTS513 Clinical Instructor Training
1 credits
Spring Semester
Introduction to the roles and responsibilities of being a clinical instructor to physical therapy students. Course material is adapted from the Clinical Instructor Workshop of the Florida Consortium of Clinical Educators.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY OR WITH PERMISSION OF THE INSTRUCTOR.

PTS514 Certified Strength and Conditioning Specialist Preparation (NSCA)
1 credits
First Summer Session
Evaluation and exercise planning of athletes to help them achieve their maximum physical performance without incurring injury. Case studies, a problem-solving approach, and integration of previously learned material are emphasized. Classroom instruction, exercise performance, video analysis, and case studies.
PREREQUISITE: ENROLLMENT IN THE DPT PROGRAM

PTS515 Taping for the Athletic Population
1 credits
Offered By Announcement Only
This seminar course is designed to introduce the participant to the concepts of taping for various musculoskeletal pathologies commonly seen in the athletic population. Athletic taping and kinesiotaping principles and uses in rehabilitation will be introduced. A lab component will allow participants to practice the various taping techniques demonstrated.
PREREQUISITE: FOR PHYSICAL THERAPY GRADUATE STUDENTS ONLY

PTS516 Clinical Research I
3 credits
Fall Semester
Principles, concepts, and basic skills required to conduct clinical research in physical therapy. Topics include research design, sampling, bias, reliability and validity, questionnaire design, statistical computing, conceptual review of literature, and the preparation of a research proposal.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS517 Abdominal Anatomy
1 credits
First & Second Summer Session
Course analyzes abdominal anatomy emphasizing structure and function. Cadaver dissection is included. Prerequisite: For Physical Therapy majors only or with permission of the instructor.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY OR WITH PERMISSION OF THE INSTRUCTOR.

PTS519 Pelvic Anatomy
1 credits
First & Second Summer Session
Course analyzes the anatomy of the human pelvic area. Cadaver dissection is included.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY OR WITH PERMISSION OF THE INSTRUCTOR.
**PTS523 Myofascial Release**
1 credits  
Introduction to Myofascial Release technique in rehabilitation.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY, WITH PERMISSION OF INSTRUCTOR.

**PTS526 Introduction to Pilates Rehabilitation I**
1 credits  
First & Second Summer Session  
Course provides historical development, and evidence-based approach to Pilates rehabilitation.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY; OTHERS WITH PERMISSION OF INSTRUCTOR.

**PTS527 Introduction to Pilates Rehabilitation II**
1 credits  
First & Second Summer Session  
Introduction to the Pilates Environment.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY; OTHERS WITH PERMISSION OF INSTRUCTOR.

**PTS530 Foundations of Physical Therapy**
3 credits  
Second Summer Session  
Historical development, philosophical foundations and contemporary practice of physical therapist as educator, consultant, administrator, and model of healthy behaviors. Health as indicated by global fitness measures will be demonstrated and experienced. Medical terminology mastered.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

**PTS531 Gross Anatomy for Physical Therapy**
3 credits  
First Summer Session  
Gross anatomy with emphasis on the musculoskeletal systems and a survey of other systems that are relevant to physical therapy practice.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

**PTS532 Gross Anatomy for Physical Therapy**
3 credits  
Spring Semester  
Gross Anatomy with emphasis on the musculoskeletal systems and a survey of other systems that are relevant to physical therapy practice.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

**PTS533 Communication in Physical Therapy Practice**
2 credits  
First Summer Session  
Course provides an analysis of communication skills in physical therapy clinical practice. Emphasis is placed on instruction of patients and their families, supportive staff, and health care team members. In-depth examination of patient-therapist interactions is included.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

**PTS540 Neuroscience I**
3 credits  
Fall Semester  
The human central nervous system with emphasis on structure-function relationships, and clinical applications. The brain, spinal cord, cranial nerves, tracts, and nuclei of major systems. Central nervous systems lesions and their clinical significance are discussed. Lecture and human dissection are included.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.
PTS541 Neuroscience II
3 credits
First & Second Summer Session
The central, peripheral, and autonomic nervous systems and their physiological
responses to environmental stimuli. Normal systems are contrasted with abnormal
systems. The clinical significance of altered neurophysiological states is discussed.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS542 Electrotherapy
3 credits
First & Second Summer Session
Course provides an evaluation of nerve and skeletal muscle by classical electrical
means. The therapeutic application of selected modalities is discussed.
PREREQUISITE: PHYSICAL THERAPY MAJORS ONLY.

PTS543 Medical Pathology Seminar I
1 credits
Fall Semester
Lectures and seminar discussion of pathological conditions with particular emphasis
on musculoskeletal disorders.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS544 Medical Pathology Seminar II
1 credits
Spring Semester
Lectures and seminar discussion of pathological conditions with particular emphasis
on neuromuscular disorders.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS545 Medical Pathology Seminar III
1 credits
First & Second Summer Session
Lectures and seminar discussion of pathology conditions with particular emphasis
on integumentary disorders.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS546 Medical Pathology Seminar IV
1 credits
Fall Semester
Lectures and seminar discussion of pathological conditions with particular emphasis
on cardiorespiratory disorders.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS550 Pharmacology
2 credits
Fall Semester
Basic principles of pharmacology and pharmacotherapeutics. Contemporary drug therapies
and their effects on patients undergoing rehabilitation are discussed.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS570 Clinical Skills in Physical Therapy
3 credits
Spring Semester
Decision making, documentation and beginning treatment skills in functional mobility
and basic exercise and massage. Indications and contraindications of massage, basic
active, active assisted, active resisted range of motion and isometric exercises
are learned. First aid course is also given.
PREREQUISITE: PHYSICAL THERAPY MAJORS ONLY.
PTS571 Therapeutic Physiology
2 credits    Fall Semester
Physiological effects of exercise and training for the healthy and diseased individual. The use of exercise for joint and muscle mobility, muscle strength, and cardiopulmonary function is included.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS572 Clinical Kinesiology and Biomechanics
4 credits    Fall Semester
A study of musculoskeletal structure and function, physiological and biomechanical factor, and principles underlying the kinematics and kinetic of normal and abnormal human motion.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS574 Clinical Evaluation
3 credits    Fall Semester
Basic evaluation skills for patients with various diseases and dysfunctions. Skills include clinical decision making, history taking, postural and functional assessment, surface palpation, manual muscle testing, and goniometric measurement. Classroom instruction and laboratory practice is included.
PREREQUISITE: PHYSICAL THERAPY MAJORS ONLY.

PTS575 Clinical Decision Making I
3 credits    Spring Semester
Introduction to physical therapy diagnosis, the disablement model, measurement of function screening, and the Physical Therapy Guide to Practice.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS595 Selected Topics in Physical Therapy
1 - 3 credits    Fall & Spring Semester & First & Second Summer Session
Topics in contemporary physical therapy clinical practice with focus on specialty areas such as neonatal pulmonary care, balance/vestibular dysfunction, geriatrics, pediatrics, obstetrics, and gynecology.

PTS599 Independent Study in Physical Therapy
1 - 3 credits    Fall & Spring Semester
Each course is designed to meet special interest demands of students.
PREREQUISITE: FOR PHYSICAL THERAPISTS; PERMISSION OF THE INSTRUCTOR.

PTS606 Neurological Evaluation
2 credits    Fall Semester
Comprehensive evaluation of the patient with neurological dysfunction. Emphasis is placed on decision making, differential diagnosis, selection, and interpretation of examination components.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS608 Human Gait and Locomotion
1 credit    Fall Semester
Principles of human gait and locomotion, including normal and pathological gait. Analysis of deviations, causes and specific treatments to address movement dysfunctions.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.
PTS610 Clinical Internship II  
1 credits  
Supervised clinical education emphasizing clinical skills. Competence is expected in areas such as analysis of normal and abnormal human motion, exercise, and evaluation and treatment for cardiopulmonary dysfunctions.  
PREREQUISITE: PHYSICAL THERAPY MAJORS ONLY.

PTS611 Clinical Internship  
1 credits  
Supervised clinical education emphasizing clinical skills. Competence is expected in areas such as evaluation and treatment of extremity dysfunctions, wound care, and neuromuscular dysfunctions.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS614 Neurorehabilitation I  
3 credits  
Theoretical basis and clinical application of the neurophysiological approaches to treatment. Principles of motor control dynamic systems, sensori-motor development, and integration are presented to include discussion and practice of methods of evaluation and intervention. Treatment principles, approaches, and techniques as advocated by the Bobaths, Rood, Brunnstrom, Knott, and Voss are emphasized. An integrated and symptomatic approach, which reinforces the problem solving/differential diagnosis process involved in client care is utilized.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS615 Rehabilitation of the Complex Patient  
3 credits  
Rehabilitation of the complex patient, including spinal cord injury, traumatic brain injury, multi-system, and multi-organ disease.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS617 Clinical Research II  
3 credits  
This course is a continuation of Clinical Research I that provides the student with continued guidance in the completion of the faculty led research project begun as part of Clinical Research I. A series of lectures also provide exposure to additional topics relevant to clinical research in Physical Therapy. Potential lecture topics include data analysis, design, error, philosophy of science, and research reporting.  
PREREQUISITE: PTS 616; FOR PHYSICAL THERAPY MAJORS ONLY.

PTS618 Physical Therapy Administration  
3 credits  
Course discusses physical therapy services, departmental policies and procedures, and personnel management. Issues relevant to clinical practice and the physical therapy profession are emphasized. An administrative project.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS620 Biomechanical Basis of Human Movement  
3 credits  
A study of the basic biomechanical principles underlying the kinetics and kinematics of normal and abnormal human motion as well as the measurement of human movement.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS.
PTS621 Measurement of Impairment and Function in Human Movement  
3 credits  
Spring Semester  
A study of measurement tools utilized in the analysis of normal and abnormal human motion.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS.

PTS622 Pathobiology of Human Function I  
3 credits  
Spring Semester  
Pathophysiology of musculo-skeletal processes that impair human function including skeletal muscle; skin, tendons, ligaments, cartilage; bone; and cardiorespiratory.  
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

PTS624 Cardio-Respiratory Physical Therapy  
3 credits  
Spring Semester  
The skills necessary for the evaluation and treatment of patients with various cardio-respiratory diseases and dysfunctions. Inpatient and outpatient cardiac and respiratory rehabilitation is included. Research on prevention of cardio-respiratory diseases and dysfunctions as it relates to evaluative, and therapeutic methods is also discussed. Course utilizes classroom instruction, individual investigation, laboratory practice, and clinical experience.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS626 Therapeutic Exercise  
3 credits  
Spring Semester  
A holistic approach to the evaluation, treatment, and management of patients with various neuromuscular diseases and dysfunctions. Appropriate therapeutic exercises interrelated with modalities and self-help devices as well as individual investigation of respective neuromuscular diseases and dysfunctions. Classroom instruction and laboratory practice are included.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS627 Prosthetics and Orthotics  
3 credits  
Spring Semester  
A holistic approach to the evaluation and management of patients with amputations and spinal cord injuries. Appropriate therapeutic exercises interrelated with self-help appliances as well as individual investigation of respective amputation and spinal cord problems are emphasized. Classroom instruction and laboratory practice are included.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS628 Musculoskeletal Examination and Treatment I  
3 credits  
Spring Semester  
In-depth examination of differential diagnosis of various extremity dysfunctions with principles of examining soft tissue, bony and post-surgical problems relevant to the shoulder, elbow, wrist/hand, hip, knee, ankle, and foot. Manual therapy/joint mobilizations for each joint will also be introduced.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS629 Management of the Spine  
3 credits  
First & Second Summer Session  
The evaluation and treatment of various spinal dysfunctions. Review and investigation of the literature relevant to the sacro-illiac, lumbar, thoracic, cervical spines, and the head and neck. Clinical evaluation and treatment procedures is included. Course utilizes classroom instruction, laboratory practice, and clinical experience.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.
PTS630 Pediatric Physical Therapy  
2 credits  
Spring Semester  
An overview of factors and issues related to examination and treatment of children by physical therapists.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS631 Geriatric Physical Therapy  
2 credits  
Spring Semester  
An overview of factors and issues related to examination and treatment of older individuals by physical therapists.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS641 Seminar in Geriatric Rehabilitation  
3 credits  
Fall & Spring Semester  
Geriatric rehabilitation offers many complex themes of inquiry. This seminar selects eight to ten topics to investigate such as: forms of long term care, communication with the confused and depressed, legal and ethical issues, sexuality, drugs and the elderly, nutrition, fitness and wellness, family issues, incontinence, falls, effects of exercise, motivation, and sociological and psychological aspects of aging.  
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

PTS644 Integrated Sports and Leisure  
1-3 credits  
Spring Semester  
Course promotes the integration of able-bodied students with the physically challenged by working together to learn common recreational activities. Sailing and camping activities are used as an educational tool for able-bodied students to learn the capabilities, physical resources, and assistance required by physically challenged individuals.

PTS645 Integumentary Disorders and Treatment  
2 credits  
Fall Semester  
Basic and advanced principles regarding the integumentary system and related disorders, as well as principles of wound healing and wound care therapies.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS648 Musculoskeletal Examination and Treatment II  
3 credits  
Fall Semester  
Advanced examination, evaluation, functional assessment and treatment of patients in selected specialty areas of musculoskeletal physical therapy, with emphasis on functional outcomes and evidence based treatment throughout the life span.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS650 Seminar in Obstetrics and Gynecological Physical Therapy  
3 credits  
Spring Semester  
This course focuses on the expanding role of physical therapists in obstetrics and gynecology. Related research is critically analyzed.  
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

PTS655 Neuromuscular Basis of Movement  
3 credits  
Spring Semester  
Concepts of neuromuscular production and regulation of movement with emphasis on neurophysiologic substrates and mechanisms underlying motor behavior.  
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY, OTHERS WITH PERMISSION OF INSTRUCTOR.
PTS660 Theories of Movement Science  
3 credits  
Fall Semester  
An in-depth review of classical theories and recent research in the movement sciences, to include the study and analysis of system theory and neurobiological substrates. 
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

PTS661 Motor Learning  
3 credits  
Spring Semester  
The factors relating to, and affecting, the acquisition and performance of motor skills. Qualification of skill acquisition and performance are explored. 
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

PTS662 Advanced Topics in Neurodevelopment  
3 credits  
Offered By Announcement Only  
Classical research and systems models of neurodevelopment is reviewed, analyzed, and related to current research on various areas of human development throughout the lifespan. 
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

PTS663 Interdisciplinary Programming for the Individual with Developmental Disabilities  
1-3 credits  
Fall Semester  
Overview of child development, service delivery models, with an emphasis on intra-disciplinary, multi-disciplinary, inter-disciplinary strategies, and community programming. 
PREREQUISITE: OPEN TO PHYSICAL THERAPISTS AND GRADUATE PHYSICAL THERAPY STUDENTS, OR RELATED HEALTH PROFESSIONAL STUDENTS ONLY.

PTS664 Seminars in Neuroscience  
3 credits  
Offered By Announcement Only  
This course explores the role and organization of the key units of the central and peripheral nervous systems at the molecular and cellular levels. The integrated functional physiology of systems neuroscience and behavioral neuroscience will be studied with special emphasis on neural contributions to involuntary and voluntary motor functions, perception, cognition, and learning. 
PREREQUISITE: ACCEPTANCE INTO THE PHYSICAL THERAPY PHD STUDIES PROGRAM OR PERMISSION OF THE INSTRUCTOR.

PTS665 Health Promotion and Disease Prevention  
2 credits  
First & Second Summer Session  
The role of physical therapists in health promotion and disease prevention. 
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS666 Rehabilitation of the Amputee  
3 credits  
Fall Semester  
This course examines the scientific evidence related to the evaluation, treatment and management of clients who require intervention for diabetic foot and/or dysvascular limb potentially leading to amputation, amputation surgery, prosthetic appliances, functional assessment and amputee rehabilitation. Upper limb prosthetic management will also be examined. 
PREREQUISITE: ACCEPTANCE INTO THE PHYSICAL THERAPY PHD STUDIES PROGRAM OR PERMISSION OF THE INSTRUCTOR.
PTS667 Prosthetic Technology and Amputee Rehabilitation
3 credits
Offered By Announcement Only
This course examines the current scientific evidence related to prosthetic devices with regard to evaluation, fabrication, materials, fitting and functional outcomes. Emphasis is on state-of-the-art technology and the future of prosthetic designs.
PREREQUISITE: ACCEPTANCE INTO THE PHYSICAL THERAPY PHD STUDIES PROGRAM OR PERMISSION OF THE INSTRUCTOR.

PTS668 Rehabilitation Engineering and Assistive Technology
3 credits
Offered By Announcement Only
This course is designed for graduate students interested in developing an understanding of complementary roles of clinicians and engineers in assisting individuals with disabilities in all areas of life.
PREREQUISITE: ACCEPTANCE INTO THE PHYSICAL THERAPY PHD STUDIES PROGRAM OR PERMISSION FROM THE INSTRUCTOR.

PTS669 Seminars in Orthotics and Prosthetic Rehabilitation
3 credits
Offered By Announcement Only
Examination of current scientific evidence and clinical issues related to upper and lower limb amputees, and prosthetic and orthotic componentry and related technology. Students will discuss case studies and design appropriate devices to address the needs of the individuals in the cases.
PREREQUISITE: ACCEPTANCE INTO THE PHYSICAL THERAPY PHD STUDIES PROGRAM OR PERMISSION OF THE INSTRUCTOR.

PTS670 Education, Direction, and Supervision in Physical Therapy
2 credits
Spring Semester
Principles of education, direction and supervision pertaining to physical therapy patient care management. Prerequisite: Open to Physical Therapy majors only.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS671 Complementary Therapies in Rehabilitation
2 credits
Fall Semester
Historical development and evidence-based approach to complementary therapies in rehabilitation.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS674 Educational Administration in Physical Therapy
3 credits
Spring Semester
Review of history and current issues in educational administration of physical therapy programs at the entry-level and post-graduate level.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

PTS675 Clinical Decision Making II
3 credits
Fall Semester
Integration of basic science and clinical science in developing a patient plan of care, with consideration of ethical, psychological, and economic factors.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.
PTS677 Instructional Methods in Physical Therapy Education
3 credits Fall Semester
Overview of research in the professional education field, with specific applications to physical therapy academic and clinical education. Emphasis is placed on curriculum development, competency-based instructional design, testing, and instructional evaluation methods.
PREREQUISITE: ADMISSION TO THE PH.D. PROGRAM.

PTS678 Teaching Practicum
1-3 credits Fall & Spring Semester & First & Second Summer Session
Supervised instructional design, teaching and evaluation of entry level physical therapy students. Students participate as course instructors in entry-level master's degree physical therapy curriculum.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

PTS679 Anatomy of back and limbs.
3 credits Offered By Announcement Only
Regional approach to the musculoskeletal, neural, and vascular systems of the back, upper limbs and lower limbs. For Physical Therapy graduate students with an interest in a professional career in teaching the anatomical sciences to students of the health professions including medical students.
PREREQUISITE: ACCEPTANCE INTO THE PHYSICAL THERAPY PHD STUDIES PROGRAM OR PERMISSION OF THE INSTRUCTOR.

PTS680 Anatomy of the Trunk
3 credits Offered By Announcement Only
Regional approach to the musculoskeletal, organ, and circulatory systems of the thorax, abdomen, plevis & perineum. For Physical Therapy graduate students with an interest in a professional career in teaching the anatomical sciences to students of the health professions including medical students.
PREREQUISITE: ACCEPTANCE INTO THE PHYSICAL THERAPY PHD STUDIES PROGRAM OR PERMISSION OF THE INSTRUCTOR.

PTS681 Anatomy of the Head and Neck
3 credits Offered By Announcement Only
Regional approach to the musculoskeletal, neural, and vascular systems of the head and neck. For the Physical Therapy graduate students with an interest in a professional career in teaching the anatomical sciences to students of the health professions including medical students.
PREREQUISITE: ACCEPTANCE INTO THE PHYSICAL THERAPY PHD STUDIES PROGRAM OR PERMISSION OF THE INSTRUCTOR.

PTS682 Microscopic Anatomy.
3 credits Offered By Announcement Only
Study of the structure and function of cells, tissues, and organ systems utilizing light microscope, electron microscopic images, and electronic media. This course is designed for Physical Therapy graduate students with an interest in a professional career in teaching the anatomical sciences to students of the health professions including medical students.
PREREQUISITE: ACCEPTANCE INTO THE PHYSICAL THERAPY PHD STUDIES PROGRAM OR PERMISSION OF THE INSTRUCTOR.
PTS683 Human Embryology
3 credits  Spring Semester
Study of embryologic events from fertilization to birth in the human. Consideration of the early formation of the various organ systems, on clinical problems associated with birth defects, and means of prevention.
PREREQUISITE: ACCEPTANCE INTO THE PHYSICAL THERAPY PHD STUDIES PROGRAM OR PERMISSION OF THE INSTRUCTOR.

PTS684 Human Neuroanatomy
3 credits  Offered By Announcement Only
Detailed exploration of the human nervous system with an emphasis on structure-function relationship and clinical applications. This course is designed for Physical Therapy graduate students with an interest in a professional career in teaching the anatomical sciences to students of the health professions including medical students.
PREREQUISITE: ACCEPTANCE INTO THE PHYSICAL THERAPY PHD STUDIES PROGRAM OR PERMISSION OF THE INSTRUCTOR.

PTS685 Medical Diagnostic Tests
2 credits  Fall Semester
Basic principles of medical diagnostic tests commonly encountered in physical therapy.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS690 Physical Therapy Diagnosis
3 credits  Spring Semester
Study of the integration of didactic knowledge, clinical skills, and intuitive process into the formation of a clinical diagnosis which will direct treatment in physical therapy. Diagnosis as a process is compared to diagnosis in nursing, psychiatry, and medicine, and distinguished from assessment, examination, and screening.
PREREQUISITE: PRACTICING PHYSICAL THERAPIST.

PTS695 Clinical Research Methods I
3 credits  Fall Semester
An overview of measurement and sampling issues pertaining to clinical research in Physical Therapy.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

PTS696 Applied Statistics in Physical Therapy
3 credits  Fall Semester
Basic Statistics taught from an applied perspective which includes statistical computing using SAS in a mainframe environment and interpretation of SAS output.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

PTS697 Clinical Research Methods II
3 credits  Spring Semester
A course focusing on issues in research design and analysis pertaining to clinical research in Physical Therapy.
PREREQUISITE: PTS 695, 696, OR PERMISSION OF THE INSTRUCTOR.

PTS698 Research Practicum
3 credits  Fall & Spring Semester & First & Second Summer Session
Practicum designed to familiarize the student with an area of research, to implement a pilot study in an area of interest, and to develop working relationship with a sponsoring faculty member.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.
PTS699 Independent Study in Physical Therapy
1-3 credits                 Fall & Spring Semester & First & Second Summer Session
Each course is designed to meet the needs of graduate students for in-depth study in a particular area of special interest.
PREREQUISITE: GRADUATE STUDENT STATUS; PERMISSION OF THE INSTRUCTOR.

PTS701 Role Seminar I
1 credits                           Spring Semester & First & Second Summer Session
Introduction to faculty role in an institution of higher education, including academic career expectations, resource utilization, faculty development, and evaluation systems.
PREREQUISITE: PHYSICAL THERAPY PH.D. STUDENTS ONLY.

PTS702 Role Seminar II
1 credits                           Spring Semester & First & Second Summer Session
Course covers leadership training, networking, time management, and coping strategies. Student advising, counseling, and referral strategies are included.
PREREQUISITE: PHYSICAL THERAPY PH.D. STUDENTS ONLY.

PTS703 Role Seminar III
1 credits                                                             Fall Semester
Initiation of research career and dynamics of research role development within an institution. Grant writing, funding sources, and proposal considerations are also covered.
PREREQUISITE: PHYSICAL THERAPY PH.D. STUDENTS ONLY.

PTS710 Pre-candidacy thesis
1-6 credits                 Fall & Spring Semester & First & Second Summer Session
To be used for pre-candidacy Master's thesis research. Credit is awarded when thesis is accepted.
PREREQUISITE: CORE COURSES AND ELECTIVES.

PTS711 Evidence-based Project
1 credits                                              Offered By Announcement Only
Capstone project for students enrolled in the post-professional Doctor of Physical Therapy Program.
PREREQUISITE: LICENSED PHYSICAL THERAPISTS ENROLLED IN THE POST-PROFESSIONAL DPT PROGRAM.

PTS712 Clinical Internship IV
3 credits                    Fall & Spring Semester & First & Second Summer Session
Supervised clinical education emphasizing clinical skills. Competence is expected in areas such as neurofacilitation techniques, and evaluation and treatment of amputees, central nervous system dysfunctions, and spinal cord dysfunction.
PREREQUISITE: FOR PHYSICAL THERAPY MAJORS ONLY.

PTS713 Clinical Internship V
1-3 credits                 Fall & Spring Semester & First & Second Summer Session
Supervised clinical education emphasizing skills previously taught in course sequences. Competence is expected in areas such as conservative management of spinal dysfunctions, growth and development neurofacilitation techniques, central nervous system dysfunctions, clinical administrative procedures, and clinical research techniques.
PREREQUISITE: MUST BE IN THE P.T. MASTERS PROGRAM.
PTS715 Post-candidacy thesis
1-6 credits Fall & Spring Semester & First & Second Summer Session
Required of students working for the Master's Degree. While working on the thesis, students enroll for credit. Credit is awarded when thesis is accepted.
PREREQUISITE: CORE COURSES AND ELECTIVES.

PTS720 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the Master's Degree after the student has enrolled for the permissible cumulative total in PTS 710. Credit not granted. May be regarded as full time residency.
PREREQUISITE: CORE COURSES, ELECTIVES, PTS 710.

PTS725 Continuous Registration--Master's Study
0 credit Fall & Spring Semester & First & Second Summer Session
To establish residence for non-thesis master's students who are preparing for examinations or completing other projects. Credit not granted. Regarded as full time residence.

PTS730 Pre-candidacy Dissertation.
1-6 credits Fall & Spring Semester & First & Second Summer Session
To be used for pre-candidacy Doctorate dissertation research.

PTS740 Post-candidacy Dissertation.
1-12 credits Fall & Spring Semester & First & Second Summer Session
The student will enroll for credits as determined by his/her advisor, but not for less than a total of 12. No more than six hours may be taken in a regular semester, nor more than three in a summer session. When a student has passed his/her qualifying exams and is engaged in an Assistanship, he/she may still take the maximum allowable credit stated above.

PTS743 Measuring Health Outcomes
3 credits Fall & Spring Semester & First & Second Summer Session
An in depth analysis of the use and construction of instruments designed to measure health outcomes. Topics covered include creating and selecting items, scaling responses, scale construction, response bias, reliability, validity, measuring change, and methods of administration.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

PTS750 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
To establish residence for the PhD, or DPT, after the student has been enrolled for the permissible cumulative total in appropriate doctoral research or clinical practice. Credit not granted, may be regarded as full-time residence as determined by the Dean of the Graduate School.
PREREQUISITE: PERMISSION OF THE DIRECTOR.
PHS510 Cell Physiology Biophysics
2 credits Fall Semester
This course is designed as preparation for the study of mammalian physiology. Course is usually intensive, adapted to the schedule of the medical curriculum and occupying the equivalent of two to three days per week for two-three weeks. The student is introduced to general principles of cell physiology, chemical and physical structure of membranes, membrane transport, and electrical membrane phenomena. Topics include excitation, contraction, energy transduction, nerve impulse conduction, and synaptic transmission. Course utilizes lecture and laboratory.
PREREQUISITE: PERMISSION OF THE DEPARTMENTAL GRADUATE STUDIES COMMITTEE.

PHS511 Neurophysiology
3 credits Spring Semester
Physiology of the mammalian nervous system. Course is intensive, adapted to the schedule of the medical curriculum and comprising roughly five hours of lecture and four hours of conference weekly for five to six weeks. A lecture course coordinated with neuroanatomy.
PREREQUISITE: PHS 510 OR 641, OR AN EQUIVALENT; PERMISSION OF THE DEPARTMENTAL GRADUATE STUDIES COMMITTEE. PREREQUISITE OR COREQUISITE: MDB 505.

PHS512 Systemic Physiology
5 credits Spring Semester
Physiology of the mammalian cardiovascular, respiratory, renal, digestive, endocrine, and reproductive systems. Course is intensive and adapted to the schedule of the medical curriculum, occupying the equivalent of about two days a week for most of semester. Lecture and laboratory are included.
PREREQUISITE: PERMISSION OF THE GRADUATE STUDIES COMMITTEE, INCLUDING ENDOCRINOLOGY.

PHS600 Research Seminar in Membrane Biophysics and Neurobiology
1 credits Fall & Spring Semester & First & Second Summer Session
The student may be required to present a short talk on a research area of interest. All students in the Department of Physiology and Biophysics are required to register for this seminar. For other students, permission of the Departmental Graduate Studies Committee is required.

PHS609 Research
1-5 credits Fall & Spring Semester & First & Second Summer Session
Students work with individual members of the department on research problems. Orientation to the areas of research in the field and the techniques used is included.
PREREQUISITE: PERMISSION OF THE DEPARTMENTAL GRADUATE STUDIES COMMITTEE.

PHS611 Accelerated Basic Science Medical Curriculum
1-18 credits Fall & Spring Semester
Beginning in the latter part of June each year, extending to the middle of February of the ensuing year, the following accelerated and intensive complete basic science medical curriculum is offered: Embryology, Gross Anatomy, Histology, Biochemistry, Neuroanatomy, Biophysics and Neurophysiology, Systemic Physiology, Pathology, Medical Microbiology, and Pharmacology. A single grade will be entered on the graduate transcript for this course.
PREREQUISITE: ADMISSION TO THE COMBINED M.D./PH.D. PROGRAM.
PHS612 Pathobiology I
3 credits
Offered By Announcement Only
Required for Physician Scientist Program students; open to graduate students. Two, three-hour sessions (first hour at multi-headed scope followed by two hours of laboratory) per week for eight weeks in the fall semester (September and October; days and times to be arranged). The purpose of the pathobiology course is to provide graduate students with knowledge of basic principles for understanding normal histomorphology and pathologic lesions associated with experimentally induced and naturally occurring diseases. The keystone of this innovative, short course is the small group's socratic study of a series of autopsy cases--each represented by a set of microscopic slides. The cases are preselected to allow the students to focus on specific, basic concepts early and organ-system lesions later. Students spend the first hour of the biweekly sessions at a multi-headed scope creating a profile of the patient--including age, sex, race, and chief disease. At the end of the first hour deliberations, students receive feedback regarding their conclusions by being provided with a summary of the patient's history and autopsy findings. Students review relevant gross specimens and kodachromes during the biweekly two-hour laboratory sessions.
PREREQUISITE: ADMISSION TO THE PHYSICIAN SCIENTIST PROGRAM OR THE GRADUATE PROGRAM OF ONE OF THE FIVE BASIC SCIENCE DEPARTMENTS LOCATED AT THE SCHOOL OF MEDICINE.

PHS620 Neurophysiology
3 credits
Spring Semester
Physiology of the mammalian nervous system. The course will consist of both didactic lectures and discussions of current research literature.
PREREQUISITE: PHS 510 OR 641 AND PERMISSION OF THE DEPARTMENTAL GRADUATE STUDIES COMMITTEE.

PHS631 Special Work
1-5 credits
Fall & Spring Semester & First & Second Summer Session
Special work, lecture, laboratory, reading, seminar, or a combination of these as determined by advisor in accordance with student's interest.
PREREQUISITE: PERMISSION OF THE DEPARTMENTAL GRADUATE STUDIES COMMITTEE.

PHS641 Principles of Membrane Physiology and Biophysics I
2 credits
Fall Semester
Course discusses chemical and physical structure of membranes, model systems, permeability and transport, membrane potential, ionic channels, excitability in nerve and muscle, ionophores, active transport, and membrane receptors. Identical with MCP 641.
PREREQUISITE: CHM 361; BMB 506; AND PERMISSION OF DEPARTMENTAL GRADUATE STUDIES COMMITTEE.

PHS642 Principles of Membrane Physiology and Biophysics II
2 credits
Fall Semester
Course topics include osmosis and cell volume, tracer analysis of permeability and compartmentation, theory of channels and carriers, cable properties, Hodgkin-Huxley formalism, Na, K, and Ca ion channels, regulation of cellular Na, Ca activities, single-channel analysis, chemical synapses, membrane receptors, cell junctions, excitation and E-C coupling in muscle. Identical with MCP 642.
PREREQUISITE: PHS 641.
PHS651 PHS Cell Biology

3 credits Offered By Announcement Only

The dynamics of eukaryotic cells examined from the standpoint of the structure and function, regulation of function, and interactions of the subcellular organelles.
PREREQUISITE: PERMISSION OF THE DEPARTMENTAL GRADUATE STUDIES COMMITTEE.

PHS652 Developmental Biology

3 credits Offered By Announcement Only

Identical to MDB 652.
PREREQUISITE: PHS 651.

PHS663 Developmental Neurobiology

3 credits Offered By Announcement Only

Development of the nervous system in all its aspects. Topics include origins of neurons and glia, nerve cell differentiation, cellular interactions during neurogenesis, formation of synaptic connections, neuronal circuits, development of nervous functions and ontogeny of behavior, mechanisms of repair and reorganization in the nervous systems, and theories of neuronal plasticity.
PREREQUISITE: A KNOWLEDGE OF NEUROBIOLOGY AND DEVELOPMENTAL BIOLOGY BEYOND THE ELEMENTS: FOR EXAMPLE, PHS 511 AND BIL 564 OR EQUIVALENTS. PERMISSION OF THE DEPARTMENTAL GRADUATE STUDIES COMMITTEE.

PHS668 Neuropharmacology

3 credits Offered By Announcement Only

An intensive seminar course for advanced students covering the mechanism of action of drugs on basic neural processes including action potentials, neurotransmission, and central nervous activity. Course is taught jointly by staff members of Molecular and Cellular Pharmacology and Physiology/Biophysics.
PREREQUISITE: PHS 510, 511 OR 641; PHA 605; CONSENT OF INSTRUCTOR AND DEPARTMENTAL GRADUATE STUDIES COMMITTEE.

PHS669 Nerve and Synapse

2 credits Fall Semester

An advanced seminar course in the basic mechanisms underlying the propagated nerve impulse and synaptic transmission.
PREREQUISITE: PHS 510 AND 511; CONSENT OF INSTRUCTOR AND DEPARTMENTAL GRADUATE STUDIES COMMITTEE.

PHS680 Research Ethics

0 credit Fall Semester

The NIH Guide for Grants and Contracts stipulates that Institutions receiving support for National Research Service Award Training Grants are required to develop a program in the principles of Scientific Integrity. This program should be an integral part of the proposed training effort. The University of Miami School of Medicine has chosen to respond to this requirement with this course. This course must be taken during the first semester in the Department or Program. This is a six-hour course and will be given in two sessions of three hours each.
PREREQUISITE: PERMISSION OF THE GRADUATE ADVISOR.

PHS710 Master's Thesis

1-6 credits Offered By Announcement Only

The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.
PHS720 Research in Residence
0 credit Offered By Announcement Only
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in PHS 710 (usually six credits). Credit not granted. May be regarded as full time residence.

PHS730 Doctoral Dissertation
1-12 credits Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor but not for less than a total of 24. Not more than 12 hours of PHS 730 may be taken in a regular semester, nor more than six in a summer session. Where a student has passed his/her (a) qualifying examinations, and (b) is engaged in an assistantship, he/she may still take the maximum allowable credit stated above.

PHS740 Doctoral Dissertation - Post Candidacy
1-12 credits Fall Semester

PHS750 Research in Residence
0 credit Offered By Announcement Only
Used to establish research in residence for the Ph.D., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

PROGRAM IN BIOMEDICAL SCIENCES

PIB575 Perl Programming Lab
1 credits Fall & Spring Semester
The Perl programming lab is for students who have little or no programming experience. The objective of the lab is to teach students to write computer code that will automate and speed up their genetic and genomic data analysis and provide new ways to explore the data to advance knowledge discovery in biology. Each lab will start with a 40 minute lecture in which we discuss new syntax and programming elements and the rest of the time will be spent on hands-on programming assignments using real genetic/genomic/proteomic data sets. Students will be monitored and will get help in completing their assignments. In a popular book, "Programming Perl" (published by O'Reilly Media), the programming language is described as: "Perl is a language for getting your job done." A stated design goal of Perl is to make easy tasks easier and difficult tasks possible.

PIB601 Advanced Biomedical Science Lectures
5 credits Fall Semester
An interdisciplinary survey of molecular and cellular biology. Topics include protein structure and function, protein synthesis, nucleic acids, genetic code, gene technology, genetic analysis, control of cellular activity, molecular anatomy of genes and chromosomes, DNA replication, repair, and recombination, regulation of transcription, RNA processing, and post-transcriptional control.
PREREQUISITE: PERMISSION OF INSTRUCTOR

PIB602 Scientific Reasoning
3 credits Fall Semester
Students are taught with a combination of lectures, scientific reasoning and methods classes, and small group sessions devoted to primary literature.
PREREQUISITE: PERMISSION OF INSTRUCTOR
PIB631 PIB 631 Special Work
1 - 6 credits Fall & Spring Semester & First & Second Summer Session
1 - 6 credits Special work, lecture, laboratory or a combination of these, as determined by advisor in accord with student's individual interest. Course is offered only on demand.
PREREQUISITE: PERMISSION FROM ADVISOR

PIB640 The Business of Science
3 credits Fall & Spring Semester
This survey course will introduce graduate students in the biomedical sciences and medical students to the basic principles of business to enhance their effectiveness in being professional scientists. Topics will include: Project Management, Personnel Management, Accounting and Budgeting Process, Invention Disclosures and Patents, and Developing a Business Plan. Students will develop mock projects and business plans and participate in workshops to develop practical skills.
PREREQUISITE: PERMISSION OF INSTRUCTOR AND SUCCESSFUL COMPLETION OF THE FIRST YEAR OF GRADUATE LEVEL WORK

PIB680 Research Ethics
0 credit Fall Semester
The NIH Guide for Grants and Contracts stipulates that Institutions receiving support for National Research Service Award Training Grants are required to develop a program in the principles of Scientific Integrity. This program should be an integral part of the proposed training effort. The University of Miami School of Medicine has chosen to respond to this requirement with this course. This course must be taken during the first semester in the department or program. This is a six-hour course and will be given in two sessions of three hours each.
PREREQUISITE: PERMISSION OF THE GRADUATE ADVISOR
MIPBAI Bassoon
1-4 credits  
Fall & Spring Semester
Mastery of technical aspects of bassoon performance. Preparation of Masters recital(s) and oral defense. Preparation of repertoire for audition for further study or professional placement. Related areas such as reed making, specific individualized studies, instrumental maintenance, and orchestral excerpts are also part of the curriculum. 
PREREQUISITE: MASTER'S LEVEL. BY AUDITION.

MIPBAJ Bassoon
1-4 credits  
Fall & Spring Semester
Mastery of technical aspects of bassoon performance. Preparation of Masters recital(s) and oral defense. Preparation of repertoire for audition for further study or professional placement. Related areas such as reed making, specific individualized studies, instrumental maintenance, and orchestral excerpts are also part of the curriculum. 
PREREQUISITE: MASTER'S LEVEL. MIP BAI.

MIPBAK Bassoon
1-4 credits  
Fall & Spring Semester & First & Second Summer Session
Mastery of technical aspects of bassoon performance. Preparation of Masters recital(s) and oral defense. Preparation of repertoire for audition for further study or professional placement. Related areas such as reed making, specific individualized studies, instrumental maintenance, and orchestral excerpts are also part of the curriculum. 
PREREQUISITE: MASTER'S LEVEL. MIP BAJ.

MIPBAL Bassoon
1-4 credits  
Fall & Spring Semester
Mastery of technical aspects of bassoon performance. Preparation of Masters recital(s) and oral defense. Preparation of repertoire for audition for further study or professional placement. Related areas such as reed making, specific individualized studies, instrumental maintenance, and orchestral excerpts are also part of the curriculum. 
PREREQUISITE: MASTER'S LEVEL. MIP BAK.

MIPBAM Bassoon
1-4 credits  
Fall & Spring Semester
Continued mastery of technical aspects of bassoon performance. Preparation of DMA recitals and oral defense. Preparation of repertoire for audition for professional placement. An overview of pedagogy materials for performance and teaching use will also be explored. 
PREREQUISITE: DOCTORAL LEVEL. MIP BAL.

MIPBAN Bassoon
1-4 credits  
Fall & Spring Semester
Continued mastery of technical aspects of bassoon performance. Preparation of DMA recitals and oral defense. Preparation of repertoire for audition for professional placement. An overview of pedagogy materials for performance and teaching use will also be explored. 
PREREQUISITE: DOCTORAL LEVEL. MIP BAM.

MIPBAO Bassoon
1-4 credits  
Fall & Spring Semester
Continued mastery of technical aspects of bassoon performance. Preparation of DMA recitals and oral defense. Preparation of repertoire for audition for professional placement. An overview of pedagogy materials for performance and teaching use will also be explored. 
PREREQUISITE: DOCTORAL LEVEL. MIP BAN.
MIPBAP Bassoon
1-4 credits Fall & Spring Semester
Continued mastery of technical aspects of bassoon performance. Preparation of DMA recitals and oral defense. Preparation of repertoire for audition for professional placement. An overview of pedagogy materials for performance and teaching use will also be explored.
PREREQUISITE: DOCTORAL LEVEL. MIP BAO.

MIPBAQ Bassoon
1-4 credits Fall & Spring Semester
Continued mastery of technical aspects of bassoon performance. Preparation of DMA recitals and oral defense. Preparation of repertoire for audition for professional placement. An overview of pedagogy materials for performance and teaching use will also be explored.
PREREQUISITE: DOCTORAL LEVEL. MIP BAP.

MIPBAR Bassoon
1-4 credits Fall & Spring Semester
Continued mastery of technical aspects of bassoon performance. Preparation of DMA recitals and oral defense. Preparation of repertoire for audition for professional placement. An overview of pedagogy materials for performance and teaching use will also be explored.
PREREQUISITE: DOCTORAL LEVEL. MIP BAQ.

MIPBHI Baritone Horn
1-4 credits Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MIP BHH.

MIPBHJ Baritone Horn
1-4 credits Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MIP BHI.

MIPBHK Baritone Horn
1-4 credits Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: MASTER'S LEVEL. MIP BHJ.

MIPBHL Baritone Horn
1-4 credits Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MIP BHK.

MIPBHM Baritone Horn
1-4 credits Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP BHL.

MIPBHN Baritone Horn
1-4 credits Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP BHN.

MIPBHO Baritone Horn
1-4 credits Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP BHO.

MIPBHP Baritone Horn
1-4 credits Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP BHP.
MIPBHQ Baritone Horn
1-4 credits
PREREQUISITE: DOCTORAL LEVEL. MIP BHP.
Fall & Spring Semester

MIPBHR Baritone Horn
1-4 credits
PREREQUISITE: DOCTORAL LEVEL. MIP BHQ.
Fall & Spring Semester

MIPCDI Conducting
1-4 credits
PREREQUISITE: MASTER'S LEVEL. MIP CDH.
Fall & Spring Semester

MIPCDJ Conducting
1-4 credits
PREREQUISITE: MASTER'S LEVEL. MIP CDI.
Fall & Spring Semester

MIPCDK Conducting
1-4 credits
PREREQUISITE: MASTER'S LEVEL. MIP CDJ.
Fall & Spring Semester & First & Second Summer Session

MIPCDL Conducting
1-4 credits
PREREQUISITE: MASTER'S LEVEL. MIP CDJ.
Fall & Spring Semester

MIPCDM Conducting
1-4 credits
PREREQUISITE: DOCTORAL LEVEL. MIP CDL.
Fall & Spring Semester

MIPCDN Conducting
1-4 credits
PREREQUISITE: DOCTORAL LEVEL. MIP CDM.
Fall & Spring Semester

MIPCDO Conducting
1-4 credits
PREREQUISITE: DOCTORAL LEVEL. MIP CDN.
Fall & Spring Semester

MIPCDP Conducting
1-4 credits
PREREQUISITE: DOCTORAL LEVEL. MIP CDP.
Fall & Spring Semester

MIPCDQ Conducting
1-4 credits
PREREQUISITE: DOCTORAL LEVEL. MIP CDQ.
Fall & Spring Semester

MIPCDR Conducting
1-4 credits
PREREQUISITE: DOCTORAL LEVEL. MIP CDQ.
Fall & Spring Semester

MIPCLI Clarinet
1-4 credits
PREREQUISITE: MASTER'S LEVEL. MIP CLH.
Fall & Spring Semester

MIPCLJ Clarinet
1-4 credits
PREREQUISITE: MASTER'S LEVEL. MIP CLI.
Fall & Spring Semester
MIPCLK Clarinet
1- 4 credits                 Fall & Spring Semester & First & Second Summer Session
Prerequisite: Master's level.
PREREQUISITE: MASTER’S LEVEL. MIP CLJ.

MIPCLL Clarinet
1- 4 credits                                                 Fall & Spring Semester
PREREQUISITE: MASTER’S LEVEL. MIP CLK.

MIPCLM Clarinet
1- 4 credits                                                 Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP CLL.

MIPCLN Clarinet
1- 4 credits                                                 Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP CLM.

MIPCLO Clarinet
1- 4 credits                                                 Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP CLN.

MIPCLP Clarinet
1- 4 credits                                                 Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP CLO.

MIPCLQ Clarinet
1- 4 credits                                                 Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP CLP.

MIPCLR Clarinet
1- 4 credits                                                 Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP CLQ.

MIPDBI Double Bass
1- 4 credits                                                 Fall & Spring Semester
Advanced study of the double bass. Preparation for Master's recitals, and oral defense, orchestral repertoire, planning auditions, and insights on teaching.
PREREQUISITE: MASTER’S LEVEL. MIP DBH.

MIPDBJ Double Bass
1- 4 credits                                                 Fall & Spring Semester
Advanced study of the double bass. Preparation for Master's recitals, and oral defense, orchestral repertoire, planning auditions, and insights on teaching.
PREREQUISITE: MASTER’S LEVEL. MIP DBJ.

MIPDBK Double Bass
1- 4 credits                 Fall & Spring Semester & First & Second Summer Session
Advanced study of the double bass. Preparation for Master's recitals, and oral defense, orchestral repertoire, planning auditions, and insights on teaching.
PREREQUISITE: MASTER’S LEVEL. MIP DBJ.
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MIPDBL Double Bass
1- 4 credits Fall & Spring Semester
Advanced study of the double bass. Preparation for Master's recitals, and oral defense, orchestral repertoire, planning auditions, and insights on teaching.
PREREQUISITE: MASTER'S LEVEL MIP DBK

MIPDBM Double Bass
1- 4 credits Fall & Spring Semester
Preparation of qualifying and DMA recitals and oral defense. Continuation of advanced orchestral repertoire and methods and audition preparation.
PREREQUISITE: DOCTORAL LEVEL MIP DBL.

MIPDBN Double Bass
1- 4 credits Fall & Spring Semester
Preparation of qualifying and DMA recitals and oral defense. Continuation of advanced orchestral repertoire and methods and audition preparation.
PREREQUISITE: DOCTORAL LEVEL MIP DBM.

MIPDBO Double Bass
1- 4 credits Fall & Spring Semester
Preparation of qualifying and DMA recitals and oral defense. Continuation of advanced orchestral repertoire and methods and audition preparation.
PREREQUISITE: DOCTORAL LEVEL MIP DBN.

MIPDBP Double Bass
1- 4 credits Fall & Spring Semester
Preparation of qualifying and DMA recitals and oral defense. Continuation of advanced orchestral repertoire and methods and audition preparation.
PREREQUISITE: DOCTORAL LEVEL MIP DBO.

MIPDBQ Double Bass
1- 4 credits Fall & Spring Semester
Preparation of qualifying and DMA recitals and oral defense. Continuation of advanced orchestral repertoire and methods and audition preparation.
PREREQUISITE: DOCTORAL LEVEL MIP DBP.

MIPDBR Double Bass
1- 4 credits Fall & Spring Semester
Preparation of qualifying and DMA recitals and oral defense. Continuation of advanced orchestral repertoire and methods and audition preparation.
PREREQUISITE: DOCTORAL LEVEL MIP DBQ.

MIPFHI French Horn
1- 4 credits Fall & Spring Semester
Emphasis will be on an assessment of students' skills, needs and repertoire experience. Materials will be explored from the standard etude and solo literature that is relevant to the students' level and skill needs. Exploration will begin to choose material for a solo recital in the Spring semester.
PREREQUISITE: MASTER'S LEVEL MIP FHH.
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MIPFHH French Horn
1- 4 credits  Fall & Spring Semester
Emphasis will continue to be the advancement of repertoire experience and skill assessment. Preparation and presentation of a solo recital will be the main focus of repertoire study. In-depth study of Orchestral Literature will also begin this semester.
PREREQUISITE: MASTER'S LEVEL. MIP FHL.

MIPFHK French Horn
1- 4 credits  Fall & Spring Semester & First & Second Summer Session
Further exploration of solo and chamber music repertoire. Orchestral literature will take a larger role in preparation for auditions. An overview of pedagogy materials for performance and teaching use will also be explored.
PREREQUISITE: MASTER'S LEVEL. MIP FHJ.

MIPFHL French Horn
1- 4 credits  Fall & Spring Semester
Focus on audition preparation and repertoire for the final Master's recital.
PREREQUISITE: MASTER'S LEVEL. MIP FHK.

MIPFHM French Horn
1- 4 credits  Fall & Spring Semester
Students' skill needs will be assessed and a course of study developed for any remedial needs. An in-depth study of appropriate literature for both solo and chamber recitals will be undertaken in preparation for a long-term degree plan. Advanced study of Orchestral Literature will begin, including listening and score study. Repertoire for an initial recital and the Qualifying Recital will be chosen and prepared.
PREREQUISITE: DOCTORAL LEVEL. MIP FHL.

MIPFHN French Horn
1- 4 credits  Fall & Spring Semester
The initial Doctoral Recital and the Qualifying Recital will be presented. Repertoire for these recitals will be the main focus but the Study of Orchestral Literature will remain a constant.
PREREQUISITE: DOCTORAL LEVEL. MIP FHM.

MIPFHO French Horn
1- 4 credits  Fall & Spring Semester
Repertoire exploration for either the Solo recital or the Chamber Music recital along with continuing Orchestral Literature study.
PREREQUISITE: DOCTORAL LEVEL. MIP FHN.

MIPFHP French Horn
1- 4 credits  Fall & Spring Semester
Final preparation and presentation for either the Solo recital or Chamber Music recital. Preparation for Orchestral auditions will also continue.
PREREQUISITE: DOCTORAL LEVEL. MIP FHO.

MIPFHQ French Horn
1- 4 credits  Fall & Spring Semester
Repertoire exploration for the final recital along with Orchestral audition preparation. An overview of pedagogical materials will be explored and prepared as possible teaching tools.
PREREQUISITE: DOCTORAL LEVEL. MIP FHP.
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MIPFHR French Horn
1-4 credits Fall & Spring Semester
Final preparation and presentation of remaining recital. Preparation for auditions should be advanced enough that the student can begin to take auditions. This will provide the opportunity for follow up work on audition skills and techniques.
PREREQUISITE: DOCTORAL LEVEL. MIP FHQ.

MIPFLI Flute
1-4 credits Fall & Spring Semester
Mastery of technical aspects of flute performance. Preparation of Masters recital(s) and oral defense. Preparation of repertoire for audition for further study or professional placement. Related areas such as specific individualized studies, instrumental maintenance, and orchestral excerpts are also part of the curriculum.
PREREQUISITE: MASTER’S LEVEL. MIP FLH.

MIPFLJ Flute
1-4 credits Fall & Spring Semester
Mastery of technical aspects of flute performance. Preparation of Masters recital(s) and oral defense. Preparation of repertoire for audition for further study or professional placement. Related areas such as specific individualized studies, instrumental maintenance, and orchestral excerpts are also part of the curriculum.
PREREQUISITE: MASTER’S LEVEL. MIP FLJ.

MIPFLK Flute
1-4 credits Fall & Spring Semester & First & Second Summer Session
Mastery of technical aspects of flute performance. Preparation of Masters recital(s) and oral defense. Preparation of repertoire for audition for further study or professional placement. Related areas such as specific individualized studies, instrumental maintenance, and orchestral excerpts are also part of the curriculum.
PREREQUISITE: MASTER’S LEVEL. MIP FLK.

MIPFLL Flute
1-4 credits Fall & Spring Semester
Mastery of technical aspects of flute performance. Preparation of Masters recital(s) and oral defense. Preparation of repertoire for audition for further study or professional placement. Related areas such as specific individualized studies, instrumental maintenance, and orchestral excerpts are also part of the curriculum.
PREREQUISITE: MASTER’S LEVEL. MIP FLL.

MIPFLM Flute
1-4 credits Fall & Spring Semester
Continue mastery of technical aspects of flute performance. Preparation of DMA recitals and oral defense. Preparation of repertoire for audition for professional placement. An overview of pedagogy materials for performance and teaching use will also be explored.
PREREQUISITE: DOCTORAL LEVEL. MIP FLM.

MIPFLN Flute
1-4 credits Fall & Spring Semester
Continue mastery of technical aspects of flute performance. Preparation of DMA recitals and oral defense. Preparation of repertoire for audition for professional placement. An overview of pedagogy materials for performance and teaching use will also be explored.
PREREQUISITE: DOCTORAL LEVEL. MIP FLM.
MIPFLO Flute
1- 4 credits  Fall & Spring Semester
Continue mastery of technical aspects of flute performance. Preparation of DMA recitals and oral defense. Preparation of repertoire for audition for professional placement. An overview of pedagogy materials for performance and teaching use will also be explored.
PREREQUISITE: DOCTORAL LEVEL. MIP FLN.

MIPFLP Flute
1- 4 credits  Fall & Spring Semester
Continue mastery of technical aspects of flute performance. Preparation of DMA recitals and oral defense. Preparation of repertoire for audition for professional placement. An overview of pedagogy materials for performance and teaching use will also be explored.
PREREQUISITE: DOCTORAL LEVEL. MIP FLO.

MIPFLOQ Flute
1- 4 credits  Fall & Spring Semester
Continue mastery of technical aspects of flute performance. Preparation of DMA recitals and oral defense. Preparation of repertoire for audition for professional placement. An overview of pedagogy materials for performance and teaching use will also be explored.
PREREQUISITE: DOCTORAL LEVEL. MIP FLQ.

MIPFLR Flute
1- 4 credits  Fall & Spring Semester
Continue mastery of technical aspects of flute performance. Preparation of DMA recitals and oral defense. Preparation of repertoire for audition for professional placement. An overview of pedagogy materials for performance and teaching use will also be explored.
PREREQUISITE: DOCTORAL LEVEL. MIP FLR.

MIPGUI Guitar
1- 4 credits  Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MIP GUH.

MIPGUJ Guitar
1- 4 credits  Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MIP GUI.

MIPGUK Guitar
1- 4 credits  Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: MASTER'S LEVEL. MIP GUJ.

MIPGUL Guitar
1- 4 credits  Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MIP GUK.

MIPGUM Guitar
1- 4 credits  Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP GUL.

MIPGUN Guitar
1- 4 credits  Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP GUM.
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MIPGUO Guitar
1-4 credits
Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP GUN.

MIPGUP Guitar
1-4 credits
Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP GUO.

MIPGUQ Guitar
1-4 credits
Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP GUP.

MIPGUR Guitar
1-4 credits
Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP GUQ.

MIPHAI Harp
1-4 credits
Advanced study of solo harp literature.
Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MIP HAH.

MIPHAIJ Harp
1-4 credits
Advanced study of solo harp literature.
Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MIP HAJ.

MIPHAH Harp
1-4 credits
Fall & Spring Semester & First & Second Summer Session
Advanced study of solo harp literature.
PREREQUISITE: MASTER'S LEVEL. MIP HAH.

MIPHAL Harp
1-4 credits
Advanced study of solo harp literature.
Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MIP HAJ.

MIPHAM Harp
1-4 credits
Advanced study of solo harp literature.
Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP HAL.

MIPHAN Harp
1-4 credits
Advanced study of solo harp literature.
Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP HAM.

MIPHAO Harp
1-4 credits
Advanced study of solo harp literature.
Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP HAO.

MIPHAP Harp
1-4 credits
Advanced study of solo harp literature.
Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP HAO.
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MIPHAQ Harp
1- 4 credits
Advanced study of solo harp literature.
PREREQUISITE: DOCTORAL LEVEL. MIP HAP.

MIPHAR Harp
1- 4 credits
Advanced study of solo harp literature.
PREREQUISITE: DOCTORAL LEVEL. MIP HAQ.

MIPOBI Oboe
1- 4 credits
Mastery of technical aspects of oboe performance. Preparation of Masters recital(s) and Oral Defense. Preparation of audition repertoire for further study or professional placement. Related areas such as reed making, specific individualized studies, instrument maintenance, chamber music and orchestral excerpts are also part of the curriculum.
PREREQUISITE: MASTER'S LEVEL. MIP OBH.

MIPOBJ Oboe
1- 4 credits
Mastery of technical aspects of oboe performance. Preparation of Masters recital(s) and Oral Defense. Preparation of audition repertoire for further study or professional placement. Related areas such as reed making, specific individualized studies, instrument maintenance, chamber music and orchestral excerpts are also part of the curriculum.
PREREQUISITE: MASTER'S LEVEL. MIP OBI.

MIPOBK Oboe
1- 4 credits
Mastery of technical aspects of oboe performance. Preparation of Masters recital(s) and Oral Defense. Preparation of audition repertoire for further study or professional placement. Related areas such as reed making, specific individualized studies, instrument maintenance, chamber music and orchestral excerpts are also part of the curriculum.
PREREQUISITE: MASTER'S LEVEL. MIP OBK.

MIPOBL Oboe
1- 4 credits
Mastery of technical aspects of oboe performance. Preparation of Masters recital(s) and Oral Defense. Preparation of audition repertoire for further study or professional placement. Related areas such as reed making, specific individualized studies, instrument maintenance, chamber music and orchestral excerpts are also part of the curriculum.
PREREQUISITE: MASTER'S LEVEL. MIP OBL.

MIPOBM Oboe
1- 4 credits
Continue mastery of technical aspects of oboe performance. Preparation of DMA recitals and Oral Defense. Preparation of audition repertoire for professional placement. An overview of pedagogy materials for performance and teaching use will also be explored.
PREREQUISITE: DOCTORAL LEVEL. MIP OBL.
MIPOBN Oboe
1-4 credits Fall & Spring Semester
Continue mastery of technical aspects of oboe performance. Preparation of DMA recitals and Oral Defense. Preparation of audition repertoire for professional placement. An overview of pedagogy materials for performance and teaching use will also be explored.
PREREQUISITE: DOCTORAL LEVEL. MIP OBN.

MIPOBO Oboe
1-4 credits Fall & Spring Semester
Continue mastery of technical aspects of oboe performance. Preparation of DMA recitals and Oral Defense. Preparation of audition repertoire for professional placement. An overview of pedagogy materials for performance and teaching use will also be explored.
PREREQUISITE: DOCTORAL LEVEL. MIP OBN.

MIPOBP Oboe
1-4 credits Fall & Spring Semester
Continue mastery of technical aspects of oboe performance. Preparation of DMA recitals and Oral Defense. Preparation of audition repertoire for professional placement. An overview of pedagogy materials for performance and teaching use will also be explored.
PREREQUISITE: DOCTORAL LEVEL. MIP OBP.

MIPOBQ Oboe
1-4 credits Fall & Spring Semester
Continue mastery of technical aspects of oboe performance. Preparation of DMA recitals and Oral Defense. Preparation of audition repertoire for professional placement. An overview of pedagogy materials for performance and teaching use will also be explored.
PREREQUISITE: DOCTORAL LEVEL. MIP OBQ.

MIPPEI Percussion
1-4 credits Fall & Spring Semester
First semester of the Master's Degree in percussion performance. Emphasis on assessment of students' skills needs and repertoire experience. Materials covered to include standard solo and ensemble repertoire and technical work. First recital repertoire chosen from works supplementing students' needs.
PREREQUISITE: MASTER'S LEVEL. MIP PEH.

MIPPEJ Percussion
1-4 credits Fall & Spring Semester
Second semester of the Masters Degree in percussion performance. The main area of focus is first recital; to be performed this semester. Exploration into solo and ensemble performance needs will continue through this semester.
PREREQUISITE: MASTER'S LEVEL. MIP PEI.
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MIPPEK Percussion
1- 4 credits
Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: MASTER'S LEVEL. MIP PEJ.

MIPPEL Percussion
1- 4 credits
Fall & Spring Semester
Final semester of the Master's Degree in percussion performance. Main focus to be placed upon preparations for the final recital, which will be performed this semester.
PREREQUISITE: MASTER'S LEVEL. MIP PEK.

MIPPEM Percussion
1- 4 credits
Fall & Spring Semester
First of six semesters of study for a DMA in percussion performance. Students' needs assessed, and a course of study devised. Solo and ensemble works studied in-depth accordingly. Works for an initial and qualifying recital chosen.
PREREQUISITE: DOCTORAL LEVEL. MIP PEM.

MIPPEN Percussion
1- 4 credits
Fall & Spring Semester
Second semester DMA. Main focus on initial and qualifying recitals, which are to be performed this semester. Ensemble and technical needs to be addressed.
PREREQUISITE: DOCTORAL LEVEL. MIP PEP.

MIPPEO Percussion
1- 4 credits
Fall & Spring Semester
Third semester DMA. Repertoire for either solo or Chamber recital to be chosen.
PREREQUISITE: DOCTORAL LEVEL. MIP PEO.

MIPPEP Percussion
1- 4 credits
Fall & Spring Semester
Fourth semester DMA. Either solo or chamber recital to be presented, as well as continuing ensemble studies.
PREREQUISITE: DOCTORAL LEVEL. MIP PEP.

MIPPEQ Percussion
1- 4 credits
Fall & Spring Semester
Fifth semester DMA. Repertoire for final recital will be the focus of the semester. Ensemble work to continue, as well as pedagogical studies.
PREREQUISITE: DOCTORAL LEVEL. MIP PEQ.

MIPPER Percussion
1- 4 credits
Fall & Spring Semester
Final semester DMA. Final preparation and presentation of the final recital to be the main focus of the semester. Any remaining pedagogical and ensemble concerns are addressed.
PREREQUISITE: DOCTORAL LEVEL. MIP PEQ.
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MIPSAI Saxophone
1- 4 credits  Fall & Spring Semester
Graduate level private study in classical saxophone is geared toward the individual's needs depending on the ability and skills mastered during the undergraduate level. The student will be required to seek refinement in all areas, including tone, intonation, technique, stylistic interpretation, and advanced forms of saxophone techniques. The student must be thoroughly versed in the pedagogy of the instrument. Study of advanced scales is required along with some jazz studies and advanced literature will be addressed in the private lesson format.
PREREQUISITE: MASTER'S LEVEL. MIP SAH.

MIPSAJ Saxophone
1- 4 credits  Fall & Spring Semester
Graduate level private study in classical saxophone is geared toward the individual's needs depending on the ability and skills mastered during the undergraduate level. The student will be required to seek refinement in all areas, including tone, intonation, technique, stylistic interpretation, and advanced forms of saxophone techniques. The student must be thoroughly versed in the pedagogy of the instrument. Study of advanced scales is required along with some jazz studies and advanced literature will be addressed in the private lesson format.
PREREQUISITE: MASTER'S LEVEL. MIP SAI.

MIPSAK Saxophone
1- 4 credits  Fall & Spring Semester & First & Second Summer Session
Graduate level private study in classical saxophone is geared toward the individual's needs depending on the ability and skills mastered during the undergraduate level. The student will be required to seek refinement in all areas, including tone, intonation, technique, stylistic interpretation, and advanced forms of saxophone techniques. The student must be thoroughly versed in the pedagogy of the instrument. Study of advanced scales is required along with some jazz studies and advanced literature will be addressed in the private lesson format.
PREREQUISITE: MASTER'S LEVEL. MIP SAJ.

MIPSAL Saxophone
1- 4 credits  Fall & Spring Semester
Graduate level private study in classical saxophone is geared toward the individual's needs depending on the ability and skills mastered during the undergraduate level. The student will be required to seek refinement in all areas, including tone, intonation, technique, stylistic interpretation, and advanced forms of saxophone techniques. The student must be thoroughly versed in the pedagogy of the instrument. Study of advanced scales is required along with some jazz studies and advanced literature will be addressed in the private lesson format.
PREREQUISITE: MASTER'S LEVEL. MIP SAK.

MIPSAM Saxophone
1- 4 credits  Fall & Spring Semester
Graduate level private study in classical saxophone is geared toward the individual's needs depending on the ability and skills mastered during the undergraduate level. The student will be required to seek refinement in all areas, including tone, intonation, technique, stylistic interpretation, and advanced forms of saxophone techniques. The student must be thoroughly versed in the pedagogy of the instrument. Study of advanced scales is required along with some jazz studies and advanced literature will be addressed in the private lesson format.
PREREQUISITE: DOCTORAL LEVEL. MIP SAL.
MIPSAN Saxophone
1-4 credits
Fall & Spring Semester
Graduate level private study in classical saxophone is geared toward the individual's needs depending on the ability and skills mastered during the undergraduate level. The student will be required to seek refinement in all areas, including tone, intonation, technique, stylistic interpretation, and advanced forms of saxophone techniques. The student must be thoroughly versed in the pedagogy of the instrument. Study of advanced scales is required along with some jazz studies and advanced literature will be addressed in the private lesson format.
PREREQUISITE: DOCTORAL LEVEL. MIP SAM

MIPSAO Saxophone
1-4 credits
Fall & Spring Semester
Graduate level private study in classical saxophone is geared toward the individual's needs depending on the ability and skills mastered during the undergraduate level. The student will be required to seek refinement in all areas, including tone, intonation, technique, stylistic interpretation, and advanced forms of saxophone techniques. The student must be thoroughly versed in the pedagogy of the instrument. Study of advanced scales is required along with some jazz studies and advanced literature will be addressed in the private lesson format.
PREREQUISITE: DOCTORAL LEVEL. MIP SAN.

MIPSAP Saxophone
1-4 credits
Fall & Spring Semester
Graduate level private study in classical saxophone is geared toward the individual's needs depending on the ability and skills mastered during the undergraduate level. The student will be required to seek refinement in all areas, including tone, intonation, technique, stylistic interpretation, and advanced forms of saxophone techniques. The student must be thoroughly versed in the pedagogy of the instrument. Study of advanced scales is required along with some jazz studies and advanced literature will be addressed in the private lesson format.
PREREQUISITE: DOCTORAL LEVEL. MIP SAO.

MIPSAQ Saxophone
1-4 credits
Fall & Spring Semester
Graduate level private study in classical saxophone is geared toward the individual's needs depending on the ability and skills mastered during the undergraduate level. The student will be required to seek refinement in all areas, including tone, intonation, technique, stylistic interpretation, and advanced forms of saxophone techniques. The student must be thoroughly versed in the pedagogy of the instrument. Study of advanced scales is required along with some jazz studies and advanced literature will be addressed in the private lesson format.
PREREQUISITE: DOCTORAL LEVEL. MIP SAQ.

MIPSAR Saxophone
1-4 credits
Fall & Spring Semester
Graduate level private study in classical saxophone is geared toward the individual's needs depending on the ability and skills mastered during the undergraduate level. The student will be required to seek refinement in all areas, including tone, intonation, technique, stylistic interpretation, and advanced forms of saxophone techniques. The student must be thoroughly versed in the pedagogy of the instrument. Study of advanced scales is required along with some jazz studies and advanced literature will be addressed in the private lesson format.
PREREQUISITE: DOCTORAL LEVEL. MIP SAQ.
MIPTBI Trombone
1-4 credits
Fall & Spring Semester
Advanced progressive study is chosen from the following etude books, Gabriel Masson
12 Various Etudes, Marcel Bitsch 15 Rhythmical Studies, Roger Bountry 12 Etudes
for High Perfection, and Brade Edwards Lip-slurs-Exercises for Tone and Technique.
Additionally, solo concerto literature and contemporary works are studied and
prepared to advance the student's technical and musical mastery of the trombone.
Orchestral excerpts are studied to further develop and refine an appropriate sense
of orchestral style.
PREREQUISITE: MASTER'S LEVEL. MIP TBI.

MIPTBJ Trombone
1-4 credits
Fall & Spring Semester
Advanced progressive study is chosen from the following etude books, Gabriel Masson
12 Various Etudes, Marcel Bitsch 15 Rhythmical Studies, Roger Bountry 12 Etudes
for High Perfection, and Brade Edwards Lip-slurs-Exercises for Tone and Technique.
Additionally, solo concerto literature and contemporary works are studied and
prepared to advance the student's technical and musical mastery of the trombone.
Orchestral excerpts are studied to further develop and refine an appropriate sense
of orchestral style.
PREREQUISITE: MASTER'S LEVEL. MIP TBJ.

MIPTBK Trombone
1-4 credits
Fall & Spring Semester & First & Second Summer Session
Advanced progressive study is chosen from the following etude books, Gabriell Masson
12 Various Etudes, Marcel Bitsch 15 Rhythmical Studies, Roger Bountry 12 Etudes
for High Perfection, and Brade Edwards Lip-slurs-Exercises for Tone and Technique.
Additionally, solo concerto literature and contemporary works are studied and
prepared to advance the student's technical and musical mastery of the trombone.
Orchestral excerpts are studied to further develop and refine an appropriate sense
of orchestral style.
PREREQUISITE: MASTER'S LEVEL. MIP TBJ.

MIPTBL Trombone
1-4 credits
Fall & Spring Semester
Advanced progressive study is chosen from the following etude books, Gabriel Masson
12 Various Etudes, Marcel Bitsch 15 Rhythmical Studies, Roger Bountry 12 Etudes
for High Perfection, and Brade Edwards Lip-slurs-Exercises for Tone and Technique.
Additionally, solo concerto literature and contemporary works are studied and
prepared to advance the student's technical and musical mastery of the trombone.
Orchestral excerpts are studied to further develop and refine an appropriate sense
of orchestral style.
PREREQUISITE: MASTER'S LEVEL. MIP TBJ.

MIPTBM Trombone
1-4 credits
Fall & Spring Semester
Advanced progressive study is chosen from the following etude books, Gabriel Masson
12 Various Etudes, Marcel Bitsch 15 Rhythmical Studies, Roger Bountry 12 Etudes
for High Perfection, and Brade Edwards Lip-slurs-Exercises for Tone and Technique.
Additionally, solo concerto literature and contemporary works are studied and
prepared to advance the student's technical and musical mastery of the trombone.
Orchestral excerpts are studied to further develop and refine an appropriate sense
of orchestral style.
PREREQUISITE: DOCTORAL LEVEL. MIP TBL.
SCHOOL OF MUSIC

INSTRUMENTAL PERFORMANCE

MIPTBN Trombone
1- 4 credits                     Fall & Spring Semester
Advanced progressive study is chosen from the following etude books, Gabriel Masson 12 Various Etudes, Marcel Bitsch 15 Rhythmical Studies, Roger Bountry 12 Etudes for High Perfection, and Brade Edwards Lip-slurs-Exercises for Tone and Technique. Additionally, solo concerto literature and contemporary works are studied and prepared to advance the student’s technical and musical mastery of the trombone. Orchestral excerpts are studied to further develop and refine an appropriate sense of orchestral style.
PREREQUISITE: DOCTORAL LEVEL. MIP TBM.

MIPTBO Trombone
1- 4 credits                     Fall & Spring Semester
Advanced progressive study is chosen from the following etude books, Gabriel Masson 12 Various Etudes, Marcel Bitsch 15 Rhythmical Studies, Roger Bountry 12 Etudes for High Perfection, and Brade Edwards Lip-slurs-Exercises for Tone and Technique. Additionally, solo concerto literature and contemporary works are studied and prepared to advance the student’s technical and musical mastery of the trombone. Orchestral excerpts are studied to further develop and refine an appropriate sense of orchestral style.
PREREQUISITE: DOCTORAL LEVEL. MIP TBN.

MIPTBP Trombone
1- 4 credits                     Fall & Spring Semester
Advanced progressive study is chosen from the following etude books, Gabriel Masson 12 Various Etudes, Marcel Bitsch 15 Rhythmical Studies, Roger Bountry 12 Etudes for High Perfection, and Brade Edwards Lip-slurs-Exercises for Tone and Technique. Additionally, solo concerto literature and contemporary works are studied and prepared to advance the student’s technical and musical mastery of the trombone. Orchestral excerpts are studied to further develop and refine an appropriate sense of orchestral style.
PREREQUISITE: DOCTORAL LEVEL. MIP TBO.

MIPTBQ Trombone
1- 4 credits                     Fall & Spring Semester
Advanced progressive study is chosen from the following etude books, Gabriel Masson 12 Various Etudes, Marcel Bitsch 15 Rhythmical Studies, Roger Bountry 12 Etudes for High Perfection, and Brade Edwards Lip-slurs-Exercises for Tone and Technique. Additionally, solo concerto literature and contemporary works are studied and prepared to advance the student’s technical and musical mastery of the trombone. Orchestral excerpts are studied to further develop and refine an appropriate sense of orchestral style.
PREREQUISITE: DOCTORAL LEVEL. MIP TBP.

MIPTBR Trombone
1- 4 credits                     Fall & Spring Semester
Advanced progressive study is chosen from the following etude books, Gabriel Masson 12 Various Etudes, Marcel Bitsch 15 Rhythmical Studies, Roger Bountry 12 Etudes for High Perfection, and Brade Edwards Lip-slurs-Exercises for Tone and Technique. Additionally, solo concerto literature and contemporary works are studied and prepared to advance the student’s technical and musical mastery of the trombone. Orchestral excerpts are studied to further develop and refine an appropriate sense of orchestral style.
PREREQUISITE: DOCTORAL LEVEL. MIP TBQ.
Graduate Course Listing

SCHOOL OF MUSIC

INSTRUMENTAL PERFORMANCE

MIPTPI Trumpet  
1-4 credits  
Fall & Spring Semester  
PREREQUISITE: MASTER'S LEVEL. MIP TPH.

MIPTPJ Trumpet  
1-4 credits  
Fall & Spring Semester  
PREREQUISITE: MASTER'S LEVEL. MIP TPI.

MIPTPK Trumpet  
1-4 credits  
Fall & Spring Semester & First & Second Summer Session  
PREREQUISITE: MASTER'S LEVEL. MIP TPJ.

MIPTPL Trumpet  
1-4 credits  
Fall & Spring Semester  
PREREQUISITE: MASTER'S LEVEL. MIP TPK.

MIPTPM Trumpet  
1-4 credits  
Fall & Spring Semester  
PREREQUISITE: DOCTORAL LEVEL. MIP TPL.

MIPTPN Trumpet  
1-4 credits  
Fall & Spring Semester  
PREREQUISITE: DOCTORAL LEVEL. MIP TPM.

MIPTPO Trumpet  
1-4 credits  
Fall & Spring Semester  
PREREQUISITE: DOCTORAL LEVEL. MIP TPN.

MIPTPP Trumpet  
1-4 credits  
Fall & Spring Semester  
PREREQUISITE: DOCTORAL LEVEL. MIP TPO.

MIPTPQ Trumpet  
1-4 credits  
Fall & Spring Semester  
PREREQUISITE: DOCTORAL LEVEL. MIP TPP.

MIPTPR Trumpet  
1-4 credits  
Fall & Spring Semester  
PREREQUISITE: DOCTORAL LEVEL. MIP TPQ.

MIPTUI Tuba  
1-4 credits  
Fall & Spring Semester  
Private lessons that focus on development of embouchure, breathing, and articulation, with emphasis on orchestral excerpts on Alphonse, Sear, Kraft, Kelleway, and others.  
PREREQUISITE: MASTER'S LEVEL. MIP TUH.

MIPTUJ Tuba  
1-4 credits  
Fall & Spring Semester  
Private lessons that focus on development of embouchure, breathing, and articulation, with emphasis on orchestral excerpts on Alphonse, Sear, Kraft, Kelleway, and others.  
PREREQUISITE: MASTER'S LEVEL. MIP TUI.
MIPTUK Tuba
1-4 credits  Fall & Spring Semester & First & Second Summer Session
Private lessons that focus on development of embouchure, breathing, and articulation, with emphasis on orchestral excerpts on Alphonse, Sear, Kraft, Kelleway, and others.
PREREQUISITE: MASTER’S LEVEL. MIP TUJ.

MIPTUL Tuba
1-4 credits  Fall & Spring Semester
Private lessons that focus on development of embouchure, breathing, and articulation, with emphasis on orchestral excerpts on Alphonse, Sear, Kraft, Kelleway, and others.
PREREQUISITE: MASTER’S LEVEL. MIP TUK.

MIPTUM Tuba
1-4 credits  Fall & Spring Semester
Private lessons that focus on development of embouchure, breathing, and articulation, with emphasis on orchestral excerpts on Cinema, Snedecor, Wilder, Gould and others.
PREREQUISITE: DOCTORAL LEVEL. MIP TUM.

MIPTUN Tuba
1-4 credits  Fall & Spring Semester
Private lessons that focus on development of embouchure, breathing, and articulation, with emphasis on orchestral excerpts on Cinema, Snedecor, Wilder, Gould and others.
PREREQUISITE: DOCTORAL LEVEL. MIP TUN.

MIPTUO Tuba
1-4 credits  Fall & Spring Semester
Private lessons that focus on development of embouchure, breathing, and articulation, with emphasis on orchestral excerpts on Cinema, Snedecor, Wilder, Gould and others.
PREREQUISITE: DOCTORAL LEVEL. MIP TUO.

MIPTUQ Tuba
1-4 credits  Fall & Spring Semester
Private lessons that focus on development of embouchure, breathing, and articulation, with emphasis on orchestral excerpts on Cinema, Snedecor, Wilder, Gould and others.
PREREQUISITE: DOCTORAL LEVEL. MIP TUQ.

MIPVAI Viola
1-4 credits  Fall & Spring Semester
Mastery of technical aspects of viola performance. Preparation of Masters recital(s) and oral defense. Preparation of repertoire for audition for further study or professional placement.
PREREQUISITE: MASTER’S LEVEL. MIP VAH.
INSTRUMENTAL PERFORMANCE

**MIPVAJ Viola**
1- 4 credits
Fall & Spring Semester
Mastery of technical aspects of viola performance. Preparation of Masters recital(s) and oral defense. Preparation of repertoire for audition for further study or professional placement.
PREREQUISITE: MASTER’S LEVEL. MIP VAI.

**MIPVAK Viola**
1- 4 credits
Fall & Spring Semester & First & Second Summer Session
Mastery of technical aspects of viola performance. Preparation of Masters recital(s) and oral defense. Preparation of repertoire for audition for further study or professional placement.
PREREQUISITE: MASTER’S LEVEL. MIP VAJ.

**MIPVAL Viola**
1- 4 credits
Fall & Spring Semester
Mastery of technical aspects of viola performance. Preparation of Masters recital(s) and oral defense. Preparation of repertoire for audition for further study or professional placement.
PREREQUISITE: MASTER’S LEVEL. MIP VAK.

**MIPVAM Viola**
1- 4 credits
Fall & Spring Semester
Continued mastery of technical aspects of viola performance. Preparation of qualifying recital and DMA recitals and oral defense. Preparation of repertoire for audition for further study or professional placement.
PREREQUISITE: DOCTORAL LEVEL. MIP VAL.

**MIPVAN Viola**
1- 4 credits
Fall & Spring Semester
Continued mastery of technical aspects of viola performance. Preparation of qualifying recital and DMA recitals and oral defense. Preparation of repertoire for audition for further study or professional placement.
PREREQUISITE: DOCTORAL LEVEL. MIP VAM.

**MIPVAO Viola**
1- 4 credits
Fall & Spring Semester
Continued mastery of technical aspects of viola performance. Preparation of qualifying recital and DMA recitals and oral defense. Preparation of repertoire for audition for further study or professional placement.
PREREQUISITE: DOCTORAL LEVEL. MIP VAO.

**MIPVAP Viola**
1- 4 credits
Fall & Spring Semester
Continued mastery of technical aspects of viola performance. Preparation of qualifying recital and DMA recitals and oral defense. Preparation of repertoire for audition for further study or professional placement.
PREREQUISITE: DOCTORAL LEVEL. MIP VAO.

**MIPVAQ Viola**
1- 4 credits
Fall & Spring Semester
Continued mastery of technical aspects of viola performance. Preparation of qualifying recital and DMA recitals and oral defense. Preparation of repertoire for audition for further study or professional placement.
PREREQUISITE: DOCTORAL LEVEL. MIP VAO.
MIPVAR Viola
1-4 credits
Fall & Spring Semester
Continued mastery of technical aspects of viola performance. Preparation of qualifying recital and DMA recitals and oral defense. Preparation of repertoire for audition for further study or professional placement.
PREREQUISITE: DOCTORAL LEVEL. MIP VAQ.

MIPVCI Violoncello
1-4 credits
Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MIP VCH.

MIPVCI Violoncello
1-4 credits
Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MIP VCI.

MIPVCK Violoncello
1-4 credits
Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: MASTER'S LEVEL. MIP VCJ.

MIPVCL Violoncello
1-4 credits
Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MIP VCK.

MIPVCM Violoncello
1-4 credits
Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP VCL.

MIPVCN Violoncello
1-4 credits
Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP VCM.

MIPVCO Violoncello
1-4 credits
Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP VCN.

MIPVCQ Violoncello
1-4 credits
Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP VCQ.

MIPVNI Violin
1-4 credits
Graduate Level.
PREREQUISITE: MASTER'S LEVEL. MIP VNH.

MIPVNI Violin
1-4 credits
Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MIP VNI.
MIPVNK Violin
1- 4 credits                 Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: MASTER'S LEVEL. MIP VNJ.

MIPVNL Violin
1- 4 credits                                                 Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MIP VNK.

MIPVNM Violin
1- 4 credits                                                 Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP VNL.

MIPVNN Violin
1- 4 credits                                                 Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP VNM.

MIPVNO Violin
1- 4 credits                                                 Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP VNN.

MIPVNP Violin
1- 4 credits                                                 Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP VNO.

MIPVNR Violin
1- 4 credits                                                 Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MIP VNQ.

MIP539 Brass Chamber Music Institute
2 credits                                              Offered By Announcement Only
Institute offers opportunities for brass players to perform in all forms of chamber
music--from trios to Brass Choir. Included are master classes on each instrument
plus the availability of private instruction from an excellent faculty. The material
covered spans the musical periods including recent brass publications.

MIP541 Bassoon Repertoire and Pedagogy
1- 2 credits                  Fall Semester
Solo and small ensemble literature of the bassoon since 1600.
PREREQUISITE: ADVANCED STANDING IN MUSIC AND PERMISSION OF INSTRUCTOR.

MIP542 Clarinet Repertoire and Pedagogy
1- 2 credits                  Fall Semester
Solo and small ensemble literature of the clarinet since 1600.
PREREQUISITE: ADVANCED STANDING IN MUSIC AND PERMISSION OF INSTRUCTOR.

MIP543 Flute Repertoire and Pedagogy
1- 2 credits                  Fall Semester
Solo and small ensemble literature of the flute since 1600.
PREREQUISITE: ADVANCED STANDING IN MUSIC AND PERMISSION OF INSTRUCTOR.
MIP544 Oboe Repertoire and Pedagogy
1- 2 credits
Fall Semester
Solo and small ensemble literature of the oboe since 1600.
PREREQUISITE: ADVANCED STANDING IN MUSIC AND PERMISSION OF INSTRUCTOR.

MIP545 Brass Repertoire and Pedagogy
1- 2 credits
Fall Semester
Solo and small ensemble literature of brass instruments since 1600.
PREREQUISITE: ADVANCED STANDING IN MUSIC AND PERMISSION OF INSTRUCTOR.

MIP546 Percussion Repertoire and Pedagogy
1- 2 credits
Fall Semester
Solo and small ensemble literature of percussion instruments since 1600.
PREREQUISITE: ADVANCED STANDING IN MUSIC AND PERMISSION OF INSTRUCTOR.

MIP547 Saxophone Repertoire and Pedagogy
1- 2 credits
Fall Semester
Solo and small ensemble literature of the saxophone since 1600.
PREREQUISITE: ADVANCED STANDING IN MUSIC AND PERMISSION OF INSTRUCTOR.

MIP548 Guitar Repertoire and Pedagogy
1- 2 credits
Fall Semester
Solo and small ensemble literature of the guitar since 1600.
PREREQUISITE: ADVANCED STANDING IN MUSIC AND PERMISSION OF INSTRUCTOR.

MIP549 String Repertoire and Pedagogy
1- 2 credits
Fall Semester
An exploration of teaching string playing. Areas covered include problem-solving and communication techniques, and practical considerations in establishing a teaching studio. Students participate in hands-on teaching opportunities. Prerequisite: Advanced standing in Music and permission of instructor.
PREREQUISITE: ADVANCED STANDING IN MUSIC AND PERMISSION OF INSTRUCTOR.

MIP550 Bach Cello Suites
1 credits
Fall Semester
The study and performance of the six suites for unaccompanied cello of Johann Sebastian Bach.

MIP580 Orchestral Audition Preparation
1 credits
Fall & Spring Semester
The study of the more difficult excerpts from the orchestral literature for violin, viola, violoncello, or double bass. Course may be repeated for credit.

MIP593 Special Topics MIP
1- 3 credits
Fall & Spring Semester & First & Second Summer Session
Supervised topics and other activities in specific areas of Instrumental Performance.
PREREQUISITE: PERMISSION OF THE DEAN.

MIP599 Practicum in Music
0 credit
Fall Semester
Practical professional experience.
PREREQUISITE: MUSIC MAJORS ONLY.
MIP601 MM Recital Program Notes Preparation

1 credits

Fall Semester

Students prepare extensive, original program notes, with bibliography. These notes will be made available to the audience of the second Masters recital. The notes may focus on the historical, analytical and performance aspects of the repertoire for this recital. Required in MM two-recital degree programs.

PREREQUISITE: ENROLLMENT IN THE FROST SCHOOL OF MUSIC AS A MASTERS CANDIDATE IN INSTRUMENTAL PERFORMANCE IN THE "TWO RECITAL/PROGRAM NOTES" TRACK.

MIP610 Graduate Conducting Seminar

1-2 credits

Fall & Spring Semester

The graduate conducting seminar is an advanced study of conducting and rehearsal techniques combined with score and ensemble topics. Specific topics vary each semester. May be repeated for credit.

MIP630 Afro-Caribbean Hand Drumming, Level I

1 credits

Fall & Spring Semester

The study of hand drumming techniques used to perform the music of Africa and the new world African music that originated in the islands of the Caribbean and the countries of Central and Latin America. Class is taught as a workshop.

MIP631 Afro-Caribbean Hand Drumming, Level II

1 credits

Fall & Spring Semester

The study of hand drumming techniques used to perform the music of Africa and the new world African music that originated in the islands of the Caribbean and the countries of Central and Latin America. Level II is a performance ensemble.

PREREQUISITE: MIP 630 OR AUDITION.

MIP632 Brazilian Batteria

1 credits

Fall & Spring Semester

Brazilian Batteria workshop is a study of the rhythmic aspects of the popular music of Brazil and the percussion instruments which produce many of the unique sounds which characterize this music. Study is made of the performance techniques of the pure Batteria and the incorporation of these techniques into a contemporary rhythm section.

MIP633 Cuban Conjunto

1 credits

Fall & Spring Semester

Cuban Conjunto workshop is a study of the Spanish and Afro traditions which meld together to form much of the Cuban folk repertory. Indigenous percussion instruments are studied together with the dance forms which make up much of this music.

MIP634 Steel Band/Trinidad

1 credits

Offered By Announcement Only

Steel Band/Trinidad reflects the broad musical heritage of the West Indies. Steel Drums (Pans) are combined with other indigenous instruments in the performance of both folk music and transcriptions of standard classical repertory in the tradition of the Trinidad carnival celebration. Level one of this class is taught as a workshop, level two as a performance ensemble. is taught as a performance ensemble.
MIP635 Percussion Ensemble
1 credits  Fall & Spring Semester
A performance ensemble for percussion principals and majors. A wide variety of music is studied and performed in both the classical and popular idioms. Several sections of this ensemble are offered each semester to accommodate students of varying skill levels.
PREREQUISITE: BY AUDITION.

MIP636 Marimba Ensemble
1 credits  Fall & Spring Semester
Marimba ensemble is a performance ensemble for percussionists with a medium to high level of mallet-keyboard skills. Transcriptions and original music in both classical and popular idioms are performed.
PREREQUISITE: BY AUDITION.

MIP637 Mallet Ensemble
1 credits  Fall & Spring Semester
Mallet ensemble is a workshop ensemble for students with beginning mallet/keyboard skills. It serves as a prerequisite for PEC. Areas covered include mallet manipulation and performance of scales, chords, sight reading, and prepared etudes.
PREREQUISITE: BY AUDITION.

MIP638 Trombone Choir
1 credits  Fall & Spring Semester
The study and performance of literature for small and large trombone ensembles.
PREREQUISITE: BY AUDITION.

MIP639 Brass Chamber Music
1 credits  Fall & Spring Semester
The study and performance of literature for small ensembles of similar or mixed brass instruments.
PREREQUISITE: BY AUDITION.

MIP640 Flute Choir
1 credits  Fall & Spring Semester
Reading, rehearsing, and performing the flute choir repertoire (duets, trios, quartets, quintets).
PREREQUISITE: BY AUDITION.

MIP641 Saxophone Ensemble
1 credits  Fall & Spring Semester
The study and performance of classical and jazz literature for small saxophone ensembles.
PREREQUISITE: BY AUDITION.

MIP643 Woodwind Chamber Music
1 credits  Fall & Spring Semester
Exploring the woodwind chamber music repertoire as represented by various combinations of instruments.
PREREQUISITE: BY AUDITION.
MIP644 Woodwind Chamber Ensemble
1 credits  Fall & Spring Semester
Woodwind chamber ensemble is designed to give students knowledge of the most important literature for woodwinds through practice, rehearsal, and performance of major works for woodwind chamber ensemble.
PREREQUISITE: BY AUDITION.

MIP645 String-Keyboard Chamber Music
1 credits  Fall & Spring Semester
The study and performance of literature from the Baroque Period through the 20th Century for two or more players for string instrumentalists and strings with keyboard.
PREREQUISITE: BY AUDITION.

MIP650 Seminar in Developing and Sustaining a Career in Music
1 credits  Fall Semester
An overview of key career issues in music performance including the business of music, legal issues, marketing, teaching studios, audience development and grant writing will be presented.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

MIP655 Seminar in Baroque Performance
1 credits  Fall Semester
Students will present research on compositions representative of the Baroque period. Presentations will include interpretation, style, and historical context of both the composer and the work.
PREREQUISITE: DOCTORAL STANDING AND PERMISSION OF THE INSTRUCTOR.

MIP656 Seminar in Classical Performance
1 credits  Spring Semester
Students will present research on compositions representative of the classical period. Presentations will include interpretation, style, and historical context of both the composer and the work.
PREREQUISITE: DOCTORAL STANDING AND PERMISSION OF THE INSTRUCTOR.

MIP657 Seminar in Romantic Performance
1 credits  Fall Semester
Students will present research on compositions representative of the Romantic period. Presentations will include interpretation, style, and historical context of both the composer and the work.
PREREQUISITE: DOCTORAL STANDING AND PERMISSION OF THE INSTRUCTOR.

MIP658 Seminar in Contemporary Performance
1 credits  Spring Semester
Students will present research on compositions representative of the Contemporary music. Presentations will include interpretation, style, and historical context of both the composer and the work.
PREREQUISITE: DOCTORAL STANDING AND PERMISSION OF THE INSTRUCTOR.

MIP670 Marching Band
1 credits  Fall Semester
The "Band of the Hour" Marching Band is open to all qualified undergraduate and graduate students, regardless of major. The band performs at all home Miami Hurricane football games and selected away games.
PREREQUISITE: AUDITION.
MIP671 Symphonic Winds
1 credits
Spring Semester
Symphonic Band is a large wind band that performs significant repertoire for wind and percussion instruments. It is open to all qualified undergraduate and graduate students, regardless of major.
PREREQUISITE: AUDITION.

MIP674 Brass Choir
1 credits
Fall & Spring Semester
Major works for Brass Choir are studied. Special emphasis is given to orchestral repertoire.
PREREQUISITE: BY AUDITION.

MIP676 Wind Ensemble
1 credits
Fall & Spring Semester
This course offers performance opportunities for qualified wind and percussion players. Repertoire includes significant literature written for the small and large wind band.
PREREQUISITE: AUDITION.

MIP680 Symphony Orchestra
1 credits
Fall & Spring Semester
The Symphony Orchestra performs significant repertoire for large orchestra. It is open to all qualified graduate students by audition.
PREREQUISITE: BY AUDITION.

MIP681 Instrumental Conducting Workshop
1 credits
Fall & Spring Semester
This course provides practical procedures and materials for beginning and advancing conducting students. Students enrolled in the four-semester sequence demonstrate basic conducting techniques, demonstration of instruments and instrumentation of the wind band and orchestra, and analyze scores for conception, interpretations, rehearsal, and performance.
PREREQUISITE: MTC 112 AND 122.

MIP683 Greater Miami Symphonic Band
1 credits
Fall & Spring Semester
The Greater Miami Symphonic Band is a community wind band that rehearses on the campus of the School of Music. Ensemble members are expected to participate in scheduled rehearsals and concerts which are posted at the beginning of each semester. Enrolled students are expected to pay the GMSB a $25 membership fee and to meet dress requirements. See the instructor for additional information.
PREREQUISITE: BY AUDITION.

MIP691 Tuba Ensemble
1 credits
Fall & Spring Semester
The study and performance of compositions and/or transcriptions written for an ensemble of tubas and/or euphoniums.
PREREQUISITE: BY AUDITION.

MIP692 Classical Guitar Ensemble
1 credits
Fall & Spring Semester
This course focuses on sightreading, rhythm recognition, and ensemble performance through the study of exercise, scales, and diverse repertoire.
PREREQUISITE: BY AUDITION.
MIP693 Special Projects
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Projects in any phase of instrumental performance in which the student is interested and qualified to work.
PREREQUISITE: GRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MIP694 Special Projects
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Projects in any phase of instrumental performance in which the student is interested and qualified to work.
PREREQUISITE: GRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MIP699 Contemporary Music Ensemble
1 credit Fall & Spring Semester
An in-depth study and performance of new and standard classical music of the 20th century.

MIP711 Master's Recital Paper
1-3 credits  Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's recital paper enrolls for credit as determined by his/her advisor. Credit is not awarded until the paper has been accepted.

MIP712 Master's Recital
1 credit  Fall & Spring Semester
The student enrolls for recital credit during the semester in which he/she presents the master's recital.

MIP713 Master's Advanced Recital
2 credits  Fall & Spring Semester
The second recital for those taking the two-recital option in the Master of Music in Instrumental Performance degree.
PREREQUISITE: MIP 712.

MIP720 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in MIP 710 (usually six credits). Credit not granted. May be regarded as full time residence.

MIP731 Doctoral Essay
1-12 credits  Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the D.M.A. The student will enroll for credit as determined by his/her advisor, but not for less than a total of 12. Not more than 12 hours of MIP 731 may be taken in a regular semester, nor more than six in a summer session.

MIP732 Doctoral Recital
1-2 credits  Fall & Spring Semester
Required of all candidates for the D.M.A.
MIP750 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D. and D.M.A., after the student
has been enrolled for the permissible cumulative total in appropriate doctoral
research. Credit not granted. May be regarded as full-time residence as determined
by the Dean of the Graduate School.

KEYBOARD PERFORMANCE

MKPHCI Harpsichord
1- 4 credits Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. BY AUDITION.

MKPHCJ Harpsichord
1- 4 credits Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MKP HCl.

MKPHCK Harpsichord
1- 4 credits Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: MASTER'S LEVEL. MKP HCJ.

MKPHCL Harpsichord
1- 4 credits Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MKP HCK.

MKPHCM Harpsichord
1- 4 credits Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. BY AUDITION.

MKPHCN Harpsichord
1- 4 credits Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MKP HCM.

MKPHCO Harpsichord
1- 4 credits Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MKP HCN.

MKPHCP Harpsichord
1- 4 credits Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MKP HCO.

MKPHCQ Harpsichord
1- 4 credits Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MKP HCQ.

MKPORI Organ
1- 4 credits Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. BY AUDITION.

MKPORJ Organ
1- 4 credits Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MKP ORI.
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KEYBOARD PERFORMANCE

MKPORK Organ
1- 4 credits Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: MASTER'S LEVEL. MKP ORJ.

MKPORL Organ
1- 4 credits Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MKP ORK.

MKPORM Organ
1- 4 credits Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. BY AUDITION.

MKPORN Organ
1- 4 credits Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MKP ORM.

MKPORO Organ
1- 4 credits Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MKP ORN.

MKPORP Organ
1- 4 credits Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MKP ORO.

MKPORQ Organ
1- 4 credits Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MKP ORP.

MKPORR Organ
1- 4 credits Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MKP ORQ.

MKPPII Piano
1- 4 credits Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. BY AUDITION.

MKPPIJ Piano
1- 4 credits Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MKP PIJ.

MKPPIK Piano
1- 4 credits Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: MASTER'S LEVEL. MKP PIK.

MKPPIL Piano
1- 4 credits Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MKP PIK.

MKPPIM Piano
1- 4 credits Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. BY AUDITION.

MKPPIP Piano
1- 4 credits Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MKP PIP.
MKPPIO Piano
1- 4 credits
Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MKP PIN.

MKPPIP Piano
1- 4 credits
Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MKP PIO.

MKPPIQ Piano
1- 4 credits
Fall Semester
PREREQUISITE: DOCTORAL LEVEL. MKP PIP.

MKPPIR Piano
1- 4 credits
Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MKP PIQ.

MKP547 Keyboard Pedagogy
1- 2 credits
Fall Semester
Methods and materials for teaching keyboard instruments with a focus on private lesson instruction. Topics include teacher profile, general teaching considerations, the business of teaching, the beginning student, second- and third-year students, teaching materials, and an introduction to new technology in piano teaching.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MKP589 Keyboard Accompanying Program in Salzburg, Austria
2- 4 credits
Spring Semester
Course is conducted at Salzburg College, Austria. Students receive comprehensive and intensive coaching in piano and accompanying from Dr. Posnak and other internationally acclaimed guest artists. Piano students study piano (2 cr.) and accompanying (1 cr.).
PREREQUISITE: BY AUDITION ONLY.

MKP593 Special Topics MKP
1- 3 credits
Fall & Spring Semester & First & Second Summer Session
Supervised topics and other activities in specific areas of Keyboard Performance.
PREREQUISITE: PERMISSION OF THE DEAN.

MKP599 Practicum in Music
0 credit
Fall & Spring Semester & First & Second Summer Session
Practical professional experience.
PREREQUISITE: MUSIC MAJORS ONLY

MKP610 Seminar in Baroque Performance
1 credit
Fall Semester
This course is designed as a performance class for graduate DMA piano majors. Class members will be responsible for presentation of major compositions representative of the period. Research will be required for each presentation concentrating on interpretation, stylistic requirements of the period and the historical context of the composers and work.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.
MKP611 Seminar in Classical Performance
1 credits Spring Semester
This course is designed as a performance class for graduate piano majors. Class members will be responsible for presentation of major compositions representative of the period. Research will be required for each presentation concentrating on interpretation, stylistic requirements of the period and the historical context of the composers and work.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

MKP612 Seminar in Romantic Performance
1 credits Fall Semester
This course is designed as a performance class for graduate piano majors. Class members will be responsible for presentation of major compositions representative of the period. Research will be required for each presentation concentrating on interpretation, stylistic requirements of the period and the historical context of the composers and work.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

MKP613 Seminar in Contemporary Music
1 credits Spring Semester
This course is designed as a performance class for graduate piano majors. Class members will be responsible for presentation of major compositions representative of the period. Research will be required for each presentation concentrating on interpretation, stylistic requirements of the period and the historical context of the composers and work.
PREREQUISITE: PERMISSION OF THE INSTRUCTOR.

MKP647 Seminar in Keyboard Pedagogy
2 credits Fall Semester
Methods and materials used in the teaching of keyboard instruments with a focus on group instruction. Topics include group lessons, preschool music, college piano classes, teaching literature, learning theories and applications, and the use of educational computer software in piano teaching.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MKP650 Keyboard Pedagogy Workshop
1 credits Fall & Spring Semester
Important topics of current interest within the field of keyboard pedagogy. Course may be repeated for credit.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MKP680 Keyboard Pedagogy Internship
2 credits Fall & Spring Semester
The student team-teaches a piano class or a private student with the instructor. The instructor observes and critiques the student, and the student videotapes themselves and offers critiques of their own teaching.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MKP685 Musical Theatre Accompanying
1 credits Fall & Spring Semester
A class designed to improve the skills of pianists with a particular interest in musical theatre piano accompaniment. Students will study in a classroom setting.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MKP686 Vocal Accompanying I
1 credits\nFall Semester
Pianists attend seminars where the principles of accompanying classical and musical theatre singers are addressed. Students are assigned to accompany applied voice lessons and ensembles. PREREQUISITE: PERMISSION OF INSTRUCTOR.

MKP687 Vocal Accompanying II
1 credits\nFall & Spring Semester
Pianists attend seminars where the principles of accompanying classical and musical theatre singers are addressed. Students are assigned to accompany applied voice lessons and ensembles. PREREQUISITE: PERMISSION OF INSTRUCTOR.

MKP688 Graduate Seminar in Accompanying
1 credits\nFall & Spring Semester
Study and performance of major vocal and chamber music literature as related to the accompanist and chamber musician. Course may be repeated for credit. PREREQUISITE: PERMISSION OF INSTRUCTOR.

MKP689 Accompanying, Level I
1 credits\nFall & Spring Semester
Development of sightreading skills and score preparation. PREREQUISITE: AUDITION/PERMISSION OF INSTRUCTOR.

MKP690 Accompanying, Level II
1 credits\nFall & Spring Semester
Progressive development of individual vocal/instrumental and ensemble accompanying, sightreading, score reading, and improvising from a lead sheet. PREREQUISITE: MKP 689 OR PERMISSION OF INSTRUCTOR.

MKP691 Accompanying, Level III
1 credits\nFall & Spring Semester
Progressive development of all types of accompaniment skills including clef and score reading, transposition, possible recital, opera theater, choral ensemble, and/or orchestral accompanying. PREREQUISITE: MKP 190/690 OR PERMISSION OF INSTRUCTOR.

MKP693 Special Projects
1- 3 credits\nFall & Spring Semester
Projects in any phase of keyboard performance in which the student is interested and qualified to work. PREREQUISITE: GRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MKP694 Special Projects
1- 3 credits\nFall & Spring Semester
Projects in any phase of keyboard performance in which the student is interested and qualified to work. PREREQUISITE: GRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MKP711 Master's Recital Paper
1- 3 credits\nFall & Spring Semester & First & Second Summer Session
The student working on his/her master's recital paper enrolls for credit as determined by his/her advisor. Credit is not awarded until the paper has been accepted.
MKP712 Master's Recital
1 credits Fall & Spring Semester
The student enrolls for recital credit during the semester in which he/she presents the master's recital.

MKP713 Master's Pedagogy Project
1- 3 credits Fall & Spring Semester
The student working on his/her master's pedagogy project enrolls for credit as determined by his/her advisor. Credit is not awarded until the project paper is accepted.

MKP720 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in MKP 710 (usually six credits). Credit not granted. May be regarded as full time residence.

MKP731 Doctoral Essay
1-12 credits Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the D.M.A. The student will enroll for credit as determined by his/her advisor, but not for less than a total of 12. Not more than 12 hours of MKP 731 may be taken in a regular semester, nor more than six in a summer session.

MKP732 Doctoral Recital
1- 2 credits Fall & Spring Semester
Required of all candidates for the D.M.A.

MKP750 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D. and D.M.A., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

MUSIC EDUCATION & THERAPY
MED540 Band Workshop
2 credits Spring Semester
A workshop designed specifically for instrumental conductors. Sessions are devoted to a survey of skills necessary for teacher effectiveness in ensembles, including diagnosing and correcting problems in instrumental performance. Conducting and score analysis is emphasized.

MED541 Musical Instrument Maintenance
1 credits Fall Semester & First Summer Session
Mechanical development, care, and maintenance of musical instruments. Separate sections for wind, percussion, string, and keyboard instruments.
PREREQUISITE: ADVANCED STANDING IN THE DEPARTMENT AND PERMISSION OF THE INSTRUCTOR.

MED542 Teaching Elementary General Music (K-5)
3 credits Fall Semester
Curriculum, methods, and materials designed for elementary music, K-6. Observation, planning, and teaching experience are emphasized.
PREREQUISITE: JUNIOR STANDING IN MED PROGRAM.
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**MED543 Teaching Elementary and Secondary Instrumental Music**
3 credits  
Spring Semester  
A study of elementary and secondary instrumental music instruction including program organization, teaching techniques, materials, and field experiences of music instruction in schools.  
PREREQUISITE: JUNIOR STANDING IN MED PROGRAM.

**MED544 Teaching Secondary General Music (7-12)**
3 credits  
Spring Semester  
Curriculum, methods, and materials designed for junior/senior high school general music programs.  
PREREQUISITE: JUNIOR STANDING IN MED PROGRAM.

**MED545 Music in Rehabilitation**
3 credits  
Spring Semester  
Review of development and functioning for neurologically-based sensorimotor behavior.  
Survey of disabilities and diseases that typically result in sensorimotor deficits is included. Demonstration and practice of therapeutic techniques for sensorimotor deficits are also covered.  
PREREQUISITE: MUSIC THERAPY MAJORS ONLY.

**MED546 Music Psychotherapy**
3 credits  
Spring Semester  
Survey and practical application of music as therapy in the treatment of psychiatric disorders and in promoting mental health.  
PREREQUISITE: MUSIC THERAPY MAJORS ONLY.

**MED548 Music for Special Learners**
2-3 credits  
Fall Semester & First & Second Summer Session  
This course is designed for music educators who will be working in schools with children and youth who have various disabilities. The purpose of MED 548 is to acquaint students with the characteristics of children and youth with disabilities, and introduce adaptive strategies in music education, K-12, for instructing children and youth with disabilities.

**MED549 Teaching Secondary Choral Music**
3 credits  
Fall Semester  
Course covers curriculum, vocal/rehearsal techniques, and literature. Teaching music in secondary schools through the medium of choral performance.  
PREREQUISITE: JUNIOR STANDING IN MED PROGRAM.

**MED555 Elementary Music Workshop**
3 credits  
First Summer Session  
Course is designed for in-service elementary school classroom teachers and music supervisors. Survey and experience with contemporary methodology and materials in elementary school music education is emphasized.

**MED556 Secondary General Music Workshop**
3 credits  
First Summer Session  
Course is designed for teachers of general music classes in middle, junior high, and senior high schools. Practical experience with methods and materials designed for non-performance music classes, grades 7-12 is emphasized.
MED557 Choral Music Workshop
2 credits
Fall Semester
Course is designed for teachers, and covers a wide variety of topics related to the choral music experience, such as choral tone, diction, vocal health, and new literature for all voicings helpful for various age levels, elementary through high school. Technical aspects of conducting and performance include the conducting gesture, musical style, and sightreading in the choral rehearsal, utilizing appropriate literature. Each summer, guest artists are featured with a specific focus for the week-long course.

MED559 Internship in Music Therapy
3 credits
Fall & Spring Semester
Course provides students with a six month opportunity as a music therapy intern in an approved training facility.
PREREQUISITE: COMPLETION OF ALL OTHER COURSEWORK REQUIREMENTS FOR MUSIC THERAPY CERTIFICATION.

MED560 Internship in Music Therapy II
0 credit
Fall & Spring Semester
PREREQUISITE: MED 559.

MED562 Psychology of Music I
3 credits
Spring Semester & Second Summer Session
Psychological foundations of music with an emphasis on problems of perception, experimental esthetics, functional music, and measurement and diagnosis of musical ability and achievement. Related literature of experimental investigation is reviewed.

MED570 Technology in Music Education
3 credits
Fall Semester
Overview of technology in music teaching. Topics include approaches to computer-aided instruction, the internet, business software uses for music teachers, music printing, sequencing and sampling in performance and teaching, authoring systems and webpage design, and the design of studio and lab environments. Students complete an original research-based or application-based music teaching technology project.

MED571 Computer Applications in Music Education I
2 credits
First Summer Session
Introduction to music software for personal computers. Hands on experience with CAI software as well as other software for program and instructional management is included.

MED572 Computer Applications in Music Education II
2 credits
Spring Semester
Incorporation of computer software into curricular management and instruction. Course is project oriented and may involve computer in development of administrative systems, instructional programs, grading, testing, and other aspects of music education. PREREQUISITE: MED 571 OR PERMISSION OF INSTRUCTOR.
MED573 Teaching Music of World Cultures
2-3 credits  
Spring Semester
The purpose of this course is to acquaint the student with the musical life and culture of the Middle East, India, China, Japan, Africa, and a few of the cultures in the Caribbean Islands; to emphasize the elements of music (melody, rhythm, texture, form, timbre, and dynamics), and familiarize the student with the musical instruments characteristic to the musical life of the countries under discussion; and to select materials and develop strategies appropriate for elementary and secondary school music programs.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MED575 Preschool Music Workshop
1-3 credits  
First Summer Session
Workshop is designed to prepare class members to initiate, administer, and teach music programs for preschool children. Materials which address the teacher, the child, and the parent are used. The daily schedule includes demonstration classes with children, lectures, and active participation of and discussion with class members. Emphasis is placed on working with a planning guide for teachers which offers articles on the major areas of the curriculum and clear, succinct statements focusing on the central issues of each lesson.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MED576 Music and Development
3 credits  
Fall Semester
Review of development in cognitive, communication, and musical domains. Survey of developmental disabilities most commonly found in child populations is included as well as demonstration and practice of therapeutic techniques for cognitive and communication deficits.
PREREQUISITE: MUSIC THERAPY MAJORS ONLY.

MED578 Suzuki Institute
2 credits  
Spring Semester
Institute brings certified and master teachers from the tradition, philosophy, and teaching of the celebrated Japanese pedagogue, Shinichi Suzuki, to work with both children and teachers. Children may study violin, viola, cello, and piano. Teachers receive instruction in techniques of Suzuki pedagogy.

MED581 Teaching Classroom Guitar I
2 credits  
First Summer Session
This class is designed for students and teachers, guitarist or non-guitarist, who wish to initiate, enhance, and teach guitar in a multi-level classroom setting. The course includes demonstration classes with elementary and secondary students. Topics include organization and teaching performance materials in a hands-on setting.

MED593 Special Topics MED
1-3 credits  
Fall & Spring Semester & First & Second Summer Session
Supervised topics and other activities in specific areas of Music Education.
PREREQUISITE: PERMISSION OF THE DEAN.

MED599 Practicum in Music
0 credit  
Fall Semester
Practical professional experience.
PREREQUISITE: MUSIC MAJORS ONLY.
University of Miami Bulletin, 2009-2010
Graduate Course Listing
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MED600 Psychoacoustical Foundations of Music
2 credits                                    Fall Semester
Production, transmission, and reception of simple and complex tones. Examination of physical properties and psychoacoustical response to tonal stimuli is also included.

MED601 Recital Paper Preparation
1 credits                                    Fall & Spring Semester
Supervised preparation of the recital paper required for the Master of Music degree in classical performance.
PREREQUISITE: COMPLETION OF TWO FULL-TIME SEMESTERS IN THE MM PROGRAM IN PERFORMANCE.

MED602 DMA Essay Proposal
1 credits                                    Spring Semester
Supervised preparation of the DMA proposal for the Doctor of Musical Arts in Performance, Conducting, or Accompanying and Chamber Music.
PREREQUISITE: COMPLETION OF 30 CREDITS TOWARD THE DMA.

MED610 Graduate Forum in Music Therapy
0 credit                                     Offered By Announcement Only
Forum for graduate students to discuss topics relevant to advanced music therapy practice, engage in experiential therapeutic techniques, and to share student efforts of scholarship in the field.
PREREQUISITE: GRADUATE STANDING.

MED615 Graduate Forum
0 credit                                     Offered By Announcement Only
Forum for masters and doctoral students to discuss various topics of relevance to music education practice and to share efforts of scholarship in the field.
PREREQUISITE: GRADUATE STANDING.

MED620 International Music Education
3 credits                                    Spring Semester
Students study music instruction systems in other countries, including public and private school, community music programs, private music instruction, music conservatory instruction, informal instructional systems, and university work in music. Students compare music instruction systems in the United States and other countries through readings and presentations by native informants. An optional on-site field experience examining music education in another country may be arranged to coincide with this course.

MED629 Advanced Music Therapy Practice I
3 credits                                    Spring Semester
Review of research literature in clinical topic areas, such as music and cognition, or music and affective processing. Presentation of research findings through writing and discussion is emphasized as well as the application of research findings through practice and demonstration of therapeutic techniques.

MED630 Advanced Music Therapy Practice II
3 credits                                    Fall & Spring Semester
Review of research literature in clinical topic areas, such as music and sensorimotor processing or music in biofeedback. Presentation of research findings through writing and discussion is emphasized as well as the application of research findings through practice and demonstration of therapeutic techniques.
PREREQUISITE: MED 629.
MED632 Vocal Methods and Materials in Music Education
2 credits Spring Semester
Survey of latest vocal methods and publications for use in public schools.

MED633 Senior Seminar in Music Education
1 credits Fall & Spring Semester
Discussion of teaching, rehearsal techniques, and the organization of music materials related to the internship experience. To be taken in conjunction with internship, MED 771.
PREREQUISITE: ADMISSION TO TEACHER CANDIDACY

MED640 Woodwind Techniques
1 credits Fall Semester & First & Second Summer Session
Group instruction in woodwind instruments with emphasis on basic skills of performance as well as the appropriate teaching techniques, methods, and materials necessary for public school pedagogy. Course may be repeated for credit.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MED641 Brass Techniques
1 credits Offered By Announcement Only
Group instruction in brass instruments with emphasis on basic skills of performance as well as the appropriate teaching techniques, methods, and materials necessary for public school pedagogy. Course may be repeated for credit.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MED642 Percussion Techniques
1 credits Offered By Announcement Only
Group instruction in percussion (snare drum, mallet-keyboard percussion, timpani, drumset, and small accessory instruments) with emphasis upon basic skills of performance as well as the appropriate teaching techniques, methods, and materials necessary for public school pedagogy. Course may be repeated for credit.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MED643 String Techniques
1 credits Offered By Announcement Only
The study of stringed instruments (violin, viola, cello, bass) in a heterogeneous class with emphasis on general principles of string playing and teaching methods for use in beginning and intermediate instruction in the schools. Course may be repeated for credit.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MED644 Vocal Techniques
1 credits Offered By Announcement Only
Class instruction in fundamentals of singing, breath control, tone production, and solo singing for music majors.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MED645 Functional Music Techniques
1 credits Fall Semester
Group instruction in the functional use of guitar, autoharp, and recorder for classroom or music therapy uses. Functional skill, teaching methods, and materials are emphasized.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MED647 Seminar in Instrumental Music Education
2 credits
Fall & Spring Semester
Practical study of the development of school band programs with special consideration given to the selection of training and concert materials, rehearsal techniques and administrative procedures.

MED659 Practicum in Music Therapy
2 credits
Offered By Announcement Only
Practical application of music therapy in various clinical settings.
PREREQUISITE: MED 629, 630.

MED660 History and Philosophy of Music Education
3 credits
Offered By Announcement Only
The history of Western music education beginning with the ancient Greeks is surveyed to the present. Incorporated in the survey is the evolution of philosophical thought about music and its role in educational practice. From this grounding, current philosophical views of music education are presented.

MED662 Music Learning and Curriculum
3 credits
Fall Semester
Survey of theories of music learning and their application to music instruction, curriculum development, and instructional design in music.
PREREQUISITE: GRADUATE STANDING.

MED663 Music Research Methods
3 credits
Fall Semester
An introduction to descriptive, experimental, philosophical, qualitative, and historical research in music education and music therapy, with particular reference to data collection, research design, and effective research procedures. Students prepare critiques of research material and are guided in designing original research projects related to their own area of interest.
PREREQUISITE: GRADUATE STANDING.

MED664 Music Assessment
3 credits
Fall Semester
Presentation of methods for assessing musical behavior in studios, classrooms, and concert halls. Strategies for the objectification of performance quality, musical learning, capacity, and potential uses of contemporary measurement techniques are provided.
PREREQUISITE: GRADUATE STANDING.

MED665 Seminar in Music Education
2 credits
Offered By Announcement Only
Survey of literature, bibliography, and contemporary trends in music education. Course may be repeated for credit by doctoral students with consent of instructor.
PREREQUISITE: GRADUATE STANDING.

MED670 Seminar in Music Teacher Education
1 credit
Fall Semester
Overview of current issues in music teacher education, teacher education research and scholarship, the study of intern supervision, music education methods course design, and undergraduate music education teaching strategies.
PREREQUISITE: DOCTORAL STANDING OR PERMISSION OF INSTRUCTOR.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Semester</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MED673</td>
<td>Music in Early Childhood</td>
<td>2</td>
<td>Spring Semester</td>
<td>Course provides theoretical foundations, curriculum, methods, and materials appropriate for the teaching of Early Childhood music.</td>
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<tr>
<td>MED674</td>
<td>Seminar in General Music</td>
<td>2</td>
<td>Spring Semester</td>
<td>Course provides curriculum, methods, and materials designed for instruction for the general music student, grades K-12.</td>
</tr>
<tr>
<td>MED675</td>
<td>Practicum in Music Education</td>
<td>6</td>
<td>Fall &amp; Spring Semester</td>
<td>Students enrolled in the Master of Music with Certification Option Degree may complete the required internship with this course. PREREQUISITE: MUST BE EMPLOYED FULL-TIME IN A TEACHING POSITION.</td>
</tr>
<tr>
<td>MED676</td>
<td>Practicum in Teaching College Students</td>
<td>1-3</td>
<td>Fall &amp; Spring Semester</td>
<td>Supervised practicum for teaching music education courses at the college level.</td>
</tr>
<tr>
<td>MED680</td>
<td>Doctoral Seminar</td>
<td>1</td>
<td>Offered By Announcement Only</td>
<td>A seminar designed to generate ideas about contemporary theory and practice in music. Students engage in discussion of general research topics, but from the perspective of their particular discipline. Enrollment is intended for those doctoral students who have satisfactorily completed the qualifying examinations through and until receiving approval of the doctoral paper proposal. The course is open to all majors, but is required of all music education doctoral students. PREREQUISITE: DOCTORAL STANDING.</td>
</tr>
<tr>
<td>MED684</td>
<td>Music Therapy Seminar</td>
<td>1</td>
<td>Fall &amp; Spring Semester</td>
<td>Doctoral seminar in music therapy to address practical and professional issues pertaining to teaching and research in music therapy. Possible topics include: Teaching and Clinical Supervision, Philosophical Research, and Historical Research. PREREQUISITE: STUDENTS MUST BE ADMITTED TO THE DOCTORAL PROGRAM IN MUSIC EDUCATION, WITH MUSIC THERAPY EMPHASIS.</td>
</tr>
<tr>
<td>MED690</td>
<td>Teaching Music in College</td>
<td>1</td>
<td>Fall Semester</td>
<td>An overview of college music curriculum, patterns of administrative organization, traditional and innovative content, styles and resources used in teaching at the college level, evaluation and grading techniques used in classes, lessons, and ensembles.</td>
</tr>
<tr>
<td>MED693</td>
<td>Special Projects</td>
<td>1-3</td>
<td>Fall &amp; Spring Semester &amp; First &amp; Second Summer Session</td>
<td>Projects in any phase of music education in which the student is interested and qualified to work. PREREQUISITE: GRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.</td>
</tr>
</tbody>
</table>
MED694 Special Projects
1-3 credits Fall & Spring Semester
Projects in any phase of music education in which the student is interested and qualified to work.
PREREQUISITE: GRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MED695 Doctoral Research Project
1 credits Fall & Spring Semester
Small scale research project in music education or music therapy, suitable for publication. This project could serve as pilot work for the dissertation.
PREREQUISITE: PH.D. STUDENTS IN MUSIC EDUCATION, MED 663, EPS 553.

MED705 Master's Project
1-3 credits Fall Semester
Culminating project for Master of Music in music education students not completing a thesis or recital.
PREREQUISITE: MED 560, 564, 570, 665.

MED710 Master's Thesis
1-6 credits Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.
PREREQUISITE: MED 629.

MED720 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in MED 710 (usually six credits). Credit not granted. May be regarded as full time residence.

MED725 Doctoral Research Project
1 credits Fall & Spring Semester
Small scale research project in music education or music therapy, suitable for publication. This project could serve as pilot work for the dissertation.
PREREQUISITE: PH.D. STUDENTS IN MUSIC EDUCATION, MED 663, EPS 553.

MED730 Doctoral Dissertation
1-12 credits Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor but not for less than a total of 24. Not more than 12 hours of MED 730 may be taken in a regular semester, nor more than six in a summer session. Where a student has passed his/her (a) qualifying examinations, and (b) is engaged in an assistantship, he/she may still take the maximum allowable credit stated above.

MED735 Research for Specialist Project
1-6 credits Fall & Spring Semester & First & Second Summer Session
The student working on a research project for the Music Specialist degree enrolls for credit, not to exceed six, as determined by the student's advisor. Credit is not awarded until the project is completed.
MED750 Research in Residence
0 credit  
Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D. and D.M.A., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

MED771 Associate Teaching in Elementary School Music
6 credits
Fall & Spring Semester
A comprehensive program in observation and supervised teaching in elementary school music. The student spends full time for one half a semester in an elementary school, participating in all activities of the music teacher under the guidance of school and university personnel.
PREREQUISITE: ADMISSION TO TEACHER CANDIDACY AND APPROVAL OF THE COMMITTEE ON FIELD EXPERIENCES.

MED773 Associate Teaching in Secondary School Music
6 credits
Fall & Spring Semester
A comprehensive program in observation and supervised teaching in secondary school music. The student spends full time for one half a semester in a secondary school, participating in all activities of the music teacher under the guidance of school and university personnel.
PREREQUISITE: ADMISSION TO TEACHER CANDIDACY AND APPROVAL OF THE COMMITTEE ON FIELD EXPERIENCES.

MUSIC MEDIA & INDUSTRY

MMI501 Transducer Theory
3 credits  
Spring Semester
Course covers the fundamentals of electromagnetism and audio transducer theory including loudspeaker and microphone systems. Classical electro-acoustical analysis of transducers including acoustic suspension, bass-reflex, transmission line, electrostatic and horn loudspeakers, dynamic, ribbon and condenser pressure, and pressure-gradient microphones. Students use computer-aided design programs and Thiele-Small parameterization to model loudspeakers and measure loudspeaker responses. Open to MUE and EAN Majors only.
PREREQUISITE: EEN 201, PHY 102 OR PHY 205.

MMI502 Digital Audio I
3 credits  
Fall Semester
A study of the theory and practice of digital audio topics including discrete time sampling, quantization, dithering, PCM, A/D and D/A conversion, digital filtering, oversampling, modulation codes, timebase, error correction codes, magnetic storage, DAT, and optical storage.
PREREQUISITE: MMI 501.

MMI503 Digital Audio II
3 credits  
Spring Semester
A study of the theory and practice of digital audio topics including fiber optics and networks, compact disc, interconnection, psychoacoustics, low bit-rate perceptual coding, MPEG, digital audio broadcasting, sigma-delta conversion, noise shaping, digital video, and emerging technologies. Open to MUE and EAN Majors only.
PREREQUISITE: MMI 502.
MMI504 Audio Analysis and Synthesis
3 credits Fall Semester
Theory, design, and development of computer audio synthesizers and analyzers. Students implement software synthesizers including analog and physical modeling, wave-table, wave-shaping, and FM designs. Classical and modern theories of timbre and time-frequency analysis are included.
PREREQUISITE: MMI 503, OPEN TO MUE AND MEC MAJORS ONLY.

MMI505 Advanced Audio Signal Processing
3 credits Spring Semester
Theory, design and development of audio signal processing techniques. Topics include DSP architectures, systems design, algorithm development, and applications. DSP development tools used to write, debug, and test programs including time-domain based effects such as reverb, chorus, flanging, and digital delay as well as frequency-domain projects such as FIR, IIR, and FFT filters and vocoders.
PREREQUISITE: MMI 504, OPEN TO MUE MAJORS ONLY.

MMI507 Introduction to the Internet
2 credits Spring Semester
A hands-on introduction to the history, structure, and applications of the Internet. Topics include electronic mail, file transfer (FTP), remote computer access (telnet) file, database retrieval (Archie, WAIS, WWW, Gopher), and discussion groups (USENET, BITNET).

MMI520 Audio Technology for Musicians
2-3 credits Fall Semester
Introduction and overview of audio technology with emphasis on music recording, production equipment, and techniques. Topics include microphones, loudspeakers, mixing consoles, interconnection, amplifiers, digital processing, time code, and surround sound. Open to non-MUE majors.
PREREQUISITE: JUNIOR STANDING AND PERMISSION OF INSTRUCTOR.

MMI530 Entrepreneurship for Musicians
3 credits Offered By Announcement Only
Course explores a wide range of options for musicians who want to pursue music business careers in their regional music markets. Students examine opportunities in performance, recording, composition, education, and more. Emphasis is placed on the packaging of musical skills in the marketplace and on the financial management of a small proprietary music business. As a result, the student musician will be prepared to make career decisions with foresight and planning.

MMI537 Recorded Music Operations
3 credits Offered By Announcement Only
A study of the activities involved in commercially exploiting recorded music. Includes an analysis of activities involved in the production, manufacturing, distribution, and marketing of a recorded music product; as well as related royalty accounting, mechanical licensing and master-use licensing activities.
PREREQUISITE: MMI 274 AND MMI 378; OPEN TO MBEI MAJORS, MBEI MINORS AND MBEM MAJORS ONLY.

MMI573 International Music Publishing
2 credits Fall Semester
An in-depth study of the international publishing industry with an emphasis on catalog development and exploitation.
PREREQUISITE: MMI 173; MBEI MAJORS AND MINORS ONLY.
MMI574 A & R Administration and Music Licensing
3 credits  
Spring Semester  
An in-depth study of the budgeting and administrative procedures employed in the music industry. Topics include artist and repertoire administration, session budgeting, compilation albums, release schedules, master license agreement, business affairs, and industry ethics. Preproduction, production, and postproduction responsibilities are also included and special consideration is given to the artist recording contract. PREREQUISITE: MMI 173; JUNIOR STANDING; MBEI MAJORS AND MINORS ONLY.

MMI575 Entertainment Industry Contract Basics
3 credits  
Fall Semester  
Business relations between the record company, artist, producer and licensees, both domestic and foreign. Analysis of actual contracts between parties, implication of newer technology on the industry. PREREQUISITE: MMI 173; SENIOR STANDING; MBEI MAJORS AND MINORS ONLY.

MMI578 Royalties in the Recorded Music Industry
1 credit  
Spring Semester  
A practical study of royalty payment formulas and procedures used in the recorded music industry. PREREQUISITE: MBEI MAJORS ONLY.

MMI593 Special Topics MMI
1-3 credits  
Fall & Spring Semester & First & Second Summer Session  
Supervised topics and other activities in specific areas of Music Media and Industry. PREREQUISITE: PERMISSION OF THE DEAN.

MMI599 Practicum in Music
0 credit  
Fall & Spring Semester & First & Second Summer Session  
Practical professional experience. PREREQUISITE: MUSIC MAJORS ONLY.

MMI601 Advanced Digital Audio Electronics
3 credits  
Fall Semester  
Topics in digital audio including discrete time signals, digital filters, error digital audio processors, FFT, CIRC, and digital recorders are discussed. PREREQUISITE: MMI 401, GRADUATE STANDING.

MMI602 Audio-Video Systems
3 credits  
Spring Semester  
Compatibility and interface requirements for video, analog, and digital audio systems. Integration of disparate components for optimum systems performance is discussed.

MMI606 Current Topics in Audio Analysis and Signal Processing
3 credits  
Spring Semester  
MMI 606 surveys recent topics related to audio analysis, synthesis, and signal processing with an emphasis in software programming and practical applications. Course material is drawn from several topics: current audio APIs and plug-in architectures, computational theories of musical timbre, machine listening, spatial audio, digital audio effects, new digital audio synthesis techniques, and machine-musician interaction modalities. PREREQUISITE: MMI 601.
MMI622 Entertainment and Event Production Industry
3 credits Fall Semester
An introductory course designed to give the students an overview of the entertainment and event production industry. Special attention is given to arts presenting organizations and their role in the industry regionally, nationally and internationally. Students participate in the production of an arts presentation program.
PREREQUISITE: NONE

MMI626 Performing Arts Centers Management
3 credits Fall Semester
Students learn about the interplay between an arts facility and arts presenting organization and the importance of leadership. Logistical considerations in the management of an arts presenting facility are the foundation of the lectures.
PREREQUISITE: NONE

MMI630 Marketing and Promoting Arts Presenting Programs and Organizations
3 credits Spring Semester
Students learn how to increase audience size through the use of effective marketing and promotion techniques. The course provides the students with information on the latest technologies being employed to reach a target market including cyber event marketing. Students develop an arts presentation marketing plan. Students participate in the planning of an arts presentation program.
PREREQUISITE: NONE

MMI634 Event Sponsoring and Community Outreach Programs
3 credits Spring Semester
Students learn about the importance of sponsorship and community outreach programs: and ways to develop and implement them. Tools, templates, and techniques provide a basis for creating a productive sponsorship purchase decision. The course also focuses on how to develop and implement outreach programs.
PREREQUISITE: NONE

MMI636 Financial and Risk Aspects of the Arts Presenting Industry
3 credits Fall Semester
Students learn how to write and present a line-item budget for an arts presentation event, arts presenting organization, and an arts facility. Specific techniques and methods that are used to reduce event risk and safety are discussed.
PREREQUISITE: NONE

MMI638 Legal Aspects of the Arts Presenting Industry
2 credits Fall Semester
Students become familiar with various Artist, Client, Production, Vendor, and Facility Contracts and Agreements commonly used in the industry.
PREREQUISITE: NONE

MMI640 Arts Presenting Project
2 credits Fall Semester
Students consider all logistical and financial details in the planning of a music festival.
PREREQUISITE: COMPLETION OF ALL FIRST AND SECOND SEMESTER COURSES.
MMI642 Grant Proposal Writing
2 credits
Fall Semester
Students learn how to research, write and present a grant. Strategies for developing programs are discussed. Attention is given on how to research the internet for information on grants.
PREREQUISITE: NONE

MMI650 Music Industry Agreements
3 credits
Fall Semester
A study of various music industry agreements and how they affect the artist and songwriter. Recording, music publishing, and personal management agreements are analyzed and discussed. Topics include negotiation considerations, deal points, record company economics, and profitability.
PREREQUISITE: GRADUATE MBEI MAJORS ONLY OR PERMISSION OF INSTRUCTOR.

MMI651 Recording Studio Workshop
1 credits
Fall Semester
Introduction to the multi track recording studio environment. Hands-on lectures and labs including tracking, overdub and mixdown session management, techniques, and philosophies are included. Topics also include audio routing, equalization, effects, and microphone technique.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MMI652 International Music Licensing
3 credits
Spring Semester
Advanced music industry concepts and problems in music licensing. Personal rights and most varieties of music licenses and international licensing concepts are covered. Students acquire practical experience utilizing licensing parameters.
PREREQUISITE: OPEN TO GRADUATE MBEI MAJORS ONLY OR PERMISSION OF INSTRUCTOR.

MMI653 Transducer Workshop
1 credits
Spring Semester
Fundamentals of electromagnetism and audio transducer theory including loudspeaker and microphone systems. Classical electro-acoustical analysis of transducers including acoustic suspensions, bass-reflex, transmission line, electrostatic and horn loudspeakers, dynamic, ribbon and condenser pressure, and pressure-gradient microphones. Students use computer-aided design programs and Thiele-Small parameterization to model loudspeakers and measure loudspeaker responses.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MMI660 Ensemble Recording Workshop I
1 credits
Offered By Announcement Only
Assisting recording and sound reinforcement engineers in the assigned performance ensemble in both rehearsal and performance. Students also perform in a studio ensemble where they act as both recording engineer and musician. Open to MUE majors only.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MMI661 Ensemble Recording Workshop II
1 credits
Offered By Announcement Only
Students are responsible for the audio needs of an assigned ensemble in both rehearsal and performance. Lectures cover audio equipment and practices. Students also perform in a studio ensemble where they act as the recording engineer and musician. Open to MUE majors only.
PREREQUISITE: MMI 660. PERMISSION OF INSTRUCTOR.
MMI662 Ensemble Recording Workshop III
1 credits Offered By Announcement Only
Students work in the recording studio, engineering digital multi-track recordings, and mix-downs of advanced jazz and composition ensembles. Open to MUE majors only.
PREREQUISITE: MMI 661. PERMISSION OF INSTRUCTOR.

MMI670 Audio Design Workshop I
1 credits Offered By Announcement Only
Course covers the fundamentals of audio system design and architecture including equipment specifications and studio installation techniques. Students design and troubleshoot audio projects. Open to MUE majors only.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MMI671 Audio Design Workshop II
1 credits Offered By Announcement Only
Analog audio system design and architecture including dynamics processing, amplifier and filter theory, balanced and single-ended systems, circuits, and advanced equipment specifications. Students design and troubleshoot audio projects including microphone pre-amps, equalizers, noise-gates, and power amplifiers. Open to MUE Majors only.
PREREQUISITE: PHY 205, EEN 305. PERMISSION OF INSTRUCTOR.

MMI672 Audio Design Workshop III
1 credits Offered By Announcement Only
Digital audio system design and architecture including analog-digital conversion, digital I/O hardware specifications, audio effects processors and digital audio reorder alignment techniques. Students design and troubleshoot audio projects including A/D converters, S/PDIF I/O, and DAT recorders. Open to MUE Majors only.
PREREQUISITE: MMI 671.

MMI673 Music Publishing Practicum
1 credits Fall Semester
The course focuses on practical techniques and procedures employed by music publishers in acquiring, exploiting and administering music copyrights.
PREREQUISITE: MBEI GRADUATE STUDENTS ONLY.

MMI674 Music Copyright Law
2 credits Fall Semester
A study of the essential provisions of the 1976 Copyright Act and subsequent amendments and revisions. Students examine the unique complexities of copyright law as it relates to the music industry.
PREREQUISITE: NONE. PERMISSION OF INSTRUCTOR REQUIRED FOR NON-MBEI GRADUATE STUDENTS.

MMI678 Publishing and Record Industry Royalties
1 credits Fall Semester
An in depth study of royalty payment procedures used in the music industry.
PREREQUISITE: MBEI GRADUATE STUDENTS ONLY.

MMI682 Industry Internship
3 credits Spring Semester
The student's academic experience is enhanced by working in a professional arts presenting organization or arts facility.
PREREQUISITE: COMPLETION OF ALL THE COURSES (27 HOURS) OFFERED IN THE FIRST THREE SEMESTERS OF THE PROGRAM.
MMI693 Special Projects
1-3 credits  Fall & Spring Semester
Projects in any phase of music media and industry in which the student is interested and qualified to work.
PREREQUISITE: GRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MMI694 Special Projects
1-3 credits  Fall & Spring Semester
Projects in any phase of music media and industry in which the student is interested and qualified to work.
PREREQUISITE: GRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MMI702 Internship in Music Industry
2-3 credits  Fall & Spring Semester & First & Second Summer Session
Practical experience in different areas of the music industry under supervision of professional firms. Open only to Music Industry majors.
PREREQUISITE: GRADUATE MBEI MAJORS ONLY.

MMI713 Master's Research Project
1-3 credits  Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's research project enrolls for credit as determined by his/her advisor. Credit is not awarded until the project paper is accepted.

MMI720 Research in Residence
0 credit  Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in MMI 710 (usually six credits). Credit not granted. May be regarded as full time residence.

MUSIC THEORY & COMPOSITION

MTC501 The Aesthetics of Music
3 credits  Offered By Announcement Only
Survey of thought and discourse about the nature, roles, values, experiences, and meanings of music. Variety of perspectives, including those of the listener, performer, and composer are addressed. Application to musical interpretation and criticism is included.
PREREQUISITE: MTC 311 OR 312 OR GRADUATE STANDING.

MTC505 Electronic Music Studio
2 credits  Fall & Spring Semester
Introduction to electroacoustic music and the digital electronic music studio. Computer and MIDI based applications in performance and composition including sequencing, music notation, and electronic orchestration are addressed. Theoretical and aesthetic issues relating to music technology, study of important figures and works. Lectures, reading, listening, and studio assignments leading to individual projects are also included.
PREREQUISITE: MTC 211 OR PERMISSION OF INSTRUCTOR.
MTC506 MIDI and Control Processing
2 credits  
Fall Semester
Computers as control devices for music synthesis. Topics include interfacing microcomputers and synthesizers, programming of controllers, sequencers, patch librarians, sound editors, and other applications. Computer assisted composition and performance techniques, lectures, reading, listening, and studio assignments leading to individual projects are also included. PREREQUISITE: MTC 505 OR PERMISSION OF INSTRUCTOR.

MTC507 Digital Sound Synthesis and Processing
2 credits  
Spring Semester
Software-based techniques of digital audio recording and editing, sound synthesis/design, audio signal processing, and sound analysis. Lectures, reading, listening, and studio assignments leading to individual projects in synthesis, composition, performance, or programming are included. PREREQUISITE: MTC 506 OR PERMISSION OF INSTRUCTOR.

MTC511 Film Scoring I
2 credits  
Fall Semester
Seminar in the aesthetics and psychology of mood music, sound-film synchronization, timing techniques, and scoring procedures. Analysis and performance of student projects is included. PREREQUISITE: MTC 302 OR PERMISSION OF INSTRUCTOR.

MTC512 Film Scoring II
2 credits  
Spring Semester
Adaptation of previous semester's techniques to television scripts and performed music. Pre-recording, direct recording, and dubbing procedures are included as well as preparation and performance of complete film cues. Each student is required to conduct his/her project. PREREQUISITE: MTC 511.

MTC513 16th Century Counterpoint
3 credits  
Fall Semester
Two- and three-voice vocal counterpoint based on Palestrina's style, beginning with studies of strict species and including composition of two- and three-voice texted motets. PREREQUISITE: MTC 211.

MTC515 Choral Arranging
3 credits  
Spring Semester
Arranging for choir and vocal groups with and without instrumental accompaniment in all styles. PREREQUISITE: MTC 212.

MTC516 Advanced Orchestration
3 credits  
Spring Semester
Scoring for the symphonic orchestra with an emphasis on recent techniques. PREREQUISITE: MTC 416 OR PERMISSION OF INSTRUCTOR.
MTC517 Analysis of Popular Music Since 1950
3 credits  Fall Semester
Course examines popular music in the second half of the Twentieth Century from a music analytical perspective. Critical skills needed for this analysis are identified and developed. Analytical techniques for understanding the determination and utilization of musical elements and structures in contemporary popular music are applied. Various contemporary genres and some precursors are examined and particular stylistic determinants of their compositional and performance models are discussed.
PREREQUISITE: GRADUATE STANDING OR MTC 311 OR 312, OR PERMISSION OF THE INSTRUCTOR.

MTC518 Advanced Counterpoint
3 credits  Fall Semester
Three-voice fugal writing in Bach's style, followed by compositional projects in a variety of twentieth-century contrapuntal styles.
PREREQUISITE: MTC 313 OR PERMISSION OF INSTRUCTOR.

MTC521 Multimedia for Musicians
3 credits  Offered By Announcement Only
Presents an overview and introduction to the creation of multimedia projects for presentation on the Web. Focus is placed on building websites, and the creation of multimedia content for online delivery. Software tools for the manipulation of digital media, including audio and video, are utilized in the realization of course projects.
PREREQUISITE: MTC 212 AND MKP 220, OR GRADUATE STANDING OR PERMISSION OF THE INSTRUCTOR.

MTC567 Electronic and Computer Music Seminar
1- 3 credits  Fall & Spring Semester
Advanced techniques and applications in electronic and computer music. Topics may include electronic projects in composition, performance, research, programming, or other as approved by instructor.
PREREQUISITE: MTC 505, 506, 507, OR CONSENT OF THE INSTRUCTOR.

MTC593 Special Topics MTC
1- 3 credits  Fall & Spring Semester & First & Second Summer Session
Supervised topics and other activities in specific areas of Music Theory-Composition.
PREREQUISITE: PERMISSION OF THE DEAN.

MTC599 Practicum in Music
0 credit  Fall & Spring Semester & First & Second Summer Session
Practical professional experience.
PREREQUISITE: MUSIC MAJORS ONLY.

MTC605 Electronic Music Circuit Design
2 credits  Fall Semester
Basic concepts of circuits for electronic and computer music equipment, electronic music studio design, and maintenance.
PREREQUISITE: MTC 505 OR CONSENT OF INSTRUCTOR.

MTC611 Theory Pedagogy
3 credits  Fall Semester
Seminar in methods and materials pertinent to the teaching of theory in high school and college.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MTC612 Advanced Comprehensive Theory
3 credits  Fall Semester
Melodic, harmonic, and contrapuntal devices as revealed through analysis and applied in composition.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MTC613 Twentieth Century Idioms
3 credits  Spring Semester
Relevant modes of perception, influences, and technical devices in 20th century music.

MTC615 Composition Seminar I
2 credits  Fall Semester
Creative work in composition requiring a multi-movement work scored for full orchestra, symphonic band, or chorus with orchestra or band.

MTC616 Composition Seminar II
2 credits  Spring Semester
Continuation of MTC 615.
PREREQUISITE: MTC 615.

MTC617 Analytical Techniques
3 credits  Fall & Spring Semester & Second Summer Session
Examination and practice of various techniques used in the analysis of music.

MTC619 Introduction to Schenkerian Analysis
3 credits  Fall Semester
A first course in the theory and analytical practice of Heinrich Schenker. Students will learn the principles and techniques of Schenkerian analysis and will apply them to the study of works in smaller sectional forms.
PREREQUISITE: MTC 617 OR PERMISSION OF THE INSTRUCTOR.

MTC646 Studio Production
1 credits  Offered By Announcement Only
Recording studio production procedures. Topics include artist and material selection, session planning, and analysis of the producer's role. Course may be repeated for credit.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MTC648 Electronic Music Ensemble
1 credits  Offered By Announcement Only
PREREQUISITE: BY AUDITION.

MTC652 Research Seminar II
2 credits  Offered By Announcement Only

MTC667 Advanced Electronic and Computer Music Seminar
1-3 credits  Fall & Spring Semester
Advanced techniques and applications in electronic and computer music. Topics may include electronic projects in composition, performance, research, programming, or other as approved by instructor.
PREREQUISITE: MTC 505, 506, 507, OR CONSENT OF INSTRUCTORS.
MTC668 Projects in Media Writing and Production
1-3 credits Offered By Announcement Only
Supervised projects in specific areas of Media Writing and Production.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MTC682 Composition Workshop
1 credits Fall & Spring Semester

MTC693 Special Projects
1-3 credits Fall & Spring Semester
Projects in any phase of theory-composition in which the student is interested
and qualified to work.
PREREQUISITE: GRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MTC694 Special Projects
1-3 credits Fall & Spring Semester
Projects in any phase of theory-composition in which the student is interested
and qualified to work.
PREREQUISITE: GRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MTC696 Studio Production Ensemble
1 credits Offered By Announcement Only
PREREQUISITE: BY AUDITION.

MTC697 Studio Rhythm Section
1 credits Fall & Spring Semester
PREREQUISITE: BY AUDITION.

MTC699 The Other Music Ensemble
1 credits Fall & Spring Semester
An in-depth study and performance of 20th century music.
PREREQUISITE: BY AUDITION.

MTC710 Master's Thesis
1-6 credits Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments
not to exceed six, as determined by his/her advisor. Credit is not awarded until
the thesis has been accepted.

MTC713 Master's Media Writing Project
1-3 credits Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's media writing project enrolls for credit
as determined by his/her advisor. Credit is not awarded until the project paper
is accepted.

MTC720 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree
after the student has enrolled for the permissible cumulative total in MTC 710
(usually six credits). Credit not granted. May be regarded as full time residence.
MTC731 Doctoral Essay
1-12 credits                 Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the D.M.A. The student will enroll for credit as determined by his/her advisor, but not for less than a total of 12. Not more than 12 hours of MTC 731 may be taken in a regular semester, nor more than six in a summer session.

MTC750 Research in Residence
0 credit                     Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D. and D.M.A., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

MUSICIOLOGY
MCY520 History and Literature of the Wind Band
3 credits                             Spring Semester
An historical survey of wind band literature, the evolution of the military band, the wind band, and the wind orchestra.
PREREQUISITE: ADVANCED STANDING.

MCY521 Symphonic Literature
3 credits                             Fall Semester
A survey of orchestral music from the end of the seventeenth century to the present.

MCY522 Operatic Literature
3 credits                             Spring Semester
The history and literature of opera from the end of the sixteenth century to the present.

MCY524 Contemporary Music
3 credits                             Fall Semester
Music of the 20th century, with emphasis on developments since 1945.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MCY525 Art Song Literature
3 credits                             Fall Semester
A survey of the solo vocal literature from the 16th century to the present, with particular emphasis on the 19th-century French and German repertoire.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MCY526 Keyboard Literature I
3 credits                             Fall Semester
A survey of keyboard literature from its beginning to approximately 1750 emphasizing changes in styles of writing and expression, development of techniques suited to the primary instruments in use (including the early organ, clavichord, harpsichord and fortepiano), ornamentation both specified and improvised, forms, and ideas for interpretation based on historical sources.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MCY527 Keyboard Literature II
3 credits  
Spring Semester
A survey of solo keyboard literature from approximately 1750 to the present emphasizing changes in styles of writing and expression, development of technique suited to the primary instruments in use (including the clavichord, harpsichord, fortepiano and modern piano), embellishment both specified and improvised, forms, and ideas for interpretation based on historical sources (including facsimiles, printed scores, written records and sound recordings, particularly those by the composers themselves).
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MCY528 Music Bibliography
3 credits  
Fall Semester
Course presents research materials, including dictionaries, encyclopedias, historical collections, scholarly editions, complete works, books, articles, and lists dealing with specialized areas of music history and literature.
PREREQUISITE: GRADUATE STANDING, OR PERMISSION OF INSTRUCTOR.

MCY529 Music of the Baroque Period
3 credits  
Spring Semester
Literature and history of music from the end of the sixteenth to the middle of the eighteenth centuries.
PREREQUISITE: SIX CREDITS OF UNDERGRADUATE MUSIC HISTORY.

MCY530 Music of the Classical Period
3 credits  
Fall & Spring Semester & Second Summer Session
The musical styles which developed between the mid-eighteenth century and the nineteenth century.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MCY532 History of Chamber Music
3 credits  
Spring Semester
Styles and forms in chamber music literature from the seventeenth century to the present.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MCY533 Music of the Romantic Period
3 credits  
Fall Semester
The musical styles which developed during the nineteenth century.
PREREQUISITE: SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

MCY535 Choral Literature I
2 credits  
Fall Semester
Choral music of the sixteenth through the eighteenth centuries. A combination of lecture-discussion and class performance.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MCY536 Choral Literature II
2 credits  
Fall Semester
Choral music of the nineteenth and twentieth centuries. A combination of lecture-discussion and class performance.
PREREQUISITE: PERMISSION OF INSTRUCTOR.
MCY537 Music in the United States
3 credits
Spring Semester
A survey of music in the United States from colonial times to the present, with emphasis on the social, economic, and political conditions which affected it. Art music (sacred and secular), popular music in all idioms, the music industry as it evolved in the U.S., and the influence of American music on the music of other countries.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MCY539 Special Topics in Musicology
2 credits
Fall Semester
Subject matter offerings based upon student demand and availability of faculty. The topic to be announced in the class schedule. May be repeated if the Course may be repeated if the content is different.

MCY541 Music of the Mediaeval, Renaissance, and Baroque Periods
3 credits
Fall Semester & First Summer Session
A comprehensive, in-depth study of the musical styles and genres of the Mediaeval, Renaissance, and Baroque Eras. Important musical figures of these periods and analytical studies of important pieces of music from these periods are addressed.
PREREQUISITE: MUSIC MAJOR OR PERMISSION OF INSTRUCTOR.

MCY542 Music of the Classical, Romantic, and Modern Periods
3 credits
Spring Semester & Second Summer Session
A comprehensive, in-depth study of the musical styles and genres of the Classical, Romantic, and Modern Eras of important musical figures of these periods, and analytical studies of important pieces of music from these periods.
PREREQUISITE: MUSIC MAJOR, OR PERMISSION OF INSTRUCTOR.

MCY553 Miami’s Musical Heritage
3 credits
Spring Semester & First Summer Session
A study of the musical traditions and practices of the various cultures that are part of Miami’s unique multi-ethnic society.

MCY554 Music Cultures of the World
3 credits
Spring Semester
A study of music culture, ranging from the music of non-literate and folk societies through Asian art music. Open to non-majors.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MCY583 History of the American Musical Theatre
3 credits
Fall & Spring Semester
An examination of the development of musical theatre from its European opera and operetta background to an indigenous American art form. The areas to be explored include the rise and fall of various genre of musical shows, integration of story, song and dance, important producers, directors, lyricists, composers, and new fields such as director-choreographer. The development of an American cultural consciousness and political and socio-economic trends of various decades that greatly influenced the content and form of musical shows is also examined.

MCY593 Special Topics MCY
1-3 credits
Fall & Spring Semester & First & Second Summer Session
Supervised topics and other activities in specific areas of Musicology.
MCY599 Practicum in Music
0 credit  Fall & Spring Semester & First & Second Summer Session
Practical professional experience.
PREREQUISITE: MUSIC MAJORS ONLY.

MCY693 Special Projects
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Projects in any phase of music literature and history in which the student is interested and qualified to work.
PREREQUISITE: GRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MCY694 Special Projects
1-3 credits  Fall & Spring Semester
Projects in any phase of music literature and history in which the student is interested and qualified to work.
PREREQUISITE: GRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MCY710 Master's Thesis
1-6 credits  Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

MCY720 Research in Residence
0 credit  Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in MCY 710 (usually six credits). Credit not granted. May be regarded as full time residence.

MCY730 Doctoral Dissertation
1-12 credits  Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the Ph.D. The student will enroll for credit as determined by his/her advisor but not for less than a total of 24. Not more than 12 hours of MCY 730 may be taken in a regular semester, nor more than six in a summer session. Where a student has passed his/her (a) qualifying examinations, and (b) is engaged in an assistantship, he/she may still take the maximum allowable credit stated above.

MCY750 Research in Residence
0 credit  Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D. and D.M.A., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.

STUDIO MUSIC & JAZZ
MSJJBI Jazz Bass
1-3 credits  Fall & Spring Semester
Jazz Bass at the Master's level. The student will pursue a course of study that is directed toward his/her musical goals. This course will examine, through transcription and analysis, the important figures in the history of jazz bass, and also those performances in which the student is interested.
PREREQUISITE: MASTER'S LEVEL. BY AUDITION.
SCHOOL OF MUSIC

STUDIO MUSIC & JAZZ

MSJJBJ Jazz Bass
1- 3 credits Fall & Spring Semester
Continuation of MSJ JBI.
PREREQUISITE: MASTER’S LEVEL. MSJ JBI.

MSJJBJK Jazz Bass
1- 3 credits Fall & Spring Semester & First & Second Summer Session
Continuation of MSJ JBJ.
PREREQUISITE: MASTER’S LEVEL. MSJ JBJ.

MSJJBL Jazz Bass
1- 3 credits Fall & Spring Semester
This semester will focus on the student's graduate recital performance, if applicable.
PREREQUISITE: MASTER’S LEVEL. MSJ JBK.

MSJJBM Jazz Bass
1- 3 credits Fall & Spring Semester
Jazz Bass at the Doctoral level. The student will pursue a course of study that is directed towards his/her musical goals. This course will also examine, through transcription and analysis, the important figures in the history of jazz bass, and also those performances in which the student is interested.
PREREQUISITE: DOCTORAL LEVEL. BY AUDITION.

MSJJBN Jazz Bass
1- 3 credits Fall & Spring Semester
Continuation of MSJ JBM.
PREREQUISITE: DOCTORAL LEVEL. MSJ JBM.

MSJJBO Jazz Bass
1- 3 credits Fall & Spring Semester
Continuation of MSJ JBN.
PREREQUISITE: DOCTORAL LEVEL. MSJ JBN.

MSJJBP Jazz Bass
1- 3 credits Fall & Spring Semester
Continuation of MSJ JBO.
PREREQUISITE: DOCTORAL LEVEL. MSJ JBO.

MSJJBQ Jazz Bass
1- 3 credits Fall & Spring Semester
Continuation of MSJ JBP.
PREREQUISITE: DOCTORAL LEVEL. MSJ JBP.

MSJJBR Jazz Bass
1- 3 credits Fall & Spring Semester
Continuation of MSJ JBQ.
PREREQUISITE: DOCTORAL LEVEL. MSJ JBQ.

MSJJDI Jazz Drumset
1- 3 credits Fall & Spring Semester
Private lessons which focus on the development of drumset skills. The course will cover sticking technique, hand/foot patterns, groove, balance, and rhythm section interaction. Students are required to perform and improvise at a professional level.
PREREQUISITE: MASTER’S LEVEL. BY AUDITION.
MSJJDJ Jazz Drumset
1-3 credits  Fall & Spring Semester
Private lessons which focus on the development of drumset skills. The course will cover sticking technique, hand/foot patterns, groove, balance, and rhythm section interaction. Students are required to perform and improvise at a professional level.
PREREQUISITE: MASTER’S LEVEL. MSJ JDI.

MSJJDK Jazz Drumset
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Private lessons which focus on the development of drumset skills. The course will cover sticking technique, hand/foot patterns, groove, balance, and rhythm section interaction. Students are required to perform and improvise at a professional level.
PREREQUISITE: MASTER’S LEVEL. MSJ JDJ.

MSJJDL Jazz Drumset
1-3 credits  Fall & Spring Semester
Private lessons which focus on the development of drumset skills. The course will cover sticking technique, hand/foot patterns, groove, balance, and rhythm section interaction. Students are required to perform and improvise at a professional level.
PREREQUISITE: MASTER’S LEVEL. MSJ JDK.

MSJJDM Jazz Drumset
1-3 credits  Fall & Spring Semester
Private lessons which focus on the development of drumset skills. The course will cover sticking technique, hand/foot patterns, groove, balance, and rhythm section interaction. Students are required to perform and improvise at a professional level.
PREREQUISITE: DOCTORAL LEVEL. BY AUDITION.

MSJJDN Jazz Drumset
1-3 credits  Fall & Spring Semester
Private lessons which focus on the development of drumset skills. The course will cover sticking technique, hand/foot patterns, groove, balance, and rhythm section interaction. Students are required to perform and improvise at a professional level.
PREREQUISITE: DOCTORAL LEVEL. MSJ JDM.

MSJJDO Jazz Drumset
1-3 credits  Fall & Spring Semester
Private lessons which focus on the development of drumset skills. The course will cover sticking technique, hand/foot patterns, groove, balance, and rhythm section interaction. Students are required to perform and improvise at a professional level.
PREREQUISITE: DOCTORAL LEVEL. MSJ JDN.

MSJJDP Jazz Drumset
1-3 credits  Fall & Spring Semester
Private lessons which focus on the development of drumset skills. The course will cover sticking technique, hand/foot patterns, groove, balance, and rhythm section interaction. Students are required to perform and improvise at a professional level.
PREREQUISITE: DOCTORAL LEVEL. MSJ JDO.

MSJJDO Jazz Drumset
1-3 credits  Fall & Spring Semester
Private lessons which focus on the development of drumset skills. The course will cover sticking technique, hand/foot patterns, groove, balance, and rhythm section interaction. Students are required to perform and improvise at a professional level.
PREREQUISITE: DOCTORAL LEVEL. MSJ JDP.
SCHOOL OF MUSIC
STUDIO MUSIC & JAZZ

MSJJDR Jass Drumset
1-3 credits  Fall & Spring Semester
Private lessons which focus on the development of drumset skills. The course will cover sticking technique, hand/foot patterns, groove, balance, and rhythm section interaction. Students are required to perform and improvise at a professional level.
PREREQUISITE: DOCTORAL LEVEL. MSJ JDQ.

MSJJGI Jazz Guitar
1-3 credits  Fall & Spring Semester
Graduate Studies in Jazz Guitar are designed to take into account each student's talent, previous accomplishments and particular interests. After a careful assessment of the student's strengths and weaknesses, a course of study will be custom-designed, with possible areas of study drawn from (but not limited to) the following list: advanced jazz concepts in melody, harmony and rhythm, sight-reading, repertoire expansion, transposition, technique, composition, and pedagogy.
PREREQUISITE: MASTER'S LEVEL. BY AUDITION.

MSJJGJ Jazz Guitar
1-3 credits  Fall & Spring Semester
Graduate Studies in Jazz Guitar are designed to take into account each student's talent, previous accomplishments and particular interests. After a careful assessment of the student's strengths and weaknesses, a course of study will be custom-designed, with possible areas of study drawn from (but not limited to) the following list: advanced jazz concepts in melody, harmony and rhythm, sight-reading, repertoire expansion, transposition, technique, composition, and pedagogy.
PREREQUISITE: MASTER'S LEVEL. MSJ JGI.

MSJJGK Jazz Guitar
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Graduate Studies in Jazz Guitar are designed to take into account each student's talent, previous accomplishments and particular interests. After a careful assessment of the student's strengths and weaknesses, a course of study will be custom-designed, with possible areas of study drawn from (but not limited to) the following list: advanced jazz concepts in melody, harmony and rhythm, sight-reading, repertoire expansion, transposition, technique, composition, and pedagogy.
PREREQUISITE: MASTER'S LEVEL. MSJ JGJ.

MSJJGL Jazz Guitar
1-3 credits  Fall & Spring Semester
Graduate Studies in Jazz Guitar are designed to take into account each student's talent, previous accomplishments and particular interests. After a careful assessment of the student's strengths and weaknesses, a course of study will be custom-designed, with possible areas of study drawn from (but not limited to) the following list: advanced jazz concepts in melody, harmony and rhythm, sight-reading, repertoire expansion, transposition, technique, composition, and pedagogy.
PREREQUISITE: MASTER'S LEVEL. MSJ JGK.
MSJJGM Jazz Guitar
1-3 credits   Fall & Spring Semester
Graduate Studies in Jazz Guitar are designed to take into account each student's talent, previous accomplishments and particular interests. It is expected that a graduate student at the DMA level would be, to a large extent, self-directing and capable of original research. After a careful assessment of the student's strengths and weaknesses, a course of study will be custom-designed, with possible areas of study drawn from (but not limited to) the following list: advanced jazz concepts in melody, harmony and rhythm, sight-reading, repertoire expansion, transposition, technique, composition, and pedagogy. Assistance with recital preparation will be given as appropriate and necessary. The prerequisite for the first level (JGM) is a Master's Degree and the successful completion of the audition for the DMA program.
PREREQUISITE: DOCTORAL LEVEL. BY AUDITION.

MSJJGN Jazz Guitar
1-3 credits   Fall & Spring Semester
Graduate Studies in Jazz Guitar are designed to take into account each student's talent, previous accomplishments and particular interests. It is expected that a graduate student at the DMA level would be, to a large extent, self-directing and capable of original research. After a careful assessment of the student's strengths and weaknesses, a course of study will be custom-designed, with possible areas of study drawn from (but not limited to) the following list: advanced jazz concepts in melody, harmony and rhythm, sight-reading, repertoire expansion, transposition, technique, composition, and pedagogy. Assistance with recital preparation will be given as appropriate and necessary. The prerequisite for the first level (JGM) is a Master's Degree and the successful completion of the audition for the DMA program.
PREREQUISITE: DOCTORAL LEVEL. MSJJGM.

MSJJGO Jazz Guitar
1-3 credits   Fall & Spring Semester
Graduate Studies in Jazz Guitar are designed to take into account each student's talent, previous accomplishments and particular interests. It is expected that a graduate student at the DMA level would be, to a large extent, self-directing and capable of original research. After a careful assessment of the student's strengths and weaknesses, a course of study will be custom-designed, with possible areas of study drawn from (but not limited to) the following list: advanced jazz concepts in melody, harmony and rhythm, sight-reading, repertoire expansion, transposition, technique, composition, and pedagogy. Assistance with recital preparation will be given as appropriate and necessary. The prerequisite for the first level (JGM) is a Master's Degree and the successful completion of the audition for the DMA program.
PREREQUISITE: DOCTORAL LEVEL. MSJJGN.
MSJJGJ Jazz Guitar
1-3 credits
Fall & Spring Semester
Graduate Studies in Jazz Guitar are designed to take into account each student's talent, previous accomplishments and particular interests. It is expected that a graduate student at the DMA level would be, to a large extent, self-directing and capable of original research. After a careful assessment of the student's strengths and weaknesses, a course of study will be custom-designed, with possible areas of study drawn from (but not limited to) the following list: advanced jazz concepts in melody, harmony and rhythm, sight-reading, repertoire expansion, transposition, technique, composition, and pedagogy. Assistance with recital preparation will be given as appropriate and necessary. The prerequisite for the first level (JGM) is a Master's Degree and the successful completion of the audition for the DMA program.
PREREQUISITE: DOCTORAL LEVEL. MSJJGQ.

MSJJGQ Jazz Guitar
1-3 credits
Fall & Spring Semester
Graduate Studies in Jazz Guitar are designed to take into account each student's talent, previous accomplishments and particular interests. It is expected that a graduate student at the DMA level would be, to a large extent, self-directing and capable of original research. After a careful assessment of the student's strengths and weaknesses, a course of study will be custom-designed, with possible areas of study drawn from (but not limited to) the following list: advanced jazz concepts in melody, harmony and rhythm, sight-reading, repertoire expansion, transposition, technique, composition, and pedagogy. Assistance with recital preparation will be given as appropriate and necessary. The prerequisite for the first level (JGM) is a Master's Degree and the successful completion of the audition for the DMA program.
PREREQUISITE: DOCTORAL LEVEL. MSJJGP.

MSJJGR Jazz Guitar
1-3 credits
Fall & Spring Semester
Graduate Studies in Jazz Guitar are designed to take into account each student's talent, previous accomplishments and particular interests. It is expected that a graduate student at the DMA level would be, to a large extent, self-directing and capable of original research. After a careful assessment of the student's strengths and weaknesses, a course of study will be custom-designed, with possible areas of study drawn from (but not limited to) the following list: advanced jazz concepts in melody, harmony and rhythm, sight-reading, repertoire expansion, transposition, technique, composition, and pedagogy. Assistance with recital preparation will be given as appropriate and necessary. The prerequisite for the first level (JGM) is a Master's Degree and the successful completion of the audition for the DMA program.
PREREQUISITE: DOCTORAL LEVEL. MSJJGQ.

MSJJPI Jazz Piano
1-3 credits
Fall & Spring Semester
Exploration of the jazz piano tradition with an emphasis on advanced artists. Discussion of solo piano arranging and reharmonization techniques. Improvisation on non-symmetrical forms and advanced modal compositions.
PREREQUISITE: MASTER'S LEVEL. BY AUDITION.
MSJJPJ Jazz Piano
1-3 credits  Fall & Spring Semester
Exploration of the jazz piano tradition with an emphasis on advanced artists. Discussion of solo piano arranging and reharmonization techniques. Improvisation on non-symmetrical forms and advanced modal compositions.
PREREQUISITE: MASTER'S LEVEL. MSJ JPI.

MSJJPK Jazz Piano
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Exploration of the jazz piano tradition with an emphasis on advanced artists. Discussion of solo piano arranging and reharmonization techniques. Improvisation on non-symmetrical forms and advanced modal compositions.
PREREQUISITE: MASTER'S LEVEL. MSJ JPJ.

MSJJPL Jazz Piano
1-3 credits  Fall & Spring Semester
Exploration of the jazz piano tradition with an emphasis on advanced artists. Discussion of solo piano arranging and reharmonization techniques. Improvisation on non-symmetrical forms and advanced modal compositions.
PREREQUISITE: MASTER'S LEVEL. MSJ JPK.

MSJJPM Jazz Piano
1-3 credits  Fall & Spring Semester
Development of an individual voice and style. Composition in the solo piano and trio format: orchestrational techniques on the piano as derived from orchestra and big band, discussion of form and structure.
PREREQUISITE: DOCTORAL LEVEL. BY AUDITION.

MSJJPN Jazz Piano
1-3 credits  Fall & Spring Semester
Development of an individual voice and style. Composition in the solo piano and trio format: orchestrational techniques on the piano as derived from orchestra and big band, discussion of form and structure.
PREREQUISITE: DOCTORAL LEVEL. MSJ JPM.

MSJJPO Jazz Piano
1-3 credits  Fall & Spring Semester
Development of an individual voice and style. Composition in the solo piano and trio format: orchestrational techniques on the piano as derived from orchestra and big band, discussion of form and structure.
PREREQUISITE: DOCTORAL LEVEL. MSJ JPN.

MSJJPP Jazz Piano
1-3 credits  Fall & Spring Semester
Development of an individual voice and style. Composition in the solo piano and trio format: orchestrational techniques on the piano as derived from orchestra and big band, discussion of form and structure.
PREREQUISITE: DOCTORAL LEVEL. MSJ JPO.

MSJJPO Jazz Piano
1-3 credits  Fall & Spring Semester
Development of an individual voice and style. Composition in the solo piano and trio format: orchestrational techniques on the piano as derived from orchestra and big band, discussion of form and structure.
PREREQUISITE: DOCTORAL LEVEL. MSJ JPP.
MSJJPR Jazz Piano  
1- 3 credits  
Fall & Spring Semester  
Development of an individual voice and style. Composition in the solo piano and trio format: orchestral techniques on the piano as derived from orchestra and big band, discussion of form and structure.  
PREREQUISITE: DOCTORAL LEVEL. MSJ JPQ.

MSJJSI Jazz Saxophone  
1- 3 credits  
Fall & Spring Semester  
The graduate student will be encouraged to seek further refinement in all areas, including tone, intonation, technique, stylistic interpretation, improvisation, as well as be thoroughly versed in the pedagogy of the instrument. Specific jazz improvisation topics may include advanced forms, non-traditional harmony, traditional harmony in twelve keys, advanced rhythmic meters and subdivisions, balancing melodic/harmonic/rhythmic elements, approaches to non-structured "free" forms, and expansion of the repertoire. Related areas may also be addressed within the private lesson format, such as composition, doubling, and keyboard skills.  
PREREQUISITE: MASTER'S LEVEL. BY AUDITION.

MSJJSJ Jazz Saxophone  
1- 3 credits  
Fall & Spring Semester  
The graduate student will be encouraged to seek further refinement in all areas, including tone, intonation, technique, stylistic interpretation, improvisation, as well as be thoroughly versed in the pedagogy of the instrument. Specific jazz improvisation topics may include advanced forms, non-traditional harmony, traditional harmony in twelve keys, advanced rhythmic meters and subdivisions, balancing melodic/harmonic/rhythmic elements, approaches to non-structured "free" forms, and expansion of the repertoire. Related areas may also be addressed within the private lesson format, such as composition, doubling, and keyboard skills.  
PREREQUISITE: MASTER'S LEVEL. MSJ JSJ.

MSJJSK Jazz Saxophone  
1- 3 credits  
Fall & Spring Semester & First & Second Summer Session  
The graduate student will be encouraged to seek further refinement in all areas, including tone, intonation, technique, stylistic interpretation, improvisation, as well as be thoroughly versed in the pedagogy of the instrument. Specific jazz improvisation topics may include advanced forms, non-traditional harmony, traditional harmony in twelve keys, advanced rhythmic meters and subdivisions, balancing melodic/harmonic/rhythmic elements, approaches to non-structured "free" forms, and expansion of the repertoire. Related areas may also be addressed within the private lesson format, such as composition, doubling, and keyboard skills.  
PREREQUISITE: MASTER'S LEVEL. MSJ JSK.

MSJJSL Jazz Saxophone  
1- 3 credits  
Fall & Spring Semester  
The graduate student will be encouraged to seek further refinement in all areas, including tone, intonation, technique, stylistic interpretation, improvisation, as well as be thoroughly versed in the pedagogy of the instrument. Specific jazz improvisation topics may include advanced forms, non-traditional harmony, traditional harmony in twelve keys, advanced rhythmic meters and subdivisions, balancing melodic/harmonic/rhythmic elements, approaches to non-structured "free" forms, and expansion of the repertoire. Related areas may also be addressed within the private lesson format, such as composition, doubling, and keyboard skills.  
PREREQUISITE: MASTER'S LEVEL. MSJ JSK.
MSJJSM Jazz Saxophone
1-3 credits  Fall & Spring Semester
The graduate student will be encouraged to seek further refinement in all areas, including tone, intonation, technique, stylistic interpretation, improvisation, as well as be thoroughly versed in the pedagogy of the instrument. Specific jazz improvisation topics may include advanced forms, non-traditional harmony, traditional harmony in twelve keys, advanced rhythmic meters and subdivisions, balancing melodic/harmonic/rhythmic elements, approaches to non-structured "free" forms, and expansion of the repertoire. Related areas may also be addressed within the private lesson format, such as composition, doubling, and keyboard skills.
PREREQUISITE: DOCTORAL LEVEL. BY AUDITION.

MSJJSN Jazz Saxophone
1-3 credits  Fall & Spring Semester
The graduate student will be encouraged to seek further refinement in all areas, including tone, intonation, technique, stylistic interpretation, improvisation, as well as be thoroughly versed in the pedagogy of the instrument. Specific jazz improvisation topics may include advanced forms, non-traditional harmony, traditional harmony in twelve keys, advanced rhythmic meters and subdivisions, balancing melodic/harmonic/rhythmic elements, approaches to non-structured "free" forms, and expansion of the repertoire. Related areas may also be addressed within the private lesson format, such as composition, doubling, and keyboard skills.
PREREQUISITE: DOCTORAL LEVEL. MSJ JSM.

MSJJSO Jazz Saxophone
1-3 credits  Fall & Spring Semester
The graduate student will be encouraged to seek further refinement in all areas, including tone, intonation, technique, stylistic interpretation, improvisation, as well as be thoroughly versed in the pedagogy of the instrument. Specific jazz improvisation topics may include advanced forms, non-traditional harmony, traditional harmony in twelve keys, advanced rhythmic meters and subdivisions, balancing melodic/harmonic/rhythmic elements, approaches to non-structured "free" forms, and expansion of the repertoire. Related areas may also be addressed within the private lesson format, such as composition, doubling, and keyboard skills.
PREREQUISITE: DOCTORAL LEVEL. MSJ JSN.

MSJJSP Jazz Saxophone
1-3 credits  Fall & Spring Semester
The graduate student will be encouraged to seek further refinement in all areas, including tone, intonation, technique, stylistic interpretation, improvisation, as well as be thoroughly versed in the pedagogy of the instrument. Specific jazz improvisation topics may include advanced forms, non-traditional harmony, traditional harmony in twelve keys, advanced rhythmic meters and subdivisions, balancing melodic/harmonic/rhythmic elements, approaches to non-structured "free" forms, and expansion of the repertoire. Related areas may also be addressed within the private lesson format, such as composition, doubling, and keyboard skills.
PREREQUISITE: DOCTORAL LEVEL. MSJ JSO.
MSJJSQ Jazz Saxophone
1-3 credits
Fall & Spring Semester
The graduate student will be encouraged to seek further refinement in all areas, including tone, intonation, technique, stylistic interpretation, improvisation, as well as be thoroughly versed in the pedagogy of the instrument. Specific jazz improvisation topics may include advanced forms, non-traditional harmony, traditional harmony in twelve keys, advanced rhythmic meters and subdivisions, balancing melodic/harmonic/rhythmic elements, approaches to non-structured "free" forms, and expansion of the repertoire. Related areas may also be addressed within the private lesson format, such as composition, doubling, and keyboard skills.
PREREQUISITE: DOCTORAL LEVEL. MSJ JSP.

MSJJSR Jazz Saxophone
1-3 credits
Fall & Spring Semester
The graduate student will be encouraged to seek further refinement in all areas, including tone, intonation, technique, stylistic interpretation, improvisation, as well as be thoroughly versed in the pedagogy of the instrument. Specific jazz improvisation topics may include advanced forms, non-traditional harmony, traditional harmony in twelve keys, advanced rhythmic meters and subdivisions, balancing melodic/harmonic/rhythmic elements, approaches to non-structured "free" forms, and expansion of the repertoire. Related areas may also be addressed within the private lesson format, such as composition, doubling, and keyboard skills.
PREREQUISITE: DOCTORAL LEVEL. MSJ JSQ.

MSJTBI Jazz Trombone
1-3 credits
Fall & Spring Semester
Private lessons focus on various facets of jazz trombone performance. These include jazz and classical instrumental studies focusing on proper warm up and advanced articulation exercises. Jazz styles are researched through listening to and transcription of established jazz instrumentalists. Advanced jazz theory and jazz piano are also included. The student is required to perform and improvise at a professional level.
PREREQUISITE: MASTER'S LEVEL. BY AUDITION.

MSJTBJ Jazz Trombone
1-3 credits
Fall & Spring Semester
Private lessons focus on various facets of jazz trombone performance. These include jazz and classical instrumental studies focusing on proper warm up and advanced articulation exercises. Jazz styles are researched through listening to and transcription of established jazz instrumentalists. Advanced jazz theory and jazz piano are also included. The student is required to perform and improvise at a professional level.
PREREQUISITE: MASTER'S LEVEL. MSJ TBI.

MSJTBK Jazz Trombone
1-3 credits
Fall & Spring Semester & First & Second Summer Session
Private lessons focus on various facets of jazz trombone performance. These include jazz and classical instrumental studies focusing on proper warm up and advanced articulation exercises. Jazz styles are researched through listening to and transcription of established jazz instrumentalists. Advanced jazz theory and jazz piano are also included. The student is required to perform and improvise at a professional level.
PREREQUISITE: MASTER'S LEVEL. MSJ TBJ.
MSJTBL Jazz Trombone
1- 3 credits  
**Fall & Spring Semester**
Private lessons focus on various facets of jazz trombone performance. These include jazz and classical instrumental studies focusing on proper warm up and advanced articulation exercises. Jazz styles are researched through listening to and transcription of established jazz instrumentalists. Advanced jazz theory and jazz piano are also included. The student is required to perform and improvise at a professional level.
PREREQUISITE: MASTER'S LEVEL. MSJ TBK.

MSJTBM Jazz Trombone
1- 3 credits  
**Fall & Spring Semester**
Private lessons focus on various facets of jazz trombone performance. These include jazz and classical instrumental studies focusing on proper warm up and advanced articulation exercises. Jazz styles are researched through listening to and transcription of established jazz instrumentalists. Advanced jazz theory and jazz piano are also included. The student is required to perform and improvise at a professional level.
PREREQUISITE: DOCTORAL LEVEL. BY AUDITION.

MSJTBN Jazz Trombone
1- 3 credits  
**Fall & Spring Semester**
Private lessons focus on various facets of jazz trombone performance. These include jazz and classical instrumental studies focusing on proper warm up and advanced articulation exercises. Jazz styles are researched through listening to and transcription of established jazz instrumentalists. Advanced jazz theory and jazz piano are also included. The student is required to perform and improvise at a professional level.
PREREQUISITE: DOCTORAL LEVEL. MSJ TBM.

MSJTBO Jazz Trombone
1- 3 credits  
**Fall & Spring Semester**
Private lessons focus on various facets of jazz trombone performance. These include jazz and classical instrumental studies focusing on proper warm up and advanced articulation exercises. Jazz styles are researched through listening to and transcription of established jazz instrumentalists. Advanced jazz theory and jazz piano are also included. The student is required to perform and improvise at a professional level.
PREREQUISITE: DOCTORAL LEVEL. MSJ TBN.

MSJTBP Jazz Trombone
1- 3 credits  
**Fall & Spring Semester**
Private lessons focus on various facets of jazz trombone performance. These include jazz and classical instrumental studies focusing on proper warm up and advanced articulation exercises. Jazz styles are researched through listening to and transcription of established jazz instrumentalists. Advanced jazz theory and jazz piano are also included. The student is required to perform and improvise at a professional level.
PREREQUISITE: DOCTORAL LEVEL. MSJ TBO.

MSJTBJQ Jazz Trombone
1- 3 credits  
**Fall & Spring Semester**
Private lessons focus on various facets of jazz trombone performance. These include jazz and classical instrumental studies focusing on proper warm up and advanced articulation exercises. Jazz styles are researched through listening to and transcription of established jazz instrumentalists. Advanced jazz theory and jazz piano are also included. The student is required to perform and improvise at a professional level.
PREREQUISITE: DOCTORAL LEVEL. MSJ TBP.
SCHOOL OF MUSIC
STUDIO MUSIC & JAZZ

MSJTBR Jazz Trombone
1-3 credits  Fall & Spring Semester
Private lessons focus on various facets of jazz trombone performance. These include jazz and classical instrumental studies focusing on proper warm up and advanced articulation exercises. Jazz styles are researched through listening to and transcription of established jazz instrumentalists. Advanced jazz theory and jazz piano are also included. The student is required to perform and improvise at a professional level.
PREREQUISITE: DOCTORAL LEVEL. MSJ TBQ.

MSJTPJ Jazz Trumpet
1-3 credits  Fall & Spring Semester
Private lessons focus on various facets of jazz trumpet performance. These include jazz and classical instrumental studies focusing on proper warm up and advanced articulation exercises. Jazz styles are researched through listening to and transcription of established jazz instrumentalists. Advanced jazz theory and jazz piano are also included. The student is required to perform and improvise at a professional level.
PREREQUISITE: MASTER'S LEVEL. MSJ TPJ.

MSJTPL Jazz Trumpet
1-3 credits  Fall & Spring Semester
Private lessons focus on various facets of jazz trumpet performance. These include jazz and classical instrumental studies focusing on proper warm up and advanced articulation exercises. Jazz styles are researched through listening to and transcription of established jazz instrumentalists. Advanced jazz theory and jazz piano are also included. The student is required to perform and improvise at a professional level.
PREREQUISITE: MASTER'S LEVEL. MSJ TPL.

MSJTPM Jazz Trumpet
1-3 credits  Fall & Spring Semester
Private lessons focus on various facets of jazz trumpet performance. These include jazz and classical instrumental studies focusing on proper warm up and advanced articulation exercises. Jazz styles are researched through listening to and transcription of established jazz instrumentalists. Advanced jazz theory and jazz piano are also included. The student is required to perform and improvise at a professional level.
PREREQUISITE: DOCTORAL LEVEL. BY AUDITION.
MSJTPN Jazz Trumpet
1-3 credits Fall & Spring Semester
Private lessons focus on various facets of jazz trumpet performance. These include jazz and classical instrumental studies focusing on proper warm up and advanced articulation exercises. Jazz styles are researched through listening to and transcription of established jazz instrumentalists. Advanced jazz theory and jazz piano are also included. The student is required to perform and improvise at a professional level.
PREREQUISITE: DOCTORAL LEVEL. MSJ TPM.

MSJTPQ Jazz Trumpet
1-3 credits Fall & Spring Semester
Private lessons focus on various facets of jazz trumpet performance. These include jazz and classical instrumental studies focusing on proper warm up and advanced articulation exercises. Jazz styles are researched through listening to and transcription of established jazz instrumentalists. Advanced jazz theory and jazz piano are also included. The student is required to perform and improvise at a professional level.
PREREQUISITE: DOCTORAL LEVEL. MSJ TPQ.

MSJVOI Jazz Voice
1-3 credits Fall & Spring Semester
Private studio vocal study at the master of music graduate level devoted to the continued development of skills and repertoire with particular attention to discovering and nuturing the individual student's artistic direction.
PREREQUISITE: MASTER'S LEVEL. BY AUDITION.
SCHOOL OF MUSIC
STUDIO MUSIC & JAZZ

MSJVOJ Jazz Voice
1-3 credits FALL & SPRING SEMESTER
Private studio vocal study at the master of music graduate level devoted to the continued development of skills and repertoire with particular attention to discovering and nurturing the individual student's artistic direction.
PREREQUISITE: MASTER'S LEVEL. MSK VOI.

MSJVOK Jazz Voice
1-3 credits FALL & SPRING SEMESTER & FIRST & SECOND SUMMER SESSION
Private studio vocal study at the master of music graduate level devoted to the continued development of skills and repertoire with particular attention to discovering and nurturing the individual student's artistic direction.
PREREQUISITE: MASTER'S LEVEL. MSJ VOJ.

MSJVOL Jazz Voice
1-3 credits FALL & SPRING SEMESTER
Private studio vocal study at the master of music graduate level devoted to the continued development of skills and repertoire with particular attention to discovering and nurturing the individual student's artistic direction.
PREREQUISITE: MASTER'S LEVEL. MSJ VOK.

MSJVOM Jazz Voice
1-3 credits FALL & SPRING SEMESTER
Private studio vocal coaching at the doctoral level devoted to refining all skills, technique, and repertoire for professional performance and pedagogy.
PREREQUISITE: DOCTORAL LEVEL. BY AUDITION.

MSJVON Jazz Voice
1-3 credits FALL & SPRING SEMESTER
Private studio vocal coaching at the doctoral level devoted to refining all skills, technique, and repertoire for professional performance and pedagogy.
PREREQUISITE: DOCTORAL LEVEL. MSJ VOM.

MSJVOO Jazz Voice
1-3 credits FALL & SPRING SEMESTER
Private studio vocal coaching at the doctoral level devoted to refining all skills, technique, and repertoire for professional performance and pedagogy.
PREREQUISITE: DOCTORAL LEVEL. MSJ VOO.

MSJVOP Jazz Voice
1-3 credits FALL & SPRING SEMESTER
Private studio vocal coaching at the doctoral level devoted to refining all skills, technique, and repertoire for professional performance and pedagogy.
PREREQUISITE: DOCTORAL LEVEL. MSJ VOP.

MSJVOQ Jazz Voice
1-3 credits FALL & SPRING SEMESTER
Private studio vocal coaching at the doctoral level devoted to refining all skills, technique, and repertoire for professional performance and pedagogy.
PREREQUISITE: DOCTORAL LEVEL. MSJ VOP.
MSJVOR Jazz Voice
1-3 credits  
Fall & Spring Semester
Private studio vocal coaching at the doctoral level devoted to refining all skills, technique, and repertoire for professional performance and pedagogy.
PREREQUISITE: DOCTORAL LEVEL MSJ VOQ.

MSJ509 Jazz Composition I
2 credits  
Fall Semester
Application of advanced composition techniques to various contemporary Jazz styles making extensive use of analysis of established compositions. Emphasis is placed on small group performance.
PREREQUISITE: MTC 211 AND MSJ JPD OR PERMISSION OF INSTRUCTOR.

MSJ510 Jazz Composition II
2 credits  
Spring Semester
This course is a continuation of MSJ 500 with an emphasis on melody writing, reharmonization techniques, pentatonic/blues composition, and an introduction to advanced harmonic materials.
PREREQUISITE: MSJ 509.

MSJ516 Jazz Vocal Arranging
2 credits  
Fall Semester
Analysis and techniques of jazz vocal writing.
PREREQUISITE: MSJ 519.

MSJ519 Advanced Modern Arranging I
3 credits  
Fall Semester
Advanced arranging and composition for the Jazz and studio ensemble.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MSJ520 Advanced Modern Arranging II
3 credits  
Spring Semester
Advanced arranging and composition for the Jazz and studio ensemble.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MSJ521 Advanced Modern Arranging III
3 credits  
Spring Semester
Course addresses scoring for large jazz ensemble, utilizing chord scale voicings and line writing techniques. Emphasis is placed on orchestration styles such as Duke Ellington, Gil Evans, and Thad Jones.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MSJ522 Introduction to Midi Sequencing and Digital Workstations
2 credits  
Fall & Spring Semester
An introduction to Midi Sequencing with hands-on experience working with a computer sequencing workstation. Topics include sequencing, quantizing, editing, mixing, and effects processing.
PREREQUISITE: MSJ 519/520 OR PERMISSION OF INSTRUCTOR.

MSJ544 Jazz Pedagogy and Administration
3 credits  
Spring Semester
The philosophy, methods, and materials of instruction pertinent to the teaching and management of a jazz and commercial curriculum at the high school and college level. Includes preparation of model curricula and supervised instruction.
PREREQUISITE: MSJ 565 AND 620 OR PERMISSION OF INSTRUCTOR.
MSJ560 Advanced Jazz Improvisation Theory
3 credits  Fall & Spring Semester
Review of fundamentals and introduction of advanced topics in jazz harmony and
scale resources for improvisation.
PREREQUISITE: PLACEMENT AUDITION AND PERMISSION OF INSTRUCTOR.

MSJ565 Advanced Improvisation I
3 credits  Fall Semester
Use of stylistic nuance with emphasis on melodic development, complex harmonies,
time-feel, and phrasing. Open only to senior or graduate majors in Studio Music
and Jazz.
PREREQUISITE: MSJ 372 AND JPD OR PERMISSION OF INSTRUCTOR.

MSJ566 Advanced Improvisation II
3 credits  Spring Semester
Refinement of improvisation concepts leading towards the establishment of a personal
style of playing. Open only to senior or graduate majors in Studio Music and Jazz.
PREREQUISITE: MSJ 565 OR PERMISSION OF INSTRUCTOR.

MSJ589 Jazz Accompanying
2 credits  Offered By Announcement Only
A comprehensive study in accompaniment concepts for pianists/guitarists reflecting
contemporary and traditional jazz styles.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MSJ593 Special Topics MSJ
1-3 credits  Fall & Spring Semester & First & Second Summer Session
Supervised topics and other activities in specific areas of Studio Music and Jazz.
PREREQUISITE: PERMISSION OF THE DEAN.

MSJ599 Practicum in Music
0 credit  Fall & Spring Semester & First & Second Summer Session
Practical professional experience.
PREREQUISITE: MUSIC MAJORS ONLY

MSJ603 Jazz Piano Class I
1 credits  Fall & Spring Semester
Group instruction in the various styles of contemporary jazz. Graduate students
will acquire improvisational skills while learning repertoire and performance
techniques, and strengthen compositional and arranging skills by contributing original
compositions and arrangements to the ensemble's repertoire.
PREREQUISITE: PLACEMENT AUDITION.

MSJ604 Jazz Piano Class II
1 credits  Fall & Spring Semester
Group instruction in the various styles of contemporary jazz. Graduate students
will acquire improvisational skills while learning repertoire and performance
techniques, and strengthen compositional and arranging skills by contributing original
compositions and arrangements to the ensemble's repertoire.
PREREQUISITE: MSJ 603 OR PLACEMENT AUDITION.
MSJ605 Jazz Piano Class III  
1 credits  
Fall & Spring Semester  
Group instruction in the various styles of contemporary jazz. Graduate students will acquire improvisational skills while learning repertoire and performance techniques, and strengthen compositional and arranging skills by contributing original compositions and arrangements to the ensemble's repertoire. 
PREREQUISITE: MSJ 604 OR PLACEMENT AUDITION.

MSJ606 Jazz Piano Class IV  
1 credits  
Fall & Spring Semester  
Group instruction in the various styles of contemporary jazz. Graduate students will acquire improvisational skills while learning repertoire and performance techniques, and strengthen compositional and arranging skills by contributing original compositions and arrangements to the ensemble's repertoire. 
PREREQUISITE: MSJ 605 OR PLACEMENT AUDITION.

MSJ614 Advanced Orchestration  
3 credits  
Fall Semester  
Techniques for scoring for the modern symphony orchestra. 
PREREQUISITE: MSJ 519, 520, MTC 416 OR BY PERMISSION OF INSTRUCTOR.

MSJ615 Jazz Composition Seminar I  
2 credits  
Fall Semester  
Creative work in Jazz Composition.

MSJ616 Jazz Composition II  
2 credits  
Spring Semester  
Continuation of MSJ 615. 
PREREQUISITE: MSJ 615.

MSJ620 Analysis of Jazz Styles  
3 credits  
Fall Semester  
A comparative study of Jazz styles from 1900 to the present. 
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MSJ626 Jazz Piano Trio Class  
1 credits  
Fall Semester  
A format for piano, bass and drums examining and performing the jazz piano trio literature at the advanced level. 
PREREQUISITE: MSJ MAJORS OR PERMISSION OF INSTRUCTOR.

MSJ627 Jazz Rhythm Section Techniques  
1 credits  
Offered By Announcement Only  
A jazz ensemble for piano, bass, drums, and horns that offers advanced concepts in small group interactive performance. 
PREREQUISITE: MSJ MAJORS OR PERMISSION OF INSTRUCTOR.

MSJ633 Jazz Keyboard Ensemble  
1 credits  
Offered By Announcement Only  
PREREQUISITE: AUDITION, PERMISSION OF INSTRUCTOR.
MSJ634 E.C.M. Ensemble
1 credits                                                    Fall & Spring Semester
This ensemble performs music typical of the contemporary European jazz styles such as those characterized by the Edition of Contemporary Music (E.C.M.) Recording Company.
PREREQUISITE: AUDITION.

MSJ638 Vocal Recording Ensemble
1 credits                                                    Fall & Spring Semester
Weekly recording sessions and instruction in recording studio performance techniques including skill training in sight reading, vocal production, and diction applied to group and solo singing styles.
PREREQUISITE: BY AUDITION.

MSJ639 Small Jazz Vocal Ensemble
1 credits                                                    Fall & Spring Semester
Small groups of vocalists with a rhythm section, dedicated to a particular style and body of literature.
PREREQUISITE: BY AUDITION.

MSJ640 Small Jazz Ensemble
1 credits                                                    Fall & Spring Semester
Group instruction in the various styles of contemporary jazz. Students will acquire improvisational skills while learning repertoire and performance techniques leading to an advanced performance level. This course will strengthen compositional and arranging skills as students must contribute original compositions and arrangements to the ensemble's repertoire.
PREREQUISITE: BY AUDITION.

MSJ641 Small Jazz Ensemble I
1 credits                                                    Fall & Spring Semester
Group instruction in the various styles of contemporary jazz. Students will acquire improvisational skills while learning repertoire and performance techniques leading to an advanced performance level. This course will strengthen compositional and arranging skills as students must contribute original compositions and arrangements to the ensemble's repertoire.

MSJ642 Small Jazz Ensemble II
1 credits                                                    Fall & Spring Semester
Group instruction in the various styles of contemporary jazz. Students will acquire improvisational skills while learning repertoire and performance techniques leading to an advanced performance level. This course will strengthen compositional and arranging skills as students must contribute original compositions and arrangements to the ensemble's repertoire.

MSJ643 Small Jazz Ensemble III
1 credits                                                    Fall & Spring Semester
Group instruction in the various styles of contemporary jazz. Students will acquire improvisational skills while learning repertoire and performance techniques leading to an advanced performance level. This course will strengthen compositional and arranging skills as students must contribute original compositions and arrangements to the ensemble's repertoire.
MSJ644 Small Jazz Ensemble IV
1 credits
Group instruction in the various styles of contemporary jazz. Students will acquire
improvisational skills while learning repertoire and performance techniques leading
to an advanced performance level. This course will strengthen compositional and
arranging skills as students must contribute original compositions and arrangements
to the ensemble's repertoire.

MSJ645 Small Jazz Ensemble V
1 credits
Group instruction in the various styles of contemporary jazz. Students will acquire
improvisational skills while learning repertoire and performance techniques leading
to an advanced performance level. This course will strengthen compositional and
arranging skills as students must contribute original compositions and arrangements
to the ensemble's repertoire.

MSJ646 Small Jazz Ensemble VI
1 credits
Group instruction in the various styles of contemporary jazz. Students will acquire
improvisational skills while learning repertoire and performance techniques leading
to an advanced performance level. This course will strengthen compositional and
arranging skills as students must contribute original compositions and arrangements
to the ensemble's repertoire.

MSJ647 Small Jazz Ensemble VII
1 credits
Group instruction in the various styles of contemporary jazz. Students will acquire
improvisational skills while learning repertoire and performance techniques leading
to an advanced performance level. This course will strengthen compositional and
arranging skills as students must contribute original compositions and arrangements
to the ensemble's repertoire.

MSJ648 Studio Rhythm Section
1 credits

MSJ650 Studio Jazz Band
1 credits
This ensemble performs music in the recent big band tradition, from leaders such
as Duke Ellington, Count Basie, Buddy Rich, Bob Brookmeyer, and Thad Jones. The
group performs on campus with an emphasis on studio recording.
PREREQUISITE: BY AUDITION.

MSJ651 Concert Jazz Band
1 credits
The Concert Jazz Band is the premiere big band at the Frost School of Music. Students
are required to perform at an advanced level, and work with a variety of guest
artists. Requirements include the ability to sight read difficult material, and
to improvise in various styles. Audition is required.
PREREQUISITE: BY AUDITION.
MSJ652 Jazz Band II
1 credits  Fall & Spring Semester
This ensemble performs music in the recent big band tradition, from leaders such as Duke Ellington, Count Basie, Buddy Rich, Bob Brookmeyer and Thad Jones. The group performs on campus with an emphasis on studio recording.
PREREQUISITE: BY AUDITION.

MSJ653 Jazz Band III
1 credits  Fall & Spring Semester
Big Band designed for graduate students needing experience with classic Big Band repertory.
PREREQUISITE: BY AUDITION.

MSJ655 Monk/Mingus Ensemble
1 credits  Fall Semester
This ensemble is dedicated to the study and performance of the music of the influential jazz composers Charles Mingus and Thelonius Monk.
PREREQUISITE: BY AUDITION.

MSJ656 Funk/Fusion Ensemble
1 credits  Fall & Spring Semester
Small jazz ensemble focusing on contemporary electric jazz/rock/fusion/Latin styles. Emphasis is placed on original compositions by the members of the ensemble. The most common instrumentation is bass, drums, piano/synthesizer, guitar, and saxophone.
PREREQUISITE: AUDITION.

MSJ657 Horace Silver Ensemble
1 credits  Spring Semester
This ensemble is dedicated to the study and performance of the music of Horace Silver.
PREREQUISITE: AUDITION.

MSJ658 Bebop Ensemble
1 credits  Fall & Spring Semester
This is the top instrumental small group and performs frequently both locally and nationally. The ensemble performs exclusively original compositions provided by the members of the group. The styles presented are varied and based on the interests of the participants, but include bebop, blues and world music.
PREREQUISITE: BY AUDITION.

MSJ659 Rock Ensemble
1 credits  Fall & Spring Semester
Mid-level ensemble for both instrumentalists and vocalists designed to familiarize students with classic Rhythm and Blue material from the 1950s, 60s, and 70s, while preparing for a series of concerts throughout the semester. Students are guided through the process of putting a working band together and preparing it for performances and recordings, including what is expected of and from instruments, vocalists, producers, promoters, and other industry personnel.
PREREQUISITE: BY AUDITION.
MSJ660 Avant Garde Ensemble
1 credits                                                    Fall & Spring Semester
This ensemble offers students the opportunity to develop the "free form" improvisation in either the bebop based style of Ornette Coleman or the fusion oriented style as typified by Bill Laswell.
PREREQUISITE: AUDITION.

MSJ661 Electric Bass Ensemble
1 credits                                                    Fall & Spring Semester
This is a 2 hour weekly ensemble that develops a thorough foundation in basic techniques and bass line creation. The fall semester concentrates on the acoustic bass and related styles. The spring semester focuses on the electric bass.
PREREQUISITE: BY AUDITION.

MSJ662 Jazz Saxophone Ensemble
1 credits                                                    Fall & Spring Semester
An intermediate level reading ensemble comprised of five saxophones and rhythm section, designed to reinforce fundamental principles of playing in the typical big band saxophone section. Skills addressed include sight-reading, blend, intonation, phrasing, rhythmic accuracy, etc. Rhythm section players gain reading experience and learn the basics of providing a foundation for big band type arrangements. Repertoire includes both published and selected original charts from student arrangers.
PREREQUISITE: BY AUDITION.

MSJ664 Contemporary Rhythm Section Techniques I
1 credits                                                    Fall & Spring Semester
This is an ensemble for freshmen rhythm section players. The focus of this ensemble is to introduce students to various styles of rhythm section playing--from swing and modern Jazz through Rock, Funk, R&B, and other commercial styles of music. Concepts of sound, groove, balance and blend, repertory, and accompaniment are also discussed.

MSJ665 Contemporary Rhythm Section Techniques II
1 credits                                                    Fall & Spring Semester
Fundamentals of rhythm section playing for guitarists, pianists, bassists, and drummers. It covers a variety of contemporary styles within the rock, jazz, Latin, and pop idioms. Students are grouped into ensembles which perform in class weekly.
PREREQUISITE: BY AUDITION.

MSJ666 Small Jazz Ensemble Lab
0 credit                                                    Fall & Spring Semester
Performance Lab designed to work in conjunction with all of the 140 level ensembles. Provides and environment in which students are required to perform on a regular rotating schedule throughout the semester. These performances are critiqued by the institution and other faculty, as well as students, in order to nurture a critical but positive atmosphere.
PREREQUISITE: BY AUDITION.

MSJ667 Salsa Ensemble
1 credits                                                    Spring Semester
An ensemble of instrumentalists and singers performing a wide variety of Salsa and Latin jazz styles with emphasis on improvisation.
MSJ669 Jazz Guitar Ensemble I  
1 credits  
Fall & Spring Semester  
A small instrumental ensemble comprised of five electric guitars which perform  
with bass and drums in a wide variety of contemporary jazz styles.  
PREREQUISITE: BY AUDITION.

MSJ670 Jazz Guitar Ensemble II  
1 credits  
Fall & Spring Semester  
A small instrumental ensemble comprised of five electric guitars which perform  
with bass and drums in a wide variety of contemporary jazz styles.  
PREREQUISITE: BY AUDITION.

MSJ671 Jazz Guitar Ensemble III  
1 credits  
Fall & Spring Semester  
A small instrumental ensemble comprised of five electric guitars which perform  
with bass and drums in a wide variety of contemporary jazz styles.  
PREREQUISITE: BY AUDITION.

MSJ672 Jazz Guitar Ensemble (Workshop I)  
1 credits  
Fall & Spring Semester  
A small instrumental reading ensemble, comprised of four to eight electric guitars,  
which studies a variety of contemporary jazz styles.  
PREREQUISITE: BY AUDITION.

MSJ673 Jazz Guitar Ensemble (Workshop II)  
1 credits  
Offered By Announcement Only  
A small instrumental reading ensemble, comprised of four to eight electric guitars,  
which studies a variety of contemporary jazz styles.  
PREREQUISITE: BY AUDITION.

MSJ675 Jazz Writing Ensemble  
1 credits  
Offered By Announcement Only  
This class is a seminar in jazz arranging and composition techniques for Studio/Jazz  
Writing master's students and DMA students in Jazz Composition. The class consists  
primarily of topics related to jazz and studio arranging and composition, recording  
techniques, rehearsal techniques, music technologies, music business, and entrepreneurship.  
Topics are examined utilizing hands-on technology, score analysis, listening, guest  
lectures, and long range projects.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MSJ693 Special Projects  
1-3 credits  
Fall & Spring Semester & First & Second Summer Session  
Projects in any phase of studio music and jazz in which the student is interested  
and qualified to work.  
PREREQUISITE: GRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MSJ694 Special Projects  
1-3 credits  
Fall & Spring Semester & First & Second Summer Session  
Projects in any phase of studio music and jazz in which the student is interested  
and qualified to work.  
PREREQUISITE: GRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.
MSJ695 Jazz Vocal Ensemble I
1 credits Fall & Spring Semester
A choir of 12 to 16 voices, with rhythm section, which perform a wide variety of jazz and pop styles.
PREREQUISITE: PERMISSION OF CONDUCTOR.

MSJ696 Jazz Vocal Ensemble II
1 credits Fall & Spring Semester
A choir of 12 to 16 voices, with rhythm section, which perform a wide variety of jazz and pop styles.
PREREQUISITE: PERMISSION OF CONDUCTOR.

MSJ697 Jazz Vocal Ensemble III
1 credits Fall & Spring Semester
A choir of 12 to 16 voices, with rhythm section, which perform a wide variety of jazz and pop styles.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MSJ711 Master's Recital Paper
1-3 credits Fall & Spring Semester & First & Second Summer Session
The student working on his/her recital paper enrolls for credit as determined by his/her advisor. Credit is not awarded until the paper has been accepted.

MSJ712 Master's Recital
1 credits Fall & Spring Semester
The student enrolls for recital credit during the semester in which he/she presents the master's recital.

MSJ713 Master's Jazz Writing Project
1-3 credits Fall & Spring Semester & First & Second Summer Session
The student working on his/her master's jazz writing project enrolls for credit as determined by his/her advisor. Credit is not awarded until the project paper is accepted.

MSJ720 Research in Residence
0 credit Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in MSJ 710 (usually six credits). Credit not granted. May be regarded as full time residence.

MSJ731 Doctoral Essay
1-12 credits Fall & Spring Semester & First & Second Summer Session
Required of all candidates of the D.M.A. The student will enroll for credit as determined by his/her advisor, but not for less than a total of 12. Not more than 12 hours of MSJ 731 may be taken in a regular semester, nor more than six in a summer session.

MSJ732 Doctoral Recital
1 credits Fall & Spring Semester
A formal recital displaying improvisational, interactive, and compositional skills appropriate to the doctoral level.
MSJ750 Research in Residence
0 credit                       Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the D.M.A., after the student has been
enrolled for the permissible cumulative total in appropriate doctoral research.
Credit not granted. May be regarded as full-time residence as determined by the
Dean of the Graduate School.

VOCAL PERFORMANCE

MVPCDI Conducting
1-4 credits                    Fall & Spring Semester
PREREQUISITE: MASTER’S LEVEL. BY AUDITION.

MVPCDJ Conducting
1-4 credits                    Fall & Spring Semester
PREREQUISITE: MASTER’S LEVEL. MVP CDI.

MVPCDK Conducting
1-4 credits                    Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: MASTER’S LEVEL. MVP CDJ.

MVPCDL Conducting
1-4 credits                    Fall & Spring Semester
PREREQUISITE: MASTER’S LEVEL. MVP CDK.

MVPCDM Conducting
1-4 credits                    Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. BY AUDITION.

MVPCDN Conducting
1-4 credits                    Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MVP CDM.

MVPCDO Conducting
1-4 credits                    Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MVP CDN.

MVPCDP Conducting
1-4 credits                    Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MVP CDO.

MVPCDQ Conducting
1-4 credits                    Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MVP CDQ.
VOCAL PERFORMANCE

MVPVOI Voice
1-4 credits
Fall & Spring Semester
Private lessons for providing progress towards establishing an efficient and balanced concept of posture, breath management, phonation, resonance with clarity of articulation in required languages, the ability to sustain a professional sound in the upper register and perform with established skills for vocal, physical and emotional communication in voice juries and performances of concert and opera, and the potential for a professional career as a classical singer.
PREREQUISITE: MASTER'S LEVEL. MVP VOH

MVPVOJ Voice
1-4 credits
Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MVP VOI.

MVPVOK Voice
1-4 credits
Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: MASTER'S LEVEL. MVP VOJ.

MVPVOL Voice
1-4 credits
Fall & Spring Semester
PREREQUISITE: MASTER'S LEVEL. MVP VOK.

MVPVOM Voice
1-4 credits
Fall & Spring Semester
Private lessons for providing progress towards establishing an efficient and balanced concept of posture, breath management, phonation, resonance with clarity of articulation and workable knowledge of required languages, the ability to sustain a professional sound in the upper register and perform with advanced skills for vocal, physical and emotional communication in voice juries and performances of concert and opera, and the potential for a professional career as a classical singer and/or teacher of music.
PREREQUISITE: DOCTORAL LEVEL. MVP VOL.

MVPVON Voice
1-4 credits
Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MVP VOM.

MVPVOO Voice
1-4 credits
Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MVP VON.

MVPVOP Voice
1-4 credits
Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MVP VOO.

MVPVOQ Voice
1-4 credits
Fall & Spring Semester
PREREQUISITE: DOCTORAL LEVEL. MVP VOP.

MVPVOR Voice
1-4 credits
Fall Semester
PREREQUISITE: DOCTORAL LEVEL. MVP VOQ.
MVP508 Choral Score Study
2 credits                                                             Fall Semester
In depth study of selected choral or choral/orchestral works related to literature
being performed by university ensembles during the academic year.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MVP538 Vocal Pedagogy
2- 3 credits                                           Offered By Announcement Only
Course covers methods and concepts in the teaching of singing. Emphasis is placed
on psychological, physiological, and acoustical principles involved in voice production
with practical application, observing and teaching individual and class voice in
a supervised environment.
PREREQUISITE: SENIOR STANDING IN MUSIC OR PERMISSION OF INSTRUCTOR.

MVP552 Vocal Performance Preparation
1 credits                                                    Fall & Spring Semester
Musical preparation of a wide range of assigned vocal literature from all periods
for performance in forums, juries, and recitals. Special emphasis is on musical
values, styles, translations of texts, diction, pronunciation of Italian, German,
French, and English, and memorization.
PREREQUISITE: MVP MAJOR, JUNIOR STATUS.

MVP557 Choral Music Workshop
2 credits                                                      First Summer Session
Survey and practice through performance and discussion of choral music, recommended
for inclusion in public school and church choral music curricula.

MVP588 Voice Performance in Salzburg, Austria
2- 4 credits                                                        Spring Semester
Course is conducted at Salzburg College, Austria. Students receive comprehensive
and intensive vocal training from University of Miami faculty as well as distinguished
guest artists. A class in vocal repertoire is also included.
PREREQUISITE: BY AUDITION ONLY.

MVP593 Special Topics MVP
1- 3 credits                                         Fall & Spring Semester & First & Second Summer Session
Supervised topics and other activities in specific areas of Vocal Performance.
PREREQUISITE: PERMISSION OF THE DEAN.

MVP599 Practicum in Music
0 credit                                                   Fall & Spring Semester & First & Second Summer Session
Practical professional experience.
PREREQUISITE: MUSIC MAJORS ONLY.

MVP605 Acting for Opera
2 credits                                                        Fall Semester
This course is designed to combine acting techniques with singing, dealing specifically
with challenges presented to the singing actor and including musical styles and
periods, period fashion and props, movement, and stage technique for recitative,
aria and ensemble performance.
MVP606 Acting for Opera-Intermediate  
2 credits  
Spring Semester  
Course designed to continue to develop acting and character development skills for operatic performances.  
PREREQUISITE: COMPLETION OF MVP 605 OR PERMISSION OF INSTRUCTOR BY AUDITION.

MVP610 Vocal Literature for Teaching: English  
1 credits  
Fall Semester  
Study of the historical body of English language vocal repertoire as it relates to voice classification, age, and technical development of a singer.  
PREREQUISITE: COMPLETION OF BASIC COURSE IN VOCAL PEDAGOGY

MVP611 Vocal Literature for Teaching: Italian  
1 credits  
Spring Semester  
Study of the historical body of Italian vocal repertoire as it relates to voice classification, age, and technical development of a singer.  
PREREQUISITE: MVP 251 OR THE EQUIVALENT AND THE COMPLETION OF A BASIC COURSE IN VOCAL PEDAGOGY

MVP612 Vocal Literature for Teaching: German  
1 credits  
Fall Semester  
Study of the historical body of German vocal repertoire as it relates to voice classification, age, and technical development of a singer.  
PREREQUISITE: MVP 252 OR THE EQUIVALENT AND THE COMPLETION OF A BASIC COURSE IN VOCAL PEDAGOGY

MVP613 Vocal Literature for Teaching: French  
1 credits  
Spring Semester  
Study of the historical body of French vocal repertoire as it relates to voice classification, age, and technical development of a singer.  
PREREQUISITE: MVP 253 OR THE EQUIVALENT AND THE COMPLETION OF A BASIC COURSE IN VOCAL PEDAGOGY

MVP614 Vocal Literature for Teaching: Musical Theatre  
1 credits  
Fall Semester  
Study of the historical body of American and British Musical Theatre repertoire as it relates to voice classification, age, and technical development of the singer.  
PREREQUISITE: ENROLLMENT IN OR COMPLETION OF A BASIC COURSE IN VOCAL PEDAGOGY

MVP630 Studio Teaching Techniques  
1 credits  
Fall Semester  
Application of the principles studied in MVP 638. Candidates will be assigned students for applied voice study, under supervision of the instructor.  
PREREQUISITE: MVP 638 OR KEYBOARD PROFICIENCY.

MVP632 Teaching the Singer Actor  
2 credits  
Spring Semester  
Exploring teaching techniques for developing the skills of the singer.  
PREREQUISITE: MVP 638.

MVP636 Voice Disorders  
2 credits  
Fall Semester  
Assessment and treatment of the human voice. Course promotes an understanding of the terminology, clinical assessment, and therapy protocols used in treating the dysfunctional or damaged voice.
MVP638 Advanced Vocal Pedagogy
2 credits  Fall Semester
Course addresses advanced methods and concepts in the teaching of singing. Emphasis is placed on psychological, physiological, and acoustical principles involved in voice production; historical perspectives; and comparative pedagogical publications. Includes practical application, observation and teaching individual and class voice in a supervised environment.
PREREQUISITE: UNDERGRADUATE CREDIT IN MVP 438, TRANSFERRABLE EQUIVALENT, OR PERMISSION OF THE INSTRUCTOR.

MVP639 Vocal Pedagogy Internship
1 credits  Fall Semester
Observation in the field of choice, including, but not limited to studio work, medical setting or speech pathology setting.
PREREQUISITE: MVP 638 OR PERMISSION OF INSTRUCTOR.

MVP641 Seminar in Choral Music
2 credits  Spring Semester
Performance practice for the advanced student of choral literature. Emphasis is given to the best of representative choral literature or various periods and styles utilizing the students in the role of conductor, teacher, and performer.

MVP647 Men's Chorale
1 credits  Fall & Spring Semester
This ensemble is open to the entire university community. Students will work on all aspects of choral singing, including skills in basic musicianship. This ensemble presents two or three concerts per semester.
PREREQUISITE: BY AUDITION.

MVP648 Women's Chorale
1 credits  Fall & Spring Semester
This ensemble is open to the entire university community. Students will work on all aspects of choral singing, including skills in basic musicianship. This ensemble presents two or three concerts per semester.
PREREQUISITE: BY AUDITION.

MVP650 English Diction for Singers
1 credits  Fall Semester
Class designed for voice majors and principals, with a focus on the development of pronunciation skills for teaching and singing in English. International Phonetic Alphabet is presented as a learning tool.

MVP651 Italian Diction for Singers
1 credits  Spring Semester
Class designed for voice majors and principals, with a focus on the development of pronunciation skills for teaching in Italian and Latin. International Phonetic Alphabet is presented as a learning tool.
PREREQUISITE: MVP 650.

MVP652 German Diction for Singers
1 credits  Fall Semester
Class designed for voice majors and principals, with a focus on the development of pronunciation skills for teaching and singing in German. International Phonetic Alphabet is used as a learning tool.
PREREQUISITE: MVP 650.
MVP653 French Diction for Singers
1 credits
Spring Semester
Class designed for voice majors and principals, with a focus on the development
of pronunciation skills for teaching and singing in French. International Phonetic
Alphabet is used as a learning tool.
PREREQUISITE: MVP 650.

MVP667 Musical Theatre Workshop
1 credits
Fall & Spring Semester
Participation in a fully-staged production or supervised classwork and projects
which integrate the skills of the musical theatre singer/actor.
PREREQUISITE: BY AUDITION.

MVP668 Musical Theatre Instrumental Ensemble
1 credits
Fall & Spring Semester
An instrumental ensemble for musical theatre productions.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

MVP670 Choral Conducting: Conducting Pedagogy
1 credits
Fall Semester
Study and practice of various styles and methods of teaching undergraduate conducting.
Discussions deal with musical training vs. gestural approach and the combination
of the two when teaching undergraduate students.
PREREQUISITE: ACCEPTANCE INTO THE DMA/MM CHORAL CONDUCTING OR BY PERMISSION.

MVP671 Choral Conducting Workshop: Performance Practice
1 credits
Fall Semester
Overview of historical issues in performance practice, including vocal style,
musical style, articulations, changes in instruments, additions of new instruments,
acoustics, and other musical considerations as they relate to a more informed performance.
PREREQUISITE: ACCEPTANCE INTO THE DMA/MM PROGRAM IN CHORAL CONDUCTING OR BY PERMISSION
OF INSTRUCTOR.

MVP672 Choral Conducting: Major Work Emphasis
1 credits
Fall Semester
Course focus is placed on major choral-orchestral works with particular emphasis
on two or three major works. In addition, conductors preparation for choral-orchestral
works, including instrument transportation, score preparation, musical line, historical
context, and score marking, are included.
PREREQUISITE: DMA/MM IN CHORAL CONDUCTING STUDENT OR BY PERMISSION OF THE INSTRUCTOR.

MVP673 Choral Conducting Workshop: Smaller Choral Works
1 credits
Fall Semester
Study of smaller choral works by Poulenc, Hindemith, Ravel, Debussy, Brahms, Mendelssohn,
Schubert, Schumann, etc., with emphasis on style, interpretation, and gesture.

MVP683 Civic Chorale
1 credits
Fall & Spring Semester
Open to the university community students, faculty, and community members to perform
two to three concerts each semester, including one concert each semester with instrumentalists.
Students work on all aspects of choral singing.
PREREQUISITE: BY AUDITION.
MVP684 Chamber Singers
1 credits  Fall & Spring Semester
An ensemble of eighteen to twenty undergraduate and graduate students. The ensemble performs challenging chamber choir repertoire from the Renaissance through the Twentieth Century.
PREREQUISITE: BY AUDITION.

MVP685 UM Chorale
1 credits  Fall & Spring Semester
This ensemble performs significant choral literature with an emphasis on music of the Twentieth-Century and on choral/orchestral works including opera. Open to all qualified graduate students, regardless of major.
PREREQUISITE: BY AUDITION.

MVP688 Opera Theater
1 credits  Fall & Spring Semester
The preparation and public performance of staged operatic scenes and complete operas with supplemental classes in basic acting skills, stage movement, and characterization. Three to four productions, including one with orchestra, are scheduled each academic year. Course is required for all voice majors; admission by audition for voice principals.
PREREQUISITE: BY AUDITION.

MVP690 Collegium Musicum
1 credits  Fall & Spring Semester
A forty voice ensemble specializing in the study and performance of Baroque and Renaissance music, the Collegium Musicum is the chorus for the Miami Bach Society. Open to graduate students and community singers. Prerequisite: By audition.
PREREQUISITE: BY AUDITION.

MVP693 Special Projects
1- 3 credits  Fall & Spring Semester
Projects in any phase of vocal performance in which the student is interested and qualified to work. Prerequisite: Graduate Music students only. Dean's approval and signature required.
PREREQUISITE: GRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MVP694 Special Projects
1- 3 credits  Fall & Spring Semester
Projects in any phase of vocal performance in which the student is interested and qualified to work.
PREREQUISITE: GRADUATE MUSIC STUDENTS ONLY. DEAN'S APPROVAL AND SIGNATURE REQUIRED.

MVP711 Master's Recital Paper
1- 3 credits  Fall & Spring Semester & First & Second Summer Session
The student working on his/her recital paper enrolls for credit as determined by his/her advisor. Credit is not awarded until the paper has been accepted.

MVP712 Master's Recital
1 credits  Fall & Spring Semester
The student enrolls for recital credit during the semester in which he/she presents the master's recital.
SCHOOL OF MUSIC

VOCAL PERFORMANCE

MVP714 Artist Diploma Recital
1 credits  Fall & Spring Semester
The student enrolls for recital credit during the semester in which he/she presents the Artist Diploma Recital.

MVP720 Research in Residence
0 credit  Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in MVP 710 (usually six credits). Credit not granted. May be regarded as full time residence.

MVP731 Doctoral Essay
1-12 credits  Fall & Spring Semester & First & Second Summer Session
Required of all candidates for the D.M.A. The student will enroll for credit as determined by his/her advisor, but not for less than a total of 12. Not more than 12 hours of MVP 731 may be taken in a regular semester, nor more than six in a summer session.

MVP732 Doctoral Recital
1-2 credits  Fall & Spring Semester
Required of all candidates for the D.M.A.

MVP750 Research in Residence
0 credit  Fall & Spring Semester & First & Second Summer Session
Used to establish research in residence for the Ph.D. and D.M.A., after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit not granted. May be regarded as full-time residence as determined by the Dean of the Graduate School.
HST536 U.S. Health Care Crisis: Politics and Policies
3 credits  
Spring Semester
This course will explore key health policy issues within the U.S., along with the politics and interest groups which shape them. Fundamental concerns within the health care system such as: cost, quality and access to care will be analyzed. Major topics of discussion will include: Medicare, Medicaid, private insurance, the nursing shortage, and prescription drugs. The politics and policies surrounding issues such as bioethics, globalization, and infectious disease will also be considered.

HST545 Research Project Management
3 credits  
Fall Semester
The course focuses on preparing the student for coordination of all aspects of a research project including recruitment, consenting, testing, executing intervention, reliability checks, data base management and data entry. Management of project staff, maintaining the integrity of the research design will be presented. Examination of ethical issues and IRB procedures will be included.
PREREQUISITE: ALL PREVIOUS COURSES IN RESEARCH CERTIFICATE PROGRAM.

HST564 Communicating Research Findings
3 credits  
Fall Semester
The course focuses on preparing individuals to present research findings related to research projects. Discussion of data interpretation, results and presentation of research for publication will be presented.
PREREQUISITE: ALL PREVIOUS COURSES IN THE RESEARCH CERTIFICATE PROGRAM OR EQUIVALENT RESEARCH EXPERIENCE.

HST595 Selected Topics
2-3 credits  
Offered By Announcement Only
Sub-titles describing the topics to be offered will be shown in parentheses in the published class schedule, following the title "Selected Topics." Also open to continuing education student. (2-3 credits)
PREREQUISITE: PERMISSION OF INSTRUCTOR.

HEALTHCARE SCIENCES
HCS583 Folk and Alternative Healing
3 credits  
Spring Semester
Critical discussion and evaluation of alternative and complementary healing. Theoretical and scientific bases of ethnomedical systems, traditional medical systems, and contemporary alternative therapies are explored. (3) Writing Credit.
PREREQUISITE: PERMISSION OF FACULTY.

NURSING
NUR502 Nursing in the International Context
2-3 credits  
Fall Semester
The concept and process of international nursing in the context of world health are discussed. Analysis of the role of nursing in relation to various national health care systems, theories of national development, and global strategies for international health are also included. Emphasis is placed on nursing education and service in various nations with a focus on less developed countries. (2-3)

NUR504 Topics in Oncology Nursing
2-3 credits  
Fall & Spring Semester
Course emphasizes the impact of cancer upon the individual and family. Course integrates concepts and theories related to nursing practice and cancer research. (2-3)
PREREQUISITE: SENIOR STANDING IN UNDERGRADUATE PROGRAM; GRADUATE STANDING; OR PERMISSION OF INSTRUCTOR.
NUR507 Clinical Nutrition in Nursing Practice  
2 credits  
Spring Semester  
Application of clinical nutrition in the assessment, diagnosis, planning, implementation, and evaluation of nursing care of multicultural clients in primary and secondary care settings. (2)  
PREREQUISITE: NUR 306, JUNIOR LEVEL STATUS.

NUR508 Dying, Death and Bereavement  
2-3 credits  
Spring Semester  
Issues of providing care and comfort to dying persons and loved ones during illness and support to survivors after death are addressed. The development of nursing practice based on theory and research from nursing and other disciplines is also included. Emphasis is placed on the physical, emotional, and spiritual components in dying and bereavement. (2-3)

NUR523 Nursing Concepts of Health Promotion and Wellness  
7 credits  
First & Second Summer Session  
Assimilation and integration of theoretical foundations and clinical data applicable to the care of clients across the life span with a focus on health promotion, disease prevention, and health maintenance. Emphasis is placed on assessment and analysis of clinical data to formulate nursing care in multicultural setting. (3:12) Corequisites: NUR 314, 315, a course in Growth and Development and Nutrition.  
PREREQUISITE: ADMISSION TO ACCELERATED OR GRADUATE ENTRY OPTIONS. COREQUISITES: NUR 314, 315, A COURSE IN GROWTH AND DEVELOPMENT AND NUTRITION.

NUR524 Community-Based Multicultural Psychiatric/Mental Health Nursing  
6 credits  
Fall Semester  
Assessment and analysis of clinical data applicable to the care of clients across the lifespan with multidimensional psychosocial or mental health alterations. Emphasis is on development of inter-personal and intra and interdisciplinary collaborative skills as a means of assisting individuals, groups, and families in active problem solving in community based settings. The formulation of nursing diagnoses and management strategies in multicultural settings is a focus. Developmental, sociological, and environmental aspects of nursing management are integrated throughout.  
PREREQUISITE: NUR 314, 315, 523.

NUR530 Research in Nursing  
3 credits  
Fall Semester  
Focus on the nature of scientific inquiry, the research process and the role of the advanced practice nurse in conducting, critiquing, and synthesizing nursing research. Course consists of two modules. Module 1 focuses on the research process, research methodologies and the analysis of data using quantitative and qualitative approaches. Module 2 focuses on the synthesis of research findings for implementing changes in nursing practice or the development of a nursing research proposal, depending on the student's area of interest. (3)  
PREREQUISITE: BASIC STATISTICS COURSE.
NUR531 The Older Adult in Health and Illness
2-3 credits Offered By Announcement Only
Course explores factors relating to aging in health including demographic changes, theories of aging, culture and ageism, the sandwich generation, developmental tasks and psychosocial issues in late life, sexual health, sleep pattern changes, and cognitive changes. Selected topics related to threats to health in later life are also discussed including depression, substance abuse, elder abuse and neglect, and failure to thrive. Current psychosocial intervention strategies such as reality orientation, re-motivation, reminiscence, life review and validation are examined. (2-3)

NUR536 U.S. Health Care Crisis: Politics and Policies
3 credits Spring Semester
This course will explore key health policy issues within the U.S., along with the politics and interest groups which shape them. Fundamental concerns within the health care system such as: cost, quality and access to care will be analyzed. Major topics of discussion will include: Medicare, Medicaid, private insurance, the nursing shortage, and prescription drugs. The politics and policies surrounding issues such as bioethics, globalization, and infectious disease will also be considered.

NUR545 Research Project Management
3 credits Fall Semester
The course focuses on preparing the student for coordination of all aspects of a research project including recruitment, consenting, testing, executing intervention, reliability checks, data base management and data entry. Management of project staff, maintaining the integrity of the research design will be presented. Examination of ethical issues and IRB procedures will be included.
PREREQUISITE: ALL PREVIOUS COURSES IN RESEARCH CERTIFICATE PROGRAM

NUR550 Sociopolitical Dynamics of Health Issues
2-3 credits Offered By Announcement Only
The evaluation of public controversies surrounding community-based health issues are examined from sociopolitical, economic, and cultural perspectives. The focus of the course is on ethical and political dilemmas confronting health care professionals when health issues are politicized. (2-3)

NUR551 Teaching and Learning Theory in Clinical Nursing Education
3 credits Spring Semester
The focus of this course is the exploration of principles and practice of teaching and learning integral to clinical nursing education. Identification of the role of the faculty in teaching students with diverse learning styles and needs within a variety of clinical settings.
PREREQUISITE: RN/BSN; MSN, AND/OR MASTERS STUDENT; RN LICENSE AND PERMISSION OF INSTRUCTOR

NUR552 From Childhood to Womanhood: Being Female in America
3 credits Offered By Announcement Only
Cultural perspective on emotional health issues related to growth and development of females in the United States of America. Multidisciplinary theoretical issues surrounding particular problems of sex roles from birth to death are examined. Emphasis is placed on mental health issues. Gender identity, critical events, eating disorders, abuse syndromes, reproductive sequelae, and aging are addressed. Emotional health, preventive, and treatment strategies are also analyzed. Graduate level course open to nursing students and students from related disciplines; education, psychology, sociology, and anthropology. (3)
NUR553 Methods for Clinical Nursing Education
3 credits Spring Semester
The focus of this course is the organization and management of instruction for clinical nursing education. Emphasis is on effective strategies for development of learning opportunities in diverse clinical settings.
PREREQUISITE: NUR 551, RN; PERMISSION OF INSTRUCTOR.

NUR555 Evaluation in Clinical Nursing Education
3 credits Spring Semester
The focus of this course is the exploration of principles and practices of evaluation integral to clinical nursing education.
PREREQUISITE: NUR 551, 553 AND/OR PERMISSION OF INSTRUCTOR.

NUR558 Practicum in Clinical Nursing Education
6 credits Spring Semester
The focus of this course is laboratory and clinical application of principles of teaching and learning. Emphasis is on the operationalization of the clinical faculty role.
PREREQUISITE: NUR 551, 553, 555, AND/OR PERMISSION OF INSTRUCTOR.

NUR564 Communicating Research Findings
3 credits Fall Semester
The course focuses on preparing individuals to present research findings related to research projects. Discussion of data interpretation, results and presentation of research for publication will be presented.
PREREQUISITE: ALL PREVIOUS COURSES IN THE RESEARCH CERTIFICATE PROGRAM OR EQUIVALENT RESEARCH EXPERIENCE.

NUR570 Psychobiology for Advanced Practice Nursing
3 credits Fall Semester
Focuses on basic neuroanatomy, neurophysiology, and neurochemistry followed by an introduction to the physiological bases of sensation, motor systems, motivation, emotion, learning and memory. (3)
PREREQUISITE: ACCEPTANCE IN THE GRADUATE NURSING PROGRAM NUR 612, 613.

NUR575 Interdisciplinary Healthcare Improvement
2-3 credits Offered By Announcement Only
Analyses of the theories and principles of quality improvement and interdisciplinary teamwork. Application of improvement methods and tools used in solving client-focused, system-level problems through participation in an interdisciplinary team in a selected clinical setting. (2:3-6)
PREREQUISITE: UNDERGRADUATE SENIOR STANDING OR PERMISSION OF INSTRUCTOR.

NUR583 Folk and Alternative Healing
3 credits Spring Semester
Critical discussion and evaluation of alternative and complementary healing. Theoretical and scientific bases of ethnomedical systems, traditional medical systems, and contemporary alternative therapies are explored. Writing Credit. (3)
PREREQUISITE: UPPER DIVISION OR PERMISSION OF FACULTY.
NUR587 Sleep and Dreams
2-3 credits Offered By Announcement Only
Multidisciplinary theory and research on sleep and dreams. Circadian rhythm, sleep
wake cycle, sleep disorders, function, and meaning of dreams. Graduate level course
open to nursing students and students from related disciplines; education, psychology,
sociology, and anthropology. (2-3)
PREREQUISITE: SENIOR OR GRADUATE STANDING, NUR 418 OR EQUIVALENT.

NUR590 Health Policy, Structure and Ethics
3 credits Fall Semester
Issues, problems, and motivation for change and policy development in the current
health care system. Implications for advanced practice nursing are discussed. Examination
of organizational, behavioral, ethical aspects, and interactions of various sectors
in the U.S. health care system. The relationship between ethics, culture and public
are emphasized. (3)
PREREQUISITE: ADMISSION TO GRADUATE PROGRAM OR PERMISSION OF INSTRUCTOR.

NUR594 Selected Topics
2-3 credits Offered By Announcement Only
Sub-titles describing the topics to be offered will be shown in parentheses in
the printed class schedule, following the title "Selected Topics". Also open to
continuing education students. (2-3)
PREREQUISITE: PERMISSION OF INSTRUCTOR.

NUR595 Selected Topics
2-3 credits Offered By Announcement Only
Sub-titles describing the topics to be offered will be shown in parentheses in
the printed class schedule, following the title "Selected Topics". Also open to
continuing education students. (2-3)
PREREQUISITE: PERMISSION OF INSTRUCTOR.

NUR596 Selected Topics
2-3 credits Offered By Announcement Only
Sub-titles describing the topics to be offered will be shown in parentheses in
the printed class schedule, following the title "Selected Topics". Also open to
continuing education students. (2-3)
PREREQUISITE: PERMISSION OF INSTRUCTOR.

NUR601 Advanced Pharmacology
3 credits Fall Semester
Advanced practice nursing application of pharmacological and pharmacokinetics for
the purpose of selecting appropriate drug therapies for diverse populations. (3)
PREREQUISITE: GRADUATE STATUS.

NUR602 Cultural Basis of Community Health Care
3 credits Offered By Announcement Only
Cultural assessment of the structure, function, and sociopolitical processes of
agencies, institutions, and communities and population groups. Community development
theories from variety of disciplines, rapid assessment techniques, and methods
of investigating the cultural dimension of health care delivery in diverse populations.
Strategies for developing culture-competent nursing actions for the implementation
and management of population-based health care programs. (2:3)
PREREQUISITE: PREREQUISITE OR COREQUISITE: NUR 610.
NUR603 Community Health Systems Administration
3 credits
Offered By Announcement Only
Organization theories, health care and nursing models providing a basis for nursing leadership and management in community health systems. Key areas included are program development, case and disease management, strategic and financial planning, operations and budgeting, human resource management, quality control methods, information systems, program evaluation, and community relations. Cultural and ethical issues related to community health systems administration for communities and populations. (3)
PREREQUISITE: GRADUATE STATUS.

NUR604 Community Health Nursing I
3 credits
Offered By Announcement Only
Emphasis on population-based models and frameworks. Strategies for collaborative and partnering with community members in assessment, analysis, interpretation, and prioritization of identified needs. Cultural and ethical dimensions of the community assessment process with vulnerable, minority, and other population groups. Roles of community health nurses in population-based and disease management assessments. Field based practicum with community, public health, and disease management experts in a selected population. (2:3)
PREREQUISITE: NUR 602. PREREQUISITE OR COREQUISITE: NUR 603 AND 633.

NUR605 Field Experience in Community Health Nursing
3 credits
Offered By Announcement Only
Structured and supervised field practicum under the guidance of a School of Nursing faculty mentor. Extension of beginning community and disease management assessment and problem identification from NUR 604. Further clarification of community or disease management problem, literature and secondary data searches, and primary data gathering. (0:9)
PREREQUISITE: NUR 604.

NUR606 Community Health Nursing II
5 credits
Offered By Announcement Only
Planning and development of population focused health care programs based on the community assessment conducted in Community Health Nursing I and NUR 605: Field Experience. Theories of change, program planning, and development applied to population groups. Leadership responsibilities of community health nurses in policy development and the change process. Ethical dimensions of planned change with culturally diverse, minority, and vulnerable populations. Field-based practicum with community, public health, or disease management experts in selected populations. (2:9)
PREREQUISITE: NUR 605. PREREQUISITE OR COREQUISITE: NUR 630.

NUR607 Community Health Nursing III
6 credits
Offered By Announcement Only
Implementation, management, and evaluation of population-based and disease management programs developed in NUR 606: Community Health Nursing II. Theories and strategies of program implementation, evaluation, and process monitoring. Cultural and ethical issues related to personnel and program evaluation. Field based practicum with community, public health, and disease management experts in a selected population or organization. (2:12)
PREREQUISITE: NUR 606.
NUR608 Concepts in Advanced Practice Nursing  
3 credits  
Spring Semester  
Major concepts necessary for advanced practice nursing. Included are: major scientific theories, health and health promotion, health policy, ethical issues, epidemiology, technology in health care, and advanced practice role competencies. Specific emphasis is placed on understanding culture and cultural diversity in health care. (3:0)  
PREREQUISITE: GRADUATE STATUS OR PERMISSION OF THE SONHS FACULTY.

NUR609 Professionalism in Advanced Practice Nursing  
2 credits  
First & Second Summer Session  
Focuses on the synthesis of concepts and principles necessary to develop leaders in advanced practice nursing specialties. Emphasis is placed on the role of the advanced practice nurse for optimal delivery of health care to clients across the life span. (2:0)  
PREREQUISITE: NUR 608 OR PERMISSION OF SONHS FACULTY.

NUR612 Physiology/Pathophysiology for Advanced Practice Nursing  
3 credits  
Fall Semester  
Analysis of physiologic and pathophysiologic mechanisms of health and illness. (3)  
PREREQUISITE: GRADUATE STATUS.

NUR613 Advanced Health Assessment and Diagnostic Reasoning  
3 credits  
Fall Semester  
Emphasis on culturally sensitive comprehensive health assessment and diagnostic reasoning related to advanced nursing practice. Special emphasis is placed on advanced health assessment; including age appropriate health screenings; prenatal, pediatric, and geriatric assessment; and interpretation of basic laboratory tests and diagnostic studies utilized in advanced nursing practice. Specialty specific seminars address issues for individual tracks within advanced practice nursing. (2:1)  
PREREQUISITE: GRADUATE STATUS OR PERMISSION OF SONHS FACULTY.

NUR614 Basic Concepts in Anesthesia Nursing  
3 credits  
Spring Semester  
Fundamental knowledge and skills for entry into advanced practice anesthesia nursing. Concepts include essential techniques, monitoring and equipment, chemical and physical properties of anesthetic agents, and pharmacologic interventions for common problems and conditions requiring routine surgical procedures in a highly structured and guided clinical learning environment. Cultural competence and interdisciplinary anesthesia care across the lifespan is emphasized.  
PREREQUISITE: NUR 601, 612, 613 OR PERMISSION OF SONHS FACULTY.

NUR615 Professional Aspects of Anesthesia Nursing  
2 credits  
Fall Semester  
Focuses on the development and current trends in nurse anesthesia practice, education, and research. Concepts include the historical, legal, legislative, and professional role issues associated with advanced practice anesthesia nursing. Professional responsibilities, ethical issues, diversity, cultural competency, quality assurance, continuing education, and professional involvement are emphasized.  
PREREQUISITE: PREREQUISITE OR COREQUISITE NUR 608.
NUR616 Pharmacology for Acute Care Nursing
3 credits  
Spring Semester  
Focuses on foundational pharmacologic principles and associated application to clinical practice in acute care nursing. Integration of pharmacological concepts and interventions in safe, culturally competent, and interdisciplinary acute care advanced nursing practice are emphasized.  
PREREQUISITE: NUR 601 OR PERMISSION OF SONHS FACULTY.

NUR617 Pharmacology for Anesthesia Nursing
3 credits  
Spring Semester  
Focuses on foundational pharmacological principles and associated application to clinical practice in nurse anesthesia. Integration of pharmacological concepts and interventions in safe, culturally competent, and interdisciplinary anesthesia practice are emphasized.  
PREREQUISITE: NUR 601

NUR618 Applied Nursing Informatics
2 credits  
Offered By Announcement Only  
Concepts of nursing informatics. Course is designed to enhance the attainment of knowledge, skills, and attitudes essential for an expert practitioner in a computerized health care environment. Emphasis is placed on nursing applications of information technology. Social, ethical, and legal issues associated with computerized health care delivery systems are also analyzed. (2)  
PREREQUISITE: GRADUATE STANDING.

NUR619 Advanced Concepts of Anesthesia Nursing I
3 credits  
First & Second Summer Session  
In-depth knowledge and skills of anesthesia nursing care for a variety of common problems and conditions across anesthesia specializations. Concepts include assessment, techniques, planning and pharmacologic interventions for specialty surgical procedures in a highly structured and guided clinical learning environment. Cultural competence and interdisciplinary anesthesia care across the lifespan is emphasized.  
PREREQUISITE: NUR 614. PREREQUISITE OR COREQUISITE NUR 617.

NUR620 Advanced Concepts of Anesthesia Nursing II
3 credits  
Fall Semester  
In-depth knowledge and skills of highly specialized problems and conditions requiring anesthesia or surgical interventions. Concepts include assessment, techniques, planning and pharmacologic interventions for regional anesthesia, pain management, care of obstetrical patients and patients with catastrophic conditions in a highly structured and guided clinical learning environment. Cultural competence and interdisciplinary anesthesia care across the lifespan is emphasized.  
PREREQUISITE: NUR 619.

NUR621 Diagnostics and Nursing Interventions for Acute Care Nursing
2 credits  
Fall Semester  
Selected diagnostic tests and intervention techniques essential to acute care nursing. Critical thinking and decision making related to interdisciplinary assessment of acute care patients. Cultural issues related to diagnostics and intervention.  
PREREQUISITE: GRADUATE STATUS OR PERMISSION OF SONHS FACULTY.
NUR622 Acute Care Nursing of Adults I
4 credits
First & Second Summer Session
The first of two sequential clinical practicums designed for the development of scientific knowledge and advanced practice skills in the area of acute care nursing. Involves synthesis of concepts, knowledge and skills gained in previous courses applied to the care of the acutely ill patient. Focuses on the advanced practice of acute care nursing via the nurse practitioner/clinical nurse specialist.
PREREQUISITE: NUR 616, 621 OR PERMISSION OF SONHS FACULTY

NUR623 Primary Health Care of Infants and Children
3 credits
Spring Semester
Theoretical and clinical bases for advanced practice nursing management of infants and children. Emphasis is placed on strategies for health maintenance and prevention of health problems and management of alterations. (2:6)
PREREQUISITE: NUR 601, 612, 613 OR PERMISSION OF SONHS FACULTY.

NUR624 Health Care of the Aging Adult
5 credits
Offered By Announcement Only
Development of the role of the advanced practice nurse in the health care management of the aging adult in settings ranging from primary care clinics to residential and rehabilitation including assisted living, long-term, and home care. (3:6)
PREREQUISITE: NUR 601, 612, 613, 628.

NUR626 Advanced Concepts in Gynecological Health Care for Women
2 credits
Offered By Announcement Only
Theoretical and clinical bases for the provision of complex gynecological care of women. Emphasis is on strategies for promotion of transcultural health care needs and management of alterations according to the advanced practice roles. (2)
PREREQUISITE: NUR 601, 613, 628

NUR627 Primary Prenatal Health Care of Women
2 credits
Spring Semester
Theoretical and clinical bases for providing primary prenatal care of women. Emphasis is on management strategies for promotion of transcultural health care needs according to the advanced practice role. (1:3)
PREREQUISITE: NUR 601, 612 AND 613

NUR628 Advanced Practice Nursing of the Adult I
4 credits
Fall Semester
Theoretical and clinical bases for health care management of health alterations in the adult population. Emphasis on strategies for health maintenance and prevention of health problems, management of alterations, discharge planning and rehabilitation of individuals and aggregate population. (2:2)
PREREQUISITE: PREREQUISITE OR COREQUISITE: NUR 601, 612, 613 OR PERMISSION OF SONHS FACULTY.

NUR629 Nursing Management of Common Health Conditions of Women
3 credits
Offered By Announcement Only
Theoretical and clinical bases for health care management across the lifespan. This includes adolescence, childbearing, mid-life, and post menopausal adaptation to disease processes such as endocrinological, pulmonary, circulatory disorders, minor trauma, and infectious processes. (1:2)
PREREQUISITE: NUR 601, 613, 626, 627.
NUR630 Research Methods and Evidence-Based Practice
3 credits Spring Semester & First & Second Summer Session
Research process, research methods, and the analysis of data using quantitative and qualitative approaches. Focuses on understanding levels of evidence for implementing evidence-based practice and performance improvement in nursing practice and healthcare. Investigates research methods associated with health disparities, access to healthcare, and clinical outcomes.
PREREQUISITE: ADMISSION TO GRADUATE STATUS OR PERMISSION OF SONHS FACULTY.

NUR631 Advanced Practice Nursing of the Adult II
4-7 credits Spring Semester
Theoretical and clinical bases for health management of health alterations in the adult population. Emphasis on strategies for health maintenance and prevention of health problems, management of alterations, discharge planning and rehabilitation of individuals and aggregate population. (2:2) (2:5)
PREREQUISITE: NUR 601, 612, 613, 628 OR PERMISSION OF SONHS FACULTY.

NUR632 Women's Health Care for Special Populations
5 credits Offered By Announcement Only
Psycho-social, cultural, physiologic, and economic parameters of health care for special populations of women. Theoretically based clinical focus on the health care management of the female adolescent, reproductive age woman, including fertility and infertility, and the mature woman, in a framework of homelessness, violence, substance abuse, HIV/AIDS, and oncology. Outreach clinical sites in a variety of settings will be utilized. (2:12)
PREREQUISITE: NUR 626, 627, 629.

NUR633 Principles of Epidemiology for Advanced Practice Nursing
3 credits Offered By Announcement Only
Principles and methods of epidemiology applied to advanced practice nursing in multicultural community settings. Exploration of the role of epidemiology in areas such as health care management, primary health care, prevention and control of illness, environmental and occupational health, and public health policy. (3)
PREREQUISITE: GRADUATE STATUS; BASIC STATISTICS COURSE.

NUR634 Perinatal Health Care
5 credits Offered By Announcement Only
Continuation of the application of physiologic, psychosocial, and cultural concepts to perinatal health care management. Emphasis is placed on nurse-midwifery management of intrapartum, postpartum, and neonatal clients. (2:12)
PREREQUISITE: NUR 626, 627.

NUR635 Psychiatric and Mental Health Nursing of Family and Groups
5 credits Offered By Announcement Only
Examination and development of the Advanced Practice Nursing role in the psychiatric/mental health care of families and groups in a variety of settings. (2)
PREREQUISITE: NUR 613.

NUR636 Psychiatric and Mental Health Nursing of Adults
7 credits Offered By Announcement Only
Examination and development of the advanced Practice Nursing role in the care of the individual adult client with common mental health problems in secondary care settings. (3:6)
PREREQUISITE: NUR 613.
NUR 639 Acute Care Nursing of Adults II
7 credits
Fall Semester
The second of two clinical practicums designed to guide the development of scientific knowledge and advanced practice skills in the area of acute care nursing. Designed to assist the student to assume the role of the Acute Care Nurse Practitioner/Clinical Nurse Specialist. (2:5)
PREREQUISITE: NUR 622.

NUR 640 Teaching and Learning Theory in Clinical Nursing Education
3 credits
Offered By Announcement Only
The focus of this course is the exploration of principles and practice of teaching and learning integral to clinical nursing education. Identification of the role of the faculty in teaching students with diverse learning styles and needs within a variety of clinical settings.
PREREQUISITE: ADMISSION TO GRADUATE STATUS

NUR 641 Methods for Clinical Nursing Education
3 credits
Offered By Announcement Only
The focus of this course is the organization and management of instruction for clinical nursing education. Emphasis is on effective strategies for development of learning opportunities in diverse clinical settings.
PREREQUISITE: NUR 640 OR 551 OR PERMISSION OF SONHS FACULTY.

NUR 642 Evaluation in Clinical Nursing Education
3 credits
Offered By Announcement Only
The focus of this course is the exploration of principles and practices of evaluation integral to clinical nursing education.
PREREQUISITE: NUR 640, 641 OR 551, 555 OR PERMISSION OF SONHS FACULTY.

NUR 643 Practicum in Nursing Education
6 credits
Offered By Announcement Only
The focus of this course is laboratory and clinical application of principles of teaching and learning. Emphasis is on the operationalization of the clinical faculty role.
PREREQUISITE: NUR 640, 641, 642 OR 551, 553, 555 OR PERMISSION OF SONHS FACULTY.

NUR 644 Leadership and Professional Development Strategies for Nursing
3 credits
Offered By Announcement Only
In this course, students will be exposed to the principles of organizational culture, dynamics, mission, vision, values, and goals as it impacts nursing. Additionally they will learn current theories of change management and resource management for nursing practice. They will explore change agent roles in project management and processes.

NUR 645 Interdisciplinary Anesthesia Nursing I
3 credits
Spring Semester
Initial integration and synthesis course of advanced knowledge and skills for interdisciplinary anesthesia nursing care. Selected topics and clinical case studies include collaborative-decision-making, effective communication, planning and evaluation for patients with the complex problems and conditions across the lifespan. With continual guidance, students assume greater responsibility for culturally competent and interdisciplinary anesthesia care.
PREREQUISITE: NUR 620.
NUR646 Interdisciplinary Anesthesia Nursing II
3 credits  Spring Semester
Second integration and synthesis course of advanced knowledge and skills for interdisciplinary anesthesia nursing care for complex problems and conditions across the lifespan. With moderate guidance students assume greater responsibility for culturally competent and interdisciplinary anesthesia care.
PREREQUISITE: NUR 645.

NUR647 Advanced Practice Nursing Integration
7 credits  First & Second Summer Session
Integration of the components of the Advanced Practice Nursing role to analyze advanced practice issues. (2:5)
PREREQUISITE: NUR 623, 628, 631 AND 627

NUR650 Interdisciplinary Anesthesia Nursing III
3 credits  Offered By Announcement Only
Third and final integration and synthesis course of advanced knowledge and skills of interdisciplinary anesthesia nursing care for complex problems and conditions across the lifespan. With minimal guidance students assume greater responsibility for culturally competent and interdisciplinary anesthesia care.
PREREQUISITE: NUR 646.

NUR651 Philosophical and Theoretical Bases for Nursing Science
3 credits  Fall Semester
Course focuses on historical and philosophical perspectives in the development of knowledge, with indepth examination, of the evolution of nursing science. Contemporary nursing theories are also compared and contrasted.
PREREQUISITE: NUR 611 OR EQUIVALENT.

NUR652 Introduction to Clinical Inquiry I
3 credits  First & Second Summer Session
Combines clinical knowledge and hands-on clinical experience in an area of the student's potential research interest. Students will practice under the supervision of an advanced practice nurse in the specialty area. Students are expected to begin the process of identifying clinical research problems. (1:2)
PREREQUISITE: ADMISSION TO THE BSN TO PHD PROGRAM

NUR653 Introduction to Clinical Inquiry II
6 credits  First & Second Summer Session
Combines clinical knowledge and hands-on clinical experience in an area of the student's potential research interest. Students will practice under the supervision of an advanced pracice nurse in a specialty area. There will be a focus on health care delivery systems. Students are expected to translate clinical problems into researchable questions. (1:5)
PREREQUISITE: CO REQUISITES: NUR 652, NUR 662, EPS 553, NUR 665, EPS 671

NUR654 The Evolution of Nursing Practice and Applications of Theory in Nursing Practice
3 credits  Spring Semester
This course is an overview of the conceptual foundations of nursing science and nursing practice. Knowledge from basic and applied sciences and ethics as well as the history of the global evolution of nursing practice are examined.
PREREQUISITE: ADMISSIONS TO THE DNP PROGRAM OR PERMISSION OF THE SONHS ASSOCIATE DEAN
NUR655 Health Care Management, Economics, Financing, and Ethics
3 credits Offered By Announcement Only
This course is an overview of health care management, financing, ethics and core and advanced concepts of health care economics. This course will also examine issues associated with health care management, economics, and ethics.
PREREQUISITE: ADMISSIONS TO THE DNP PROGRAM OR PERMISSION OF THE SONHS ASSOCIATE DEAN

NUR656 International Health
2-3 credits First & Second Summer Session
This course covers diverse topics that affect the health of the population and advanced practice nursing internationally.
PREREQUISITE: ADMISSIONS TO THE DNP PROGRAM OR PERMISSION OF THE SONHS ASSOCIATE DEAN

NUR657 Population Based Health and health Care Health Disparities
3 credits Spring Semester
This course is an overview of knowledge from nursing, public health and other disciplines for population based assessment. The importance of cultural and ethical dimensions in program development is included.
PREREQUISITE: ADMISSIONS TO THE DNP PROGRAM OR PERMISSION OF THE SONHS ASSOCIATE DEAN

NUR658 Structure and Processes in Health Care Organization and Health Care Policy
3 credits Spring Semester
An exploration of health care organizations and healthcare policy, and how change is effected in both. Health care policy and planning to address health care disparities at the local, state, and federal levels will be explored. Organizational diagnosis, organizational change, and ethical dimension of public policy formulations and implementation will be highlighted.
PREREQUISITE: ADMISSIONS TO THE DNP PROGRAM OR PERMISSION OF THE SONHS ASSOCIATE DEAN

NUR659 Technology in Health Care
3 credits Offered By Announcement Only
An exploration of the various aspects of the evolving technology to improve and transform health care and advanced practice nursing. This course prepares DNP nursing students to design, select and use technology to support, manage, and improve patient care and health care systems.
PREREQUISITE: ADMISSIONS TO THE DNP PROGRAM OR PERMISSION OF THE SONHS ASSOCIATE DEAN

NUR661 Development of Nursing Science
3 credits Spring Semester
Approaches to scientific development in nursing with emphasis on theory building and theory generation. An analysis of contemporary nursing theory is included.
PREREQUISITE: NUR 651.

NUR662 Nursing Epistemology
4 credits Fall Semester
Focus on historical and philosophical perspectives in the development of knowledge and patterns of knowing with in-depth examination of the evolution of nursing science. Analysis of concepts relevant to nursing phenomena. Approaches to scientific development in nursing with emphasis on theory building and theory generation.
PREREQUISITE: ADMISSION TO PHD PROGRAM
NUR663 Research I: Evaluating the Evidence for Practice  
3 credits  
Spring Semester  
This course is an analysis of evidence-based nursing practice. During the course, students acquire the knowledge base to resolve clinical practice problems and direct evidence-based practice.  
PREREQUISITE: ADMISSION TO THE DNP PROGRAM OR PERMISSION OF THE SONHS ASSOCIATE DEAN

NUR664 Research II: Biostatistical Applications for Nursing Practice  
3 credits  
First & Second Summer Session  
This course is an overview of basic statistical concepts and computer applications related to healthcare, nursing, and biomedical research. A basic examination of parametric and non-parametric statics in program evaluation, process outcomes, and/or basic research studies is included.  
PREREQUISITE: NUR663 OR PERMISSION OF THE SONHS ASSOCIATE DEAN

NUR665 Quantitative Research Methods  
3 credits  
Fall Semester  
In-depth exploration of research methods and design for quantitative research in nursing. Emphasis on development of a research problem; quantitative research design from descriptive to randomized clinical trials; epidemiologic designs; threats to validity; sampling and power analysis; measurement including psychometric theory, data collection and management; and interpretation of data. Other topics include ethics, human subjects' protection, and translation of finding into practice.  
PREREQUISITE: ADMISSION TO PHD PROGRAM

NUR667 Research Practicum  
1-3 credits  
Fall Semester  
Student participates in an ongoing research project under the guidance of a faculty member. Conducts the practical aspects of research including: IRB application/continuing reports, data collection and management.  
PREREQUISITE: NUR 662, NUR 665, EPS 671

NUR670 Qualitative Methods in Qualitative Research  
3 credits  
Spring Semester  
Exploration of inductive approaches to research and the use of qualitative methods including phenomenology, ethnography, and grounded theory. The techniques include focus groups, unstructured and structured interviews, and ethnoscience. Discussion of techniques, analysis, and the ethical and political implications of special problems in qualitative research is also included.  
PREREQUISITE: PREREQUISITE OR COREQUISITE: NUR 662.

NUR671 Scientific and Theoretical Writing  
2 credits  
Fall Semester  
Introduction to the process of scientific writing including concept analysis and publication. Critique and respond to own and peers' writing. Challenges of making revisions. Synthesize relevant literature. Other topics include: impact factor, publication process, and techniques of writing.  
PREREQUISITE: NUR 662, NUR 665, NUR 671
NUR672 Capstone I  
**3 credits**  
First & Second Summer Session  
The capstone project is required synthesizing initiative for students to apply theory, supported by evidence and expert knowledge of nursing practice, by completing a scholarly project of the student's or agency's choice. Students may design a practice change imitative under the direction of a faculty member and preceptor.  
(1:2)  
PREREQUISITE: ADMISSION TO THE DNP PROGRAM OR PERMISSION OF THE SONHS ASSOCIATE DEAN  

NUR673 Capstone II  
**3 credits**  
Fall Semester  
The capstone project is a required synthesizing initiative for students to apply theory, supported by evidence and expert knowledge of nursing practice, by completing a scholarly project of the student's or agency's choice. Students may design a practice change imitative under the direction of a faculty member and preceptor.  
(1:2)  
PREREQUISITE: NUR672  

NUR675 Field Project in Qualitative Research  
**4 credits**  
Fall Semester  
Students conduct a field project using qualitative research methodology and techniques. Seminars related to analysis and interpretation of data are also included.  
PREREQUISITE: NUR 670.  

NUR676 Practice Immersion Experience  
**6 credits**  
First & Second Summer Session  
This course contains individually precepted learning experiences across the spectrum of advanced practice nursing in a variety of settings. Students will have either clinically focused, education focused or administration focused role immersion experiences.  
(1:5)  
PREREQUISITE: ADMISSION TO THE DNP PROGRAM OR PERMISSION OF THE SONHS ASSOCIATE DEAN  

NUR680 Measurement of Nursing Phenomena  
**3 credits**  
Fall Semester  
Development of instruments to measure a phenomenon of concern within the domain of nursing.  
PREREQUISITE: NUR 670.  

NUR690 Independent Study  
**1-6 credits**  
Fall & Spring Semester  
A indepth study of a specified area in advanced nursing of special interest to the student, under faculty guidance.  
PREREQUISITE: PERMISSION OF PROFESSOR REQUIRED BEFORE ENROLLMENT.  

NUR697 Selected Topics  
**0-6 credits**  
Offered By Announcement Only  
Subject matter offerings based upon student demand and availability of faculty. Subtitles describing topics will be shown in class schedule in parentheses after selected topic notation.  
PREREQUISITE: PERMISSION OF INSTRUCTOR.
NUR698 Selected Topics
2-3 credits                                           Offered By Announcement Only
Subject matter offerings based upon student demand and availability of faculty.
Subtitles describing topics will be shown in class schedule in parentheses after
selected topic notation.
PREREQUISITE: PERMISSION OF INSTRUCTOR.

NUR699 Special Topics in Nursing Research
1-3 credits                                                 Fall & Spring Semester
Directed or independent research in collaboration with a faculty member providing
opportunity for participation in ongoing nursing research. Specific requirements
and credit allocation determined by contractual arrangement between student and
faculty member.

NUR710 Master's Thesis
1-6 credits                                                 Fall & Spring Semester
The student working on his/her master's thesis enrolls for credit, in most departments
not to exceed six, as determined by his/her advisor. Credit is not awarded until
the thesis has been accepted.

NUR720 Research in Residence
0 credit                                                     Fall & Spring Semester
Used to establish research in residence for the thesis for the master's degree
after the student has enrolled for the permissible cumulative total in NUR 730
(usually six credits). Credit not granted. May be regarded as full time residence.

NUR725 Continuous Registration--Master's Study
0 credit                                               Offered By Announcement Only
To establish residence for non-thesis master's students who are preparing for major
examinations. Credit not granted. Regarded as full time residence.

NUR730 Doctoral Dissertation
1-12 credits                                                 Fall & Spring Semester
Required of all candidates for the Ph.D. The student will enroll for credit as
determined by his/her advisor but not for less than a total of 12 credits. Not
more than 12 hours of NUR 730 may be taken in a regular semester, nor more than
six in a summer session. A student who has passed (a) qualifying examinations,
and (b) is engaged in an assistantship, may still take the maximum allowable credit
stated above.

NUR750 Research in Residence
0 credit                                                     Fall & Spring Semester
Used to establish research in residence for the Ph.D., after the student has been
enrolled for the permissible cumulative total in appropriate doctoral research.
Credit not granted. May be regarded as full-time residence as determined by the
Dean of the Graduate School.
INTERNATIONAL EXCHANGE & LANGUAGE PROGRAMS

STUDY ABROAD PROGRAM

SAP501 Study Abroad - Korea - Yonsei University
1-18 credits                                                   Fall & Spring Semester

SAP502 Pontificia Universidad Comillas - Madrid
1-18 credits                                                   Fall & Spring Semester

SAP503 Czech Republic-Charles University
1-18 credits                                                   Fall Semester
Czech Republic - Charles University (Grad Level)

SAP572 Study Abroad-France-Universite d’Orleans
1-12 credits                                           Offered By Announcement Only

SAP582 Study Abroad-Germany-University of Tubingen
1-12 credits                                                   Fall & Spring Semester

SAP599 Study Abroad                                           Offered By Announcement Only
1-12 credits                                                   Fall & Spring Semester
In some departments it is possible to earn graduate credits for study taken abroad.
Curriculum must be worked out by the student in conjunction with an advisor.

SAP600 UM Student Course at FIU
0-6 credits                                                   Fall & Spring Semester & First & Second Summer Session
PREREQUISITE: PERMISSION OF GRADUATE SCHOOL

SAP601 Insitutional Consortium Agreement-Graduate
0-18 credits                                                   Fall & Spring Semester & First & Second Summer Session

SAP631 Study Abroad-Japan-Sophia University
1-12 credits                                           Offered By Announcement Only

SAP683 Study Abroad-Germany-University of Leipzig
1-12 credits                                           Offered By Announcement Only

SAP695 Study Abroad-Switzerland-University of Lausanne
1-12 credits                                           Offered By Announcement Only

SAP699 Study Abroad                                           Offered By Announcement Only
1-12 credits                                                   Fall & Spring Semester
In some departments it is possible to earn graduate credits for study taken abroad.
Curriculum must be worked out by the student in conjunction with an advisor.

SAP701 UM-FIU Consortium
1-6 credits                                                   Fall Semester
PREREQUISITE: APPROVAL OF GRADUATE SCHOOL

SAP702 UM-FIU Consortium
1-6 credits                                                   Spring Semester
PREREQUISITE: APPROVAL OF GRADUATE SCHOOL

SAP703 UM-FIU Consortium
1-6 credits                                                   First & Second Summer Session
PREREQUISITE: APPROVAL OF GRADUATE SCHOOL
UNIVERSITY INTERNSHIP

UMI605 UNIVERSITY OF MIAMI INTERNSHIP
  0-1 credit  Fall & Spring Semester & First & Second Summer Session
  PREREQUISITE: N/A

UMI610 UNIVERSITY OF MIAMI INTERNSHIP
  0-1 credit  Fall & Spring Semester & First & Second Summer Session