ARCHITECTURE

http://www.arc.miami.edu

Introduction
The School of Architecture at the University of Miami offers:

- Master of Architecture I (3 year track)
- Master of Architecture I AP (Advanced Standing 2 year track)
- Master of Science in Architecture (Design and Research track)
- Master of Construction Management
- Executive Master of Construction Management
- Master of Real Estate Development + Urbanism
- Master of Urban Design
- Master of Professional Science in Urban Sustainability and Resilience with a track in Resilience (interdisciplinary program offered in collaboration with the College of Arts & Sciences, www.urb.miami.edu (https://urb.miami.edu))
- Master of Data Science with a track in Smart Cities (interdisciplinary program offered in collaboration with the College of Arts & Sciences, www.msdatasciences.miami.edu) (https://www.msdatascience.miami.edu)
- Dual Master Degrees
- Certificates

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.

Accreditation
In the United States, most 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 professional degree programs in architecture offered by institutions with U.S. regional accreditation, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture. A program may be granted an eight-year, three-year, or two-year term of accreditation, depending on the extent of its conformance with established educational standards.

Master of Architecture degree programs may require a pre-professional undergraduate degree in architecture for admission. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

The University of Miami School of Architecture offers the following NAAB-accredited degree programs:

- Bachelor of Architecture (171 undergraduate credits)
- Master of Architecture I (105 graduate credits)
- Master of Architecture I AP (60 graduate credits)

Admission Requirements
Applications are generally considered for entrance in the Fall semester only. Courses in all Master program’s are sequenced to deliver a cohesive educational experience and students are expected to follow the established course sequences for their program. Students entering the program in Spring or Summer are not eligible to enter the course sequence at that time, but may take electives or other required courses. This will necessarily extend the duration of the program.

Applications will be accepted starting on November 1 until June 1 for entry in Fall and start on October 1 until December 1 for entry in Spring. 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.

Please refer to our latest admission and portfolio requirements here (https://www.arc.miami.edu/admissions/admissions-and-portfolio-requirements/grad-requirements/) and see additional information for international students. (https://www.arc.miami.edu/admissions/admissions-and-portfolio-requirements/grad-requirements/international-admissions/)
A 3 year program for students with non-pre-professional degrees (students who have an undergraduate degree in a discipline other than architecture (completion of 105 credits is required).
Master of Architecture I AP (Advanced Standing 2 year track)
A 2 year program for students with pre–professional degrees in architecture such as Bachelor of Architectural Studies, Bachelor of Arts, Bachelor of Design, Bachelor of Environmental Design, Bachelor of Fine Arts, Bachelor of Science (completion of 60 credits is required).

Master of Construction Management/Executive Master of Construction Management
Gain the technical knowledge and managerial skills you need to set yourself apart in the construction industry. The Master of Construction Management (M.C.M.) is an one year (three semesters), 36 credit program. It is designed to broaden your educational and career options to solve challenges in the industry and become future leaders of design and construction related organizations worldwide. The Executive Master of Construction Management (E.M.C.M.) is a 30 credit program designed for accomplished professionals in the design and construction industry who are ready to take their career to the next level.

Master of Science in Architecture
The Master of Science in Architecture (M.Sc.Arch.) is a one year, three semester program (completion of 36 credits is required). The program offers a critical and professional environment to investigate design strategies and design challenges in relation to the most pressing issues of the 21st century: resilient design, tropical and subtropical architectures, identity in a globalized world, health care design, housing design, conservation of the built environment and the effect of embedded technologies on design. The Master of Science in Architecture program is designed to provide a skills and knowledge base for professional application as well as future advanced doctoral study.

The School of Architecture offers two tracks:

• Architectural Design
• Architectural Studies

Master of Urban Design
The Master in Urban Design, is a three (optional four) semester program that provides students with a design experience investigating the guiding principles for building regions, cities and communities. Guided by the imperatives of sustainability and resilience, the program conceptualizes cities as an extension of the ecological transect across the natural to human habitat, providing students with a range of experiences from rural to urban.

Master in Real Estate Development and Urbanism
The Master of Real Estate Development + Urbanism is an immersive one-year interdisciplinary graduate program that combines coursework in real estate development, finance, market analysis, construction, architecture, urban design, law and entrepreneurship. The program draws on the strengths of the University of Miami’s Schools of Architecture, Business, Engineering, and Law to create a world-class program that blends the fundamentals of real estate development with livable community design. Students are immersed in one of the world’s most dynamic real estate markets through a rigorous curriculum enriched by a wide range of study tours, speaker series, the annual Real Estate Impact Conference, research initiatives and networking events. The prestigious MRED+U Advisory Board connects students with over 50 industry leaders who are directly engaged in the program as lecturers, mentors and advisors, providing internship and employment opportunities and access to dozens of cutting-edge projects from every real estate sector.

Awards and Scholarships
All students admitted full time may be eligible for partial tuition based scholarship support. The School of Architecture provides merit-based tuition scholarships to graduate students. Applicants to the Graduate Programs will be considered each semester for a limited number of merit-based assistantships within the School. Assistantships are an honors award available to a limited number of students.

American Institute of Architects Henry Adams Medal is 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.

• Master of Architecture I (https://grad.arc.miami.edu/)(M.ARCH 3 year track)
• Master of Architecture I AP (https://grad.arc.miami.edu/)(M.ARCH with Advanced Standing 2 year track)
• Master of Science in Architecture - Architectural Design or Architectural Studies (M.Sc.Arch.) (https://grad.arc.miami.edu/)
• Master of Construction Management (M.C.M.) (https://mcm.arc.miami.edu/)
• Executive Master of Construction Management (E.M.C.M.) (https://mcm.arc.miami.edu/)
• Master of Real Estate Development + Urbanism (M.R.E.D.+U) (https://mredu.arc.miami.edu/)
• Master of Urban Design (M.U.D.) (https://www.arc.miami.edu/academics/graduate/master-of-urban-design/)
• Master of Professional Science in Urban Sustainability and Resilience (https://urb.miami.edu) with a track in Resilience (interdisciplinary program offered in collaboration with the College of Arts & Sciences, www.urb.miami.edu (https://urb.miami.edu/))
• Master of Data Science (https://www.msdatascience.miami.edu) with a track in Smart Cities (interdisciplinary program offered in collaboration with the College of Arts & Sciences, www.msdatasciences.miami.edu) (https://www.msdatascience.miami.edu/)

Certificates
Graduate students increasingly look to areas of concentration that can provide skill and knowledge bases for professional applications. Historic Preservation, Design for Health and Wellbeing, Sustainable and Resilient Design, Design for Health and Well-Being, Construction Management, Urban Design, and Real Estate Development prove to be rapidly growing areas of professional specialization as they engage critical areas of investigation in contemporary architecture. The graduate certificate programs address both the intellectual and academic needs of the School of Architecture, and the desire of the School to use its current curriculum as a platform to engage these specialized areas further.

• Historic Preservation Certificate
• Classical Architecture Certificate
• Sustainable and Resilient Design Certificate
• Construction Management Certificate
• Urban Design Certificate
• Real Estate Development and Urbanism Certificate
• Hospitality Design Certificate
• Design for Health and Well-Being Certificate

Certificates require 15 credits of one certificate related studio (6 cr) and related architecture electives (9 cr).

ARC 601. Urban Design Studio I. 6 Credit Hours.
Introduction to urban design principles and techniques, in the master planning of a new community. Emphasis on the sustainability of human settlements within the context of degradation of natural systems and resource depletion; regional environmental and infrastructure systems; transportation and traffic; transit-oriented development; land use, building, and thoroughfare types.
Components: STU.
Grading: GRD.
Typically Offered: Fall.

ARC 602. Urban Design Studio II. 6 Credit Hours.
Design projects focusing on contemporary challenges and goals for existing settlements, including urban and suburban disinvestment and deterioration, urban redevelopment, social equity, resilience and adaptation to climate change, design for healthy communities and active living, and urban agriculture.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

ARC 603. Urban Design Studio III. 6 Credit Hours.
Urban design projects that deploy full range of techniques for regional control of urban growth. Application of advanced technologies, including smart cities, innovations in transportation and traffic engineering, energy generation and conservation, and emissions reduction.
Components: LEC.
Grading: GRD.
Typically Offered: Summer.

ARC 604. Architecture Design and Theory I. 6 Credit Hours.
The inaugural design studio focuses on the role of architectural design as an integrative discipline. Using Miami as a laboratory and drawing from natural specimens, the studio will examine the relationship between nature, landscape and the built environment. It will use research and analysis, design thinking skills, ordering systems, site design, materials, methods, structure, light, space, and tectonics as a means of developing a meaningful design process. Components: STU.
Components: STU.
Grading: GRD.
Typically Offered: Fall.

ARC 605. Architecture Design and Theory II. 6 Credit Hours.
This introductory design studio focuses on the role of architectural design as a responsive discipline. The studio will look at how architectural form is informed by thoughtful consideration of materials and methods of construction, as well as programming and context. Situated in an urban environment rich in material, stylistic and typological history, the studio will challenge students to develop a careful reading of place while responding to urban context, topography, and other site requirements. By considering issues of precedent, composition, display, and identity, it will examine the production of meaning in architecture.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.
ARC 606. Architectural Design and Theory III. 6 Credit Hours.
The Rome Design Studio operates as a form of design-based critical inquiry into issues of urban design, architecture, and the adaptive reuse and transformation of buildings and spaces. Drawing will be explored as a means of analysis, in order to observe and record the urban and architectural conditions of Rome. Students will discover the layers of Rome, combining archaeology with architecture and urban history. Coursework emphasizes a critical reassessment of the historic urban sites relative to questions of program, infrastructure, and cultural changes.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

ARC 607. Architecture Design and Theory IV. 6 Credit Hours.
Advanced Design Studio based course addressing more complex and ambitious topics related with the built environment, the ability to prepare and solve a program through design, materials, technique, technology, social human centered aspects of architecture, structure, architecture as light and space, site and context and environmental issues.
Components: STU.
Grading: GRD.
Typically Offered: Fall.

ARC 608. Architecture Design. 3-6 Credit Hours.
Advanced Design Studio focusing on skills associated with making integrated architectural design decisions across multiple systems. Design decisions within a complex architectural project will focus on the consideration and broad integration of environmental stewardship, technical documentation, accessibility, site conditions, life safety, environmental systems, structural systems, and building envelope systems and assemblies.
Components: STU.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

ARC 609. Architecture Design. 3-6 Credit Hours.
Specialization component: student and faculty select areas of in-depth study in housing, resiliency, healthcare, urban design, housing and hospitality, historic preservation etc.
Components: STU.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

ARC 610. Architecture Design Degree Project. 6 Credit Hours.
The Architecture Design Degree Project studio offers two options: 1) an independent design research project (design thesis) on a topic selected and developed by the student, or 2) a graduate research studio. Design Thesis is an opportunity for each student, working with a faculty advisor, to define an individual position with regard to the discipline of Architecture. The graduate research studio, led by a faculty member, will investigate relevant or thematic issues of architecture. All graduating students will be required to present their Degree Project, comprising research, analysis and creative work, as a book.
Components: THI.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

ARC 611. Visual Representation. 3 Credit Hours.
Issues covered in the course will deal with the illustration of ideas in architectural manner. Students are to use the skill of drawing and model-making, either by hand or on the computer, as their new language. Topics will include how to read, understand, and create design drawings, to draw from observations and analyze their subject matter, to be able to distinguish the relevance of a particular drawing and to structure how they present their information. Students will be instructed to properly craft their work in and outside of studio in an effort to see their work evolve and improve.
Components: STU.
Grading: GRD.
Typically Offered: Fall.

ARC 612. Advanced Visual Analysis. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.
ARC 613. Advanced Visual Representation. 3 Credit Hours.
Students will learn to carefully evaluate space, color, depth, hierarchy, balance and scale in all architectural visual representation. The assignments will explore different media as it is used in the profession including but not limited to: diagrams, renderings, plans, elevations, sections, and axonometric. Through lectures and workshops, the course will provide a combination of both theoretical and practical lessons encompassing the fundamentals of architectural visual representation. The course will also include parallel lectures on typography, architectural graphic design, and verbal presentation. The lectures will be given by highly regarded industry professionals who will address the way that students can be aware of and understand typography, verbal presentation, and graphic design fundamentals as it relates to architecture. The class will consist of three parts. Part I introduces students to the fundamentals of 3d modeling and drafting as part of a representation workflow. The exercise will include both urban and building scales. Part II concentrates on understanding and dissecting more complex geometries through advance use of digital parametric software such as Grasshopper. Part III focuses on visual representation based on a studio project with emphasis on graphic techniques for final presentations.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

ARC 614. Michelangelo. 3 Credit Hours.
Drawing as a form of research across mediums to understand historical research and interpretation of Michelangelo's work.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

ARC 615. Advanced Visualization Techniques. 3 Credit Hours.
Beginning at the urban scale, students will engage with the concept of mapping and the graphical representation of an urban environment. This will be done through site analysis and investigation of existing conditions for the neighborhood of Miami Beach, Fl. After the urban analysis, students will transition into the building scale and analyze a "Lifeguard House" in Miami Beach. Students will be asked to rethink and redesign the lifeguard house using Rhino 30. Each student will produce drawings including elevations, plans, sections, and exploded axonometric of their new design. Lastly, students will create a physical model using the laser cutter.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

ARC 616. Architectural Watercolor Renderings. 3 Credit Hours.
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).
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

ARC 617. Construction Documents. 3 Credit Hours.
Working drawings and specifications. Form, content and role of constituent parts of working drawings and specifications by using case studies.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

ARC 618. Documentation of Historic Architecture. 3 Credit Hours.
Principles of preservation and restoration, research methods, measured drawings, surveying methods, and case studies.
Components: LEC.
Grading: GRD.
Typically Offered: Summer.

ARC 619. Architecture and Color. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Summer.

ARC 620. Responsible Architecture. 3 Credit Hours.
A responsible architecture is one that takes into consideration aesthetics, ecology, sustainability, history, context (urban or otherwise), as well as the health, welfare, and joy of the people who occupy it. This course will address architecture from a distinctly humanist viewpoint, keeping in mind how man is inextricably connected to his environment, both architectural and natural. To focus on sustainability, typology, urbanism, or aesthetics alone would be to negate architecture's interconnectedness. The creation of a responsible architecture requires this multi-layered approach.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.
ARC 621. Housing, Infrastructure and Transportation. 3 Credit Hours.
Case studies in sustainable urban design. Survey and assessment of innovations in community design and building. Examples from the late
tenenteenth century to contemporary practice illuminate environmental, social, and economic goals and impacts in urban design.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

ARC 622. Urban Design History and Theory. 3 Credit Hours.
Part I: Survey of housing theories and projects with emphasis on morphological context, typology and composition - focus on topics of modernity. Part
II: Introduction to thoroughfare design and walkability principles; description of urban, suburban, rural and regional infrastructure.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

ARC 623. Urban Design Competition. 1-3 Credit Hours.
Intensive, collaborative urban design project, combining master planning and real estate development expertise, to be submitted to international peer
reviewed competition. Project teams are comprised of students from several different degree programs, such as architecture, urban design, real estate
development, business, and law.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

ARC 624. Select Topics in Interior Architecture Design. 3 Credit Hours.
Principles and technical components of interior design. Topics include interior volumetrics, finishes, furnishings and lighting.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

ARC 625. Landscape Arch Design I. 3 Credit Hours.
Analysis and design of landscape spaces. Studies in historical precedent, gardens, parks, plazas, squares, and response to urban and architectural
context.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

ARC 626. Landscape Arch Design II. 3 Credit Hours.
Analysis and design of landscape spaces. Topics include ecological principles, landforms and plant materials.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

ARC 627. Architecture Photography. 3 Credit Hours.
Photography with emphasis on architectural subjects. Introduction to visual principles, photographic equipment, materials, and techniques.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

ARC 628. Historic Preservation. 3 Credit Hours.
Basic design principles for the rehabilitation of historic buildings and districts. Evaluating character-defining details; significance analysis; context of
setting issues within historic districts; applying the Secretary of the Interior’s Standards for rehabilitation.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

ARC 629. Research in Design-Methods and Procedures. 3 Credit Hours.
Application of research methods and procedures to design issues. Historical, descriptive, analytic, experimental research methods; tools for data
manipulation and communication.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.
ARC 630. Building Technology I: Materials and Methods. 3 Credit Hours.
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 tech-niques; on-site and off-site processes; exterior finishes, assemblies, detailing and basic building code concepts.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

ARC 631. Building Technology II: Structural Systems. 3 Credit Hours.
Structural systems: The tectonics, patterns and behavior of the elements of building structures. Topics: Equilibrium, stability, vertical and lateral loads, building envelope and financial considerations.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

ARC 632. Building Structures I. 3 Credit Hours.
The structural behavior of simple frame structures. Topics include techniques to determine basic system layout and preliminary dimensioning of key subsystems and members.
Components: LEC.
Grading: GRD.
Typically Offered: Summer.

ARC 633. Building Structures II. 3 Credit Hours.
The structural behavior of complex structures. Topics include prestressed systems, waffle and space trusses, curved structures and longspan buildings.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Summer.

ARC 634. The Palazzo in Italian Architecture. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

ARC 635. Historic Italian Urbanism. 3 Credit Hours.
Study of Italian cities and towns from medieval to contemporary times, including a comparative analysis of history and form.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

ARC 636. Italian Gardens. 3 Credit Hours.
Study of Italian garden design during the Renaissance, Baroque and Mannerist periods. Emphasis on historical and political context.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

ARC 637. Research in Rome. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

ARC 638. Interior Architecture Design. 3 Credit Hours.
Principles and technical components of interior design. Topics include activity, analysis, finishes, furniture, fixture, lighting, and acoustics.
Components: LEC.
Grading: GRD.

ARC 639. Adaptation to Climate Change. 3 Credit Hours.
Introduction to the phenomena and related discussion on the topic of climate change. Review of current scientific evidence, tactics for mitigation of emissions and other causal actions, followed by study of the adaptation required by changing conditions. Class assignments include creative proposals for adaptation action.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.
ARC 640. Tropical Architecture. 3 Credit Hours.
A discussion of tropical architecture and the theme of tropicalism. Research, analysis and documentation in drawing of selected case studies
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

ARC 641. Seminar on Town Design. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

ARC 642. Seminar on Housing. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

ARC 643. Seminar on Retrofit of Suburbia. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

ARC 644. The Architecture of Palladio. 3 Credit Hours.
On site study of the architecture and urbanism of Andrea Palladio. Emphasis on the artistic precedents of the Veneto Region.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

ARC 645. Urban Composition. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

ARC 646. Studies of Havana. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

ARC 647. Architecture and Urban Identity. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

ARC 648. Seminar in Community Development. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.
ARC 649. Construction and Project Management. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

ARC 650. Professional Lecture Series. 3 Credit Hours.
Real estate transactions and deal structuring from the development perspective. Using the case study method, the course explores the key components and the disciplines needed for successful real estate transactions and projects.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

ARC 651. Contemporary Theories of Architecture. 3 Credit Hours.
Theoretical basis of modern architecture and different present currents and movements. Agrarianism, technism, orthodoxy, brutalism, scientism, revivalism, consumerism, rationalism, classicism.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

ARC 652. Management of Professional Practice. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

ARC 653. Structural Design Theory. 3 Credit Hours.
Relationship of structural systems to architectural design. Case studies in the ories of structure, form and construction.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

ARC 654. Architecture of South Florida. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

ARC 655. 18th and 19th Century American Architecture and Architects. 3 Credit Hours.
The course concentrates on the development of early American architecture, Architects and Urbanism primarily but not exclusively to 17th, 18th and 19th centuries with particular emphasis on theoretical, technological and cultural developments in America.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

ARC 657. Design and Fabrication Techniques. 3-6 Credit Hours.
Design, construction and detailing of wood and other materials as applied to furnishings and interiors. Workshop includes research, exercises, documentation and a final project.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

ARC 658. Theories of Landscape Architecture. 3 Credit Hours.
Leading theories of landscape architecture which have influenced current considerations of nature, landscape and design, including concerns such as urban heat island effect, climate change resilience, and health impacts of landscape.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.
ARC 659. Sustainability and LEED Exam Prep. 1-3 Credit Hours.
Study of U.S. Green Building Council standards for environmental efficacy in building and neighborhood design. Emphasis on fundamental knowledge of green building concepts, including transportation, energy, water and air quality. Includes preparation for LEED Accreditation Exam and registration for exam that provides the credential signifying expertise in green building and a LEED rating.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

ARC 660. Contemporary Latin American Architecture. 3 Credit Hours.
An examination of Contemporary Latin American Architecture and Urbanism from the turn of the 20th Century to the present day. The work of some of the great figures on Latin American Modernism such as Niemeyer and Barragan, to contemporary figures such as Paulo Mendes da Rocha and Isay Weinfeld will be discussed. The influence of the Modern Movement in Europe and Le Corbusier will be reviewed. Large scale City Plans such as Lucio Costa’s Plan for Brasilia and Roberto Burle-Marx’s designs for Flamengo Park and Copacabana in Rio de Janeiro will be analyzed.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

ARC 661. Building Technology I: Materials and Methods. 3 Credit Hours.
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; exterior finishes; assemblies, detailing and basic building code concepts.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

ARC 662. Environmental Building Systems I. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Summer.

ARC 663. Environmental Building Systems II. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

ARC 665. Computer Modeling. 3 Credit Hours.
Three-dimensional, computer modeling, and rendering. Lecture, problem solving exercises and laboratory.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

ARC 667. History of Architecture I. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

ARC 668. History of Architecture II. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

ARC 669. Directed Readings. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.
ARC 670. Modern Architecture. 3 Credit Hours.
History of architecture, landscape, and city design in the modern era.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

ARC 671. Ancient Architecture. 3 Credit Hours.
History of architecture and human settlements. Western European prehistory, Egypt, Mesopotamia, Persia, Aegean and Mediterranean, Greece, Rome.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

ARC 672. Selected Topics in World Architecture. 3 Credit Hours.
History of architecture and human settlements. Islamic Near East, North Africa, Hindu and Buddhist India, Nepal, S. E. Asia, China, Japan, Pre-Columbian America.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

ARC 673. Early Christian, Byzantine, and Medieval Architecture. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

ARC 674. Renaissance Architecture. 3 Credit Hours.
History of architecture and human settlements. Renaissance and Baroque architecture in Italy, France, Spain and Portugal, Great Britain, Austria, Germany, and neighboring countries.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

ARC 675. Colonial Architecture. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

ARC 676. 19th and 20th Century Architecture. 3 Credit Hours.
History of architecture and human settlements. America and Europe during the 19th and 20th centuries; cultural, technological and theoretical development.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

ARC 677. The Architecture of Alvar Aalto. 3 Credit Hours.
An examination of the architecture of Alvar Aalto through the analysis of selected buildings.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

ARC 678. Italian Rationalist Architecture. 3 Credit Hours.
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, Germany, Soviet Union).
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.
ARC 679. An Introduction to Resilient Building and Community Design. 3 Credit Hours.
This course introduces students to the relationships between climate, resiliency, architecture and urbanism; building awareness of the growing challenges and opportunities ahead, and the intersections between these disciplines. What does resilience mean in this broader context, and how should escalating stressors and shocks be addressed? Students learn about climate sciences, then research, document, and analyze evolving resilient design strategies, at the scale of buildings, neighborhoods and cities, in the end, applying those lessons to a given case study site; developing a holistic set of resilient design recommendations. During the course, students interact with specialists in the fields of architecture and urban design, as well as related fields, such as engineering, social, marine and environmental sciences, and/or policymakers, to better comprehend first-hand the interwoven scientific, social, environmental, and governmental ramifications to resilient design. Lastly, students learn the mechanics of participatory design methods employed to engage communities in related efforts.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

ARC 680. Professional Advancement, Internship + Research (PAIR). 3 Credit Hours.
Research Component of PAIR program. Student, host office and faculty collaboratively develop a focused, in-depth research project related to the tasks the student is completing as part of the Internship Component of the PAIR program. Application and PAIR committee acceptance required prior to enrollment.
Components: RSC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

ARC 681. Special Problems. 1-3 Credit Hours.
Group or individual investigations of significant architectural issues, offered by special arrangement only.
Components: STU.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

ARC 682. Special Problems. 3-6 Credit Hours.
Group or individual investigations of significant architectural issues, offered by special arrangement only.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

ARC 683. Special Problems. 3 Credit Hours.
Group or individual investigations of significant architectural issues, offered by special arrangement only.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

ARC 684. Special Problems. 3 Credit Hours.
Group or individual investigations of significant architectural issues, offered by special arrangement only.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

ARC 685. Special Problems. 3 Credit Hours.
Group or individual investigations of significant architectural issues, offered by special arrangement only.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

ARC 686. Special Problems. 3 Credit Hours.
Group or individual investigations of significant architectural issues, offered by special arrangement only.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

ARC 690. History of Cities. 3 Credit Hours.
Historical overview of the origin and development of cities around the world. Emphasis on intentional form of settlements (the ideal) as well as response to economic and political imperatives such as trade and defense (the real).
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.
ARC 691. Housing and the Contemporary City. 3 Credit Hours.
Housing is a relatively new field and discipline, born of the complex interplay of urban development, building traditions, architectural innovation and basic human needs. The role of housing in building the city, and the role of the city in determining the shape and content of housing, will be the point of departure for this survey and seminar. The student is expected to gain an understanding of how building typology, history, urban traditions, site design, the functional issues of lifestyle and culture affect the critical issue of housing design. Simultaneously, an awareness of the role of housing design in the creation and articulation of urban space will be studied.
Components: LEC.
Grading: GRD.
Typically Offered: Summer.

ARC 692. Cinema and Architecture. 3 Credit Hours.
The class studies the relationship between architecture and cinema. Lectures, film screenings, and readings, explore the origin and development of filmic space with an emphasis on its relation to the real and poetic image of the city. The class analyzes selected films as they relate to, comment, criticize, and anticipate the development of contemporary concepts of space, urban space, interior space, etc.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

ARC 693. Computer Animation. 3 Credit Hours.
Explores the use of computer animation and advanced visualization techniques in architecture with emphasis on texture and lighting, spatial choreography and story-boarding.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

ARC 694. Geographic Information Systems in Urban Design. 0-3 Credit Hours.
Exploration of Geographic Information Systems (GIS) in urban design. Principles of GIS and their application to spatial analysis, data management and visualization.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

ARC 695. Interactive Multimedia in Design. 3 Credit Hours.
Integration of text, video, sound, and computer graphics to create an interactive electronic information medium.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

ARC 696. Advanced Topics. 3 Credit Hours.
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".
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

ARC 697. Designing for the Internet of Things. 3 Credit Hours.
This course examines how current research and development in embedded computation bears on architecture, landscape, and urbanism. Students will explore the implications and impact of ubiquitous computing in its potential to change the way we conceive, construct, inhabit and interact with our buildings, landscapes, and cities.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

ARC 698. Introduction to Programming for Architects. 3 Credit Hours.
As digital tools continue to play an increasing role in the Architect's toolkit, it is becoming increasingly important that Architects not only understand how to use and navigate these tools but to customize and adapt them to their specific needs. Learning how to program allows Architects to start to fully utilize the potential in digital tools by maximizing the possibilities in not only 3D modeling and digital fabrication but in responsive architecture, embedded computation and animating spaces contributing to a more dynamic and potentially inter-connected built environment.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.
ARC 699. Directed Research. 1-6 Credit Hours.
The course addresses the issues of design as research and pre-design. Students will develop research, write a thesis statement, select a site, prepare a site documentation and site analysis, and develop an architectural program for the thesis project, select pertinent case studies and diagram them. This work will be collected and presented as both a presentation and in book form. In addition, the course prepares students for an independent design project through thoughtful development of a thesis question, site and program. The preparation of the thesis question will require the development of basic research strategies and methods, and understanding of how to find an evaluate sources, the analysis and synthesis of information, the development of a research plan and a design method, and the written and oral presentation of these skills to an outside audience.
Components: RSC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

ARC 701. Masters Final Project. 6 Credit Hours.
Individually supervised projects. Required as a 6 credit course for all Master of Architecture in Computing students electing a final project.
Components: THI.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

ARC 720. Research in Residence. 1 Credit Hour.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

ARC 810. Master's Thesis. 1-6 Credit Hours.
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.
Components: THE.
Grading: SUS.
Typically Offered: Fall, Spring, & Summer.

CMA 601. Fundamentals of Construction Management. 3 Credit Hours.
Fundamentals of Construction Management is an introductory-level, graduate course. This course is designed to provide students with introductory knowledge and basic skills they will need to understand and apply as they progress through the program. Students receive an overview of key topics that will be covered in greater detail through core courses and electives during subsequent terms. Each class session provides a primer on a specific area of vital importance, including scheduling, cost estimating and Project Management. Upon completion students will be familiar with basic concepts, terminology, and procedures associated with the industry, and well prepared to study these subjects in greater depth.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

CMA 603. Critical Thinking and Communications in Design and Construction. 1 Credit Hour.
Critical thinking is the driver of effective communication. In general, critical thinking is the ability to deal with the contradictions and problems in a tumultuous environment in a reasoned, purposeful and productive way. Decisions are made using an approach that is fair, objective, accurate and based on information that is relevant to the situation. The pursuit of critical thinking equips leaders and managers think rationally, provide sound reasoning and develop a coherent argument. In this Course, students identify and use critical thinking skills, processes and techniques to effectively communicate their ideas.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

CMA 610. Financial Management and Accounting for Construction. 2 Credit Hours.
Students in this course study the management of construction company and construction project finances. They learn the fundamentals of construction accounting and depreciation, prepare financial statements for a construction company, analyze company’s financial health, conduct cost and profit center analysis, prepare and forecast cash flows, and use the technique of time value of money for economic decision making.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.
CMA 620. Construction Project Controls. 2 Credit Hours.
Project Planning, Scheduling & Control is the process of coordinating numerous and often complex elements to erect a structure and satisfy the needs of a sophisticated owner. Study of methods for coordinating people, equipment, materials, money, and schedule to complete a project on time and within approved cost. Each phase of the work must be monitored and measured. You cannot control if you cannot measure and you cannot measure if you cannot count. It then becomes the goal of project controls to quantify and govern costs and the goal of the scheduling process to quantify and visualize the progress of the job and make the necessary changes to deliver a successful job.
Prerequisite: CMA 601.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

CMA 630. Contract Documents. 2 Credit Hours.
Students in this class will gain a basic knowledge of construction contract documents including agreements, contracts, drawings and specifications, requests for information, change orders, and other documents that make up the body of Contract Documents associated with a given project. The course focuses on understanding the relationship between, contract documents and the construction process, as influenced by Project Delivery Methods. We will explore contractual relationships, legal roles and responsibilities, and contract types.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

CMA 632. Construction Risk Analysis and Control. 2 Credit Hours.
Construction Risk Management is an advanced-level, graduate course designed especially for disciplines involved in creating the built environment (e.g., architecture, urban planning, infrastructure-related engineering disciplines). The focus will be on identifying and managing risks at the project. A variety of risk analysis concepts, tools and methodologies will be utilized.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CMA 636. Legal Issues in Building Construction. 2 Credit Hours.
This course examines problems that can arise during the course of construction due to different interpretations by various project team members of contract document provisions and communications. These problems can significantly affect the risk, schedule and cost of a project. Students will be encouraged to work in small groups to identify, and to recommend specific actions to avoid and to minimize adverse impacts of, ambiguous contract provisions and project communications.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CMA 640. Virtual Design and Construction (VDC/BIM). 3 Credit Hours.
The building industry is rapidly adopting Virtual Design and Construction (VDC) and Building Information Models (BIM) throughout the project process; design, construction, and facilities management. VDC and BIM are increasingly becoming an umbrella term for a variety of software tools, design methods, and construction processes that allow for more automation, communication and integration between project participants. This course reflects on emerging technologies in the context of Project Management and Integrated Delivery, and includes modeling, visualization, 3D clash detection, digital site layout, 4D modeling, as-built model generation, and digital information management. This course will first introduce basic VDC and BIM concepts and review industry examples of how these concepts play out on design and construction projects.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CMA 642. Emerging Technologies in Design and Construction. 2 Credit Hours.
Technologies emerge in part to address the needs of society, improve sustainability and resiliency, and increase productivity and thus profit margins. There is an undeniable need for efficiency in managing the construction process, and emerging technologies offers perhaps the best opportunities to improve the construction process through better integration and efficiency. This course surveys cutting edge technologies in the construction industry and their applications in the design and construction process.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

CMA 644. Sustainable Development. 2 Credit Hours.
This course provides the students with an understanding of the environmental and resource implications of construction activity within the context of sustainable development. It considers the theoretical and methodological basis of approaches designed to quantify the impacts associated with choices made at different stages of the construction life cycle, as well as tools designed to evaluate relative environmental and sustainability performance.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.
CMA 654. Introduction to Health and Safety. 1 Credit Hour.
Introduces occupational safety hazards associated with the construction industry. Emphasis placed on recognition, evaluation and control of safety hazards particularly as they relate to the Occupational Safety and Health Act.
Components: SEM.
Grading: GRD.
Typically Offered: Summer.

CMA 670. Construction Site Practicum (Materials and Methods Health and Safety). 2 Credit Hours.
This course allows students to participate in a supervised work program where they apply MCM coursework knowledge in a practical setting. Students will complete 2 rotations per term. Each rotation will be at a different job site and with a different corporate sponsor. Work is supervised by a SoA faculty member and a corporate sponsor. Students develop conceptual and professional skills related to their practice at a construction site, a minimum of 20 hours per week (140 hours per 7-week rotation). Students will also meet with their faculty supervisor 1 hour per week during the term to review progress. Satisfactory performance at the field placement and during on-campus class meetings must be demonstrated before students can proceed to the Professional Internship (CMA 674).
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

CMA 671. Construction Management Practicum (Project Management). 2 Credit Hours.
This course allows students to participate in a supervised work program where they apply MCM coursework knowledge in a practical setting. Students will complete 2 rotations per term. Each rotation will be at a different job site and with a different corporate sponsor. Work is supervised by a SoA faculty member and a corporate sponsor. Students develop conceptual and professional skills related to their practice at a construction office a minimum of 20 hours per week (140 hours per 7-week rotation). Students will also meet with their faculty supervisor 1 hour per week during the term to review progress. Satisfactory performance at the field placement and during on-campus class meetings must be demonstrated before students can proceed to the Professional Internship (CMA 673).
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

CMA 674. Capstone Project. 3 Credit Hours.
The Construction Management Capstone Project course introduces the methods and tools necessary to analyze a set of plans and specifications for an active Miami building project (or projects) and includes a comprehensive review and analysis of documentation requirements for the selected project(s). Students are paired with appropriate industry managers and work in small teams, utilizing knowledge acquired from their core courses to develop and draft a comprehensive, professional level project manual. Review of contract plans and documents as well as site visits and interaction with actual project team members are required. To be taken during the final term of study.
Components: LEC.
Grading: GRD.
Typically Offered: Summer.

CMA 676. Interdisciplinary Design Studio/ Integrated Project Delivery. 3 Credit Hours.
Integrated Project Delivery is an alternative to the traditional design-bid-build approach. It is based on enhanced collaboration among design professionals, clients and the building team. These methods can reduce risk and improve the efficiency of the design and construction delivery process. Integrated practice and integrated project delivery are a response to pressures from building owners for a more efficient and predictable process for designing and constructing buildings, and to the increasing availability of advanced digital technologies such as Building Information Modeling. This is an active learning course. Students enrolled in this course will participate in the integrated Design Studio assuming the role of the Construction consultant providing guidance in the design process including; defining goals and standards, Project Costs, Project Schedule, Project Quality, Sustainability, and Performance. Prerequisite: CMA 640
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

CMA 680. Directed Studies. 1-4 Credit Hours.
This course is designed to provide further study through directed readings, directed research projects or seminars, or special class work related to research in a specific subject related to the construction industry not realizable through an existing course. Students must, in consultation with a faculty member, develop a detailed project proposal indicating the rationale, readings, scope, objectives, and methods prior to beginning the course. Each Directed Studies course is usually initiated in response to student interest and is limited to five or fewer students.
Components: IND.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

CMA 681. Special Topics in Construction. 1-3 Credit Hours.
Group or individual investigations of special topics and current issues relevant to the construction industry. Offered by special arrangement only.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.
CMA 682. Special Topics in Construction. 1-3 Credit Hours.
Explorations of special topics and current issues relevant to the construction industry. Teaching and learning methods vary depending on the subject matter.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

CMA 684. Special Problems. 1-6 Credit Hours.
Explorations of special problems and current topics relevant to the construction industry. Teaching and learning methods vary depending on the subject matter.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

CMA 690. Advanced Productivity and Lean Construction. 2 Credit Hours.
The course aims to provide an understanding of the modern concepts and methods in productivity and production system to improve construction practice with lean construction, as well as other tools and techniques for designing and implementing lean construction on projects.
Components: LEC.
Grading: GRD.
Typically Offered: Spring & Summer.

CMA 691. Quality Management and Performance. 1 Credit Hour.
Advanced construction management approaches to quality; process and productivity improvement in construction. Students use of case studies, exercises, and/or term projects to show application of management and quantitative concepts.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CMA 692. Construction Forensics. 1 Credit Hour.
Construction failure, in its many forms, are both interesting and instructive and in the context of this course, students will study construction failures in their many forms.
Components: LEC.
Grading: GRD.
Typically Offered: Summer.

CMA 694. Codes, Standards and Regulations. 1 Credit Hour.
This course provides students with an awareness of different codes, standards, and regulations applicable to the construction industry, how to find the codes and what roles they play in design and construction. The course takes the student through the history of codes, standards, and regulations, their promulgation and their future.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

CMA 701. Operating and Managing a Construction Organization. 3 Credit Hours.
Successfully managing a construction company is a multifaceted undertaking that requires knowledge of common business practices, accounting principles, regional economic conditions and expertise in the building process. This course leads students through the how-to’s of running a successful, large, complex construction company. It analyzes how the industry actually works, including contractual relationships with clients in all types of projects from design/build to privatization. It covers the business fundamentals of running a construction company, including issues such as surety and insurance; various types of construction organizations, domestic and international; and company culture - inner-workings of a business that can mean the differences between success and failure.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

CMA 702. Professional Leadership Seminar. 1 Credit Hour.
This course will explore in a seminar format leaders and leadership situations. Industry leaders will share years of experience and tell their stories. It is an eclectic group who face diverse challenges. The key elements of leadership will be discussed and a framework for thinking about leadership created to provide focus for discussions. The goal will be to enhance students’ understanding of and openness to growth as leaders. It is not to teach students to lead. It is to help them think more insightfully about the subject and gain an understanding of what they can do to become more effective.
Components: SEM.
Grading: GRD.
Typically Offered: Fall.
CMA 708. Preconstruction Services. 2 Credit Hours.
Pre-construction services grew out of construction cost estimating to encompass the other activities in planning a project with the intent to help deliver a satisfactory project that meets the owner’s objectives. The preconstruction team participates in design decisions, evaluations, studies, value engineering, value analysis, scheduling, constructability reviews, and more. The course covers the analysis of pre-construction services including, feasibility studies, conceptual estimating, scope definition, cost estimating & GMP, constructability & design review, value engineering, and bid review & comparison.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CMA 710. Construction Finance, Planning and Analysis. 2 Credit Hours.
This course is designed for industry professionals to enhance their skills in managing the finances of a construction organization and create a sustainable corporate enterprise. The emphasis is on accounting and managerial finance principles from the perspective of a company President or General Manager.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CMA 720. Advanced Planning and Scheduling. 2 Credit Hours.
In depth understanding of the theory and techniques associated with planning, analysis and control. This is a practice oriented, construction project-planning, management and control course emphasizing standard quantitative and qualitative techniques. The Planning, Management, and Control skills necessary to function effectively on complex projects share a common requirement for understanding scheduling, cost control, and their inter-relationship for ensuring successful project performance.
Components: LEC.
Grading: GRD.
Typically Offered: Summer.

CMA 722. Case Studies in Risk Management. 2 Credit Hours.
Through the case studies and discussion, this course focuses on the safety practices mandated by government regulation and required by good business practice. Exposure analysis, risk management, risk transfer and the costs associated with each will be examined.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

CMA 724. Human Resource Management. 1 Credit Hour.
This course uses case studies to discuss the variety of issues that contribute directly to organizational and professional development. Included are the strategies used to create working environments geared toward success on the job. Managing an organization’s people is often the most challenging and complex task required of a manager. It is also the responsibility, if executed well, that permits a person to rise to the senior level of management, or prevents a manager from rising to the senior level if done poorly. The objective of the course is to teach the basic principles of strategic human resource management—how an organization acquires, rewards, motivates, uses, and generally manages its people effectively.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

CMA 726. Case Studies in Construction Management. 2 Credit Hours.
Case Studies in Construction Management uses case studies to analyze and integrate the various disciplines found in the development of the Built Environment from the perspective of Construction Management.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CMA 730. Managing Legal Issues in Building Construction. 2 Credit Hours.
This course is not intended to make lawyers out of Construction Management students. It is, rather, an effort to introduce those who might become involved in the construction industry to legal issues which are essential elements of construction projects. The course, which will be taught by practitioners and participants in the field, provides an overview of the legal issues which confront the construction executive from proposals and preconstruction services through post occupancy and warranty.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.
CMA 734. Prevention and Resolution of Contract Disputes. 2 Credit Hours.
This course covers the variety of contractual relationships in the construction industry and the actions that may result in disputes. Emphasis is given to the steps required for rapid, cost-effective resolution of disputes. Resolution techniques such as negotiating, mediation, arbitration, and litigation are examined, and case studies requiring oral and written presentations are incorporated into the class sessions.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

CMA 740. Project Feasibility Analysis and Valuation. 2 Credit Hours.
This course provides students with the essential tools needed to analyze the feasibility of a real estate development project, including the process for determining the asset's valuation based on projected cash flows. For a construction organization, understanding how a client/owner evaluates project opportunities and forecasts asset performance furnishes valuable insight into the critical cost and revenue assumptions that drive a project's expected returns.
Components: LEC.
Grading: GRD.
Typically Offered: Summer.

CMA 799. Capstone Research. 2 Credit Hours.
This course will guide students in the development of their research topic. It integrates applied classroom and current industry practice and knowledge through observation and interpretation of realistic CM issues
Components: RSC.
Grading: GRD.
Typically Offered: Fall.

CMA 801. Executive Capstone Project. 4 Credit Hours.
The executive program concludes with a 4 credit Capstone Project focused on the assessment of problem areas in a selected project or organization and applying knowledge gained to increase efficiency, eliminate errors and increase profitability.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

RED 601. Introduction to Real Estate Development and Urbanism. 3 Credit Hours.
Fundamentals of real estate development of urban places, including the many challenges of the development process such as analyzing market sectors and development opportunities, comprehending the development context of regulation, public policy and politics, raising investment capital, assembling land, program formulation, building types, construction management, marketing, and sales.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

RED 610. Financing Urban Real Estate Development. 3 Credit Hours.
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.
ARRE_MREDU Academic Program.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

RED 612. Applied Real Estate Finance and Investments: 1. 2 Credit Hours.
This course builds a foundation for further study of real estate investments and development. This course provides for advanced application of theory and techniques for the analysis of horizontal and vertical development. Discounted cash flow models are developed and enhanced to address topics including multiple property types, staggered sellouts, and condominiums. Emphasis is placed on analysis where extreme data poverty or uncertain exist.
Requisite: ARRE_MREDU Program and Prerequisite: RED 610.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.
RED 614. Applied Real Estate Finance and Investments. 2 Credit Hours.
This course builds a foundation for further study of real estate investments and development. This course provides for advanced application of theory and techniques at the entity and deal-level. Discounted cash flow models are developed and enhanced to address topics including partnerships and waterfalls, income tax considerations and a greater exploration of a variety of public and private debt instruments. Emphasis is placed on analyzing the performance of a prospective development across the entire capital stack.
Requisite: ARRE_MREDU Program and Prerequisite: RED 608 and RED 610.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

RED 618. Technologies and Tools for Commercial Real Estate. 1 Credit Hour.
Students in the Technologies and Tools for Commercial Real Estate will learn basic skills for ARGUS Enterprise, REIS, Co-Star, Real Capital Analytics and/or the latest in Real Estate Technology and Tools. Students will be introduced to concepts of entering leases, budgets, market assumptions or valuation and yield parameters on a repetitive basis. The modules that are covered in the course include Valuation-Cash Flow, Portfolio Level Reporting and Sensitivity. Courses concentrate on practical applications of software and tools through interactive examples and case studies. Participants are exposed to a large cross section of software capabilities, fundamentals and unique nuances. Offered: Spring.
Prerequisite: RED 610.
Components: WKS.
Grading: GRD.
Typically Offered: Spring.

RED 620. Real Estate Law. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

RED 630. Real Estate Market Analysis. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

RED 640. Charrette Training. 1 Credit Hour.
Intensive workshop and training in public outreach and participatory planning with emphasis on analysis of political context, appropriate communication technology, collaboration techniques, and design team management. Offered in conjunction with National Charrette Institute.
Components: LEC.
Grading: GRD.
Typically Offered: Fall & Spring.

RED 650. Complex Urban Real Estate Transactions. 3 Credit Hours.
Real estate transactions and deal structuring from the development perspective. Using the case study method, the course explores the key components and the disciplines needed for successful real estate transactions and projects.
ARRE_MREDU Academic Program.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

RED 660. Urban Infill, Preservation, and Mixed Use Development. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.
RED 670. Construction and Project Management. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

RED 680. Entrepreneurship in Real Estate Development. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

RED 690. Case Studies in Real Estate Development. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Summer.

RED 699. Capstone: Real Estate Development and Urbanism Charrette. 1-3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Summer.