MAF 500. Fldwrk Costl Culture. 3 Credit Hours.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

MAF 501. Political Ecology of Marine Management. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

MAF 502. Economics of Natural Resources. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

MAF 504. Fieldwork in Coastal Management. 3 Credit Hours.
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 culture, 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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

MAF 505. Fieldwork in Coastal Cultures. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

MAF 506. Advance Fieldwork In Coastal Cultures. 3 Credit Hours.
This ethnographic fieldwork course lets you experience coastal cultures first-hand in Miami and the Keys. Learning the political ecology approach in the field, you keep an in-depth field journal, complimenting entries with photography as visual anthropology. We will be interacting with some of Miami’s wealth of ethnic communities, both Latino and Haitian. Tourism has become a mainstay of the Miami and Keys economy. We will examine real estate development and social conservation in relation to commercial and recreational fisheries. We will examine the rivalries and alliances among different interest groups involved in tourism from conservation to development. We will observe human/environmental interactions, as well as interview various interest groups such as tour operators, real estate developers, visitors, store and restaurant owners, and park managers.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

MAF 510. Environmental Planning and the Environmental Impact Statement. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

MAF 512. Aquaculture Management. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.
MAF 513. Aquaculture Management II. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

MAF 514. Field Techniques in Prehistoric Underwater Archaeological Excavation. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Summer.

MAF 515. Techniques of Marine Archaeological Survey and Recording. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

MAF 516. Ocean Policy and Development and Analysis. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

MAF 517. Legal Environment And Business Planning In Aquaculture. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

MAF 518. Coastal Zone Management. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

MAF 519. Aquaculture Management III (Fieldwork). 3 Credit Hours.
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 grownout 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.
Components: LEC.
Grading: GRD.
Typically Offered: Summer.

MAF 520. Environmental Law. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.

MAF 521. Fisheries Socioeconomics and Management. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

MAF 526. Marine Cultural Resource Management. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.
MAF 530. Port Operations and Policy. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

MAF 560. Introduction to Marine Geographic Information Systems. 3
Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

MAF 561. Introduction to Marine Geographic Information Systems -
Laboratory. 0 Credit Hours.
Introduction to Marine Geographic Information Systems - Laboratory
introduces students to 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.
Components: LAB.
Grading: SUS.
Typically Offered: Fall & Summer.

MAF 562. Spatial Analysis: Intermediate Course in Marine GIS. 3 Credit
Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

MAF 564. Citizen & Participatory Science. 3 Credit Hours.
The Citizen and Participatory Science course will focus on preparing
students for designing and implementing citizen and participatory
science projects aimed at addressing questions and problems around
specific environmental issues. As social networks grow, open data
comes online and mobile technologies proliferate and advance, the
opportunity to tap into eager and interested citizens to collect data for
research and documentation purposes is quickly rising. This program
will look at history of citizen science, which is over 100 years old, and
will analyze current and past projects. Students will be exposed to how
citizen science projects are designed and implemented and how they can
be best leveraged to gain useful data for research. Guests lecturers will
be invited for virtual and in-person presentations. A key component of
the course will be for students to design a citizen science project using
best practices. These projects can provide the baseline for launching real
projects with organizations interested in applying citizen science to their
work. The course will look at both technology driven projects as well as
low-tech projects to expose students to the range of work being done in
this rapidly evolving area.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

MAF 570. Conservation and Management of Marine Mammals. 3 Credit
Hours.
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.
Components: LEC.
Grading: SUS.
Typically Offered: Spring.

MAF 571. Marine Conservation Biology: An Ecosystem-Based Paradigm.
3 Credit Hours.
Until now, fisheries management has used a species-specific approach
to conservation, focusing attention on economically important species
that people consume. There has been some research on charismatic
mega-fauna, particularly whales, seabirds and sea turtles. To this
day, fishery biologists are concerned mainly with assessing stocks of
commercially harvested species to maintain biomass production, rather
than maintaining and restoring biological integrity: species composition,
habitat structure and ecosystem function. It is only in the past few years
that a new biodiversity-focused, ecosystem-based, multidisciplinary
scientific approach to marine conservation has emerged. This new
paradigm is known as Marine Conservation Biology.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.
MAF 572. A HISTORY OF SEAFARING. 3 Credit Hours.
Ships and seafarers have had considerable influences on civilization throughout history. The ship typically represents the pinnacle of a society’s understanding of many disciplines: astronomy, geography, metallurgy, physics, warfare, et cetera. No other process similarly spread the delights and devastation of the world so effectively. This course studies man’s evolutionary relationship with the sea from early civilization through the 20th century. Emphasis will be on archaeological and ethnographical investigations concerning shipwrecks and maritime epicenters supporting maritime culture. This will be a lecture course supported by visual, audible, and hands-on presentations. The final lectures make ample use of online resources. A voluntary and complimentary field trip at sea to Miami’s underwater archaeological preserve, Half Moon/Germania, will be offered toward the end of the class.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

MAF 573. MARINE CONSERVATION OUTREACH. 3 Credit Hours.
This course will explore the concepts, theories and practices of creating and evaluating effective Marine Conservation Outreach. The course will cover the project life cycle from planning to implementation to evaluating effectiveness.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

MAF 574. From Gold to Glory : The Evolving History & Ethics of Exploration. 3 Credit Hours.
This course will address changes in motivation and approaches to exploration with a focus on risk perception, physiological limitations, and social-cultural context, including how past colonial legacy is still influencing perceptions of the current generation of scientists, explorers, and the groups they interact with. Assignments will include critical readings of source materials and case studies of particular expeditions.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

MAF 576. Special Topics. 1-4 Credit Hours.
Lectures, research projects or directed readings in special topics related to marine affairs.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

MAF 577. Special Topics. 1-4 Credit Hours.
Lectures, research projects or directed readings in special topics related to marine affairs. Prerequisite: Permission of instructor.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

MAF 578. Special Topics. 1-4 Credit Hours.
Lectures, research projects or directed readings in special topics related to marine affairs.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

MAF 579. Special Topics. 1-4 Credit Hours.
Lectures, research projects or directed readings in special topics related to marine affairs.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

MAF 580. Special Topics. 1-4 Credit Hours.
Lectures, research projects or directed readings in special topics related to marine affairs.
Components: THI.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

MAF 581. Special Topics. 1-3 Credit Hours.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

MAF 582. Special Topics. 1-3 Credit Hours.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

MAF 583. Special Topics. 1-3 Credit Hours.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

MAF 600. Fldwrk Costl Culture. 3 Credit Hours.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

MAF 601. Political Ecology of Marine Management. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

MAF 602. Economics of Natural Resources. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.
MAF 604. Fieldwork in Coastal Management. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

MAF 605. Fieldwork in Coastal Cultures. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

MAF 606. Advance Fieldwork in Coastal Cultures. 3 Credit Hours.
This ethnographic fieldwork course lets you experience coastal cultures first-hand in Miami and the Keys. Learning the political ecology approach in the field, you keep an in-depth field journal, complementing entries with photography as visual anthropology. We will be interacting with some of Miami’s wealth of ethnic communities, both Latino and Haitian.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

MAF 610. Environmental Planning and the Environmental Impact Statement. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

MAF 612. Aquaculture Management. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

MAF 613. Aquaculture Management II. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

MAF 614. Field Techniques in Prehistoric Underwater Archaeological Excavation. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Summer.

MAF 615. Techniques of Marine Archaeological Survey and Recording. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

MAF 616. Ocean Policy and Development and Analysis. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.
MAF 617. Legal Environment And Business Planning In Aquaculture. 3 Credit Hours.
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 of private and public rights, risks and incentives. Fish and shellfish as personal property and conservation laws affecting the fish farmer.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

MAF 618. Coastal Zone Management. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

MAF 619. Aquaculture Management III (Fieldwork). 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Summer.

MAF 620. Environmental Law. 3 Credit Hours.
An introductory course focusing on environmental problems. Study of Regulatory legislation, common law, and administrative law. Topics include toxic substances, air and water pollution, and habitat and species protection.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

MAF 625. Fisheries Socioeconomics and Management. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

MAF 626. Marine Cultural Resource Management. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.

MAF 630. Port Operations and Policy. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

MAF 660. Introduction to Marine Geographic Information Systems. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

MAF 661. Introduction to Marine Geographic Information Systems - Laboratory. 0 Credit Hours.
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.
Components: LAB.
Grading: GRD.
Typically Offered: Fall & Summer.

MAF 662. Spatial Analysis: Intermediate Course in Marine GIS. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Spring.
MAF 664. Citizen Participatory Science. 3 Credit Hours.
The Citizen and Participatory Science course will focus on preparing students for designing and implementing citizen and participatory science projects aimed at addressing questions and problems around specific environmental issues. As social networks grow, open data comes online and mobile technologies proliferate and advance, the opportunity to tap into eager and interested citizens to collect data for research and documentation purposes is quickly rising. This program will look at the history of citizen science, which is over 100 years old, and will analyze current and past projects. Students will be exposed to how citizen science projects are designed and implemented and how they can be best leveraged to gain useful data for research. Guests lecturers will be invited for virtual and in-person presentations. A key component of the course will be for students to design a citizen science project using best practices. These projects can provide the baseline for launching real projects with organizations interested in applying citizen science to their work. The course will look at both technology driven projects as well as low-tech projects to expose students to the range of work being done in this rapidly evolving area.

Components: LEC.
Grading: GRD.
Typically Offered: Fall.

MAF 700. Marine Conservation Biology: An Ecosystem-Based Paradigm. 3 Credit Hours.
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.

Components: LEC.
Grading: GRD.
Typically Offered: Spring.

MAF 672. A HISTORY OF SEAFARING. 3 Credit Hours.
Ships and seafarers have had considerable influences on civilization throughout history. The ship typically represents the pinnacle of a society’s understanding of many disciplines: astronomy, geography, metallurgy, physics, warfare, et cetera. No other process similarly spread the delights and devastation of the world so effectively. This course studies man’s evolutionary relationship with the sea from early civilization through the 20th century. Emphasis will be on archaeological and ethnographical investigations concerning shipwrecks and maritime epicenters supporting maritime culture. This will be a lecture course supported by visual, audible, and hands-on presentations. The final lectures make ample use of online resources. A voluntary and complimentary field trip at sea to Miami’s underwater archaeological preserve, Half Moon/Germania, will be offered toward the end of the class.

Components: LEC.
Grading: GRD.
Typically Offered: Spring.

MAF 673. MARINE CONSERVATION OUTREACH. 3 Credit Hours.
This course will explore the concepts, theories and practices of creating and evaluating effective Marine Conservation Outreach. The course will cover the project life cycle from planning to implementation to evaluating effectiveness.

Components: LEC.
Grading: GRD.
Typically Offered: Spring.

MAF 674. From Gold to Glory: The Evolving History and Ethics of Exploration. 3 Credit Hours.
This course will address changes in motivation and approaches to exploration with a focus on risk perception, physiological limitations, and social-cultural context, including how past colonial legacy is still influencing perceptions of the current generation of scientists, explorers, and the groups they interact with. Assignments will include critical readings of source materials and case studies of particular expeditions.

Components: LEC.
Grading: GRD.
Typically Offered: Fall.

MAF 675. Special Topics. 1-4 Credit Hours.
Lectures, research projects or directed readings in special topics related to marine affairs.

Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

MAF 676. Special Topics. 1-4 Credit Hours.
Lectures, research projects or directed readings in special topics related to marine affairs. Prerequisite: Permission of instructor.

Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

MAF 677. Special Topics. 1-4 Credit Hours.
Lectures, research projects or directed readings in special topics related to marine affairs.

Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

MAF 678. Special Topics. 1-4 Credit Hours.
Lectures, research projects or directed readings in special topics related to marine affairs.

Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.
MAF 679. Special Topics. 1-4 Credit Hours.
Lectures, research projects or directed readings in special topics related to marine affairs.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

MAF 680. Special Topics. 1-4 Credit Hours.
Lectures, research projects or directed readings in special topics related to marine affairs.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

MAF 681. Special Topics. 1-3 Credit Hours.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

MAF 682. Special Topics. 1-3 Credit Hours.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

MAF 683. Special Topics. 1-3 Credit Hours.
Components: LEC.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

MAF 710. International Ocean Law And Governance. 3 Credit Hours.
This course shall track the history and development of international ocean law, from a series of bi-lateral and multi-lateral treaties, the evolving customary law framework, and coastal and maritime state claims to the codification and proliferation of international legal agreements addressing the panoply of ocean use and management issues. Applying a chronological approach, the course shall identify and discuss key developments in international ocean law, leading to the drafting of the Third United Nations Law of the Sea Convention (UNCLOS III). By evaluating the multifold themes addressed under the convention, the course will analyze the effects of convention in a post UNCLOS III world, especially in the fields of environmental protection, the management of marine fisheries and living resources, the allocation of seabed and subsoil resources, issues affecting the high seas, and polar regions.
Components: LEC.
Grading: GRD.
Typically Offered: Offered by Announcement Only.

MAF 720. Coastal Law and Policy. 3 Credit Hours.
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.
Components: LEC.
Grading: GRD.
Typically Offered: Fall.

MAF 805. MPS Internship. 1-6 Credit Hours.
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.
Components: THI.
Grading: SUS.
Typically Offered: Fall, Spring, & Summer.

MAF 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: THI.
Grading: SUS.
Typically Offered: Fall, Spring, & Summer.

MAF 820. Research in Residence. 1 Credit Hour.
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.
Components: THI.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.

MAF 825. Continuous Registration--Master's Study. 1 Credit Hour.
To establish residence for non-thesis master's students who are preparing for major examinations. Credit not granted. Regarded as full time residence.
Components: THI.
Grading: GRD.
Typically Offered: Fall, Spring, & Summer.