

# M.P.S. IN MARINE ECOSYSTEMS AND SOCIETY

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## Overview

The MPS in Marine Ecosystems and Society program offers six tracks: Aquaculture, Coastal Zone Management, Exploration Science, Fisheries Management and Conservation, Marine Conservation, and Underwater Archaeology.

### Aquaculture Track

The Aquaculture (<https://mps.rsmas.miami.edu/degree-tracks/aquaculture/>) track focuses on the scientific, technological, environmental, technological, social, economic, legal, political, management and business aspects of sustainable aquaculture. The program covers all stages of planning and development, from site and species selection to feasibility studies, resource evaluation, hatchery and grow-out technology, and commercialization. The Aquaculture track is supported by an innovative and progressive research and development program in sustainable aquaculture focusing on emerging technologies. R&D priority topics are innovative hatchery technology and environmentally responsible grow-out methods such as offshore aquaculture and recirculating aquaculture systems.

### Coastal Zone Management Track

The Coastal Zone Management (<https://mps.rsmas.miami.edu/degree-tracks/coastal-zone-management/>) (CZM) track will introduce students to the legal and governance frameworks on topics such as coastal fisheries management, marine protected areas, port management, tourism development, environmental impact assessment, and oil exploration.

### Exploration Science Track

The Exploration Science (<https://mps.rsmas.miami.edu/degree-tracks/exploration-science/>) (ESC) track is a multi-disciplinary approach for better understanding our planet and the challenges we collectively face. This track encourages field-based experiences and the application of expedition skills within a context acknowledging the cultural and ethical implications of exploration. Exploration Science encourages creative thinking and problem solving to find solutions across the natural sciences and humanities. This track includes curriculum in areas of citizen science, media production, and skills such as scientific diving, small boat handling, and expedition planning.

Students in this track have completed internships and been hired in areas of environmental education, surveying, the diving industry, resource management, citizen science, conservation, media production, government agencies, museums, and ecotourism companies.

### Fisheries Management and Conservation Track

The Fisheries Management and Conservation (<https://mps.rsmas.miami.edu/degree-tracks/fisheries-management-and-conservation/>) (FMC) track allows students to develop the professional skills required to be a fisheries scientist with curriculum options in various relevant areas of interest, such as fisheries management, fisheries surveys, and quantitative fisheries.

### Marine Conservation Track

The Marine Conservation (<https://mps.rsmas.miami.edu/degree-tracks/marine-conservation/>)(MCO) track provides students with flexible, rigorous training in interdisciplinary marine science and conservation, from mastering theoretical and analytical techniques to learning essential skills for marine fieldwork. Students design a personalized curriculum that emphasizes their interests and professional goals, while building the experience to work effectively in a variety of conservation-relevant fields.

### Underwater Archaeology Track

The Underwater Archaeology (<https://mps.rsmas.miami.edu/degree-tracks/underwater-archaeology/>) track (UARCH) is minimally a **two-year program** that focuses on the theory, underwater cultural heritage management, and data collection techniques necessary to work within the field of archaeology and the broader general field of marine sciences. Coursework integrates topics such as archaeological epistemology, site mapping and modeling, interpretation of shipwrecks and submerged sites, best management practices, marine protected areas, and marine geophysical technology and survey. UARCH students receive training as AAUS Science Divers during their first semester. Students will have opportunities to work side-by-side with professional archaeologists through internships and field projects with private, public, or non-governmental agencies, both nationally and internationally, and conduct relevant fieldwork.

## Admission Requirements

### Prerequisites:

1. Bachelor of Science degree (B.S.) or Bachelor of Arts degree (B.A.)

*Note to students: Deficiencies in required coursework may be considered on a case by case basis for otherwise highly qualified students or those demonstrating experience with these skills.*

All application requirements are available here (<https://mps.rsmas.miami.edu/prospective-students/admissions/>).

### Exploration Science Track

#### Additional Prerequisites:

- Completed undergraduate courses in biology, ecology, and chemistry are helpful, but not required, for pursuing graduate work in this program.

### Underwater Archaeology Track

#### Additional Prerequisites:

- BA/BS in Anthropology, History, or related field
- Meet minimum RSMAS diving standards as outlined by the RSMAS Dive Office
  - Minimum open water scuba certification from a nationally accredited dive training agency
  - Certified divers with more than 50 logged dives, especially those with prior scientific diving training, may qualify for the Experienced Diver Checkout and not be required to take RSM 600

#### Recommended:

- Participation in an archaeological field school prior to commencing the UARCH program
- Volunteer for terrestrial archaeological projects
- Ability to write professionally

## Curriculum Requirements

### Aquaculture Track

Code	Title	Credit Hours
MBE 612	Aquaculture I	3
MBE 613	Aquaculture II Lab	3
MBE 619	Aquaculture III	3
MBE 617	Aquaculture IV: Aquaculture Business, Regulatory, and Environmental Considerations	3
MBE 628	Seafood Market and Marketing	3
MBE 686 or EVR 629	Fish Physiology (or ELECTIVE) Biology, Ecology, and Management of Mangrove Ecosystems	3
EVR 602 or EVR 625	Economics of Natural Resources Fisheries Socioeconomics and Management	3
EVR 660 & EVR 661	Introduction to Marine Geographic Information Systems and Introduction to Marine Geographic Information Systems - Laboratory (or ELECTIVE)	3
EVR 805	MPS Internship <sup>1</sup>	2-6
<b>Total Credit Hours</b>		<b>30</b>

<sup>1</sup> Enrollment in 2 - 6 internship credits required during a student's time in MPS. Completion of less than 2 internship credits must be approved by MPS Director. Students may enroll in more than 6 internship credits with the approval of the Program Director. Typically 2 semesters are needed to complete all aspects of the internship phase of MPS.

### Elective Options

Students may take any elective on the RSMAS campus with the consent of their faculty advisor. Below are a few examples of courses past students in this program used as electives.

Code	Title	Credit Hours
EVR 616	Ocean Policy	3
EVR 620	Environmental Law and Policy	3
EVR 671	Marine Conservation Biology	4
EVR 710	International Ocean Law and Governance	3
EVR 720	Coastal Law and Policy	3
MBE 614	Tropical Marine Biology	3
MBE 642	Oceans and Human Health	3
MBE 676	Diseases of Marine Organisms	3
RSM 612	Statistics for Marine Scientists	3
BIL 623	Advanced Biology of Marine Invertebrates	4
Business School electives are applicable, with approval from Academic Advisor		

## Curriculum Requirements

### Coastal Zone Management Track

The Coastal Zone Management (<https://mps.rsmas.miami.edu/degree-tracks/coastal-zone-management/>) (CZM) track requires the completion of one core course. The rest of the curriculum will be decided on a case-by-case basis during academic advising. However, students select from a variety of multidisciplinary courses across many departments and schools at RSMAS/UM, in a holistic effort to meet their personal and professional goals. A list of suggested electives is provided below.

Code	Title	Credit Hours
<b>Core Course</b>		<b>3</b>
Students must complete one of the following courses:		
EVR 618	Coastal Zone Management	
or EVR 720	Coastal Law and Policy	
<b>Electives</b>		<b>21</b>
<b>Required Internship <sup>1</sup></b>		<b>2-6</b>
EVR 805	MPS Internship	
<b>Total Credit Hours</b>		<b>30</b>

<sup>1</sup> Enrollment in 2 - 6 internship credits required during a student's time in MPS. Completion of less than 2 internship credits must be approved by MPS Director. Students may enroll in more than 6 internship credits with the approval of the Program Director. Typically 2 semesters are needed to complete all aspects of the internship phase of MPS.

### Suggested Electives

Code	Title	Credit Hours
EVR 601	Political Ecology of Marine Management	3
EVR 602	Economics of Natural Resources	3
EVR 604	Fieldwork in Coastal Management: Tourism, Conservation, and Development	3
EVR 610	Environmental Planning and the Environmental Impact Statement	3
EVR 616	Ocean Policy	3
EVR 618	Coastal Zone Management	3
EVR 620	Environmental Law and Policy	3
EVR 625	Fisheries Socioeconomics and Management	3
EVR 626	Submerged Cultural Resource Management	3
EVR 630	Port Operations and Policy	3
EVR 631	Marine and Coastal Protected Area Theory, Planning, Management, and Issues	3
EVR 660 & EVR 661	Introduction to Marine Geographic Information Systems and Introduction to Marine Geographic Information Systems - Laboratory	3
EVR 662	Intermediate Spatial Analysis	3
EVR 671	Marine Conservation Biology	4
EVR 664	Citizen and Participatory Science	3
EVR 670	Conservation and Management of Marine Mammals	3
EVR 624	Statistics and Data Analysis for Environmental Science and Policy	3
EVR 673	Marine Conservation Outreach	3
EVR 677	Management and Conservation of Marine Ecosystems	3
EVR 710	International Ocean Law and Governance	3
MBE 612	Aquaculture I	3
MBE 613	Aquaculture II Lab	3
MBE 615	Tropical Marine Ecology	3
MBE 617	Aquaculture IV: Aquaculture Business, Regulatory, and Environmental Considerations	3
MBE 619	Aquaculture III	3
MBE 618	Reef Coral Biology, Ecology, and Conservation	3

MBE 621	Field Techniques and Instrumentation in Tropical Marine Ecology	3
RSM 612	Statistics for Marine Scientists	3
RSM 664	Scientific Small Boating	2
RSM 667	Motorboat Operator Certification Course	1
RSM 600	Introduction to Research Diving Techniques	3
RSM 620	Climate and Society	3

## Curriculum Requirements

### Exploration Science Track

Code	Title	Credit Hours
RSM 600	Introduction to Research Diving Techniques	3
RSM 667	Motorboat Operator Certification Course <sup>1</sup>	1
EVR 664	Citizen and Participatory Science	3
EVR 674	Theoretical Practical Issues in Exploration Science	3
EVR 665	Science and Natural History Media Production	3
EVR 660 & EVR 661	Introduction to Marine Geographic Information Systems and Introduction to Marine Geographic Information Systems - Laboratory (or ELECTIVE)	3
MBE 621	Field Techniques and Instrumentation in Tropical Marine Ecology (or ELECTIVE)	3
EVR 627	Exploration Science Field Studies (or ELECTIVE)	3
EVR 662	Intermediate Spatial Analysis (or ELECTIVE)	3
EVR 805	MPS Internship <sup>2</sup>	2-6
EVR 671	Marine Conservation Biology (or OTHER ELECTIVE) <sup>3</sup>	
<b>Total Credit Hours</b>		<b>30</b>

<sup>1</sup> Scientific Small Boating (RSM 664) may substitute for RSM 667

<sup>2</sup> Enrollment in 2 - 6 internship credits required during a student's time in MPS. Completion of less than 2 internship credits must be approved by MPS Director. Students may enroll in more than 6 internship credits with the approval of the Program Director. Typically 2 semesters are needed to complete all aspects of the internship phase of MPS.

<sup>3</sup> EVR 671 and/or Elective optional if student needs to meet 30 credits for graduation

### Elective Options

Students may substitute elective coursework for one or more of the above courses with the consent of their faculty advisor. Below are a few examples of courses past students in this program used as electives.

Code	Title	Credit Hours
MBE 604	Biology of Marine Mammals	3
MBE 612	Aquaculture I	3
MBE 615	Tropical Marine Ecology	3
MBE 642	Oceans and Human Health	3
EVR 601	Political Ecology of Marine Management	3
EVR 604	Fieldwork in Coastal Management: Tourism, Conservation, and Development	3
EVR 614	Underwater Site Mapping and Visualization Techniques	3
EVR 618	Coastal Zone Management	3
EVR 620	Environmental Law and Policy	3
EVR 625	Fisheries Socioeconomics and Management	3
EVR 635	Oceans of Thought: Exploring Marine and Environmental Literature	3
EVR 671	Marine Conservation Biology	4
EVR 720	Coastal Law and Policy	3
RSM 612	Statistics for Marine Scientists	3
RSM 620	Climate and Society	3

## Curriculum Requirements

### Fisheries Management and Conservation Track

Code	Title	Credit Hours
EVR 660 & EVR 661	Introduction to Marine Geographic Information Systems and Introduction to Marine Geographic Information Systems - Laboratory	3
MBE 713	Marine Population Dynamics	3
EVR 625	Fisheries Socioeconomics and Management (or ELECTIVE)	3
EVR 710	International Ocean Law and Governance (or ELECTIVE)	3
RSM 612 or EVR 624	Statistics for Marine Scientists Statistics and Data Analysis for Environmental Science and Policy	3
MBE 621 or EVR 622	Field Techniques and Instrumentation in Tropical Marine Ecology Principles and Practices of Marine Social Science Research	3
MBE 746	Marine Population Biology: Processes and Modeling	3
EVR 677	Management and Conservation of Marine Ecosystems	3
EVR 805	MPS Internship <sup>1</sup>	2-6
<b>Total Credit Hours</b>		<b>30</b>

<sup>1</sup> Enrollment in 2 - 6 internship credits required during a student's time in MPS. Completion of less than 2 internship credits must be approved by MPS Director. Students may enroll in more than 6 internship credits with the approval of the Program Director. Typically 2 semesters are needed to complete all aspects of the internship phase of MPS.

### Elective Options

Students may take any elective on the RSMAS campus with the consent of their faculty advisor. Below are a few examples of courses past students in this program used as electives.

Code	Title	Credit Hours
BIL 623	Advanced Biology of Marine Invertebrates	4
MBE 716	Bayesian Statistics for Marine Scientists	3
MBE 787	Biology and Systematics of Fishes	3
EVR 720	Coastal Law and Policy	3
EVR 618	Coastal Zone Management	3
MAS 647	Computer Simulation Systems	3
MBE 676	Diseases of Marine Organisms	3
EVR 602	Economics of Natural Resources	3
EVR 620	Environmental Law and Policy	3
MBE 678	Evolutionary Genetics	3
POL 631	Global Environment Politics	3
EVR 710	International Ocean Law and Governance	3
MBE 636	Object-Oriented Programming and Agent-Based Modelling	3
EVR 616	Ocean Policy	3
RSM 710	The Physical Environment of Marine Organisms	3
EVR 601	Political Ecology of Marine Management	3
RSM 600	Introduction to Research Diving Techniques	3
RSM 667	Motorboat Operator Certification Course	1
RSM 664	Scientific Small Boating	2
MBE 615	Tropical Marine Ecology	3
MBE 635	Practical Computing for Biologists	3
EVR 623	Applied Environmental Economics	3
EVR 714	Population Modeling, Risk Assessment and Management	3
EVR 715	Machine Learning Predictive Analytics in Marine Science	3

## Curriculum Requirements

### Marine Conservation Track

Code	Title	Credit Hours
EVR 671	Marine Conservation Biology	4
RSM 612	Statistics for Marine Scientists	3
or EVR 624	Statistics and Data Analysis for Environmental Science and Policy	
MBE 615	Tropical Marine Ecology (or ELECTIVE)	3
EVR 620	Environmental Law and Policy	3
or EVR 720	Coastal Law and Policy	
or EVR 616	Ocean Policy	
EVR 710	International Ocean Law and Governance (or ELECTIVE)	3
or EVR 618	Coastal Zone Management	
EVR 660	Introduction to Marine Geographic Information Systems	3
EVR 673	Marine Conservation Outreach	3
RSM 671	Special Topics (Science Communication: Professional Writing OR ELECTIVE)	3
EVR 805	MPS Internship	6
<b>Total Credit Hours</b>		<b>31</b>

### Additional Elective Options

Code	Title	Credit Hours
RSM 620	Climate and Society	3
EVR 720	Coastal Law and Policy	3
EVR 602	Economics of Natural Resources	3
EVR 604	Fieldwork in Coastal Management: Tourism, Conservation, and Development	3
EVR 625	Fisheries Socioeconomics and Management	3
EVR 626	Submerged Cultural Resource Management	3
MBE 642	Oceans and Human Health	3
RSM 600	Introduction to Research Diving Techniques	3
EVR 662	Intermediate Spatial Analysis	3
RSM 612	Statistics for Marine Scientists	3
MBE 615	Tropical Marine Ecology	3

## Curriculum Requirements

### Underwater Archaeology Track

Code	Title	Credit Hours
RSM 600	Introduction to Research Diving Techniques	3
RSM 667	Motorboat Operator Certification Course <sup>3</sup>	1
EVR 614	Underwater Site Mapping and Visualization Techniques	3
EVR 615	Marine Geophysical Survey and Technology	3
EVR 632	Theory and Method in Underwater and Maritime Archaeology	3
EVR 626	Submerged Cultural Resource Management	3
EVR 660 & EVR 661	Introduction to Marine Geographic Information Systems and Introduction to Marine Geographic Information Systems - Laboratory	3
EVR 672	The Archaeology of Seafaring	3
EVR 691	Maritime Archaeology Field Study	3
EVR 692	Archaeological Study of Submerged Pre-Contact Sites	3
EVR 693	Maritime Archaeology and the Conquest of Mexico <sup>2</sup>	

EVR 805	MPS Internship <sup>1</sup>	2-6
<b>Total Credit Hours</b>		<b>31</b>

<sup>1</sup> Enrollment in 2 - 6 internship credits required during a student's time in MPS. Completion of less than 2 internship credits must be approved by MPS Director. Students may enroll in more than 6 internship credits with the approval of the Program Director. Typically 2 semesters are needed to complete all aspects of the internship phase of MPS.

<sup>2</sup> Based upon availability

<sup>3</sup> RSM 667 is preferred, but RSM 664 may substitute

### Elective Options

Students may take any elective on the RSMAS campus with the consent of their faculty advisor. Below are a few examples of courses past students in this program used as electives.

Code	Title	Credit Hours
EVR 610	Environmental Planning and the Environmental Impact Statement	3
EVR 616	Ocean Policy	3
EVR 618	Coastal Zone Management	3
EVR 635	Oceans of Thought: Exploring Marine and Environmental Literature	3
EVR 664	Citizen and Participatory Science	3
EVR 665	Science and Natural History Media Production	3
EVR 674	Theoretical Practical Issues in Exploration Science	3
EVR 710	International Ocean Law and Governance	3
EVR 720	Coastal Law and Policy	3
MBE 716	Bayesian Statistics for Marine Scientists	3
OCE 606	Introduction to Ocean Remote Sensing	3
OCE 707	Advanced Ocean Remote Sensing	3
RSM 646	Presentation Boot Camp	1

## Suggested Plan of Study

### Aquaculture Track

Year One		Credit Hours
<b>Fall</b>		
MBE 612	Aquaculture I	3
MBE 617	Aquaculture IV: Aquaculture Business, Regulatory, and Environmental Considerations	3
EVR 602 or 625	Economics of Natural Resources or Fisheries Socioeconomics and Management	3
EVR 660 & EVR 661	Introduction to Marine Geographic Information Systems and Introduction to Marine Geographic Information Systems - Laboratory *	3
<b>Credit Hours</b>		<b>12</b>
<b>Spring</b>		
MBE 613	Aquaculture II Lab	3
MBE 628	Seafood Market and Marketing	3
MBE 686 or EVR 629	Fish Physiology * or Biology, Ecology, and Management of Mangrove Ecosystems	3
<b>Credit Hours</b>		<b>9</b>
<b>Summer</b>		
MBE 619	Aquaculture III	3
EVR 805	MPS Internship <sup>1</sup>	2-6
<b>Credit Hours</b>		<b>9</b>
<b>Total Credit Hours</b>		<b>30</b>

\* or Elective

<sup>1</sup> Enrollment in 2 - 6 internship credits required during a student's time in MPS. Completion of less than 2 internship credits must be approved by MPS Director. Students may enroll in more than 6 internship credits with the approval of the Program Director. Typically 2 semesters are needed to complete all aspects of the internship phase of MPS.

## Suggested Plan of Study Coastal Zone Management Track

The Coastal Zone Management (CZM) track requires the completion of one core course. The rest of the curriculum will be decided on a case-by-case basis during academic advising. However, students select from a variety of multidisciplinary courses across many departments and schools at RSMAS/UM, in a holistic effort to meet their personal and professional goals. A list of suggested electives is available here (<http://bulletin.miami.edu/graduate-academic-programs/marine-atmospheric-science/marine-ecosystems-and-society/coastal-zone-management-mps/#curriculumtext>).

Year One		Credit Hours
<b>Fall</b>		
EVR 618 or 720	Coastal Zone Management or Coastal Law and Policy	3
Elective		3
Elective		3
Elective		3
<b>Credit Hours</b>		<b>12</b>
<b>Spring</b>		
Elective		3
Elective		3
Elective		3
Elective		3
<b>Credit Hours</b>		<b>12</b>
<b>Summer</b>		
EVR 805	MPS Internship <sup>1</sup>	2-6
<b>Credit Hours</b>		<b>6</b>
<b>Total Credit Hours</b>		<b>30</b>

<sup>1</sup> Enrollment in 2 - 6 internship credits required during a student's time in MPS. Completion of less than 2 internship credits must be approved by MPS Director. Students may enroll in more than 6 internship credits with the approval of the Program Director. Typically 2 semesters are needed to complete all aspects of the internship phase of MPS.

## Suggested Plan of Study Exploration Science Track

Year One		Credit Hours
<b>Fall</b>		
RSM 600	Introduction to Research Diving Techniques	3
RSM 667 or 664	Motorboat Operator Certification Course <sup>1</sup> or Scientific Small Boating	1
EVR 664	Citizen and Participatory Science	3
EVR 674	Theoretical Practical Issues in Exploration Science	3
EVR 660 & EVR 661	Introduction to Marine Geographic Information Systems and Introduction to Marine Geographic Information Systems - Laboratory * <sup>1</sup>	3
<b>Credit Hours</b>		<b>13</b>
<b>Spring</b>		
EVR 665	Science and Natural History Media Production	3
MBE 621	Field Techniques and Instrumentation in Tropical Marine Ecology *	3
EVR 627	Exploration Science Field Studies *	3
EVR 662	Intermediate Spatial Analysis *	3
<b>Credit Hours</b>		<b>12</b>



<b>Summer</b>		
EVR 805	MPS Internship <sup>2</sup>	2-6
	<b>Credit Hours</b>	<b>5</b>
	<b>Total Credit Hours</b>	<b>30</b>

\* or Elective

<sup>1</sup> Can be taken in Fall or Spring

<sup>2</sup> Enrollment in 2 - 6 internship credits required during a student's time in MPS. Completion of less than 2 internship credits must be approved by MPS Director. Students may enroll in more than 6 internship credits with the approval of the Program Director. Typically 2 semesters are needed to complete all aspects of the internship phase of MPS.

## Suggested Plan of Study

### Fisheries Management and Conservation Track

<b>Year One</b>		
<b>Fall</b>		<b>Credit Hours</b>
EVR 660 & EVR 661	Introduction to Marine Geographic Information Systems and Introduction to Marine Geographic Information Systems - Laboratory <sup>1</sup>	3
MBE 713	Marine Population Dynamics	3
EVR 625	Fisheries Socioeconomics and Management *	3
RSM 612 or EVR 624	Statistics for Marine Scientists or Statistics and Data Analysis for Environmental Science and Policy	3
	<b>Credit Hours</b>	<b>12</b>
<b>Spring</b>		
EVR 710	International Ocean Law and Governance *	3
MBE 621 or EVR 622	Field Techniques and Instrumentation in Tropical Marine Ecology or Principles and Practices of Marine Social Science Research	3
MBE 746	Marine Population Biology: Processes and Modeling	3
EVR 677	Management and Conservation of Marine Ecosystems	3
	<b>Credit Hours</b>	<b>12</b>
<b>Summer</b>		
EVR 805	MPS Internship <sup>2</sup>	2-6
	<b>Credit Hours</b>	<b>6</b>
	<b>Total Credit Hours</b>	<b>30</b>

\* or Elective

<sup>1</sup> Can be taken in Fall or Spring

<sup>2</sup> Enrollment in 2 - 6 internship credits required during a student's time in MPS. Completion of less than 2 internship credits must be approved by MPS Director. Students may enroll in more than 6 internship credits with the approval of the Program Director. Typically 2 semesters are needed to complete all aspects of the internship phase of MPS.

## Suggested Plan of Study

### Marine Conservation Track

### Suggested Plan of Study

<b>Year One</b>		
<b>Fall</b>		<b>Credit Hours</b>
EVR 671	Marine Conservation Biology	4
RSM 612 or EVR 624	Statistics for Marine Scientists or Statistics and Data Analysis for Environmental Science and Policy	3
MBE 615	Tropical Marine Ecology ( or ELECTIVE)	3
EVR 620, 720, or 616	Environmental Law and Policy or Coastal Law and Policy or Ocean Policy	3
	<b>Credit Hours</b>	<b>13</b>

<b>Spring</b>		
EVR 710 or 618	International Ocean Law and Governance or Coastal Zone Management	3
EVR 660 & EVR 661	Introduction to Marine Geographic Information Systems and Introduction to Marine Geographic Information Systems - Laboratory	3
EVR 673	Marine Conservation Outreach	3
RSM 671	Special Topics (Science Communication: Professional Writing OR ELECTIVE)	3
	<b>Credit Hours</b>	<b>12</b>
<b>Summer</b>		
EVR 805	MPS Internship	5
	<b>Credit Hours</b>	<b>5</b>
	<b>Total Credit Hours</b>	<b>30</b>

## Suggested Plan of Study

### Underwater Archaeology Track

<b>Year One</b>		
<b>Fall</b>		<b>Credit Hours</b>
EVR 626	Submerged Cultural Resource Management	3
EVR 632	Theory and Method in Underwater and Maritime Archaeology	3
EVR 660 & EVR 661	Introduction to Marine Geographic Information Systems and Introduction to Marine Geographic Information Systems - Laboratory	3
RSM 600	Introduction to Research Diving Techniques	3
	<b>Credit Hours</b>	<b>12</b>
<b>Spring</b>		
EVR 614	Underwater Site Mapping and Visualization Techniques	3
EVR 615	Marine Geophysical Survey and Technology	3
EVR 672	The Archaeology of Seafaring	3
RSM 667	Motorboat Operator Certification Course	1
Elective (Optional)		
	<b>Credit Hours</b>	<b>10</b>
<b>Summer</b>		
EVR 691	Maritime Archaeology Field Study	3
EVR 693	Maritime Archaeology and the Conquest of Mexico <sup>2</sup>	
EVR 805	MPS Internship <sup>1</sup>	1-6
	<b>Credit Hours</b>	<b>4-9</b>
<b>Year Two</b>		
<b>Fall</b>		
EVR 692	Archaeological Study of Submerged Pre-Contact Sites	3
EVR 805	MPS Internship <sup>1</sup>	1-6
Elective (Optional)		
	<b>Credit Hours</b>	<b>4-9</b>
<b>Spring</b>		
EVR 805	MPS Internship <sup>1</sup>	1-6
Elective (Optional)		
	<b>Credit Hours</b>	<b>1-6</b>
	<b>Total Credit Hours</b>	<b>31-46</b>

<sup>1</sup> Enrollment in 2 - 6 internship credits required during a student's time in MPS. Completion of less than 2 internship credits must be approved by MPS Director. Students may enroll in more than 6 internship credits with the approval of the Program Director. Typically 2 semesters are needed to complete all aspects of the internship phase of MPS.

<sup>2</sup> Based upon availability

## Mission

### Aquaculture Track

The mission of the Aquaculture (<https://mps.rsmas.miami.edu/degree-tracks/aquaculture/>) track is to provide students with an interdisciplinary study of sustainable aquaculture and related industries, as well as advanced training on environmental, technological, social, economic, legal, and political aspects of marine aquaculture. Emphasis is placed on the environmental sustainability of commercially important marine fish species, as well as shrimp and mollusks. The program combines classroom lessons with experiential learning at the University of Miami Experimental Hatchery (<https://www.rsmas.miami.edu/research/projects/hatchery/>) (UMEH) to prepare students for careers in marine aquaculture.

### Coastal Zone Management Track

This track provides students with interdisciplinary training in the theoretical aspects of marine science and conservation, as well as advanced knowledge of the legal and governance frameworks for careers in environmental consulting, marine Geographical Information Systems (GIS), assessment and management of coastal ecosystem, resources, and related industries.

### Exploration Science Track

The mission of Exploration Science (ESC) is to prepare the next generation of explorers to address problems and questions related to the environment and society.

The Exploration Science (ESC) track fosters scientific inquiry and the application of expedition skills within a context that acknowledges the cultural and ethical implications of exploration. The ESC track exposes students to citizen science project design, exploration technology applications, and field-based skills training, while receiving essential background information on the history, ethics and risks related to exploration. This program prepares students to lead and conduct professional exploration initiatives and expeditions in a variety of environments. A flexible curriculum allows students to focus on courses and subjects that best fit their interests and goals for careers in environmental education, surveying, resource management, citizen science, conservation, media production, government agencies, museums, and ecotourism companies among others.

### Fisheries Management and Conservation Track

Fisheries Management and Conservation (FMC) supports the management of marine resources by providing society with quantitative knowledge and modeling of the natural and anthropogenic processes that regulate the dynamics and functioning of fishery ecosystems and by providing predictions on the future behavior of such systems. The FMC track is a unique, academic program that allows students to develop the professional skills required to be a fishery scientist. This program fosters critical thinking and provides a comprehensive study of the science and skills needed for employment in government agencies such as the National Marine Fisheries Service, state agencies, Fishery Councils, regional NOAA laboratories, as well as Non-Governmental Organizations (NGO).

### Marine Conservation Track

The mission of the Marine Conservation (<https://mps.rsmas.miami.edu/degree-tracks/marine-conservation/>) track is to provide students with interdisciplinary training in marine science and conservation, offering opportunities to learn scientific techniques, develop and implement science communication, outreach and community engagement projects, and better understand the policy and management process. A flexible curriculum allows students to concentrate on subjects and skill sets most relevant to their future careers in marine conservation.

### Underwater Archaeology Track

Underwater archaeology is the study of the remains of past human activity through the exploration, documentation, and study of a variety of submerged sites, from shipwrecks to caves and springs to lakes and rivers. The Underwater Archaeology track helps students understand how archaeological sites and artifacts can play a large role in education, community cohesion, national identity, economic development, sustainable tourism, conservation, and, of course, entertainment among others. This program focuses on the theory, field techniques, and management practices necessary to work within the field of archaeology and the broader general field of marine sciences. This program provides training in the areas of mapping and documentation, interpretation of shipwrecks and submerged sites, best management practices, marine protected areas, and marine survey technology.

## Student Learning Outcomes

### Aquaculture Track

- Students will be able to effectively plan and execute an aquaculture operation including all related aspects of rearing, harvest, storage, shipping, and marketing.
- Students will demonstrate professionalism in all aspects of field and lab work during their internships.
- Students will submit a final, written report and deliver a final presentation based on the work completed in their internship.

### Coastal Zone Management Track

- Students will be able to understand the legal and governance frameworks related to coastal fisheries and other marine resource management, tourism development, environmental impact assessment, and oil exploration, for the development and application of comprehensive marine conservation strategies and policies.
- Students will demonstrate professionalism in all aspects of field and lab work during their internships.
- Students will submit a final written report and deliver a final presentation based on the work completed in their internship.

### **Exploration Science Track**

- Exploration Science (ESC) students will develop a working understanding of expeditions, risk management, and planning.
- Students will become familiar with major aspects of citizen science, media production, and fieldwork as it relates to exploration.
- Students will develop a professional approach to exploration incorporating ethical and inclusive practices.
- Students will demonstrate professionalism in all aspects of field and lab work during their internships.
- Students will submit a final, written report and deliver a final presentation based on the work completed in their internship.

### **Fisheries Management and Conservation Track**

- Fisheries Management and Conservation (FMC) students will be able to understand the processes influencing fisheries management and the development of fisheries policy alternatives, develop knowledge about the statistical design and implementation of fishery surveys and monitoring programs, and apply advanced statistical and mathematical modeling tools in support of fishery stock assessments.
- Students will demonstrate professionalism in all aspects of field and lab work during their internships.
- Students will submit a final, written report and deliver a final presentation based on the work completed in their internship.

### **Marine Conservation Track**

- Students will be able to formulate and understand the complexity of conservation plans for marine organisms and ecosystems including planning, implementation, assessment, and incorporation of outreach and stakeholder engagement.
- Students will demonstrate professionalism and build relevant conservation career skills during their internships.
- Students will submit a final, written report and deliver a final presentation based on the work completed in their internship.

### **Underwater Archaeology Track**

- Students in the MPS Underwater Archaeology track (UARCH) will learn site mapping and documentation, interpretation of shipwrecks and submerged sites, best management practices, marine protected areas, and marine survey technology to effectively apply these skills and knowledge to submerged fresh and saltwater sites.
- Students will demonstrate professionalism in all aspects of field and lab work during their internships.
- Students will submit a final, written study (between 65 – 120 pages) and deliver a final presentation based on the work completed in their internship.