M.P.S. IN MARINE GEOSCIENCES

Overview

The Master of Professional Science (M.P.S.) in Marine Geosciences (MGS) with a track in Environmental Geology (https://mps.earth.miami.edu/degree-tracks/environmental-geology/) offers students a specialized degree that combines knowledge in theoretical areas of geology with technical expertise in geochemistry, geophysics, and hydrogeology. Students in this degree program address, study, and mitigate naturally and anthropogenically derived geologic hazards and topical issues of concern to society, such as climate change and sea level rise.

Admission Requirements

Prerequisites:

- Bachelor of Science degree (B.S.) or Bachelor of Arts degree (B.A.), preferably in geology, geochemistry, or geography.

All application requirements are available here (https://mps.earth.miami.edu/apply-now/).

Curriculum Requirements

Code	Title	Credit Hours
Core Courses		
MGS 611	Earth Surface Processes	3
MGS 624	Seismic Interpretation of Carbonate Systems	3
MGS 628	Analyze and Visualize Geoscience Data	3
MGS 634	Hydrological Hazards	3
MGS 637	Environmental Site Assessment	3
MGS 638	Saltwater Intrusion in South Florida	3
Electives		**6**
The remaining courses may be selected from the following list or other courses approved by the academic advisor.		
EVR 660 & EVR 661	Introduction to Marine Geographic Information Systems and Introduction to Marine Geographic Information Systems - Laboratory	
MGS 613	Introductory Geochemistry	
MGS 614	Geophysics	
MGS 627	Analysis of Carbonate Cores and Logs	
MGS 635	Geological Hazards	
MGS 636	Using Drones in Geoscience	
MGS 639	Preparation for Professional Geologist Licensure	
MGS 750	Stable Isotopes in Biogeochemical Processes	
MGS 768	Radiogenic Isotope Geochemistry	
Internship [1]		
MGS 795	MPS Internship	2-6
Additional Requirements		
RSM 700	Research Ethics	0
Total Credit Hours		**30**

[1] Enrollment in 2 - 6 internship credits is required during a student's time in the M.P.S. degree program. Completion of fewer than 2 internship credits must be approved by the M.P.S. Program Director. Students may enroll in more than 6 internship credits with the approval of the M.P.S. Program Director. Typically, two semesters are needed to complete all aspects of the internship phase of M.P.S.

Suggested Plan of Study

Year One		
Fall		**Credit Hours**
MGS 611	Earth Surface Processes	3
MGS 628	Analyze and Visualize Geoscience Data	3
MGS 637	Environmental Site Assessment	3

Approved Elective		3
RSM 700	Research Ethics	0
	Credit Hours	**12**
Spring		
MGS 624	Seismic Interpretation of Carbonate Systems	3
MGS 634	Hydrological Hazards	3
MGS 638	Saltwater Intrusion in South Florida	3
Approved Elective		3
	Credit Hours	**12**
Summer		
MGS 795	MPS Internship [1]	2-6
	Credit Hours	**6**
	Total Credit Hours	**30**

[1] Enrollment in 2 - 6 internship credits is required during a student's time in the M.P.S. degree program. Completion of fewer than 2 internship credits must be approved by the M.P.S. Program Director. Students may enroll in more than 6 internship credits with the approval of the M.P.S. Program Director. Typically, two semesters are needed to complete all aspects of the internship phase of M.P.S.

Mission

The mission of the Environmental Geology track is to provide an education for students who want to translate their passion for the environment into a fulfilling career.

Program Goals

The goal of the Environmental Geology track is to give the students a rigorous academic grounding in environmental geology and training in field and laboratory techniques for providing sound advice for 1) responsible development of coastal and urban areas, and 2) mitigating naturally and anthropogenically derived geologic hazards at the local and national levels.

Student Learning Outcomes

The offered interdisciplinary courses aim to provide the students with an applied understanding of how to utilize geophysical, geochemical and hydrogeological techniques to evaluate, remediate, and monitor the impact or potential impact of environmental changes.

- Students will learn to integrate the geological context of a study site with the observations and analyses from hydrogeology, geochemistry and geophysics.
- Students will be able to document the composition and stratigraphy of a study site using outcrop and core information together with (near) surface geophysical techniques such as reflection seismic and ground penetrating radar techniques.
- Students will be familiarized with various aspects of hydrological and geological hazards.
- Students will learn the techniques of an environmental site assessment including geochemical and hydrological analyses and write a report for clients or government.
- Students will learn the most up-to-date geochemical techniques for assessing hazards such a groundwater contamination and spills.
- Students can elect to be prepared for the Professional Geology License in the State of Florida.
- Students will learn the skills to analyze and break down the interconnections between different types of data, both visually and analytically using different plotting and statistical methods.
- Students will learn how to acquire and process drone images for site evaluation and mapping purposes.