

UNIVERSITY OF TEXAS RIO GRANDE VALLEY
 Ocean, Coastal, and Earth Sciences (OCES)
 Program Requirements

Required Core Courses	4
EEMS 6100: Systems Science and Applications Seminar	1
EEMS 6300: Ecosystem Management & Social-Ecological Resiliency	3
 Prescribed Electives	 17
<i>**These courses are in a prescribed elective block. Students wishing to select from this block must choose a minimum of 6 hours. The remaining courses in the block may still be used as prescribed electives.</i>	
EEMS 6199: Systems Science Issues and Applications Seminar	1
EEMS 6310: Coastal and Deltaic Processes**	3
EEMS 6320: Biogeochemistry**	3
EEMS 6330: Hydrologic Systems**	3
EEMS 6340: Adaptations to Aquatic Environments**	3
EEMS 6390: Graduate Internship	3
EEMS 6391: Supervised Teaching	3
EEMS 6N85: Graduate Research	1-9
ENVR 5170: Topics in Environmental Sciences Lab	1
ENVR 5371: Conservation of Natural Resources	3
ENVR 5370: Topics in Environmental Sciences	3
GEOL 5170: Topics in Geology Lab	1
GEOL 5370: Topics in Geology	3
MARS 5170: Topics in Marine Biology/Science	1
MARS 5370: Topics in Marine Biology/Science	3
MARS 5410: Marine Plant Science	3
MARS 5426: Advanced Marine Ecology	4
MARS 5427: Coastal Ecology	4
MARS 5452: Advanced Marine Zoology	4
MARS 6302: Marine Ecosystems Dynamics	4
 Free Electives	 9
Courses from any discipline that pertain to policies and management of the environment and natural resources, may be taken with the approval of the Graduate Advisory Committee.	
 Capstone Requirement	 6
Thesis	
EEMS 7300: Thesis I	3
EEMS 7301: Thesis II	
 Total graduate hours for degree:	 36

Course Descriptions

EEMS 6100: Systems Science and Applications Seminar [1-0]
Discussion and analysis of active areas of research in the areas of Earth, Environmental, and Marine Sciences. **Prerequisite:** Graduate Standing

EEMS 6199: Systems Science Issues and Applications Seminar [1-0]
This course will include discussion of marine ecosystems and processes with a focus on the marine environment of South Texas. Not open to students with previous credit for MARS/BIOL 4426.
Prerequisite: Graduate Standing.

EEMS 6300: Ecosystem Management and Social-Ecological Resiliency [3-0]
This course seeks to provide students with an understanding of key concepts related to natural resource and ecosystem management, including socio-ecological systems, collaborative network theory, ecosystem service valuation, as well as the diversity of private stakeholders and government institutions involved in the decision making process. **Prerequisite:** Graduate Standing.

EEMS 6310: Coastal and Deltaic Processes [3-0]
This course provides a comprehensive study of the physical and geological processes controlling the morphology of coastal environments. Beach, estuarine, deltaic, lagoonal, barrier island and shelf processes and environments are examined in detail. **Prerequisite:** Graduate Standing.

EEMS 6320: Biogeochemistry [3-0]
This course provides a comprehensive study of the cycling and interactions of elements essential to life throughout the Earth system including the influence of biological, geological, and chemical processes.
Prerequisite: Graduate Standing.

EEMS 6330: Hydrologic Systems [3-0]
This course provides a comprehensive study of advanced quantitative treatment of surface water and groundwater hydrology, focusing on analysis of observed hydrologic and hydroclimatic variability, and their interpretation in terms of the underlying biological, geological, and chemical processes.
Prerequisite: Graduate Standing.

EEMS 6340: Adaptations to Aquatic Environments [3-0]
This course provides a comprehensive study of the environmental physiology and population ecology of aquatic organisms including aquatic plant and animal physiology and population responses.
Prerequisite: Graduate Standing.

EEMS 6390: Graduate Internship [3-3]
This course is an applied experience in an industrial, educational, private agency, or government facility. A maximum of 3 SCH of Graduate Internship will count toward the degree; subsequent enrollments will not count. **Prerequisite:** Graduate Standing.

EEMS 6391: Supervised Teaching [3-0]

This course is to prepare students for becoming be effective teaching assistants during their graduate careers and to prepare them for independent teaching and presentations. A maximum of 3 SCH of Supervised Teaching will count toward the degree; subsequent enrollments will not count. **Prerequisite:** Graduate Standing.

EEMS 6185, 6285, 6385, 6485, 6585, 6685, 6785, 6885, 6985: Graduate Research

Faculty supervised research designed for students who are working on a research or the thesis project. A maximum of 6 SCH of Graduate Research win count toward the degree; subsequent enrollments will not count. **Prerequisite:** Graduate Standing.

EEMS 7300: Thesis I [3-0]

This supervised research course will include design of an original research problem with a written proposal, collection and analysis of original data, and writing of a scientific report in acceptable publication format. A maximum of 3 SCH of Thesis I will count toward the degree; subsequent enrollments will not count. **Prerequisite:** Graduate Standing.

EEMS 7301: Thesis II [3-0]

This supervised research course will include design of an original research problem with a written proposal, collection and analysis of original data, and writing of a scientific report in acceptable publication format. A maximum of 3 SCH of Thesis II will count toward the degree: subsequent enrollments will not count. **Prerequisite:** Graduate Standing.

ENVR 5170: Topics in Environmental Sciences Lab [3-0]

Specialized lab content for contemporary topics in environmental sciences not available in other courses. May be repeated for credit as topics change.

ENVR 5301: Conservation of Natural Resources [3-0]

An in depth review of the distribution of natural resources, with special emphasis on new solutions to problems of resource scarcity. Topics include: energy, water, air and food resources and other selected components of the lithosphere, hydrosphere, atmosphere and biosphere. Economic, demographic, and political issues are considered as they affect natural resources.

ENVR 5370: Topics in Environmental Sciences [3-0]

Specialized lab content for contemporary topics in environmental sciences not available in other courses. May be repeated for credit as topics change.

GEOL 5170: Topics in Geology Lab [1-0]

Specialized lab content for contemporary topics in geology not available in other courses. May be repeated for credit as topics change.

GEOL 5370: Topics in Geology [3-0]

Specialized lecture content for contemporary topics in geology not available in other courses. May be repeated for credit as topics change.

MARS 5170: Topics in Marine Biology [1-0]

This course is a series of lab/field investigations in areas not available in other courses. A student may take this course up to three times for credit as the topic changes. Prerequisite: Graduate Standing.

MARS 5370: Topics in Marine Biology [3-0]

Topics will cover specialized areas of study in Marine Biology that tend to not be part of regular course offerings. Subjects may vary from semester to semester, depending on the faculty member teaching the course. A student may take this course up to three times for credit.

Prerequisite: BIOL 1406 (or BIOL 1487) and BIOL 1407 (or BIOL 1487)

MARS 5410: Marine Plant Science [4-0]

The common local marine flora including the microscopic and algal forms and aquatic angiosperms. Not open to students with previous credit for MARS/BIOL 4410. Laboratory fee. **Prerequisite:** Graduate Standing.

MARS 5426: Advanced Marine Ecology [4-0]

This course will include discussion of marine ecosystems and processes with a focus on the marine environment of South Texas. Not open to students with previous credit for MARS/BIOL 4426.

Prerequisite: BIOL 3409.

MARS 5427: Coastal Ecology [4-0]

This course examines the major nearshore habitats and communities of the western Gulf of Mexico including: beaches, sand dunes, estuaries, salt marshes, mud flats, sea grass meadows and rocky shores. Emphasis is placed on directed, field-oriented, individual research projects.

Prerequisite: Graduate standing and one course in general ecology or zoology or consent of the instructor.

MARS 5452: Advanced Marine Zoology [4-0]

Structural, physiological and ecological relationships of common marine animals, stressing invertebrates of coastal waters. Not open to students with previous credit for MARS/BIOL 4402.

Prerequisite: BIOL 3414 recommended.

MARS 6302: Marine Ecosystems Dynamics [3-0]

This course investigates the interactions between organisms and the physical processes that regulate productivity and distribution of marine life in oceanic and coastal ecosystems. **Prerequisite:** Graduate Standing.