

Environmental Science M.S.

The graduate plan in Environmental Science leads to the master of science (M.S.) degree. The plan seeks, through an interdisciplinary approach, to prepare students for opportunities in government and the private sector. Graduates of the plan may also be prepared to pursue further academic training in environmental sciences. Students must specialize in one of the following areas:

- Environmental Biology
- Environmental Chemistry
- Environmental Geology

All graduate students are required to produce a major paper and present a public seminar. Prior to enrolling in ENSC 5530, students must have a faculty adviser and an approved research topic. Following completion of ENSC 5530, the student will be advised into ENSC 6731 or ENSC 6838 or ENSC 6939.

Students pursuing the research project option may be advised to complete hours in independent study or internship in addition to ENSC 6838. Before enrolling in thesis, students must have a faculty thesis adviser and an approved research proposal.

Degree Requirements

Environmental Science Basic Requirements

Students seeking a master's degree must have course work preparation appropriate to their area of specialization. At least 34 hours of natural science and six hours of mathematics are required prior to admission. Candidates should

have a B average (GPA) 3.0 on the last 60 hours of credit. GRE scores are required by all students applying for the graduate program. Scores will be evaluated by the college's admissions committee.

Students should submit a written statement to the Science and Computer Engineering Academic Advising Office (sceadvising@uhcl.edu) specifying their educational goals and objectives as well as their intended areas of specialization, i.e., Environmental Biology, Environmental Chemistry or Environmental Geology. Applicants are also encouraged to submit letter(s) of recommendation as supporting documents. Basic requirement courses do not count toward the degree. These courses do, however, count toward the total hours required above.

The following must be completed prior to admission into the graduate plan:

- General Chemistry I and II with labs
- General Physics I and II with labs
- Calculus I

The following must be completed prior to or within the first year of study:

- Organic Chemistry I with lab
- Statistics

The master's degree requires completion of a minimum of 36 hours.

Environmental Science Thesis Option (36 hours)

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Designated electives 24 hours (maximum of six hours of 4000-level credit) and 6 hours of thesis. Select one of the following Statistics courses.

STAT 5135	Applied Statistical Methods Credit Hours: 3
EDUC 6032	Applied Statistics Credit Hours: 3
ENSC 5530	Research Methods: Environmental Science Credit Hours: 3
ENSC 6939	Master's Thesis Research Credit Hours: 3

Additional Information

- Electives are selected in consultation with the faculty adviser and must include at least one course from three of the following rubrics: BIOL, CHEM, GEOL, ENSC.
- A maximum of six hours of environmental management (ENVR) courses may be included.

Environmental Science Research Project Course Option (36 hours)

Environmental Science Research Project Course Option (36 hours)

Designated electives 27 hours (maximum 6 hours of 4000-level credit). Select one of the following Statistics courses.

STAT 5135	Applied Statistical Methods Credit Hours: 3
EDUC 6032	Applied Statistics Credit Hours: 3
ENSC 5530	Research Methods: Environmental Science Credit Hours: 3
ENSC 6838	Research Project Credit Hours: 3
ENSC 6731	Graduate Seminar Credit Hours: 3

Additional Information

- Students will be advised to take ENSC 6838 or ENSC 6731.
- Electives are selected in consultation with the faculty adviser and must include at least one course from three of the following rubrics: BIOL, CHEM, GEOL, ENSC.
- A maximum of six hours of environmental management (ENVR) courses may be included.

Environmental Science Specializations

Environmental Biology Specialization Electives:

Environmental Biology Specialization Electives:

Selected in consultation with adviser (24-27 hours). Cross discipline courses (12 hours maximum) selected from: CHEM 5431, CHEM 5535, CHEM5731, GEOL 5331, GEOL 5333, GEOL 5532, GEOL 5631, GEOL 5632, OSHE5333, ENVR 5332, ENVR 6132.

ENSC 5233	Ecotoxicology Credit Hours: 3
ENSC 5333	Fundamentals of Environmental Engineering Credit Hours: 3
ENSC 5533	Environmental Biotechnology Credit Hours: 3
BIOL 5234	Population and Community Dynamics Credit Hours: 3
BIOL 5235	Ichthyology Credit Hours: 3
BIOL 5215	Laboratory for Ichthyology Credit Hours: 1
ENSC 5332	Toxicology Credit Hours: 3
ENSC 5531	Aquatic Toxicity Testing Credit Hours: 3
BIOL 5532	Coastal and Estuarine Ecology Credit Hours: 3
BIOL 5533	Ecological Methods Credit Hours: 3
BIOL 5534	Conservation Biology
BIOL 5535	Neotropical Rainforest Ecology
BIOL 5537	Limnology and Aquatic Biology
BIOL 5931	Research Topics in Biology Credit Hours: 3
ENSC 5931	Research Topics in Environmental Science Credit Hours: 3
ENSC 5939	Independent Study in Environmental Science Credit Hours: 3

Additional Information

BIOL 5235 and BIOL 5215 are co-requisites.

Environmental Chemistry Specialization Electives:

Environmental Chemistry Specialization Electives:

Selected in consultation with adviser (24–27 hours). Cross discipline courses (12 hours maximum) selected from: ENSC 5233, ENSC 5332, BIOL 5333, CHEM 5133, CHEM 5331, ENSC 5537, ENSC 5532, ENSC 5632, OSHE 5333, ENVR 5332, ENVR 6132.

CHEM 4251	Laboratory for Environmental Analysis Credit Hours: 2
ENSC 5333	Fundamentals of Environmental Engineering Credit Hours: 3
ENSC 5431	Contaminant Fate and Transport Credit Hours: 3
ENSC 5531	Aquatic Toxicity Testing Credit Hours: 3
ENSC 5533	Environmental Biotechnology Credit Hours: 3
ENSC 5536	Environmental Remediation Credit Hours: 3
ENSC 5731	Environmental Organic Chemistry Credit Hours: 3
ENSC 5535	Sampling & Analysis of Environmental Contaminants Credit Hours: 3
ENSC 5633	Environmental Chemodynamics Credit Hours: 3
ENSC 5931	Research Topics in Environmental Science Credit Hours: 3
ENSC 5939	Independent Study in Environmental Science Credit Hours: 3

Environmental Geology Specialization Electives:

Environmental Geology Specialization Electives:

Cross-discipline courses (12 hour maximum) must be selected in consultation with faculty adviser.

GEOL 4323	Soils in the Environment Credit Hours: 3
GEOL 4356	Soil and Groundwater Remediation Credit Hours: 3
GEOL 5331	Advanced Environmental Geology Credit Hours: 3
GEOL 5233	Environmental Geochemistry Credit Hours: 3
GEOL 5931	Research Topics in Geology Credit Hours: 3
ENSC 5332	Toxicology Credit Hours: 3
ENSC 5333	Fundamentals of Environmental Engineering Credit Hours: 3
ENSC 5431	Contaminant Fate and Transport Credit Hours: 3
ENSC 5535	Sampling & Analysis of Environmental Contaminants Credit Hours: 3
ENSC 5537	Hydrology of Groundwater Credit Hours: 3
ENSC 5532	Hydrology of Surface Water Credit Hours: 3
ENSC 5632	Hazardous Materials in Geological Environment Credit Hours: 3

Environmental Science M.S. Online Option

All graduate students are required to produce a major paper and present an online public seminar. Prior to enrolling in ENSC 5530, students must have a faculty adviser and an approved research topic. Following completion of ENSC 5530, and in consultation with their faculty adviser, on-line students will enroll in ENSC 6731 or ENSC 6838 and prepare their major capstone research paper.

Degree Requirements

Environmental Science General Online Option Core Courses (9 hours)

EDUC 6032	Applied Statistics Credit Hours: 3
ENSC 5530	Research Methods: Environmental Science Credit Hours: 3
ENSC 6731	Graduate Seminar Credit Hours: 3
ENSC 6838	Research Project Credit Hours: 3

Additional Information

Students are advised to take ENSC 6838 or ENSC 6731.

Environmental Science General Online Course Electives (27 hours)

Selected in consultation with adviser. Must include at least 18 hours of ENSC courses.

BIOL 5534	Conservation Biology
ENSC 5233	Ecotoxicology Credit Hours: 3
ENSC 5332	Toxicology Credit Hours: 3
ENSC 5532	Hydrology of Surface Water Credit Hours: 3
ENSC 5535	Sampling & Analysis of Environmental Contaminants Credit Hours: 3
ENSC 5536	Environmental Remediation Credit Hours: 3
ENSC 5537	Hydrology of Groundwater Credit Hours: 3
ENSC 5333	Fundamentals of Environmental Engineering Credit Hours: 3
ENVR 5332	Environmental Law Credit Hours: 3
ENVR 6133	Environmental Risk Management Credit Hours: 3
ENSC 5631	Remote Sensing: Applications in Geology Credit Hours: 3

OSHE 5131	Control of Occupational and Environmental Hazards Credit Hours: 3
OSHE 5333	Air Pollution Credit Hours: 3

Additional Information

- Electives are selected in consultation with the faculty adviser.
- A maximum of six hours of environmental management (ENVR) courses may be included.