

Environmental Science B.S.

Recommended Advanced Electives for Environmental Science Majors

Environmental Science is a multidisciplinary field drawing from biology, chemistry, geology, and mathematics to solve problems related to environmental assessment, protection, and conservation. Environmental scientists must be trained in a broad range of scientific disciplines. Although you are welcome to construct a program that fits your educational needs, the following four concentrations (Assessment and Remediation; Ecosystems Science; Hydrology and Water Resources; and Solid Earth Resources) provide guidance as to which courses will be useful for different career trajectories.

Assessment and Remediation

This concentration focuses on the interface between society and the environment, where environmental scientists assess the potential for and prevent of environmental degradation and remediate sites where environmental contamination has occurred.

For students interested in this specialty EES 5250 Hydrogeology is recommended to fulfill the core requirement, and the following electives are recommended:

- ESCI/GEOL 4201 - Watershed hydrology
- GEOL 4355 - Economic Geology
- GEOL 4710/5710 - Geochemistry
- GEOL 5251 - Well Hydraulics
- BIOL 5868 - Ecotoxicology
- CHEM 2541 - Organic Chemistry 1
- CHEM 2542 - Organic Chemistry 1 Lab
- CHEM 2543 - Organic Chemistry 2
- CHEM 2544 - Organic Chemistry 2 Lab
- CE 3025 - Environmental Engineering
- CE 4237 - Water Quality Engineering
- CE 4246 - Environmental Remediation Technologies
- CE 5241 - Water Chemistry
- GEOG 4451 - The Geography of Soils
- GIS 3XXX-5XXX

Ecosystems Science

This concentration focuses on ecosystems and how they function and is for environmental science students interested in focusing more on ecology and ecosystem science.

For students interested in this specialty EES 4210 Watershed Hydrology is recommended to fulfill the core requirement, and the following electives are recommended:

- ESCI 4863 - Ecosystems Ecology and Biogeochemistry
- GEOL/BIOL 4839 - Coral Reef Field Studies
- BIOL 3760 - Marine Biology
- BIOL 3761 - Field Studies in Marine Biology
- BIOL 3830 - Aquatic Food Webs
- BIOL 4992 - Senior Seminar: Classic Readings in Natural History
- BIOL 5777 - Plankton Biology
- BIOL 5801 - Microbial Ecology
- BIOL 5802 - Microbial Ecology Lab
- BIOL 5805 - Fisheries Ecology
- BIOL 5807 - Mathematical Ecology
- BIOL 5808 - Landscape Ecology: Theory and Applications
- BIOL 5833 - Stream Ecology

BIOL 5861 - Lake Ecology
BIOL 5863 - Ecosystems Ecology
BIOL 5865 - Conservation Biology
BIOL 5870 - Wetland Ecology
CHEM 5150 - Organic and Stable Isotope Biogeochemistry
GIS 3XXX-5XXX

Hydrology and Water Resources

Environmental science students interested in surface or groundwater hydrology, water resources, and water quality should consider this concentration.

For students interested in this specialty both EES 4210 Watershed Hydrology and EES Hydrogeology are recommended. One will count toward their core requirement and one will count among their advanced electives. The following are also recommended to fulfill elective requirements:

GEOL 4710/5710 - Geochemistry
GEOL 5251 - Well Hydraulics
GEOL 5260 - Fluvial Geomorphology
GEOL 5601 - Introduction to Stream Restoration
GEOL 5603/CE 5203- Stream Crossing Design
BIOL 3830 - Aquatic Food Webs
BIOL 5805 - Fisheries Ecology
BIOL 5833 - Stream Ecology
BIOL 5861 - Lake Ecology
BIOL 5870 - Wetland Ecology
CE 4237 - Water Quality Engineering
CE 5201 - Water Policy
CE 5241 - Water Chemistry
GEOG 4446 - Water Processes and Management
GIS 3XXX-5XXX

Solid Earth Resources

Environmental science students interested in geology and mineral resources should consider coursework structured around a better understanding of solid earth processes.

For students interested in this specialty both EES 4210 Watershed Hydrology and EES Hydrogeology are recommended. One will count toward their core requirement and one will count among their advanced electives. The following are also recommended to fulfill elective requirements:

CE 3426 - Soil Mechanics
CE 4426 - Rock Mechanics
CE 5421 - Applied Geostatistics
GEOL 2311 - Petrology
GEOL 3420 - Sedimentology and Stratigraphy
GEOL 3800 - Principles of Geophysics
GEOL 4355 - Economic Geology
GEOL 4360 - Geologic, Geophysical, and Geochemical Methods of Exploration
GEOL 4710/5710 - Geochemistry
GEOL 4450 - Structural Geology
GEOL 4500 - Field Geology
GIS 3XXX-5XXX