

Department of Earth and Environmental Science

Environmental Science

Listed below are the requirements for the major and minor in Environmental Science along descriptions of Environmental Sciences courses. Requirements and course descriptions are taken from the 2020-2021 University of Mount Union Undergraduate Catalog. For the most up to date information and descriptions of all university courses see the latest undergraduate catalog on the University's web page.

The environmental science major at Mount Union is an interdisciplinary major that seeks to develop environmentally informed professionals and citizens who can contribute to responsible environmental management and who possess leadership, teamwork and problem-solving skills.

Requirements for the Major in Environmental Science

Required Environmental Science Courses	Semester Hours
ENV 190N Introduction to Environmental Science	4
ENV 210V Hydrology and Water Resources	4
ENV 350 Case Studies in Environmental Science	4
ENV 425 Senior Culminating Experience	4
 Choose one of the following:	
MTH 123 Statistics	4
MTH 141 Calculus I	4
 Choose two of the following:	
BIO 141N The Diversity of Life	4
CHE 120N Concepts in Chemistry	4
GEO 112N Physical Geology	4
 Choose four of the following:	
BIO 220 Ecology	4
BIO 321 Aquatic Ecology	4
ENV 280 Geographic Information Systems	4
CHE 210 Environmental Chemistry	4
CHE 212 Green Chemistry	4
GEO 301V Earth Materials	4
GEO 325 Stratigraphy and Sedimentation	4
POL 316V Environmental Politics	4
PHL 290V Environmental Ethics	4
 Choose eight additional hours selected from unused courses above or from the list below:	
BIO 230G Conservation Biology	4
BIO 260 Plant Structure and Function	4
BIO 280 Biology of Marine Organisms	4
BIO 285 Vertebrate Zoology	4
BIO 305 Microbiology	4
BIO 322 Ecotoxicology	4
CHE 214 Inorganic Chemistry I	4
CHE 220 Analytical Chemistry	4
CHE 231 Organic Chemistry I	4
CHE 232 Organic Chemistry II	4
CHE 320 Analytical Chemistry II	4
ECE 330 Environmental Engineering	4
GEO 212 Historical Geology	4
GEO 302 Igneous and Metamorphic Petrology	4
GEO 330 Structural Geology	4
 Total	 52

Students minoring in Biology, Chemistry, Geology, or Sustainability may not count more than two courses toward the Environmental Science Major.

Requirements for the Minor in Environmental Science

To minor in environmental science, a student must complete the following course work in environmental science and complete courses in one of the three depth experiences below.

Required Environmental Science Courses		Semester Hours
ENV 190N	Introduction to Environmental Science	4
ENV 210V	Hydrology and Water Resources	4
ENV 350	Case Studies in Environmental Science	4

Depth Experience

The minor in environmental science also requires the completion of at least eight hours of coursework in one depth experience area. For science majors, these eight hours must be outside of the major.

Biology Depth Experience		Semester Hours
BIO 141N	The Diversity of Life	4
At least four hours of coursework at the 200 level or higher with a BIO prefix (or ENV 280) from courses listed in the requirements for the Environmental Science Major.		4

Chemistry Depth Experience		Semester Hours
CHE 120N	Concepts in Chemistry	4
At least four hours of coursework at the 200 level or higher with a CHE prefix from courses listed in the requirements for the Environmental Science Major.		4

Geology Depth Experience		Semester Hours
GEO 112N	Physical Geology	4
At least four hours of coursework at the 200 level or higher with a GEO prefix (or ENV 280) from courses listed in the requirements for the Environmental Science Major.		4

Total		20
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Environmental Science Course Descriptions

ENV 190N Introduction to Environmental Science

This introductory-level course focuses on the scientific principles that underlie the functioning of the global environment. The course addresses problems related to human society and explores possibilities for alleviating these problems. The course will provide the student with knowledge of how the environment functions and understanding of the issues of scale, complexity and conflict resolution. The lab will include field trips, extended case studies and practice making environmental measurements. Three class hours and one three-hour lab per week. 4 Semester Hours.

ENV 199 Special Topics in Environmental Science

See All-University 199 course description.

ENV 210V Hydrology and Water Resources

A study of water properties, occurrence, distribution, and movement and their relationship with the environment within each phase of the hydrological cycle. The course also examines water quantity and quality issues, and water management policies. Prerequisite: BIO 141 or ENV 190 or GEO 112 or GEO 116 or consent of the instructor. Three class hours and one three-hour laboratory per week. Cross-listed as GEO 210V. Explorations prerequisite: Successful completion of all four Foundations courses or the WOC Portfolio. Explorations credit may only be earned for a course if this prerequisite is completed prior to the commencement of the course. 4 Semester Hours.

ENV 280 Geographical Information Systems

This course introduces the practice of GIS. It is a very hands-on course and will require extensive practice using ArcGIS to illustrate both the principles and the skills involved in geographical information systems. The class will culminate with the completion of a major project. Prerequisite: Sophomore standing or consent of instructor. 4 Semester Hours. (typically offered in alternate years, fall semester)

ENV 299 Special Topics in Environmental Science

See All-University 299 course description.

ENV 350 Case Studies in Environmental Science

This course provides exposure to modern environmental issues on a local, regional and global scale. Using case studies, students will investigate both enacted and proposed solutions to environmental problems and will be required to integrate the disciplines of biology, geology, chemistry, economics, philosophy and political science, seeking to evaluate and improve these solutions. The course will also discuss complexity, scale and conflict resolution. Prerequisite: Sophomore standing. 4 Semester Hours. (typically offered spring semester)

ENV 425 Senior Culminating Experience

A two-semester research project required of all environmental science majors. Students will develop and conduct an independent scientific research project and present the results as a written report and an oral presentation. A grade of "In Progress" will be assigned at the end of the first semester. The final grade will be entered for both semesters at the end of the second semester. Prerequisites: Permission of the instructor. 2 Semester Hours each semester for a total of 4 Semester Hours.

ENV 494 Honors Thesis/Project

See All-University course description.

ENV 499 Internships in Environmental Science

See All-University course description.