Environmental Science

Environmental Science Degrees

The Environmental Science major is intended for students preparing for environmentally related professional careers. The course work is designed to enable students to learn how the physical, chemical and biological systems interact, and to identify, analyze, communicate and solve problems. Environmental scientists work in many fields including writing, consulting, resource management, regulation, conservation and education related to environmental issues. The skills of an environmental scientist may be in demand for jobs in industry, government and research.

There are two degree options depending on whether the major in Environmental Science is combined with a minor in Biology or with a minor in Chemistry.

Environmental Science Minor - 18 hours

BI105 Intro to Environmental Science and Lab (4)

Six additional hours of Environmental Science courses (6)

Eight additional hours of Science Division courses (Prefix of BI, CH, GL, PH, SC) (8)

Many upper level Environmental Science courses have other science courses as prerequisites and these prerequisite courses may be counted toward an environmental science minor.

Environmental Science Courses

BI105 Introduction to Environmental Science. 3 hours. This introductory course is for students majoring or minoring in environmental science as well as non-majors. This study of environmental science will cover topics including the inter-relations of humans with our environment; environmental ethics; risk assessment; public policy solutions; and soil, water, air, and energy conservation. The Laboratory portion of the course focuses on the methodology of environmental science. (Fall)

BI105L Introduction to Environmental Science Lab. 1 hour. The Laboratory focuses on the methodology of environmental science which accompany BI105. (Fall)

ES202 Environmental Chemistry. 3 hours. Introduction to the principles of chemistry and physics in the environment. Topics will include air, water, and soil chemistry; environmental pollution including air, water, chemical, nuclear, noise, and energy; and waste problems. 3 lectures. Cross-listed with CH202. Prerequisites: CH111. Spring.

ES202L Environmental Chemistry Lab. 1 hour. Lab exercises that accompany ES202. Must be taken concurrently with ES202. 2 lab hours. Cross-listed with CH202L. Spring.

ES301 Ecology. 3 hours. Study of the interactions and interrelations between organisms and the environment. Topics include natural history, evolution, adaptation to the environment, population ecology, species interactions, communities, ecosystems, landscape and global ecology. 3 lectures. Prerequisite: BI101. Fall.

ES301L Ecology Lab. 1 hour. Lab exercises that accompany ES301. Must be taken concurrently with ES301. 2 lab hours. Fall.

ES306 Environmental Health & Safety. 3 hours. An introduction to industrial hygiene. An examination of safety in today's world, accident causation, consumer product safety, civil preparedness, safety reporting, measurements used to evaluate the work place and related topics. Prerequisite: ES301. Spring.

ES307 Environmental Policy. 3 hours. This course introduces students to the policy process by examining local, regional, and national approaches to natural resources policy. Topics include past and present environmental issues; U.S. environmental laws and regulations; the role of government, non-governmental organizations, industry, science and private and public interests in designing and implementing policy. 3 lectures. Prerequisite: at least 6 hours of 300 level courses in biology or environmental science. Even-numbered springs.

ES309 Introduction to Graphic Information Systems (GIS). 3 hours. Introduction to the use of GIS in environmental science and natural resource management. Students learn to use the software package ArcGIS for Desktop to view, create and analyze spatial data. Students also study how scientists use GIS in research for solving environmental problems and managing natural resources. In the final project, students will create a map t hat uses available information to better understand a relationship related to our environment.

ES311 Conservation Biology and Natural Resource Management. 3 hours. An exploration of the science of conservation biology, which is an applied field that combines the principles of ecology, population genetics, biogeography, economics, sociology, political science, philosophy and other fields to solve problems associated with conserving the world's biodiversity. The course will also investigate issues of natural resource management, including endangered species management, reserve design, and restoration ecology. Cross-listed with BI311. Prerequisite: BI 101 or instructor's permission. Spring.

ES318 Toxicology and Environmental Medicine. 3 hours. A discussion of corrosive and toxic substances that affect the environment. Topics include fundamentals of sample collection, reliability of measurements, methods of detection, chemical composition of cells, chemical processes of life, the effects of toxic substances on cells and organisms, and risk assessment. Cross-listed with BI318. Prerequisites: BI101 and CH/ES202.