

ENVIRONMENTAL GEOSCIENCE, BACHELOR OF SCIENCE (BS) - CONCENTRATION IN ENVIRONMENTAL SCIENCE

Environmental science is the integration of scientific knowledge from many disciplines in order to understand the interrelationships between human activities and the environment. Environmental science majors are exposed to the general principles of biology, chemistry, geology, geography, meteorology, and physics. Thus, it is not a focus on one of these disciplines, but involves all of them and their interaction within environmental systems.

Environmental science majors could enter several general fields:

- Industry and Consulting, monitoring and investigating the contamination of the air, land and water. Responsibilities could range from working to reduce potential environmental contamination in an industrial setting, to remediating contamination that resulted from past disposal practices.
- Local, State, or Federal Environmental Agencies, working to monitor, enforce, and develop environmental policy and regulations.
- Environmental Research, working to understand and solve environmental problems. Students would continue their education in a graduate program focusing on an area of interest to them.

The program is rich in laboratory and field experiences that support our lecture classes. Students gain important practical experience working in the field studying environmental systems and problems. In addition, students are required to complete an approved internship or research project. We train our students not only with a liberal arts education and a broad-based scientific background, but with the skills that will enable them to succeed in a competitive work force. The department encourages undergraduate student research. Opportunities abound for students to work directly with the faculty on independent research projects.

ENVS 450 or ENVS 480 must be completed during the summer after your Junior or Senior year.

Program Learning Outcomes

- **Outcome 1 (EGEO):** Each graduate shall develop general knowledge and understanding of the composition, history, and structure of the planet, and of the physical, chemical, and biological processes involved in the interactions between the geosphere, hydrosphere, atmosphere, and biosphere.
 - Each graduate will demonstrate an understanding of plate tectonic theory and be able to describe how it operates
 - Each graduate will demonstrate an understanding of the geologic time scale and the timing of major events in Earth history
 - Each graduate will demonstrate the ability to characterize and identify important rocks and minerals, and to interpret the processes by which they formed
 - Each graduate will demonstrate an understanding of the history, causes, and effects of global climate change

- Each graduate will demonstrate an understanding of evolutionary theory and its evidence in the fossil record
- Each graduate will demonstrate an understanding of the internal structure of Earth
- Each graduate will be able to explain the fundamental principles of the hydrologic cycle

Geology, Geology, and the Environment, Overall

- **Outcome 1:** Each graduate will develop strong written and oral communication skills, demonstrate the ability to work in a collaborative environment, and exhibit professional attitudes and behavior.
 - Each graduate will deliver oral presentations, demonstrating the ability to effectively communicate discipline-specific concepts
 - Each graduate will write scholarly papers using acceptable format and organization with proper citations to appropriate literature.
 - Each graduate will actively participate in collaborative projects and in academic field trips
 - Each graduate will demonstrate professionalism and integrity in his/her academic conduct
 - Each graduate shall develop the ability to respect and integrate diverse worldviews in problem-solving frameworks
- **Outcome 2:** Each graduate shall possess and apply critical thinking and problem solving skills.
 - Each graduate will demonstrate the ability to develop valid research questions and hypotheses
 - Each graduate will demonstrate the ability to apply proper techniques for data acquisition and interpretation in a problem-solving context
 - Each graduate will demonstrate the ability to solve open-ended problems using scientific methodology
 - Each graduate will develop the ability to make informed, scientifically-based decisions regarding environmental issues
- **Outcome 3:** Each graduate shall develop skills in quantitative, qualitative, technological, laboratory, and field procedures.
 - Each graduate will learn and employ accepted laboratory and field techniques, protocols, and safety procedures
 - Each graduate will learn to read, construct, and comprehend thematic maps and derive perspective output from a map
 - Each graduate will demonstrate the ability to apply knowledge, concepts and techniques from complementary disciplines to solve problems

Related Links

Environmental Geoscience - Environmental Science, BS Program Page

Professional Licensure/Certification Page (<https://www.sru.edu/students/student-consumer-information/professional-licensure/>)