ENVIRONMENTAL SCIENCE

Phone: (845) 257-3760
Location: Science Hall, Room 105
Web address: www.newpaltz.edu/envscience

Environmental Science is an interdisciplinary undergraduate program leading to a Bachelor of Science degree. The program is administered by the Department of Geology and focuses on the environmental aspects of geology, chemistry and biology. Through formal courses, laboratories, and research projects, students develop an awareness of the geological, chemical and biological processes that impact society and the environment. Both a major and a minor in Environmental Science are offered.

In the major program, a sophomore-level survey course, EGS370 Introduction to Environmental Science & Engineering, draws on the foundation courses to bring together a truly interdisciplinary view of environmental science. Students will see how the different sciences must be combined to understand and address environmental problems. Particular emphasis will be placed on the roles of chemistry, geology, and environmental engineering. In the senior year, students will engage in a full-year Senior Research Project under the supervision of a faculty mentor or an experienced regional scientist. During the spring term of the senior year, oral presentations of student research projects will be made in a Senior Seminar. This seminar will also feature guest scientists who will relate their own work in environmental science.

The EGS major program is a rigorous four-year sequence in science and mathematics, so it is essential that interested students seek advising early in their college studies. First-year students should take GLG201 Physical Geology and GLG211 Physical Geology Laboratory, CHE201 General Chemistry I and CHE211 General Chemistry I Lab, and MAT251 Calculus I in their first semester, followed by PHY201 General Physics 1 and PHY211 Physics 1 Laboratory, CHE202 General Chemistry II and CHE212 General Chemistry II Lab, and MAT252 Calculus II in their second semester.

Transfer students should complete the above first-year requirements before entering SUNY New Paltz and should additionally take one year of calculus-based physics, a course in statistics, a laboratory course in historical geology, and organic chemistry.

Students must earn a grade of C- or better in all courses required for the Environmental Science major or minor.

This information is provided as a resource for students to aid in selecting a major or degree track. Students should, however, obtain a current plan of study form and consult with an advisor before selecting a program or enrolling in coursework. Complete advising guidelines may be obtained from the Department of Geology or by consultation with the Director of the Environmental Science program, Prof. Shafiul Chowdhury (chowdhus@newpaltz.edu, (845) 257-2618).

Environmental Science (BS) Program Learning Outcomes

Students who successfully complete the Environmental Science program will be able to:

- Demonstrate mastery of the fundamental knowledge areas related to solving environmental problems: geology, chemistry and, to some extent, biology.
- Demonstrate competency in the supporting fields of physics, chemistry, biology, geography, and mathematics, particularly as related to the environmental sciences.
- Read and interpret topographic, geologic, and other maps and demonstrate map-making skills.
- Perform basic wet chemistry techniques, particularly with regard to standard and sample planning and preparation.

Successful students develop skills in the following areas:

Research

- Understand and use the scientific method to conduct research; critically evaluate scientific work.
- Observe, describe, and identify environmental problems in different land-use settings using field data collection techniques and scientific methodologies.
- Acquire information resources from scientific journals, environmental databases, internet resources, and other primary sources.
- Apply quantitative methods for problem solving, data analysis, and model formulation.
- Work independently and collaboratively on scientific problems.

Technical Skills

- Use a variety of geochemical field equipment for data collection.
- Use common geological, chemical and biological laboratory instruments and techniques.
- Perform quantitative data analysis and interpretation using computers.

Communication

- Effectively communicate technical findings and conclusions through written reports using formats and styles required for scientific writing.
- Deliver oral presentations in a professional style.
- Use maps, three-dimensional diagrams, and other imagery to communicate factual information and concepts.

Learning

- Demonstrate a regional and global understanding of the earth, including tectonic, historical, environmental, and resource management aspects and their relationship to the human experience.
- Identify and describe environmental problems in different land-use settings by applying scientific knowledge, observational techniques, the ability to synthesize, and the ability to communicate effectively.
- Engage in group field excursions involving the scientific study and aesthetic appreciation of the geo-environmental aspects of our world.

- Major in Environmental Science
- Minor in Environmental Science

Code	Title	Credits
BIO340	Ecology	4
CHE201	General Chemistry I	3
CHE202	General Chemistry II	3
CHE211	General Chemistry I Lab	1
CHE212	General Chemistry II Lab	1
CHE303	Introduction to Analytical Chemistry	4

CHE306	Organic Chemistry I Lab	1
CHE318	Organic Chemistry I	3
CHE407	Instrumental Techniques	4
EGS courses	See descriptions below	
GEO341	Introduction to Geographic Information Systems	4
GLG201	Physical Geology	3
GLG211	Physical Geology Laboratory	1
GLG339	Natural Resources and Energy	3
GLG346	Environmental Impact Assessment	3
GLG407	Hydrogeology	4
GLG475	Geology Research Project 1	3
GLG476	Geology Research Project 2	3
MAT241	Introduction to Statistics	3
MAT251	Calculus I	4
MAT252	Calculus II	4
PHY201	General Physics 1	3
PHY202	General Physics 2	3
PHY211	Physics 1 Laboratory	1
PHY212	General Physics 2 Lab	1

EGS370. Introduction to Environmental Science & Engineering. 4 Credits.

A survey course covering the broad scope of environmental science and engineering, including air pollution, water pollution, water quality control, environmental chemistry, global atmospheric change, solid waste management and resource recovery. Case studies and outside speakers. COURSE FEE.

Attributes:

- Liberal Arts

Restrictions:

- Must not be enrolled in the following class: Freshman

Prerequisites:

- CHE202 Minimum Grade of C-
- GLG201 Minimum Grade of C- or GLG 220 Minimum Grade of C-

May not be repeated for credit

EGS475. Environmental Sciences Research Project 1. 3 Credits.

Students will undertake a two semester research project, under the guidance of a faculty mentor, focusing on a detailed examination of a real world environmental problem. The project will culminate in a written document and an oral presentation in the Senior Seminar.

Attributes:

- Liberal Arts

Restrictions:

- Must have the following level: Undergraduate
- Must be enrolled in the following class: Senior
- Must be enrolled in the following field(s) of study (major, minor or concentration):
  - Environmental Geochem Science (519)
  - Environmental Science (526)
  - Geology (510)

May not be repeated for credit

EGS476. Environmental Science Research Project 2. 3 Credits.

Continuation of EGS475.

Attributes:

- Liberal Arts

Prerequisites:

- EGS475 Minimum Grade of C-

May not be repeated for credit

EGS477. Senior Seminar in Environmental Science. 1 Credit.

a series of presentations by senior students and by invited speakers. In the course, students nearing graduation present the findings of their senior project. On alternate weeks, invited professionals from the environmental sciences present relevant aspect of their work.

Attributes:

- Liberal Arts

Restrictions:

- Must have the following level: Undergraduate
- Must not be enrolled in one of the following classes: Sophomore, Freshman
- Must be enrolled in the following field(s) of study (major, minor or concentration):
  - Environmental Geochem Science (519)
  - Environmental Science (526)
  - Geology (510)

Prerequisites:

- EGS475 Minimum Grade of C-

May not be repeated for credit

Faculty

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