ENVIRONMENTAL SCIENCE

Goals

Every day we hear and read about climate change, energy, pollution, and natural resources, and how these topics might impact our lives. In each of these areas, environmental scientists are at the forefront of researching, analyzing, advocating and finding solutions to today's environmental issues. The job market for environmental scientists is expected to grow due to the increasing demand and public interest in the hazards facing the environment. According to the Bureau of Labor Statistics, the employment of environmental scientists and specialists is projected to grow 11 percent from 2014 to 2024, faster than the average for all occupations.

Niagara University's programs in environmental science will provide students with key elements from the natural sciences, along with critical research and thinking, to allow for the review of environmental issues and demands on the environment. Through the programs, students will have the opportunity to review and analyze alternative energy systems, natural resource management, pollution control and mitigation, and the effects of climate change. Working in the state-of-the-art B. Thomas Golisano Center for Integrated Sciences, students will have access to cutting edge research facilities. Additionally, they will collaborate with faculty and students on research projects, as well as hands-on laboratory experiments and field experiences.

Graduates of the program will be able to:

- Understand and perform environmental sciences.
- Communicate science effectively to the broader population.
- Understand the connectedness necessary between sound science and sound environmental policy and society.

Bachelors

- Environmental Science, B.A. (http://catalog.niagara.edu/undergraduate/programs-az/arts-sciences/environmental-studies/environmental-science-ba/)
- Environmental Science, B.S. (http://catalog.niagara.edu/undergraduate/programs-az/arts-sciences/environmental-studies/environmental-science-bs/)

Minors

- Environmental Science, Minor (http://catalog.niagara.edu/undergraduate/programs-az/arts-sciences/environmentalscience-minor/)
- Environmental Studies, Minor (http://catalog.niagara.edu/undergraduate/programs-az/arts-sciences/environmentalstudies-minor/)

Courses

ENV 103 — Environmental Biology (NS) (3 credits)
An introductory course in which the functioning of ecosystems is explored and related to environmental problems. The course stresses current topics of local and global interest with emphasis on how to obtain, understand, and interpret information pertaining to environmental issues. Cross-listed as BIO 103.

ENV 105 — Environmental Health (NS) (3 credits)
In this course, students are introduced to the basic concepts of toxicology, as they apply to understanding how environmental contaminants pose risks to human health and the environment. This course is intended for non-biology majors. Cross-listed as BIO 105.

ENV 200 — Introduction to Environmental Studies (SS) (3 credits)
This course is an introduction to the study of environmental policy and politics, focusing on the tension between human values and environmental public policy. The objectives are to: convey to students the main tenet of environmental stewardship, familiarize students with the development of the environmental movement and environmental history in the United States, and introduce students to the difficulties in developing and enforcing environmental policy with a focus on the problems facing the Niagara Frontier Region.

ENV 204 — Ecology and Lab (NS) (4 credits)
*Prerequisite BIO*121*

A course relating ecological principles to studies in the laboratory and field. Topics include population dynamics, energy flow in ecosystems, and species interactions. Cross-listed as BIO 204

ENV 221 — Evolution (NS) (3 credits)
*Prerequisite BIO*121*

Nothing in biology makes sense except in the light of evolution (Dobzhansky). This course covers the diversity of life on earth and the ongoing evolutionary processes that affect all biology from the ecosystem to the hospital. Topics include natural selection, speciation, diversity on earth, molecular processes and primate evolution. Cross listed as BIO 221.

ENV 290 — Environmental Thought (CD) (3 credits)
This course introduces students to environmental thought and what shapes peoples ideas and behaviors concerning the environment. It examines the relationship between individuals, society, and the environment using various perspectives [i.e., the humanities, religions (Eastern and Western), philosophical and cultural traditions, and different political and economic systems]. The course focuses on the interplay of personal and cultural values and how they influence attitudes toward the environment. Students are encouraged to develop a ?sense of place? that grounds them intellectually, spiritually, and physically in the geographic area in which they live.

ENV 300 — Sustainability Science (SS) (3 credits)
*Prerequisite ENV*200*

Sustainability: meeting our needs without compromising future generations. Sustainability addresses solutions in food, water, energy, climate change, health and development using an interdisciplinary approach with local, regional and global sustainability issues. Includes use of the basic analytical skills necessary for scientific treatment of sustainability with an emphasis on critical thinking.

ENV 302 — Nature Study (NS) (4 credits)
This course fosters a personal, hands-on approach to understanding the natural world. It is designed to help the student become a better observer and communicator in the field of nature study. The laboratory provides opportunities to visit nature sites, conduct field studies, and learn from accomplished naturalists and educators. The course may include a service learning component. Cross-listed as BIO 302.

ENV 304 — Field Ecology (4 credits)
A field experience course. Through hands-on learning, we study the interactions between humans and ecology and gain an appreciation of ecology in a natural setting. Extended field trip(s), (e.g. Everglades, FL and Great Lakes Shipboard Science). Instructor permission required.

ENV 312 — Conservation Ecology (NS) (3 credits)
*Prerequisite ENV*204*

The practice and theory of conservation ecology. Current and future threats to populations and ecosystems, methods of protection, and the methods used to assess conservation efforts will be covered. Case studies include restoration, extinction, and wildlife management. Students will apply conservation ecology methods to real world threatened populations. Cross-listed as BIO 312.

ENV 367 — Environmental Humanities (H) (3 credits)
Environmental humanities deconstruct how climate change and environmental issues are represented in different media and humanities content. Students will explore representations of the environment in film and television, literature, social media, music, gaming, graphic novels, news/journalism and others to understand what the environment and climate change mean to our culture.

ENV 385 — Special Topic: (NS) (1-4 credits)
This special topics course provides students with opportunities to study current topics in the biological sciences. Biology is a rapidly changing field and thus many current issues are unable to be fully addressed in traditional course offerings. This includes topics in environmental science, bioinformatics and other evolving fields. Students may repeat the course two additional times as the topic changes.

ENV 445 — Limnology (NS) (4 credits)
*Prerequisite BIO*204*

This course provides students with an introduction to the ecology of lakes and rivers, emphasizing their physical, chemical and biological function. Lecture topics include the physics and chemistry of continental waters, the major biotic communities, interactions among these communities, and interactions between humans and the aquatic environment. Laboratory exercises and field trips provide a practical introduction to the methods of aquatic sciences. Cross-listed as BIO 445.

ENV 488 — Internship Environmental Sci (NS) (3 credits)
Training and professional experience in the environment. Interns perform service training, keep a written journal, and write a personal career evaluation based on the internship experience. Department chair permission required.