ENVIRONMENTAL STUDIES

Interdisciplinary Major

Director
Anya Butt

Statement of Philosophy
Environmental studies examines the interrelationship of science, society and nature in a world with increasing population sharing earth’s limited resources, hopefully in an equitable manner. Addressing global and local environmental issues requires understanding them in context, with a firm grasp of the environmental relationships and the existing socio-economic and political structures that sustain them. Students select either the environmental science track or the environmental sustainability track and work with an advisor to plan their programs. Both tracks provide students with a strong grounding in the three legs of sustainability: an understanding of economics, politics, and the relevant scientific aspects for constructively solving the problems of our time through an interdisciplinary approach.

The Environmental Studies major is one component of Central’s commitment to becoming a leader in sustainability education, along with the Global Sustainability program. Both programs focus on addressing global issues that arise due to the scarcity of resources on our earth and efforts by humanity to balance our needs with those of future generations. Due to the commonalities in courses and focus between the Environmental Studies program and the Global Sustainability minor, students are not allowed to declare major/minors simultaneously in these programs.

Course work is enriched by supervised independent research, career-focused internships, experiential and service learning opportunities. Central’s extensive network of internship opportunities provide students with invaluable hands-on experience and students are urged to discuss internship interests and possibilities with the director early in their college careers to increase chances of placement. Strongly recommended for both tracks is at least one semester of study abroad. Also recommended for both tracks is a course in computer programming.

Major Communication Skills (both tracks)
It essential for all majors to be able to effectively speak, read, write and think critically within the context of their ES course work. For this reason, many required courses and electives include assignments and activities that evaluate students’ communication skills proficiency. Evaluation of students’ communication skills formally occurs in GENR 215 Research Strategies and ENVS 380 Environmental Studies Seminar, with the final pre-graduation evaluation occurring in ENVS 480 Environmental Studies Senior Seminar. Two requirements of these common capstone course are a major paper and an oral public presentation.

The Environmental Science Track
This track focuses on understanding and analyzing relevant interactions of chemical, physical, biological and dynamic environmental processes. Properly addressing environmental problems requires the ability to analyze complex systems and explore solutions within the socio-cultural, economic and political decision-making process. Through a focus on the science involved in environmental issues, students gain a comprehensive ability to address these issues within an applied context. Students can elect either a biological, chemical or geoscience emphasis in their major.

Career opportunities in environmental science are varied and increasing. Individuals with a chemical emphasis will have opportunities in a number of industries, including agribusiness, looking for entry level individuals with strong analytical skills for water, air, biological or soil analyses. Opportunities for those with a biological emphasis exist in areas of wetlands monitoring, restoration, and delineation; habitat restoration; monitoring the biological effects of solid waste management; reserve and park design and management; and environmental education and technical writing about environmental issues. Individuals with an emphasis in the earth sciences have opportunities in surveying and mapping environmental phenomena; monitoring water quality; addressing issues associated with resource extraction and habitat restoration following extraction; natural hazard delineation; and any of the numerous applications of Geographic Information Systems (GIS) in local and national, public and private services.

Major/Minor restrictions
Students planning to major or minor in Environmental Studies may not minor in Global Sustainability.

Environmental Studies Major/Environmental Science Track Requirements (55 credits)

1. Complete all of the following:
   - BIOL 130 Diversity of Life (4)
   - BIOL 131 Introduction to Cells (4)
   - BIOL 229 Principles of Ecology (4)
   - CHEM 131 General Chemistry (4)
   - CHEM 241 Analytical Chemistry (4)
   - ECON 112 Principles of Microeconomics (3)
   - ENVS 120 Introduction to Environmental Science (4)
   - ENVS 380 Environmental Studies Seminar (2)
ENVS 480  Environmental Studies Senior Seminar (1)
GENR 215  Research Strategies (1)
GEOG 320  Principles of GIS (3)
MATH 215  Applied Statistics (4)
POLS 242  Global Sustainability (4)

*MATH-105 may be substituted for MATH 215, but MATH 215 is the recommended statistics course for the major

2. Complete one of the following:
COMM 362  Environmental Communication (3)
ECON 321  Environmental Economics (3)
ECON 329  Economic Development (3)
POLS 233  American Environmental Politics and Politics (3)
SOC 335  Globalization, Development and Social Change (4)

3. Complete at least 10 credits from the following (with at least 6 credits of these at the 200-level or above):
BIOL 223  Vertebrate Natural History (4)
BIOL 310  Tropical Ecology (4)
BIOL 315  Aquatic Toxicology (4)
BIOL 324  Field Botany (4)
BIOL 342  Mammology (4)
BIOL 343  Ornithology (4)
BIOL 345  Limnology (4)
BIOL 350  Conservation Biology with lab (4)
BIOL 361  Microbiology (4)
CHEM 151  Inorganic Chemistry (4)
CHEM 235  Organic Chemistry I (4)
CHEM 236  Organic Chemistry II (4)
CHEM 320  Biochemistry (4)
CHEM 382  Environmental Chemistry (4) (not regularly offered)
CHEM 447  Instrumental Analysis (4)
ENVS 125  Geology and the Environment (3)
ENVS 240  Agriculture and Sustainability (3)
EXSC 215  Introduction to Angling (3)
GEOG 237  Physical Geography: Weather and Climate (4)
GEOG 238  Physical Geography: Geomorphology (4)
GEOG 420  Advanced GIS with lab (2)
PHYS 101  Introductory Physics I (4)
PHYS 102  Introductory Physics II (4)

or
PHYS 111  General Physics I (5)
PHYS 112  General Physics II (5)

PHYS 204  Energy and Environment (3) (not regularly offered)
SUST 125  Introduction to Sustainability (4)

300/400-level internship by arrangement
LAS 410 courses by approval of the program director as appropriate

Note: Study abroad courses may also apply as electives pending approval by the program director.

Recommended: COSC-110 Introduction to Computer Science.

The Environmental Sustainability Track
This track emphasizes political, economic and social/cultural aspects of the human impact on the natural environment, while still grounding students in fundamentals of the natural and earth sciences. At the base of most conflicts is the equitable allocation of resources, today and for future generations. By focusing on the socio-economic and political structures, students are able to help properly define sustainable resource use as their studies will also provide them with an understanding of the science and environmental relationships behind the socio-political debates at the global, national and local levels.

Due to their strong backgrounds in the sciences, the social sciences and GIS, environmental sustainability graduates have career opportunities in sustainability focused careers, as well as a diverse variety of positions in environmental protection and policy for government agencies at the national, state and local levels; with nongovernmental organizations and international organizations that address issues of social justice, poverty, environmental degradation, international education, rural and economic development, resource management and land use planning.

Environmental Studies Major/Environmental Sustainability Track Requirements (51 credits)
1. Complete all of the following required courses:
BIOL 130 Diversity of Life (4)
CHEM 118 Introduction to Environmental Chemistry (3)
ECON 112 Principles of Microeconomics (3)
ECON 113 Principles of Macroeconomics (3)
ENVS 120 Introduction to Environmental Science (4)
ENVS 380 Environmental Studies Seminar (2)
ENVS 480 Environmental Studies Senior Seminar (1)
GENR 215 Research Strategies (1)
GEOG 237 Physical Geography: Weather and Climate (4)
GEOG 320 Principles of GIS (3)
POLS 233 American Environmental Politics and Policy (3)
POLS 242 Global Sustainability (4)

2. Complete one of the following research methods courses:
   MATH 215 Applied Statistics (4)
POLS 250 Methods of Political Research (4)
SOC 350 Methods of Social Research (4)

3. Complete one of the following courses:
   ECON 321 Environmental Economics (3)
   ECON 329 Economic Development (3)
   SOC 335 Globalization, Development and Social Change (4)

4. Complete 9 credits of the following elective courses (with at least 6 credits of these at the 200-level or above):
   ANTH 120 Introduction to Cultural Anthropology (3)
   ANTH 260 Medical Anthropology (4)
   BEHS 285 Not-for-Profit Seminar (1)
   BEHS 397 Internship in Not-for-Profit Management (3)
   BIOL 229 Principles of Ecology (4)
   COMM 362 Environmental Communication (3)
   COMM 365 Communicating Spiritual Ecology (3)
   ENGL 213 Nature Writing and Environmental Literature (3)
   ENGL 318 Literature of Peace and Social Justice (4)
   ENGL 344 Writing for Non-Profit Organizations (4)
   ENVS 125 Geology and the Environment (3)
   ENVS 240 Agriculture and Sustainability (3)
   EXSC 215 Introduction to Angling (3)
   EXSC 261 Community, Consumer and Global Health (3)
   GEOG 110 Introduction to Geography (3)
   GEOG 210 Human Geography (3)
   GEOG 420 Advanced GIS with lab (2)
   GERM 362 Germany and the Environment (3)
   PHL 245 Environmental Ethics (3)
POLS 140 Introduction to International Politics (4)
POLS 241 International Political Economy (4)
POLS 397 State and Local Environmental Project Review Internship (3)
SUST 125 Introduction to Sustainability (4)
300/400 level internship by arrangement
LAS 410 courses by approval of the program director as appropriate
Note: Study abroad courses may also apply as electives pending approval from the program director

Recommended: COSC-110 Introduction to Computer Science.

Environmental Studies Minor Requirements (23 credits)

1. Complete all of the following:
   ENVS 120 Introduction to Environmental Science (4)
   GEOG 320 Principles of GIS (3)
POLS 233 American Environmental Policy and Policy (3)
POLS 242 Global Sustainability (4)

2. Complete at least 9 credits of additional electives with the approval of the Environmental Science director and advisor.