

ENVIRONMENTAL SCIENCE

Environmental Science is the study of people's role in our natural systems. Using an interdisciplinary approach, the Environmental Science program approaches complex environmental issues across multiple perspectives. Environmental Science students study ecology, soil and water sciences, and natural resource management as well as environmental ethics, economics, policy, and law.

About this Program

- **College:** Agricultural and Life Sciences (<http://catalog.ufl.edu/UGRD/colleges-schools/UGAGL/>)
- **School:** Natural Resources and Environment (<http://catalog.ufl.edu/UGRD/colleges-schools/UGNTR/>)
- **Degrees:** Bachelor of Arts (http://catalog.ufl.edu/UGRD/colleges-schools/UGNTR/EVS_BA_BS/EVS_BA/) | Bachelor of Science (http://catalog.ufl.edu/UGRD/colleges-schools/UGNTR/EVS_BA_BS/EVS_BS/)
- **Credits for Degree:** 120
- **More Info**

To graduate with this major, students must complete all university, college, and major requirements.

School Information

The School of Natural Resources and Environment (SNRE) offers campus-wide, interdisciplinary degree programs at both the undergraduate and graduate levels. SNRE is governed by the SNRE Advisory Board and advised by the SNRE Faculty Advisory Council. Website (<http://snre.ifas.ufl.edu/>)

CONTACT

Email (kbray@ufl.edu) | 352.392.9230

P.O. Box 116455
103 BLACK HALL

GAINESVILLE FL 32611-6455

Map (<http://campusmap.ufl.edu/#/index/0724>)

Curriculum

- Combination Degrees
- Environmental Science
- Environmental Science Minor

The environmental science degree approaches complex environmental issues with reliable knowledge and interdisciplinary perspectives, and provides the full range of knowledge relevant to complex environmental problems. This includes biological and physical sciences, ethics, economics, policy and law.

The degree prepares graduates for jobs in environmental consulting companies, government environmental offices or land and water management agencies, or non-government organizations. About one-third of environmental science students advance to graduate or professional degree programs. The combination of the school's broad undergraduate degree with a subsequent degree is highly marketable.

The school also offers a combination-degree program offering a bachelor's degree in environmental science and a Master of Science in interdisciplinary ecology.

Core Requirements for Both Degrees

Students take a core of courses, including a general course in environmental science and courses in ethics, ecology, chemistry, earth science, global science, hydrologic systems, and policy and natural resource management.

The core provides 31-32 credits of coursework in physical, biological and social sciences. The B.S. and B.A. tracks are similar. The B.S. includes one course in policy and one in organic chemistry; the B.A. includes two policy courses and no organic chemistry.

Beyond the core requirement, each student selects 21-27 additional credits from electives for the major. During the fourth year, all students take a capstone course where critical thinking skills are developed.

The freshmen and sophomore years lay a foundation of coursework for building later expertise. Students need to know the natural sciences of physics, chemistry and biology, with laboratory experience in each area. Study of microeconomics and macroeconomics are required to understand the human economy. Introductory statistics empowers students to independently evaluate sets of numbers. College algebra and an introduction to calculus enable students to work with rates of change, the heart of ecological science.

Coursework in the core of the major provides a base of common knowledge and experience in subjects essential to environmental science. Then students diverge into electives chosen according to individual interest. Senior-year students return to a common course that develops critical-thinking skills by confronting conflicts of ecological and economic paradigms, synthesizing across physical, biological and social systems, and engaging diverse knowledge and views to help resolve key environmental problems.

The preprofessional courses for the Bachelor of Science prepare students for a more science-oriented major. The requirements for the Bachelor of Arts include less chemistry, physics and mathematics, in preparation for a major that is more focused on the sociopolitical aspects of environmental science.

| Code | Title | Credits |
|--|--|---------|
| Required Foundation Course | | |
| EVS 3000 & 3000L | Environmental Science and Environmental Science Laboratory | 4 |
| Environmental Ethics | | |
| Select one: | | 3 |
| AEB 4126 | Agricultural and Natural Resource Ethics (Gen Ed Humanities or Social and Behavioral Sciences) | |
| PHM 3032 | Ethics and Ecology (Gen Ed Humanities) | |
| POT 3503 | Environmental Ethics and Politics | |
| REL 2104 | Environmental Ethics (Gen Ed Humanities) | |
| REL 3492 | Religion Ethics and Nature (Gen Ed Humanities) | |
| Ecology | | |
| Select one: | | 3-4 |
| ALS 3153 | Agricultural Ecology | |
| FOR 3153C | Forest Ecology (Gen Ed Biological Sciences) | |
| PCB 3601C | Plant Ecology | |
| PCB 4043C | General Ecology (Gen Ed Biological Sciences) | |
| Organic Chemistry | | |
| Select one for the B.S.; B.A. select none: | | 0-4 |
| BCH 3023 | Elementary Organic and Biological Chemistry | |
| CHM 2200 | Fundamentals of Organic Chemistry | |

| | |
|----------|---------------------------------------|
| EES 4203 | Phase Partitioning in the Environment |
| CHM 2210 | Organic Chemistry 1 |

Earth and Soil Science

Select one: 3-4

| | |
|------------------|---|
| GEO 2200 & 2200L | Physical Geography and Physical Geography Laboratory (Gen Ed Physical Sciences) |
| GLY 2010C | Physical Geology (Gen Ed Physical Sciences, B.S. only) |
| GLY 2030C | Environmental and Engineering Geology (Gen Ed Physical Sciences) |
| GLY 2100C | Historical Geology (Gen Ed Physical Sciences; B.S. only) |
| SWS 3022 & 3022L | Introduction to Soils in the Environment and Introduction to Soils in the Environment Laboratory (Gen Ed Physical Sciences) |
| SWS 4231C | Soil, Water and Land Use (Gen Ed Physical Sciences) ¹ |

Global Systems

Select one: 3

| | |
|----------|--|
| GEO 2242 | Extreme Weather |
| GEO 3250 | Climatology (Gen Ed Physical Sciences) |
| GLY 3074 | Oceans and Global Climate Change |
| OCE 1001 | Introduction to Oceanography |

Hydrologic Systems

Select one: 3-4

| | |
|-----------|---|
| AOM 4643 | Environmental Hydrology: Principles and Issues |
| FNR 4343C | Forest Water Resources |
| GEO 3280 | Principles of Geographic Hydrology (Gen Ed Physical Sciences) |
| GLY 3882C | Hydrogeology and Human Affairs |
| SWS 4244 | Wetlands |
| SWS 4245 | Water Resource Sustainability |

Environmental Policy

Select one for the B.S.; B.A. select two: 3-6

| | |
|----------|--|
| AEB 4123 | Agricultural and Natural Resource Law |
| AEB 4283 | International Development Policy (Gen Ed Social and Behavioral Sciences) |
| FNR 4660 | Natural Resource Policy and Economics |
| INR 3034 | Politics of the World Economy |
| INR 3502 | International Institutions (Gen Ed Social and Behavioral Sciences and International) |

Natural Resource Management

Select one: 3

| | |
|-----------|---|
| AGG 3501 | Environment, Food and Society |
| ALS 3133 | Agricultural and Environmental Quality |
| EES 3008 | Energy and Environment (Gen Ed Physical Sciences; B.A. only) |
| FAS 4305C | Introduction to Fishery Science |
| FOR 3004 | Forests, Conservation and People |
| FOR 3200C | Foundations of Natural Resources and Conservation |
| FOR 4621 | Forest Economics and Management (Gen Ed Physical Sciences) |
| LEI 3546 | Park Management |
| PLS 3004C | Principles of Plant Science |
| SWS 4231C | Soil, Water and Land Use (Gen Ed Physical Sciences) ¹ |
| SWS 4932 | Special Topics in Soil and Water Science (Forest and Soil Ecosystem Services) |

Required Capstone Course

| | | |
|----------|--|---|
| EVS 4021 | Critical Thinking in Environmental Science | 3 |
|----------|--|---|

Total Credits 28-38

¹ If taken from one group, this course does not satisfy the requirement for a course from the other group.

Preprofessional Requirements for Both Degrees

Each student must fulfill preprofessional requirements that differ slightly for the B.S. and B.A. degrees. These consist of courses in chemistry, physics, biology, calculus, statistics and economics, totaling 39-46 (typically 43) credits for the B.S. and 31-39 (typically 34) credits for the B.A.

In addition to the preprofessional requirements, all students are responsible for completing the university's general education and the writing requirement.

Certain preprofessional requirements simultaneously satisfy 18-21 credits (depending on courses selected) of the general education mathematics, physics, biology, and social and behavioral science. Remaining general education requirements include 15-18 credits (depending on preprofessional courses taken) in composition, humanities and social and behavioral sciences.

The 12 credits of writing requirements include 3-12 credits taken for general education and preprofessional requirements, depending on selections. The six credits of math requirements are satisfied by preprofessional requirements.

For efficiency, freshmen should seek to maximize overlap of preprofessional requirements with general education and the writing requirement, as outlined below:

- Science preprofessional requirements satisfy up to 12 credits of physical and biological sciences (the basic nine-credit requirement plus the variable three credits from a category). Students should allocate the variable three credits to physical and biological sciences to reduce the humanities requirement from nine to six credits.
- Economics preprofessional requirements satisfy up to eight of the nine-credit social and behavioral sciences requirement (eight if satisfied with ECO 2013 and ECO 2023; four if satisfied with AEB 3103).
- Policy preprofessional requirement (POS 2041) for B.A. students satisfies the remaining social and behavioral sciences requirement. B.S. students can satisfy the remaining social and behavioral sciences requirement with certain core courses, under ethics (AEB 4126) and policy.
- Satisfying the preceding requirements leaves 18 credits: six for humanities, three for composition and nine for writing.
- Students should take humanities, composition and writing courses that also satisfy the three-credit international studies requirement, such as LIT 2110 or LIT 2120, and the three-credit diversity requirement with a REL 2388 or WST 2611 overlap.

Academic Learning Compact

Environmental science is the science of humanity's role in natural systems, the basis of our economy. This program accesses courses university-wide and provides numerous opportunities for international study. Students will acquire reliable knowledge and interdisciplinary perspectives of complex environmental issues, gaining the full range

of knowledge relevant to a professional understanding of complex environmental problems in the biological and physical sciences, ethics, economics, policy and law.

Before Graduating Students Must

- Complete at least one course in each of the foundation areas.
- Complete requirements for the baccalaureate degree, as determined by faculty.

Students in the Major Will Learn to

Student Learning Outcomes (SLOs)

Content

1. Acquire knowledge and demonstrate understanding of basic terminology, concepts, methodologies and theories in the physical and biological sciences that describe environmental systems.
2. Acquire knowledge of essential concepts in the social sciences that describe human activity in the environment.

Critical Thinking

3. Apply the scientific method to develop reasoned solutions to environmental problems.

Communication

4. Communicate knowledge, ideas and reasoning clearly, effectively and objectively in both written and oral forms.

Curriculum Map

I = Introduced; R = Reinforced; A = Assessed

| Courses | SLO 1 | SLO 2 | SLO 3 | SLO 4 |
|-----------------------------------|-------|-------|-------|-------|
| EVS 3000 and I EVS 3000L | | I | I | I |
| EVS 4021 | A | A | A | A |
| Earth and Soil R Sciences | | | | |
| Ecology | R | R | R | |
| Environmental Ethics | | R | R | R |
| Environmental Policy | | R | R | R |
| Global Systems | R | | | |
| Hydrologic Systems | R | | | |
| Human Dimensions | | R | R | R |
| Natural Resource Management | R | R | R | |

Assessment Types

- Oral presentation or written essay