ENVIRONMENTAL SCIENCE

Environmental science is the science of people's role in natural systems, the basis of our economy. This program accesses courses university-wide and provides numerous opportunities for international study.

About this Program

- **College:** Agricultural and Life Sciences
- **School:** Natural Resources and Environment
- **Degrees:** Bachelor of Arts | Bachelor of Science
- **Credits for Degree:** 120
- **Additional Information**
- **Related Environmental Science Programs**

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

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 combined-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 of the following:		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 2166	Religion and the Environmental Crisis	
REL 3492	Religion Ethics and Nature (Gen Ed Humanities)	
Ecology		
Select one of the following:		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 of the following 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 of the following:		3-4
GEO 2200 & 2200L	Physical Geography and Physical Geography Laboratory (Gen Ed Physical Sciences)	
GLY 1000	Exploring the Geological Sciences (Gen Ed Physical Sciences; B.A. only)	
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 of the following:		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 of the following:		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 of the following for the B.S.; B.A. select two:		3-6
AEB 4123	Agricultural and Natural Resource Law	
AEB 3450	Introduction to Natural Resource and Environmental Economics	
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)	
PUP 4224	Florida Environmental Politics	
Natural Resource Management		
Select one of the following:		3
AGG 3501	Environment, Food and Society	
ALS 3133	Agricultural and Environmental Quality	
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.

Related Environmental Science Programs

- Combined Degree
- Environmental Science minor

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 EVS 3000L	I	I	I	I
EVS 4021	A	A	A	A
Earth and Soil Sciences	R			
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