ENVIRONMENTAL MANAGEMENT IN AGRICULTURE AND NATURAL RESOURCES | INTERDISCIPLINARY STUDIES

Using an interdisciplinary approach, students in this major develop the scientific and technical foundation needed to integrate and communicate the diverse environmental issues associated with urban, agricultural, and natural ecosystems. Environmental Management students study hydrology, soil science, pest management, water resources, ecology, and natural resource policy.

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/)
- **Degree:** Bachelor of Science
- **Credits for Degree:** 120
- **More Info**

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

Department Information

The Soil, Water, and Ecosystem Sciences Department researches and teaches about soil, water, and environmental sciences in urban, agricultural, and natural ecosystems. Since its origins over 100 years ago, the department has made significant contributions to improving the productivity of Florida's agriculture, helping protect the state's unique ecosystems, and contributing to soil and water science at national and international levels.
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Map (http://campusmap.ufl.edu/#/index/0495)

Curriculum

- Combination Degrees
- Environmental Management in Agriculture and Natural Resources | Interdisciplinary Studies
- Interdisciplinary Studies | Environmental Management in Agriculture and Natural Resources UF Online
- Soil, Water, and Ecosystem Sciences
- Soil, Water, and Ecosystem Sciences Minor

This major is for students who desire education in environmental management with substantial emphasis on agriculture and natural resources.

Graduates will find employment with agricultural producers, consulting companies and government agencies that are involved in maintaining a sustainable environment.

Critical Tracking

Critical Tracking records each student's progress in courses that are required for progress toward each major. Please note the critical-tracking requirements below on a per-semester basis.

Equivalent critical-tracking courses as determined by the State of Florida Common Course Prerequisites (https://cpm.flvc.org/advance-search/) may be used for transfer students.

Semester 1

- Complete 1 of 6 critical-tracking courses, excluding labs: AEC 3030C or SPC 2608, BSC 2005/BSC 2005L or BSC 2010/BSC 2010L, CHM 2045/CHM 2045L, CHM 2046/CHM 2046L, MAC 2233, STA 2023
- 2.0 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 2

- Complete 2 additional critical-tracking courses, excluding labs
- 2.0 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 3

- Complete 2 additional critical-tracking courses, excluding labs
- 2.0 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 4

- Complete 1 additional critical-tracking course, excluding labs
- 2.0 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 5

- Complete all critical-tracking courses, including labs from semesters 1 – 4
- Complete 1 additional tracking course
- 2.0 GPA required for all critical-tracking courses
- 2.0 upper division GPA required
- 2.0 UF GPA required

Semester 6

- Complete 1 additional tracking course
- 2.0 upper division GPA required
- 2.0 UF GPA required

Semester 7

- Complete 2 additional tracking courses
- 2.0 upper division GPA required.
- 2.0 UF GPA required

Semester 8

- Complete all remaining tracking course from semester 5 - 8
- 2.0 upper division GPA required.
- 2.0 UF GPA required

Model Semester Plan

To remain on track, students must complete the appropriate critical-tracking courses, which appear in bold. These courses must be completed by the terms as listed above in the Critical Tracking criteria.

This semester plan represents an example progression through the major. Actual courses and course order may be different depending on the student's academic record and scheduling availability of courses. Prerequisites still apply.

Course	Title	Credits
Semester One		
MAC 2233	Survey of Calculus 1 (**Critical Tracking**; State Core Gen Ed Mathematics)	3
State Core Gen Ed Composition (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext); Writing Requirement		3
State Core Gen Ed Humanities (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext)		3
State Core Gen Ed Social and Behavioral Sciences (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext)		3
Elective		3
	Credits	**15**

Semester Two		
Quest 1 (Gen Ed Humanities)		3
Select one:		3-4
AEB 2014	Economic Issues, Food and You (Gen Ed Social and Behavioral Sciences)	
ECO 2013	Principles of Macroeconomics (Gen Ed Social and Behavioral Sciences)	
ECO 2023	Principles of Microeconomics (Gen Ed Social and Behavioral Sciences)	
Select one:		4
BSC 2005 & 2005L	Biological Sciences and Laboratory in Biological Sciences (**Critical Tracking**; Gen Ed Biological Sciences)	
BSC 2010 & 2010L	Integrated Principles of Biology 1 and Integrated Principles of Biology Laboratory 1 (**Critical Tracking**; Gen Ed Biological Sciences)	
STA 2023	Introduction to Statistics 1 (**Critical Tracking**; Gen Ed Mathematics)	3
Gen Ed Composition (Writing Requirement)		3
	Credits	**16-17**
Semester Three		
Quest 2 (Gen Ed Social and Behavioral Sciences)		3
Select one:		3
AEC 3030C	Effective Oral Communication (**Critical Tracking**)	
SPC 2608	Introduction to Public Speaking (**Critical Tracking**)	
CHM 2045 & 2045L	General Chemistry 1 and General Chemistry 1 Laboratory (**Critical Tracking**; State Core Gen Ed Biological or Physical Sciences)	4
GLY 2030C	Environmental and Engineering Geology (Gen Ed Physical Sciences)	3
Gen Ed Humanities		3
	Credits	**16**
Semester Four		
ALS 3133	Agricultural and Environmental Quality (Gen Ed Physical Sciences)	3
CHM 2046 & 2046L	General Chemistry 2 and General Chemistry 2 Laboratory (**Critical Tracking**; Gen Ed Physical Sciences)	4
Select one:		3
PHY 2020	Introduction to Principles of Physics (Gen Ed Physical Sciences)	
PHY 2004	Applied Physics 1 (Gen Ed Physical Sciences)	
SWS 2007	The World of Water	
Elective		3
	Credits	**13**
Semester Five		
Select one:		3
ALS 3153	Agricultural Ecology	
SWS 4303C	Soil Microbial Ecology	
WIS 3404	Natural Resource Ecology	
SWS 3022	Introduction to Soils in the Environment (**Critical Tracking**; Gen Ed Physical Sciences)	3
SWS 4244	Wetlands	3
Approved elective		3
	Credits	**12**
Semester Six		
AEB 3133 or MAN 3025	Principles of Agribusiness Management or Principles of Management	3-4
AEC 3033C	Research and Business Writing in Agricultural and Life Sciences (Writing Requirement)	3
Select one:		3
ENY 3005 & 3005L	Principles of Entomology and Principles of Entomology Laboratory (**Critical Tracking**)	
IPM 3022	Fundamentals of Pest Management (**Critical Tracking**)	
Approved elective		3
Elective		3
	Credits	**15-16**
Summer After Semester Six		
Select one:		3
SWS 4900	Supervised Extension Experience in Soil and Water Sciences	
SWS 4905	Individual Work	
SWS 4911	Supervised Research in Soil and Water Science	

SWS 4915	Honors Thesis Research in Soil and Water Science	
SWS 4941	Full-time Practical Work Experience in Soil and Water Science	
Approved elective		3
	Credits	**6**
Semester Seven		
AOM 4643	Environmental Hydrology: Principles and Issues	3
FNR 4660	Natural Resource Policy and Economics (**Critical Tracking**)	3
SWS 4720C	GIS in Soil and Water Science (**Critical Tracking**)	3
Approved elective		3
Elective		3
	Credits	**15**
Semester Eight		
SWS 4116	Environmental Nutrient Management	3
SWS 4223	Environmental Biogeochemistry (**Critical Tracking**)	3
Approved electives		6
	Credits	**12**
	Total Credits	**120**

Approved Electives

Other electives require advisor approval

Code	Title	Credits
AGG 4502	Nanotechnology in Food, Agriculture, and Environment	3
AEB 2014	Economic Issues, Food and You	3
AEB 3671	Comparative World Agriculture	3
ALS 4162	Consequences of Biological Invasions	3
BUL 4310	The Legal Environment of Business	4
ECO 2013	Principles of Macroeconomics	4
ECO 2023	Principles of Microeconomics	4
ENT 3003	Principles of Entrepreneurship	4
ENY 3007C	Life Science	3
GEB 3373	International Business	4
MAR 3023	Principles of Marketing	4
SWS 2007	The World of Water	3
SWS 4180	Earth System Analysis	3
SWS 4204	Urban Soil and Water Systems	3
SWS 4207	Sustainable Agricultural and Urban Land Management	3
SWS 4233	Soil and Water Conservation	3
SWS 4800	Environmental Soil and Water Monitoring Techniques	3
SWS 4932	Special Topics in Soil and Water Science (Math for Environmental Professionals)	2
SWS 4932	Special Topics in Soil and Water Science (Wetlands Seminar)	1
WIS 3404	Natural Resource Ecology	3

Academic Learning Compact

The interdisciplinary major in environmental management in agriculture provides students with the scientific and technical foundation to integrate and communicate the diverse environmental issues associated with agriculture and natural resources. Students will be able to deal in an informed manner with the agricultural regulations and permitting requirements established by various agencies and jurisdictions, and students will achieve an appreciation for the complexities of agricultural practices. Students will learn to integrate, balance and communicate the mix of agricultural and environmental issues that need to be addressed in modern society.

Before Graduating Students Must

- Complete an approved senior-year research project, SWS 4905, related to management and science skills.
- Achieve minimum grades of C in AEC 3030C and AEC 3033C. These courses are graded using rubrics developed by a faculty committee.
- Complete requirements for the baccalaureate degree, as determined by faculty.

Students in the Major Will Learn to

Student Learning Outcomes | SLOs

Content

1. Appraise similarities between agronomic production and environmental protection issues.
2. Describe the processes in the carbon, nitrogen, phosphorus, and sulfur cycles, and relate these processes to global patterns of productivity, pollution, and consequences of environmental change.

Critical Thinking

3. Critically evaluate natural resource policies using basic economic tools, identify factors that influence the success of resource policy implementation, and apply ecological, social and political criteria.
4. Develop a plan for the analysis of an environmental/agricultural study using geographic information systems software.
5. Compare the effects of different fertility sources on nutrient cycling, interpret soil tests and quantify crop nutrient requirements, and fertilizer application rates.

Communication

6. Create, interpret, and analyze written text, oral messages, and multimedia presentations used in agricultural and life sciences.

Curriculum Map

I = Introduced; R = Reinforced; A = Assessed

Courses	SLO 1	SLO 2	SLO 3	SLO 4	SLO 5	SLO 6
AEB 3133			R			
AEC 3030C						I, R, A
AEC 3033C						I, R, A
ALS 3133	I, A	I	I		I	
AOM 4643		R	R	I		
FNR 4660			R, A			R
SWS 3022		I			I	
SWS 4116	R	R			R, A	R
SWS 4223	R	R, A				R
SWS 4244	R	R	R			
SWS 4720C				R, A		R

Assessment Types

- Average of tests in ALS 3133
- Average of problem set and test scores in SWS 4223
- Average test scores in FNR 4660
- Project presentation in SWS 4720C
- Test and problem set scores from SWS 4116
- Course grades in AEC 3033C and AEC 3030C