

B.S. IN ECOSYSTEM SCIENCE AND POLICY

Overview

The B.S. degree in Ecosystem Science and Policy is recommended for students intending to attend graduate or professional schools in pursuit of research or academic careers (including secondary or higher education). It is also suitable for those preparing for technical careers in government and private industries concerned with the environment. Students pursuing the B.S. may choose to have the major fulfill either the STEM or People & Society cognate; they will need to complete the other cognate plus the Arts & Humanities cognate. Students with a second major in another school or college should consult their advisors regarding requirements for that major and school or college. Any course used to fulfill one ECS requirement cannot be used to fulfill another; however, courses other than the ECS core can be used to fulfill requirements for a cognate, minor, or second major.

Students whose primary college is Arts & Sciences are required to complete four courses designated as "Writing Intensive" (also known as "W") courses. Those seeking a B.S. degree in ECS must complete at least two, but as many as four, ECS courses designated as "W". These include ECS 113, ECS 301, ECS 302, ECS 402, and ECS 403. Up to two "W" courses may be selected from other departments. Students whose primary degree is in another school or college should follow its writing requirements.

Curriculum Requirements

Code	Title	Credit Hours
ECS Core Courses		
ECS 111	Introduction to the Earth's Ecosystem	3
ECS 112	Field Problems in Ecosystem Science and Policy	2
ECS 113	Introduction to Environmental Policy	3
ECS 201 or ECS 202	Seminar Series in Contemporary Environmental Issues I Seminar Series in Contemporary Environmental Issues II	1
ECS 232 or BIL 330	Ecological Principles and Environmental Applications Ecology	3
ECS 301	Tools for Environmental Decision-Making: The Quantitative Perspective	3
ECS 302	Perspectives on Environmental Decision Making	3
ECS 401 or ECS 402	Internship Thesis	3
ECS 403	Interdisciplinary Approaches	3
ECS electives at the 300 level or higher		6
In addition, students must take the following courses, which may fulfill cognate or second major requirements:		
Science Core Courses		
A science course at the 110 level or above with lab (BIL, GSC, MSC, PHY)		4
CAE 240 or CAE 340	Environmental Pollution Introduction to Environmental Engineering	3
CHM 121 & CHM 113	Principles of Chemistry and Chemistry Laboratory I	5
Complete a STEM minor		12-18
Mathematics Courses		
Select one of the following:		8-9
MTH 151 & MTH 162	Calculus I for Engineers and Calculus II	
MTH 161 & MTH 162	Calculus I and Calculus II	
MTH 171 & MTH 172	Calculus I and Calculus II	
Select one of the following Statistics courses:		3
ECS 204	Environmental Statistics	
MSC 204	Environmental Statistics	
MTH 224	Introduction to Probability and Statistics	
PSY 292	Introduction to Biobehavioral Statistics for Non-Majors	
Social Science Core Courses		

Select one of the following Economics/Political Science courses for BS:	3
ECS 377	Topics in Environmental Economics and Development
ECO 211	Principles of Microeconomics
ECO 212	Principles of Macroeconomics
INS 102	Global Economics
INS 421	Poverty and the Environment
MSC 345	Economics of Natural Resources and the Environment
POL 201	Introduction to American National Government
POL 202	Introduction to Comparative Politics
POL 203	Introduction to International Relations
Choose one social science skills course	3
GEG 310	Geographic Information Systems I (Choose one social science skills course)
GEG 321	Remote Sensing of the Environment
Additional Required Courses	
ENG 105	English Composition I
ENG 106	English Composition II
Arts and Humanities Cognate	9
Language Courses	9
Electives/Additional minor	25
Total Credit Hours	120

Suggested Plan of Study - with STEM Minor

Year One		Credit Hours
Fall		
ECS 111	Introduction to the Earth's Ecosystem	3
ENG 105	English Composition I	3
MTH 161	Calculus I	4
Elective or STEM minor course		3
Language course #1		3
Credit Hours		16
Spring		
ECS 112	Field Problems in Ecosystem Science and Policy	2
ECS 113	Introduction to Environmental Policy	3
ENG 106	English Composition II	3
MTH 162	Calculus II	4
Elective or STEM minor course		3
Credit Hours		15
Year Two		
Fall		
ECS 201	Seminar Series in Contemporary Environmental Issues I	1
ECS 232	Ecological Principles and Environmental Applications	3
CHM 121	Principles of Chemistry	4
CHM 113	Chemistry Laboratory I	1
Elective or STEM minor course		3
Language course #2		3
Credit Hours		15
Spring		
CAE 240	Environmental Pollution	3
Elective or STEM minor course		3
ECO or POL Course		3
ECS 204	Environmental Statistics	3

Language course #3		3
Credit Hours		15
Year Three		
Fall		
ECS 302	Perspectives on Environmental Decision Making	3
GEG 310	Geographic Information Systems I	3
ECO or POL course		3
Language Course #3		3
Elective or 2nd minor		3
Credit Hours		15
Spring		
ECS 301	Tools for Environmental Decision-Making: The Quantitative Perspective	3
Elective or STEM minor course		3
ECS elective 300-level		3
Arts and Humanities Cognate #1		3
Elective or 2nd minor		3
Credit Hours		15
Year Four		
Fall		
ECS 401	Internship	3
ECS Elective 300 level or higher		3
Arts and Humanities Cognate #2		3
Elective or 2nd minor		3
Elective or 2nd minor		3
Credit Hours		15
Spring		
ECS 403	Interdisciplinary Approaches	3
Arts and Humanities Cognate #3		3
Science course + lab		4
Elective or 2nd minor		3
Elective or 2nd minor		3
Credit Hours		16
Total Credit Hours		122

Suggested Plan of Study - with Second STEM Major

Year One		
Fall		Credit Hours
ECS 111	Introduction to the Earth's Ecosystem	3
ENG 105	English Composition I	3
Second major course + lab		4
MTH 161	Calculus I	4
Credit Hours		14
Spring		
ECS 112	Field Problems in Ecosystem Science and Policy	2
ECS 113	Introduction to Environmental Policy	3
ENG 106	English Composition II	3
MTH 162	Calculus II	4
Second Major Course + Lab		4
Credit Hours		16
Year Two		
Fall		
ECS 201	Seminar Series in Contemporary Environmental Issues I	1

ECS 232	Ecological Principles and Environmental Applications	3
Second Major Course + Lab		4
CHM 121	Principles of Chemistry	4
CHM 113	Chemistry Laboratory I	1
Language course #1		3
Credit Hours		16
Spring		
CAE 240	Environmental Pollution	3
ECS 204	Environmental Statistics	3
Language course #2		3
Second Major Course		3
ECO or POL course		3
Credit Hours		15
Year Three		
Fall		
ECS 302	Perspectives on Environmental Decision Making	3
GEG 310	Geographic Information Systems I	3
Second Major Course + Lab		4
Language Course #3		3
Credit Hours		13
Spring		
ECS 301	Tools for Environmental Decision-Making: The Quantitative Perspective	3
Second Major Course		3
ECS Elective 300 level or higher		3
Arts and Humanities Cognate #1		3
Elective		3
Credit Hours		15
Year Four		
Fall		
ECS 401	Internship	3
Second Major Course + Lab		4
Second Major Course		3
Arts and Humanities Cognate #2		3
Elective		3
Credit Hours		16
Spring		
ECS 403	Interdisciplinary Approaches	3
Second Major Course		3
Second Major Course		3
ECS Elective 300 level or higher		3
Arts & Humanities cognate #3		3
Credit Hours		15
Total Credit Hours		120

Mission

The mission of the Ecosystem Science and Policy (ECS) program is to educate the next generation of environmental leaders. Future leaders need to find ways to meet human demands, while protecting and restoring the natural environment that sustains us. As science increasingly demonstrates the complex interconnectedness of all the elements of natural systems, environmental decisions must take into account potential ecosystem-wide effects to be truly effective. Environmental scientists and nonscientist policy-makers, managers, and planners must communicate with each other in new and better ways as development and environmental policy decisions are made. The program offers two degrees, a Bachelor of Science and a Bachelor of Arts.

Goals

The Bachelor of Science degree prepares students with knowledge in a broad background of environmental issues from a variety of perspectives, along with in-depth education in an additional field. Students earning a Bachelor of Science degree in ECS are also required to complete a minor in a STEM field (e.g., ATM, BIL, BPH, CHM, GSC, PHY or other approved department). Joint programs with engineering are also available.

Student Learning Outcomes

- Scientific Knowledge: Students will demonstrate a comprehensive understanding of ecosystem science.
- Policy Knowledge: Students will demonstrate an ability to evaluate the role of science and technology in society and demonstrate understanding of factors involved in the formulation and implementation of environmental policy.
- Communication Skills: Students will demonstrate communication skills to convey information, orally and in writing, to both scientific and lay audiences.