

# Bachelor of Science in Environmental Science

The Bachelor of Science in Environmental Science provides scientific coursework in both the natural and social sciences, while focusing on the complex relationship among science and public policy. This online bachelor's degree offers a fundamental understanding of environmental policy and analysis, and environment management issues such as stewardship of natural resources, pollution management, fish, and wildlife management, and hazardous materials. This degree program helps prepare you for a career as an Environmental Protection Agency (EPA) inspector, environmental engineer, civil engineer, or urban or regional planner. In addition to the core scientific studies, this bachelor's degree helps to improve your critical thinking, analytical skills and communication skills that are valuable assets in all industries.

Courses in this online degree are taught by expert practitioners. Many are leaders in the field and hold positions at the U.S. Fish and Wildlife Service, Environmental Protection Agency, Bureau of Land Management, the Nature Conservancy, and other prominent government and nongovernment organizations.

## Degree Program Objectives

In addition to the institutional and degree level learning objectives, graduates of this program are expected to achieve these learning outcomes:

- Assess the political, legal, economic, and social dynamics associated with the environment and management of the environment.
- Examine environmental compliance in terms of moral, political, and economic factors.
- Analyze environmental issues within their economic, historical, and theoretical context.
- Assess an environmental perspective that includes alternative approaches to economic development and incorporates a code of responsibility.
- Evaluate the consequences of ecological disasters on public health, productivity, and social and economic welfare.
- Explain the social, environmental, and economic barriers to the implementation of sustainable environmental practices and programs.

## Degree at a Glance

Code	Title	Semester Hours
	General Education Requirements	30
	Major Required	29
	Select one of the following concentrations:	12
	General Concentration (p. 3)	
	Environmental Technology and Management (p. 3)	
	Fish and Wildlife Management (p. 3)	
	Regional and Community Environmental Planning (p. 4)	
	Sustainability (p. 4)	
	Final Program Requirements	3
	Elective Requirements	46
	<b>Total Semester Hours</b>	<b>120</b>

## Degree Program Requirements

### General Education Requirements (30 semester hours)

Code	Title	Semester Hours
<b>Arts and Humanities (6 semester hours)<sup>1</sup></b>		
	Select 2 courses from the following:	6
ARAB100	Arabic I	
ARAB101	Arabic II	
ARTH200	Art Appreciation	
ARTH241	Film and Literature	
DSIN141	Image Enhancement using Adobe Photoshop	
FREN100	French I	
FREN101	French II	
GERM100	German I	
GERM101	German II	
JAPN100	Introduction to Japanese	
LITR215	Literature of American Encounters, Revolution, and Rebellion	
LITR218	From Abolition to #MeToo: Literature of the American Civil Rights Movement	
LITR222	Pivotal Figures in Early British Literature	
LITR225	British Literature from Wordsworth through the Wasteland	
LITR231	Leadership in World Literature: Antiquity to the Early Modern Period	
LITR233	Literature of the Newly Globalized World: The Individual's Struggle to Adapt	

MUSI200	Music Appreciation
MUSI250	World Music and Cultures
PHIL101	Introduction to Philosophy
PHIL110	Critical Thinking
PHIL200	Introduction to Ethics
PHIL202	Philosophy of Science
PORT100	Introduction to Brazilian Portuguese
RELS201	Introduction to World Religions
RUSS100	Russian I
SPAN100	Spanish I
SPAN101	Spanish II
STEM270	Thinking and Acting Ethically

**Civics, Political and Social Sciences (6 semester hours)<sup>1</sup>**

Select 2 courses from the following: 6

ANTH100	Introduction to Anthropology
ANTH202	Introduction to Cultural Anthropology
CHFD220	Human Sexuality
COMM211	Social Media and Society
COMM240	Intercultural Communication
ECON101	Microeconomics
ECON102	Macroeconomics
EDUC200	Humane Education: A Global Interdisciplinary Perspective
GEOG101	Introduction to Geography
HOSP110	Practical Food Safety and Awareness
IRLS210	International Relations I
LITR212	Forgotten America—Under Represented Cultures in American Literature
LITR235	Four Points of the Compass: Culture and Society Around the World
POLS101	Introduction to Political Science
POLS210	American Government I
PSYC101	Introduction to Psychology
SOCI111	Introduction to Sociology
SOCI212	Social Problems
SOCI220	American Popular Culture
STEM280	Exploring Society and Cultures via Science Fiction

**Communication: Writing, Oral, and Multimedia (9 semester hours)**

COMM120	Information and Digital Literacy	3
ENGL110	Making Writing Relevant	3
ENGL221	Scientific Writing	3

**History (3 semester hours)**

Select 1 course from the following:		3
HIST101	American History to 1877	

HIST102	American History since 1877
HIST111	World Civilization before 1650
HIST112	World Civilization since 1650
HIST121	Western Civilization before The Thirty Years War
HIST122	Western Civilization since The Thirty Years War
HIST221	African-American History before 1877
HIST222	African-American History since 1877
HIST223	History of the American Indian
HIST270	History of Science
STEM185	The History and Context of STEM

**Mathematics and Applied Reasoning (3 semester hours)**

Select 1 course from the following: 3

MATH110	College Algebra
MATH111	College Trigonometry
MATH225	Calculus

**Natural Sciences (3 semester hours)**

ERSC181	Introduction to Geology	3
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Total Semester Hours 30

<sup>1</sup> All literature courses require successful completion of ENGL101 - Proficiency in Writing or ENGL110 - Making Writing Relevant.

**Major Required (29 semester hours)**

Code	Title	Semester Hours
BIOL133	General Biology I with Lab	4
CHEM133	General Chemistry I with Lab	4
EVSP201	Environmental Economics	3
MATH302	Statistics	3
EVSP310	Water Science	3
EVSP311	Soil Science	3
PHIL320	Environmental Ethics	3
EVSP411	Environmental Policy, Regulation, and Law	3
EVSP413	Environmental and Ecosystems Management	3
Total Semester Hours		29

Students must choose a concentration for this degree program and may select from a General Concentration, Concentration in Environmental Technology and Management, Concentration in Fish and Wildlife Management, Concentration in Regional and Community Environmental Planning, or Concentration in Sustainability.

## General Concentration Requirements (12 semester hours)

A general concentration allows you to take courses across a number of areas of study within your program based on your own interests.

Code	Title	Semester Hours
Select 4 courses from the following:		12
EVSP312	Introduction to Sustainability	
EVSP316	U.S. Federal Environmental Organization	
EVSP322	Remote Sensing and Geographic Information Systems	
EVSP414	Air Quality Management	
EVSP415	Environmental Impact Assessment	
EVSP416	General Ecology	
Total Semester Hours		12

## Concentration in Environmental Technology and Management (12 semester hours)

Explores the theoretical foundations of environmental hazard mitigation and pollution management and how regulations, policies, and politics influence environmental management and sustainability. Covers management strategies, compliance standards and current and emerging technologies in contaminant treatment, remediation, and disposal. Examines strategies and mitigation plans for contaminants and the impacts on public health, public safety, society, and the economy.

### Objectives

Upon successful completion of this concentration, the student will be able to:

- Define the theoretical foundation of the disciplines of environmental hazard mitigation and pollution management.
- Explain the regulatory, policy, and political influences on environmental management and sustainability.
- Develop management strategies that incorporate environmental compliance standards and achieve organizational missions.
- Describe the current and emerging technologies in the treatment, remediation, and disposal of environmental contaminants.
- Evaluate strategies and assess mitigation plans for environmental contaminants.
- Assess the consequences of the ecological impacts on public health and safety, and social and economic welfare.

## Concentration Requirements (12 semester hours)

Code	Title	Semester Hours
Select 4 courses from the following:		12
EDMG240	Chemistry of Hazardous Materials	
EVSP320	Energy and Resource Sustainability	
EVSP322	Remote Sensing and Geographic Information Systems	
EVSP412	Environmental Management Systems	
EVSP414	Air Quality Management	
EVSP430	Pollution and Pollution Management	
Total Semester Hours		12

## Concentration in Fish and Wildlife Management (12 semester hours)

Offers an overview of concepts and principles of fish and wildlife resource management. Examines the agencies responsible for resource management and the competencies of professional fish and wildlife managers. Management techniques and methods, public lands management, and the regulations, policies, and politics that influence U.S. fish and wildlife management are also covered.

NOTE: Students wishing to enroll in SCIN311, SCIN314, SCIN401, or SCIN402 for their concentration work MUST also take BIOL134 as a prerequisite. BIOL134 is NOT included in the BS Environmental Science major and is needed for these more specialized courses offered through the Natural Sciences program. This requirement cannot be waived. Please note that students can complete the Concentration in Fish and Wildlife Management without taking these specialized courses, but if these courses are desired the additional BIOL134 prerequisite must be completed as part of the student's elective hours.

### Objectives

Upon successful completion of this concentration, the student will be able to:

- Describe the fundamental concepts and principles of the management of fish and wildlife resources.
- Explain the impact of human activities on the survival and management of fish and wildlife populations.
- Identify the federal, state, and local agencies responsible for the management of fish and wildlife resources.
- List the competencies needed to become a professional fish or wildlife manager.
- Compare the effectiveness of fish and wildlife management techniques and methods.

- Explain the regulations, policies, and politics that influence the management of fish and wildlife in the U.S.

### Concentration Requirements (12 semester hours)

Code	Title	Semester Hours
Select 4 courses from the following:		12
EVSP330	Fish and Wildlife Policies, Programs, and Issues	
EVSP331	Public Lands Management	
EVSP341	Introduction to Wildlife Management	
EVSP342	Population Ecology	
EVSP416	General Ecology	
EVSP417	Conservation Biology	
SCIN311	Fishery Biology	
SCIN314	Botany	
SCIN401	Mammalogy	
SCIN402	Ornithology	
Total Semester Hours		12

### Concentration in Regional and Community Environmental Planning (12 semester hours)

Identifies critical issues in landscape level planning and development that affect regional and local environmental planners. Examines how to assess and meet resource needs and solve complex land use problems. Topics include leading trends and challenges in environmental planning and how current and emerging technologies affect sustainable land use and energy development.

#### Objectives

Upon successful completion of this concentration, the student will be able to:

- Identify critical issues in landscape level planning and development that affect regional and local environmental planners and assess their implications on the environment and quality of life for the citizenry.
- Assess the resource needs (energy, water resources, sustainability, green space, etc.) of a population and develop strategies for meeting them.
- Describe innovative approaches, alternative actions, and strategic planning efforts needed to resolve complex, landscape-level land use planning problems and meet the needs of multiple and varied stakeholders.
- Assess leading trends and challenges in the fields of local and regional planning, landscape-level planning, and environmental assessment and impact.

- Describe current and emerging technologies in sustainable land use planning and energy development and discuss appropriate applications.

### Concentration Requirements (12 semester hours)

Code	Title	Semester Hours
EVSP321	Land Use and Planning	3
EVSP322	Remote Sensing and Geographic Information Systems	3
EVSP415	Environmental Impact Assessment	3
EVSP421	Water Resources Management	3
Total Semester Hours		12

### Concentration in Sustainability (12 semester hours)

Examines foundational principles of resource and energy sustainability and how these principles apply to land use and development planning. Topics include current and emerging renewable energy technologies, society's dependence on fossil fuels and other traditional forms of energy, and why social and economic barriers prevent acceptance and use of sustainable products, goods, and services.

#### Objectives

Upon successful completion of this concentration, the student will be able to:

- Explain the foundational principles of resource and energy sustainability.
- List current and emerging renewable energy technologies.
- Explain society's dependence on fossil fuel and traditional energy sources.
- Explain the social and economic barriers that prevent the acceptance and use of sustainable products, goods and services.
- Apply the principles of sustainability to land use and development planning.
- Assess the impact of green infrastructure and sustainable design on global resource sustainability.

### Concentration Requirements (12 semester hours)

Code	Title	Semester Hours
Select 4 courses from the following:		12
EVSP312	Introduction to Sustainability	
EVSP320	Energy and Resource Sustainability	
EVSP321	Land Use and Planning	

EVSP322 Remote Sensing and Geographic Information  
Systems

EVSP418 Green Infrastructure and Renewable  
Technologies

Total Semester Hours 12

### Final Program Requirements (3 semester hours)

Code	Title	Semester Hours
EVSP498	Senior Seminar in Environmental Science (to be taken as the last course before graduation) <sup>1</sup>	3
Total Semester Hours		3

<sup>1</sup> Prerequisite: Senior Standing and completion of all major courses prior to enrollment.

### Elective Requirements (46 semester hours)

Select any courses that have not been used to fulfill major requirements. Credits applied toward a minor or certificate in an unrelated field may be used to fulfill elective credit for the major.