

# Environmental Science Major

Chair: Nathaniel Weston, Ph.D.

Program Director: Kabindra Shakya, Ph.D.

Office Location: Suite G61, Mendel Science Center

Telephone: 610-519-3336

[Website](#)

## About

The Department of Geography and the Environment offers B.A. degrees in Geography and Environmental Studies, and a B.S. in Environmental Science. The department also offers minors in Geography and Sustainability Studies. The department's overarching objective is to integrate the disciplines of geography and environmental science to seek an understanding of human and environmental patterns, the processes that produce those spatial patterns, and salient human and environmental problems that face modern society. The department has three teaching and five research labs; and the department has a full suite of state-of-the-art geospatial software and scientific research equipment.

**Program:** [Geography and the Environment](#)

**Type:** Bachelor of Science

## MAJOR (70 credits)

The B.S. in Environmental Science Program provides the technical background necessary for understanding the biological, chemical, and physical aspects of the environment. It focuses on the application of biological, chemical and physical principals to understanding the natural and physical environments of the Earth. Towards this end, the program's graduates will have an understanding of and appreciation for the processes and interactions that occur both within and between the atmosphere, the biosphere, the lithosphere, and the hydrosphere. The program is founded on the principle that science - both as a body of knowledge and as a process that is grounded in intellectual inquiry and the scientific method - must be applied to assess the direct and indirect influences of human activities on the integrity of the Earth's systems.

### *Program Notes:*

- Consider course offerings with environmental content when selecting the ten free electives.
- BIO 3105 or MAT 4310 may fulfill the GEV 3300 requirement.
- MAT 1310 may fulfill the MAT 1500 requirement.
- GEV 6006 must be taken a total of 3 times prior to graduation.

## Required Major Courses:

<b>Item #</b>	<b>Title</b>	<b>Credits</b>
GEV 1050	Environmental Science I	4
GEV 1051	Environmental Science II	4
GEV 1750	Geo-Techniques	4
GEV 2001	Prof Dev in Geo and Env	1
GEV 2310	Environmental Chemistry	4
	Statistics for Environmental Science	3
GEV 4310	Environmental Issues Seminar	3
GEV 4700	Geographic Information Systems	4
CHM 1151	General Chemistry I	4
CHM 1103	General Chemistry Lab I	1
PHY 1100	General Physics I	3
PHY 1101	General Physics I Lab	1
MAT 1500	Calculus I	4
GEV 6005	Senior Research Seminar	1
GEV 6006	Research Colloquium	
GEV 6006	Research Colloquium	
GEV 6006	Research Colloquium	
	GEV Independent Study Requirement	3-6
	GEV Lab Elective	8
	GEV Science and Technology Electives	12
	GEV Policy and Management Electives	6

## Category Descriptions

### Statistics for Environmental Science

Credits: 3

Select 1 course from those listed.

- Note: MAT 1313 and MAT 4310 also satisfy this but were renumbered as STAT courses term 202120.

<b>Item #</b>	<b>Title</b>	<b>Credits</b>
BIO 3105	Biostatistics & Exp Design	4
GEV 3300	Stats. in Environmental Sci.	3
STAT 1313	Statistics for Life Sciences	3
STAT 4310	Stat Methods	3

## GEV Independent Study Requirement

Credits: 3-6

- Choose GEV 6200: Independent Study (3 cr) OR
  - GEV 6210 and 6220: Senior Thesis I & II (6 cr – 3 cr of which count as a free elective)

<b>Item #</b>	<b>Title</b>	<b>Credits</b>
GEV 6200	Independent Study	3
<b>Item #</b>	<b>Title</b>	<b>Credits</b>
GEV 6210	Senior Thesis Research I	3
GEV 6220	Senior Thesis Research II	3

## GEV Lab Elective

Credits: 8

Select 2 Classes from the list below, or any course of four or more credits with the GESC attribute.

BIO or CHM lab courses >2000 may fulfill this requirement.

<b>Item #</b>	<b>Title</b>	<b>Credits</b>
GEV 4320	Spec. Topics in Env Lab Sci	4
GEV 4321	Microbial Processes	4
GEV 4322	Ocean Environments	4
GEV 4323	Watershed Biogeochemistry	4
GEV 4324	Wetland Science and Management	4
GEV 4325	Environmental Ecology	4
GEV 4326	Environmental Geology	4
GEV 4327	Process Geomorphology	4
GEV 4328	Climatology	4
GEV 4329	Global Change Research	4
GEV 4360	Field Methods in Env Science	4
GEV 4361	Field Research	4

## GEV Science and Technology Electives

Credits: 12

Select 4 classes from the list below, or any course of three or more credits with the GESC attribute.

<b>Item #</b>	<b>Title</b>	<b>Credits</b>
GEV 2500	Global Change in Local Places	3
GEV 3002	Ecosystem Services	3
GEV 3003	Environmental Geology	3
GEV 3301	Fisheries	3
GEV 3302	Agricultural Science	3
GEV 3303	Soil Science	3
GEV 3304	Air Pollution	3
GEV 3305	Energy Systems	3
GEV 3306	Alternative Engery	3
GEV 3308	Environmental Health	3
GEV 3309	Coral Reefs	3
GEV 3310	Special Topics in Geology	3
GEV 3501	Geomorphic Environments	3
GEV 3503	Earth's Weather Systems	3
GEV 3521	GIS for Urban Sustainability	3
GEV 3550	Natural Hazards	3
GEV 3750	Remote Sensing	3
GEV 3790	Global Positioning Systems	4
GEV 4320	Spec. Topics in Env Lab Sci	4
GEV 4321	Microbial Processes	4
GEV 4322	Ocean Environments	4
GEV 4323	Watershed Biogeochemistry	4
GEV 4324	Wetland Science and Management	4
GEV 4325	Environmental Ecology	4
GEV 4326	Environmental Geology	4
GEV 4327	Process Geomorphology	4
GEV 4328	Climatology	4
GEV 4329	Global Change Research	4
GEV 4350	Spec Topics in Environm Sci	3
GEV 4351	Oceanography	3
GEV 4352	Physical Geology	3
GEV 4353	Green Science	3
GEV 4354	Biomimicry	3
GEV 4355	Tropical Ecology	3
GEV 4356	Global Change Science	3
GEV 4360	Field Methods in Env Science	4
GEV 4361	Field Research	4
GEV 4511	Climate Variability	3
GEV 4512	Medical Geography	3
GEV 4513	Geography of National Security	3
GEV 4514	Geomorphology	3
GEV 4515	Terrestrial Ecosystems	3
GEV 4516	Environmental Security	3
GEV 4518	COVID-19 Pandemic	3
GEV 4710	Adv. Geographic Info Sys	4

## GEV Policy and Management Electives

Credits: 6

Select 2 Classes from the list, or any course of three or more credits with the GEPM attribute.

<b>Item #</b>	<b>Title</b>	<b>Credits</b>
GEV 3001	Intro to Sustainability Study	3
GEV 3570	Land Use Planning & Mgmt	3
GEV 3580	Natural Res and Conservation	3
GEV 4001	Advanced Sustainability Study	4
GEV 4330	Spec Topics in Environm Policy	3
GEV 4331	Env. Policy & Management	3
GEV 4332	Water Resources Planning	3
GEV 4333	Politics and the Env.	3
GEV 4334	Environmental Law	3
GEV 4335	Energy Policy	3
GEV 4336	Environmental Economics	3
GEV 4517	Sustainable Development	3
MGT 2208	International Topics	3
PA 2000	Public Policy	3