Environmental Science BS with Climate Concentration

Overview

The Department of Earth and Environmental Science provides students the opportunity to study the Earth with a variety of traditional and environmental geology course work. The faculty work closely with students to give a combination of field-based experience and current laboratory and computational techniques.

The department offers the **Bachelor of Science in Environmental Science**. Students **must select one of the following concentrations**:

- Applied Ecology
- Climate
- Environmental Geochemistry
- Hydrology

Students in the **Concentration in Climate** will be equipped with the scholarly background and intellectual skills to understand a wide range of pressing environmental issues, and they will come to appreciate the physical, economic, political, demographic and ethical factors that define those issues. Our graduates find employment with government environmental agencies, citizens' organizations, consulting firms and corporate environmental affairs departments.

Global climate change is a major challenge of this century. The Environmental Science with concentration in Climate establishes the science and tools used to assess our changing climate and opportunities to mitigate its impacts on human societies and environmental systems. Students completing this concentration will understand the essential attributes of resilient environments, infrastructure, and sustainable resource management.

Campus Location: Main

Program Code: ST-ENVS-BS

Distinction in Major

To graduate with distinction in this major, a student must satisfy the following criteria:

- achieve a minimum 3.5 major GPA
  - if the difficulty of courses chosen as electives is high, then a 3.3 GPA will suffice. This determination will be made by the appropriate faculty
- no grade below C in a major requirement

Undergraduate Contact Information

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Learn more about the Bachelor of Science in Environmental Science.

These requirements are for students who matriculated in academic year 2024-2025. Students who matriculated prior to fall 2024 should refer to the Archives *to view the requirements for their Bulletin year.*

Bachelor of Science Requirements

Summary of Requirements for the Degree

1. University Requirements (123 total s.h.)
   - Students must complete all University requirements including those listed below.
   - All undergraduate students must complete at least two writing-intensive courses for a total of at least six credits at Temple as part of their major. The specific writing-intensive course options for this major are:

Code	Title	Credit Hours
EES 2096	Climate Change: Oceans To Atmosphere	4
ENVS 4198	Environmental Science Senior Seminar	3

- Students must complete the General Education (GenEd) requirements.
  - See the General Education section of the *Undergraduate Bulletin* for the GenEd curriculum.
  - Students who complete CST majors receive a waiver for 2 Science & Technology (GS) and 1 Quantitative Literacy (GQ) GenEd courses.
- Students must satisfy general Temple University residency requirements.

2. College Requirements
   - A minimum of 90 total credits within the College of Science & Technology (CST), the College of Liberal Arts (CLA), and/or the College of Engineering (ENG).
     - A minimum of 45 of these credits must be upper-level (courses numbered 2000 and above).
   - Complete a one-credit first-year or transfer seminar.
     - SCTC 1001 CST First Year Seminar for every entering first-year CST student.
     - SCTC 2001 CST Transfer Seminar for every entering transfer CST student.
3. Major Requirements for Bachelor of Science (74-77 s.h.)
   At least 10 courses required for the major must be completed at Temple.

Code	Title	Credit Hours
Biology		
BIOL 1111	Introduction to Organismal Biology	4
or BIOL 1911	Honors Introduction to Organismal Biology	
Chemistry		
Select one of the following:		4
CHEM 1031 & CHEM 1033	General Chemistry I and General Chemistry Laboratory I	
CHEM 1951 & CHEM 1953	Honors General Chemical Science I and Honors Chemical Science Laboratory I (F)	
Earth & Environmental Science		
EES 2001	Physical Geology	4
EES 2061	Introduction to Geochemistry	4
EES 2096	Climate Change: Oceans To Atmosphere	4
EES 3011	Remote Sensing and GIS (S)	4
Select one of the following:		4
EES 3021	Groundwater Hydrology (S)	
EES 3025	Physical Hydrology (F)	
EES 4502	Ice and Global Climate	3
Economics		
ECON 1102	Microeconomic Principles	3
or ECON 1902	Honors Microeconomic Principles	
Environmental Science		
ENVS 4198	Environmental Science Senior Seminar	3
Environmental Science Electives		
Select 7 Environmental Science Electives chosen from the categories below: [1]		
2 Land Electives		7-8
2 Hazard Electives		6
2 Mixed Electives		6-8
1 Policy Elective		3
Mathematics and Quantitative Methods		
MATH 1041	Calculus I	4
or MATH 1941	Honors Calculus I	
SCTC 1013	Elements of Data Science for the Physical and Life Sciences	3
Select one of the following:		4

MATH 1042	Calculus II	
MATH 1942	Honors Calculus II	
MATH 1044	Introduction to Probability and Statistics for the Life Sciences	
Physics		
Select one of the following:		4
PHYS 1061	Elementary Classical Physics I	
or PHYS 1961	Honors Elementary Classical Physics I	
PHYS 2021	General Physics I	
or PHYS 2921	Honors General Physics I	
Total Credit Hours		**74-77**

Code	Title	Credit Hours
(F) - Fall only course		
(S) - Spring only course		

[1] See the Table below for a listing of specific courses within each Elective category.

Code	Title	Credit Hours
Hazard Electives		
CTRP 2251	Sustainable Food Systems Planning	3
RMI 2101	Introduction to Risk Management [1]	3
RMI 3502	Managing Property Liability Risk I [2]	3
RMI 3504	Managing Property Liability Risk II [3]	3
RMI 3567	Managing International Risk [4]	3
Land Electives		
EES 2002	Energy and Environment	3
EES 2021	Sedimentary Environments	4
EES 2097	Process Geomorphology (F)	4
EES 3042	Coastal Processes and Geomorphology (S)	4
Mixed Electives		
Hazard or Land Elective		3-4
Hazard or Land Elective		3-4
EES 2067	Introduction to Environmental Toxicology	3
EES 3065	Nanoscience & the Environment (F)	4
EES 4896	Planetary Geology	4
BIOL 2227	Principles of Ecology	3
Policy Electives		
CDEV 2255	Environmental Justice in Communities	3
ENST 2025	Environmental Law and Regulation	3
ENST 2157	Environmental Ethics	3
ENST 3051	Environmental Policy Issues	3

Code	Title	Credit Hours
(F) - Fall only course		
(S) - Spring only course		

[1] ECON 1101 is a prerequisite for this course.
[2] RMI 2101 is a prerequisite for this course.
[3] RMI 3502 is a prerequisite for this course. If self-registration is not possible for RMI 3504, please seek an override for the RMI 3501 prerequisite from your CST advisor.

[4] RMI 2101 and RMI 3502 are prerequisites for this course. If self-registration is not possible for RMI 3567, please seek an override for the RMI 3501 prerequisite from your CST advisor.

Suggested Academic Plan

Please note that this is a suggested academic plan. Depending on your situation, your academic plan may look different.

Bachelor of Science in Environmental Science with Concentration in Climate

Suggested Plan for New Students Starting in the 2024-2025 Academic Year

Year 1		
Fall		**Credit Hours**
Select one of the following:		4
CHEM 1031 & CHEM 1033	General Chemistry I and General Chemistry Laboratory I	
CHEM 1951 & CHEM 1953	Honors General Chemical Science I and Honors Chemical Science Laboratory I (F)	
MATH 1041 or MATH 1941	Calculus I or Honors Calculus I	4
SCTC 1001	CST First Year Seminar	1
SCTC 1013	Elements of Data Science for the Physical and Life Sciences	3
GenEd Breadth Course		3
	Credit Hours	**15**
Spring		
EES 2001	Physical Geology	4
Select one of the following:		4
MATH 1042 or MATH 1942	Calculus II or Honors Calculus II	
MATH 1044	Introduction to Probability and Statistics for the Life Sciences	
ENG 0802 or ENG 0812 or ENG 0902	Analytical Reading and Writing [GW] or Analytical Reading and Writing: ESL [GW] or Honors Analytical Reading and Writing [GW]	4
GenEd Breadth Course		3
	Credit Hours	**15**
Year 2		
Fall		
BIOL 1111 or BIOL 1911	Introduction to Organismal Biology or Honors Introduction to Organismal Biology	4
EES 2061	Introduction to Geochemistry	4
IH 0851 or IH 0951	Intellectual Heritage I: The Good Life [GY] or Honors Intellectual Heritage I: The Good Life [GY]	3
GenEd Breadth Course		3-4
Elective		1-0
	Credit Hours	**15**
Spring		
EES 2096	Climate Change: Oceans To Atmosphere [WI]	4
Select one of the following:		4
PHYS 1061	Elementary Classical Physics I	
PHYS 1961	Honors Elementary Classical Physics I	
PHYS 2021	General Physics I	
PHYS 2921	Honors General Physics I	
Environmental Science Elective 1 - Land [1]		3-4
IH 0852 or IH 0952	Intellectual Heritage II: The Common Good [GZ] or Honors Intellectual Heritage II: The Common Good [GZ]	3

Elective		1-0
	Credit Hours	**15**
Year 3		
Fall		
Select one of the following: [2]		4
EES 3021	Groundwater Hydrology (S)	
EES 3025	Physical Hydrology (F)	
Environmental Science Elective 2 - Mixed [1]		3-4
Environmental Science Elective 3 - Land [1]		4
GenEd Breadth Course		3
Elective		2-1
	Credit Hours	**16**
Spring		
EES 3011	Remote Sensing and GIS (S)	4
ECON 1102 or ECON 1902	Microeconomic Principles or Honors Microeconomic Principles	3
Environmental Science Elective 4 - Policy [1]		3
GenEd Breadth Course		3
Elective		3
	Credit Hours	**16**
Year 4		
Fall		
EES 4502	Ice and Global Climate (Ice and Global Climate)	3
Environmental Science Elective 5 - Mixed [1]		3-4
Environmental Science Elective 6 - Hazard [1]		3
Elective		3
Elective		3-2
	Credit Hours	**15**
Spring		
ENVS 4198	Environmental Science Senior Seminar [WI]	3
Environmental Science Elective 7 - Hazard [1]		3
Elective		4
Elective		3
Elective		3
	Credit Hours	**16**
	Total Credit Hours	**123**

Code	**Title**	**Credit Hours**
(F) - Fall only course		
(S) - Spring only course		

[1] Select from the Environmental Science Electives lists under Requirements.

[2] Either EES 3021 or EES 3025 can be taken. One will be offered in the Fall and one in the Spring.