

Environmental Science with Concentration in Climate, B.S.

Learn more about the Bachelor of Science in Environmental Science.

Students 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.

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Bachelor of Science

Summary of Requirements for the Degree

1. University Requirements (123 total s.h.)

- Students must complete all University requirements including those listed below.
- All Temple students must take a minimum of two writing-intensive courses 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

- 45 Upper Level (2000+) credits within the College of Science & Technology (CST), the College of Liberal Arts (CLA), or the College of Engineering (ENG).
- 90 credits within the College of Science & Technology (CST), the College of Liberal Arts (CLA), or the College of Engineering (ENG).
- All students in the College of Science and Technology are required to take a one credit first year seminar. SCTC 1001 CST First Year Seminar is the appropriate course option for every entering first year CST major. Transfer students should use SCTC 2001 CST Transfer Seminar to fulfill this requirement. Other courses that fulfill this requirement may be found on the CST College Requirements page.

3. Major Requirements for Bachelor of Science (75-78 s.h.)

At least 10 courses required for the major must be completed at Temple.

Code	Title	Credit Hours
Biology		
BIOL 1111 or BIOL 1911	Introduction to Organismal Biology Honors Introduction to Organismal Biology	4
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	4
Economics		
ECON 1102 or ECON 1902	Microeconomic Principles Honors Microeconomic Principles	3
Environmental Science		
ENVS 4198	Environmental Science Senior Seminar (S)	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 or MATH 1941	Calculus I Honors Calculus I	4
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 or PHYS 1961	Elementary Classical Physics I Honors Elementary Classical Physics I	
PHYS 2021 or PHYS 2921	General Physics I Honors General Physics I	
Total Credit Hours		75-78

Code	Title	Credit Hours
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(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
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Hazard Electives

CTRP 2251	Sustainable Food Systems Planning	3
RMI 2101	Introduction to Risk Management ¹	3
RMI 3501	Managing Human Capital Risk ²	3
RMI 3502	Managing Property Liability Risk I ²	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 3065	Nanoscience & the Environment (F)	4
EES 4896	Planetary Geology	4
BIOL 2227	Principles of Ecology	3
EES 3XXX	(Toxicology)	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
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(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.

Calculation of Major GPA

Courses listed under the major requirements for the degree will be included in the calculation of the major GPA. Courses that could not apply toward the major as an elective or required course would not be counted in the calculation of the major GPA. This would include CHEM 1027, for example.

Distinction in Major

To graduate with Distinction in Major, students are required to achieve a 3.5 GPA for courses required for the major. If the difficulty of courses chosen as electives is high, then a 3.3 GPA will earn Distinction in Major. This determination will be made by the appropriate faculty. In addition, a student graduating with distinction has no grade below C in the remaining courses required for the major.

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

Requirements for New Students starting in the 2021-2022 Academic Year

Year 1		
Fall		Credit Hours
Select one of the following:		4
CHEM 1031 & CHEM 1033	General Chemistry I	
CHEM 1951 & CHEM 1953	Honors General Chemical Science I (F)	
MATH 1041 or 1941	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
Term Credit Hours		15
Spring		

EES 2001	Physical Geology	4
Select one of the following:		4
MATH 1042 or 1942	Calculus II	
MATH 1044	Introduction to Probability and Statistics for the Life Sciences	
ENG 0802, 0812, or 0902	Analytical Reading and Writing [GW]	4
GenEd Breadth Course		3
Term Credit Hours		15
Year 2		
Fall		
BIOL 1111 or 1911	Introduction to Organismal Biology	4
EES 2061	Introduction to Geochemistry	4
IH 0851 or 0951	Intellectual Heritage I: The Good Life [GY]	3
GenEd Breadth Course		3-4
Elective		1-0
Term 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 0952	Intellectual Heritage II: The Common Good [GZ]	3
Elective		1-0
Term 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
Term Credit Hours		16
Spring		
EES 3011	Remote Sensing and GIS (S)	4
ECON 1102 or 1902	Microeconomic Principles	3
Environmental Science Elective 4 - Policy ¹		3
GenEd Breadth Course		3
Elective		3
Term Credit Hours		16
Year 4		
Fall		
EES 4502	Ice and Global Climate (Ice and Global Climate)	4
Environmental Science Elective 5 - Mixed ¹		3-4
Environmental Science Elective 6 - Hazard ¹		3
Elective		3
Elective		3-2
Term Credit Hours		16
Spring		

ENVS 4198	Environmental Science Senior Seminar [WI] (S)	3
	Environmental Science Elective 7 - Hazard ¹	3
	Elective	3
	Elective	3
	Elective	3

Term Credit Hours	15
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Total Credit Hours:	123
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Code	Title	Credit Hours
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(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.