

EARTH AND ENVIRONMENTAL SCIENCES MAJOR

Overview

This new major merges previous majors in Geology and in Environmental Earth Science.

Earth and Environmental Sciences is a broad interdisciplinary field dedicated to understanding the origin and evolution of the Earth. This discipline includes the study of climate, water, landscapes, earthquakes, volcanoes, prehistoric life, planets, natural resources, and the impact of humans on the environment. To help solve some of the greatest challenges facing human society, students majoring in Earth and Environmental Sciences will gain knowledge of Earth's materials and the physical, chemical, and biological processes that have operated throughout Earth's history. The curriculum also emphasizes active and collaborative learning and provides ample opportunities for research, field trips, and study abroad coursework around the world. Students graduating with a degree in Earth and Environmental Sciences will be prepared for graduate or professional programs or direct entry into the workforce. Earth and Environmental Sciences majors may go on to careers in industry, technology, consulting, nonprofits, government, education, and law.

Requirements

Course requirements for the Earth and Environmental Sciences major are outlined below:

Course ID	Title	Credits
One Introductory Course (choose one introductory EENS course with lab of the following)		4
EENS 1110 & EENS 1115	Planet Earth and Planet Earth Lab	
EENS 1300 & EENS 1305	Earth as a Living Planet and Earth as a Living Planet Lab	
EENS 2220 & EENS 2225	Earth & Life Through Time and Earth & Life Through Time Lab	
Core Courses		16
EENS 2090 & EENS 2091	Shaping the Earth's Surface and Shaping the Earth's Surface Laboratory	
EENS 2100 & EENS 2101	Dynamic Planets and Dynamic Planets Lab	
EENS 2110 & EENS 2111	How to Build a Habitable Planet and How to Build a Habitable Planet Laboratory	
EENS 2120 & EENS 2121	Climate and Extinction and Climate and Extinction lab	
Six Electives in selected track		18-24
Select the Earth and Planetary Science Track or the Environmental Science Track ¹		
Three electives must be at the 3000-level or above		
Only two courses outside of the Earth & Environmental Sciences department may count towards the major.		
No more than two GIS certificate course may count as electives towards the major in EENS. See Elective Lists below for more details.		
Required Courses Outside EENS		
Two Mathematics Courses		8
MATH 1210	Calculus I ¹	
MATH 1220 or MATH 1230	Calculus II ¹ Stats For Scientists	
Three Sciences Courses		12
CHEM 1070 & CHEM 1075	General Chemistry I and General Chemistry Lab I	
PHYS 1310 & PHYS 1311 or PHYS 1210 & PHYS 1211	General Physics I and General Physics I Lab Introductory Physics I and Introductory Physics I Lab	

EBIO 1010 & EBIO 1015	Diversity of Life and Diversity of Life Lab	
One Senior Experiential Learning Course		3-7
Field-based course ³		
EENS 4560 & SRVC 4890	Public Service Internship and Public Service Internship	
EENS 4570	Internship	
EENS 4990 & EENS 5000	Honors Thesis and Honors Thesis	
Total Credit Hours		61-71

¹ Students should consult with their major advisor to review available electives and to select a track.

² Math 1150 and 1160 (Long Calculus sequence) may be taken instead of MATH 1210 to complete the Calculus 1 requirement.

MATH 1310 Consolidated Calculus (4 c.h.) may be taken instead of MATH 1210 Calculus I (4 c.h.)/MATH 1220 Calculus II (4 c.h.)

³ Field-based courses include a range of options, typically transferred from another accredited university-level program. These include geoscience field camp courses, applied field-based geophysics courses, and coastal and/or marine science courses. Department approval is required.

Course ID	Title	Credits
Earth and Planetary Science Track Electives		
EENS 2240	Geology of Our National Parks	3
EENS 3050	Natural Hazards & Mitigation	3
EENS 3100	Planetary Geology	3
EENS 3150	Intro to GIS	4
EENS 3170	Geomorphology	3
EENS 3180	Making Landscapes	3
EENS 3270	Sedimentation and Strat	3
EENS 3410	Structural Geology	3
EENS 3600	Science of Climate Change	3
EENS 3840	Planetary Geophysics	3
EENS 3990	Field Geoscience	3-8
EENS 4030	Advanced GIS	3
EENS 4060	Tectonic Geomorphology	3
EENS 4160	3D Stratigraphy	3
EENS 4180	Intro Remote Sensing	3
EENS 4230	Tectonics	3
EENS 4250	Isotopes in The Environm	3
EENS 4320	Subsurface Geology	3
EENS 4350	Geologic Dating Methods	3
EENS 4390	Geospatial and Numerical Methods	4
EENS 4440	Introduction to Geophysics	3
COLQ 4120	The Grand Canyon	3,4
CMPS 1100	Foundations of Programming	3
CMPS 1500	Intro to Computer Science I	4
CMPS 2170	Intro to Discrete Math	3
MATH 2210	Calculus III	4
MATH 2240	Intro To Applied Math	4
MATH 3070	Intro To Probability	3
MATH 3090	Linear Algebra	4
Environmental Science Track Electives		
EENS 2020	Environmental Geology	3
EENS 2060	Introductory Geography	3
EENS 2070	Weather and Climate	3

EENS 2080	Extreme Weather	3
EENS 2230	Oceanography	3
EENS 2240	Geology of Our National Parks	3
EENS 3050	Natural Hazards & Mitigation	3
EENS 3120	Soils and Soil Formation	3
EENS 3150	Intro to GIS	4
EENS 3170	Geomorphology	3
EENS 3180	Making Landscapes	3
EENS 3270	Sedimentation and Strat	3
EENS 3550	Shark Paleobiology	3,4
EENS 3600	Science of Climate Change	3
EENS 3650	Marine Environmental Geology	3
EENS 3730	Pathways to Urban Sustainability	3
EENS 3990	Field Geoscience	3-8
EENS 4030	Advanced GIS	3
EENS 4040	Coastal Marine Geology	3
EENS 4180	Intro Remote Sensing	3
EENS 4250	Isotopes in The Environm	3
EENS 4300	Groundwater Hydrology	3
EENS 4350	Geologic Dating Methods	3
EENS 4360	Environmental Geochemstr	3
EENS 4390	Geospatial and Numerical Methods	4
COLQ 4120	The Grand Canyon	3,4
ANTH 3560	Environmental Archaeology	3
EBIO 2040	Conservation Biology	3
EBIO 2580	Urban Ecology	3
EBIO 2600	Natural Resource Conserv	3
EBIO 3040	General Ecology	3
EVST 3310	Approaches to Environ Studies	3
CHEM 2500	Environmental Chemistry	3
CMPS 1100	Foundations of Programming	3
CMPS 1500	Intro to Computer Science I	4
CMPS 2170	Intro to Discrete Math	3
COMM 3510	Environmental Comm	3
MATH 2210	Calculus III	4
MATH 2240	Intro To Applied Math	4
MATH 3070	Intro To Probability	3
MATH 3090	Linear Algebra	4