

# EARTH AND ENVIRONMENTAL SCIENCE—EARTH SCIENCE, B.A.

The Earth Sciences major offers a broad perspective on the different sub-disciplines that comprise the Earth Sciences (Physical Geology, Oceanography, Meteorology, Astronomy and Environmental Science). This track is ideal for K-12 teachers who are enrolled in the dual co-major with Early Childhood, Elementary or Secondary Education or for students with a general interest in Earth Sciences without an education major.

Code	Title	Credits
<b>Required</b>		
EESC 109	Principles of Environmental Science	3
EESC 112	Introduction to Geology	3
EESC 114	Introduction to Meteorology	3
EESC 115	Introduction to Oceanography	3
EESC 221	Essential Methods of Geology	3
EESC 241	Historical Geology	4
EESC 246	Earth Materials	4
EESC 121	Mapping the City	3
or EESC 252	GIS I: Contemporary Applications of GIS	
or INTD 180	Computer Tools For Science and Mathematic Majors	
CHEM 100	Preparation for General Chemistry	3
MATH 175	Enhanced Precalculus	4
PHYS 101	Basic Concepts of Physics	3
PHYS 113	Introduction to Astronomy	3
<b>Restricted Elective: Select a minimum of three credits from the following courses.</b>		3
EESC 211	Field Studies in Geoscience: Bahamas	
EESC 540	Geology of New Jersey	
EESC 550	Geology of National Parks	
<b>Select a minimum of 16 credits from Earth and Environmental Science courses numbered 200 or higher. The following courses are especially recommended.</b>		
EESC 209	Urban Environmental Issues & Policy	3
EESC 226	Earth 360: Integrated Geography	3
EESC 231	Water Chronicles	3
EESC 235	Global Climate Change	3
EESC 250	Plunder: The Race for Natural Resources	3
EESC 252	GIS I: Contemporary Applications of GIS	3
EESC 334	Stratigraphy	4
EESC 336	Field Methods in Geoscience	4
EESC 340	Hydrology I	3
EESC 348	Environmental Geology	3
EESC 350	GIS II: Contemp Analysis w/GIS	3
EESC 434	Earth Surface Processes	4
EESC 455	GIS III: Modeling with GIS	3

Course	Title	Credits
<b>Freshman</b>		
<b>Semester 1</b>		
ENGL 101 or ESL 101	English Composition I or English Composition I for English as a Second Language Students	4-6
MATH 175	Enhanced Precalculus	4
EESC 112	Introduction to Geology	3
INTD 101	Orientation to College <sup>*First time Freshmen Only</sup>	1
General Education Tier I Course		3
Credits		15-17
<b>Semester 2</b>		
ENGL 102 or ESL 102	English Composition II or English Composition II for English as a Second Language Students	4-6
EESC 109	Principles of Environmental Science (General Education Tier I Course)	3
EESC 250	Plunder: The Race for Natural Resources (General Education Tier II Course) <sup>2</sup>	3
EESC 235	Global Climate Change (General Education Tier II Course) <sup>2</sup>	3
General Education Tier I Course		3
Credits		16-18
<b>Sophomore</b>		
<b>Semester 1</b>		
EESC 114	Introduction to Meteorology	3
EESC 221	Essential Methods of Geology	3
EESC 115	Introduction to Oceanography	3
PHYS 101	Basic Concepts of Physics (General Education Tier I Course)	3
General Education Tier II Course		3
Credits		15
<b>Semester 2</b>		
EESC 241	Historical Geology <sup>1</sup>	4
EESC 246	Earth Materials <sup>1</sup>	4
CHEM 100	Preparation for General Chemistry	3
General Education Tier II Course		3
EESC Elective 2XX - 5XX		3-4
Credits		17-18
<b>Junior</b>		
<b>Semester 1</b>		
EESC 336	Field Methods in Geoscience (or EESC Elective) <sup>1</sup>	4
EESC 334	Stratigraphy (or EESC Elective) <sup>1</sup>	4
PHYS 113	Introduction to Astronomy	3
General Education Tier II Course		3
Credits		14
<b>Semester 2</b>		
EESC 252	GIS I: Contemporary Applications of GIS (General Education Tier II Course)	3
EESC 340	Hydrology I (or EESC Elective) <sup>1</sup>	3
EESC 348	Environmental Geology (or EESC Elective) <sup>1</sup>	3
EESC Elective 2XX - 5XX		3-4

EESC Elective 2XX - 5XX	3
Credits	15-16

**Senior****Semester 1**

General Education Tier II Course	3
EESC Elective 2XX - 5XX	3-4
EESC Elective 2XX - 5XX	3-4
Minor or Elective Course	3
Minor or Elective Course	3
Credits	15-17

**Semester 2**

General Education Tier III Course	3
Minor or Elective Course	3
Minor or Elective Course	3
Minor or Elective Course	3
Minor or Elective Course	3
Credits	15
Total Credits	122-130

<sup>1</sup> The department offers some upper level courses on an even/odd year schedule; therefore there may be variation in this degree map. Please see departmental course sequence.

<sup>2</sup> This recommended course also satisfies a General Education Tier II course requirement for graduation.

***Student Learning Outcomes***

Upon completion of the Earth/Environmental Science-Earth Sciences BA program, students will be able to:

1. Demonstrate comprehensive knowledge of geoscience.
2. Create and design effective professional oral, poster and written presentations.
3. Use their quantitative reasoning and/or problem solving skills to interpret and evaluate geological and environmental processes.
4. Arrange geological and/or environmental data in the field in order to formulate hypotheses and design further investigations.
5. Produce and assess data using modern technology and instrumental analysis and be able to evaluate the results.