

## **Environmental Science**

**128 Credits**

### **First Year**

<b>Fall</b>			<b>Spring</b>		
	HASS Elective (see footnote 1 below)	4		HASS Elective	4
CHEM 1100	Chemistry I	4	CHEM 1200	Chemistry II	4
	Biology Requirement (see footnote 4 below)	4	ERTH 1200	Geology II: Earth's Surface	3
MATH 1010	Calculus I	4	ERTH 1250	Geology II: Earth's Surface Lab	1
			MATH 1020	Calculus II (see footnote 2 below)	4

### **Second Year**

<b>Fall</b>			<b>Spring</b>		
	HASS Elective	4		HASS Elective	4
	Concentration and Elective	8		Concentration and Elective (see footnote 6 below)	4
CHEM 2250	Organic Chemistry 1 (see footnote 3 below)	3	BIOL-2120	Introduction to Cell & Molecular Biology (see footnote 5 below)	4
			PHYS 1100	Physics I	4
			IENV 1910	Environmental Seminar	2

### **Third Year**

<b>Summer</b>			<b>Fall or Spring</b>		
	HASS Elective	4		HASS Elective	4
ERTH 2xxx	Field Experience	8		Concentration and Elective	12
ERTH 2xxx	Geoscience and the Global Society or other elective	4			

### **Fourth Year**

<b>Fall</b>			<b>Spring</b>		
	Concentration and Elective (see footnote 7 below)	8		Concentration and Elective	12
	Culminating Experience (see footnote 7 below)	3	ERTH 4500	Earth's Climate: Past, Present and Future	4
IENV 4700	One Mile on the Hudson River	4			

## Concentrations

The environmental science degree program requires one concentration. Three of the concentration areas, Biology, Chemistry, and Geology explore environmental applications of traditional scientific disciplines. The Geoinformatics concentration specifically addresses the increasing role of high volumes of complex data acquired from a variety of sources both in-situ and remotely sensed. Geoinformatics combines relevant computer science knowledge and skills with geotemporal and geospatial analysis and modeling, curation of geo-databases, information system design and development, human-computer interaction including visualization, use of modern cyberinfrastructure and networking technologies.

### Biology

All of the following

- BIOL 2500 - Genetics and Evolution *Credit Hours: 4*
- BIOL 4620 - Molecular Biology *Credit Hours: 4*
- BIOL 4760 - Molecular Biochemistry I *Credit Hours: 4*
- CHEM 2260 - Organic Chemistry II *Credit Hours: 3*

One of the following

- BIOL 4850 - Principles of Ecology *Credit Hours: 4*

### Chemistry

All of the following

- CHEM 2030 - Inorganic Chemistry I *Credit Hours: 3*
- CHEM 2110 - Equilibrium Chemistry and Quantitative Analysis *Credit Hours: 3*
- CHEM 4410 - Macroscopic Physical Chemistry *Credit Hours: 3*
- CHEM 4810 - Chemistry of the Environment *Credit Hours: 4*

One of the following

- CHEM 2260 - Organic Chemistry II *Credit Hours: 3*
- CHEM 4420 - Microscopic Physical Chemistry *Credit Hours: 3*

One of the following

- CHEM 4xxx Chemistry Elective
- CHEM 2950 - Undergraduate Research *Credit Hours: 1 to 4*
- CHEM 4990 - Senior Thesis *Credit Hours: 3 credits each semester*

### Geology

Six of the following courses, three of which must be at the 4000 level

- EARTH 2960 Introduction to Geobiology *Credit Hours: 4*
- EARTH 4xxx (with permission of Director of Environmental Science)
- EARTH 2100 - Introduction to Geophysics *Credit Hours: 4*
- EARTH 2120 - Structural Geology *Credit Hours: 4*
- EARTH 2140 - Introduction to Geochemistry *Credit Hours: 4*
- EARTH 2330 - Earth Materials *Credit Hours: 4*
- EARTH 2610 - Oceanography *Credit Hours: 4*
- EARTH 4070 - Sedimentology/Stratigraphy *Credit Hours: 4*

- EARTH 4190 - Environmental Measurements *Credit Hours: 4*
- EARTH 4200 - Applied Micropaleontology *Credit Hours: 4*
- EARTH 4540 - Organic Geochemistry *Credit Hours: 4*
- EARTH 4690 - Aqueous Geochemistry *Credit Hours: 4*
- EARTH 4710 - Groundwater Hydrology *Credit Hours: 4*
- EARTH 4750 - Geographic Information Systems in the Sciences *Credit Hours: 4*

#### Geoinformatics

All of the following

- CSCI 4xxx Data Science
- CSCI 1100 - Computer Science I *Credit Hours: 4*
- CSCI 1200 - Data Structures *Credit Hours: 4*
- CSCI 4380 - Database Systems *Credit Hours: 4*
- CSCI 4960 - Topics in Computer Science *Credit Hours: 1 to 4*

One of the following

- CSCI 2300 - Introduction to Algorithms *Credit Hours: 4*
- EARTH 4750 - Geographic Information Systems in the Sciences *Credit Hours: 4*

#### Footnotes

1. HASS courses should be selected in consultation with the adviser and the Environmental Science Faculty Committee. Examples of environmentally relevant options include: ECON 4230, ECON 4250, IHSS 2100, PHIL 4300, STSS 1110, STSS 2300, STSS 4320, and STSS 4540.
2. With permission of the director of Environmental Sciences, a student may elect another math course (course numbers MATH xxxx, MATP xxxx, or courses cross listed with these numbers).
3. With permission, a student may substitute EARTH 4540.
4. Biology Requirement:  
BIOL 1010/1015 or an approved alternate life sciences course or  
EARTH 2160-Introduction to Geomicrobiology
5. With permission, a student may elect to substitute EARTH 2960, or ENVE 4360, or BIOL 4700 or 4850. Each student is required to elect one of the concentrations listed below.
6. This course is offered every other year in the fall term of even-numbered years and therefore is a junior year course for some students.
7. Each student is required to engage in an activity that qualifies as an intensive environmental experience as described below.