

Hydrogeology

124 Credits

Electives

First Year

Fall			Spring		
	HASS Elective	4		HASS Elective	4
CHEM 1100	Chemistry I	4	CHEM 1200	Chemistry II	4
ERTH 1100	Geology I: Earth's Interior	3	ERTH 1200	Geology II: Earth's Surface	3
ERTH 1150	Geology I: Earth's Interior Lab	1	ERTH 1250	Geology II: Earth's Surface Lab	1
MATH 1010	Calculus I	4	MATH 1020	Calculus II	4

Second Year

Fall			Spring		
	HASS Elective	4		HASS Elective	4
CSCI xxxx	CSCI Elective (see footnote 2 below)	4	ERTH 2100	Multivariable Calculus & Matrix Algebra (see footnote 1 below)	4
ERTH 2120	Structural Geology	4	ERTH 2140	Introduction to Geochemistry	4
PHYS 1100	Physics I	4	PHYS 1200	Physics II	4

Third Year

Summer			Fall or Spring		
	HASS Elective	4		HASS Elective	4
ERTH 2xxx	Field Experience	8		Free Elective	4
ERTH 2xxx	Geoscience and the Global Society or other elective	4		Biology Requirement (see footnotes 1 below)	4
			MATH 2400	Introduction to Differential Equations	4

Fourth Year

Fall			Spring		
ERTH 4710	Groundwater Hydrology	4		Free Electives	8
ERTH 4070	Sedimentology / Stratigraphy	4		Culminating Experience (see footnote 3 below)	4
ENVE 2110	Introduction to Environmental Engineering	4	ERTH 4970 or ERTH 4980	Out-of-Classroom-Experience in Earth Sci or Undergraduate Research Thesis	2-4 each. (Sum to 4 hrs)
ERTH 4190	Enviro Measurements	4			

A total of 8 credit hours of free electives is required. These electives should be designed to provide a depth of understanding in a subdiscipline of hydrogeology (e.g., geology, mathematics, chemistry, physics, biology, computer science, engineering, etc.). A limited list of suggested courses for free electives includes the following:

- BIOL 4620 - Molecular Biology *Credit Hours: 4*
- CHEM 4410 - Macroscopic Physical Chemistry *Credit Hours: 3*
- CHEM 4420 - Microscopic Physical Chemistry *Credit Hours: 3*
- CHEM 4810 - Chemistry of the Environment *Credit Hours: 4*
- CIVL 4240 - Introduction to Finite Elements *Credit Hours: 3*
- CSCI 1200 - Data Structures *Credit Hours: 4*
- ECSE 4510 - Digital Control Systems *Credit Hours: 3*
- EARTH 2100 - Introduction to Geophysics *Credit Hours: 4*
- EARTH 2140 - Introduction to Geochemistry *Credit Hours: 4*
- EARTH 4200 - Applied Micropaleontology *Credit Hours: 4*
- EARTH 4540 - Organic Geochemistry *Credit Hours: 4*
- EARTH 4690 - Aqueous Geochemistry *Credit Hours: 4*
- ISYE 4140 - Statistical Analysis *Credit Hours: 4*
- MATP 4600 - Probability Theory and Applications *Credit Hours: 4*
- MATP 4700 - Mathematical Models of Operations Research *Credit Hours: 4*
- PHYS 2350 - Experimental Physics *Credit Hours: 4*

Footnotes

1. Biology Requirement:
 - a. BIOL 1010/1015 or an approved alternate life sciences course or
 - b. EARTH 2160-Introduction to Geomicrobiology
2. CSCI 4350 Data Science (3 credits) recommended. It is highly recommended that students take this course during the fall term of the second year.
3. The culminating experience will be associated with earning 3 to 4 academic credits in a URP project, Independent Study, or Out of Classroom Experience (e.g., as a co-op or intern).