

EARTH AND SPACE SCIENCE (BS) - GEOLOGY TRACK

Program Overview

Core Curriculum (General)

Career Opportunities

From mineral and energy exploration, to monitoring of volcanoes and landslides, to environmental protection and regulation; geologists are employed in a wide variety of fields across the globe. Many geologists work in the fields of energy and mineral exploration, where salaries are the most lucrative. Other geologists work to protect society from volcanoes, earthquakes, landslides, and floods. Some geologists study Earth history in order to understand changes in life, climate and other Earth systems through time. A significant number of geologists work to protect society from environmental degradation, including soil and water pollution, and are employed in both the private and public sector. Many of these geologists are employed as environmental scientists, which along with geoscientists are consistently ranked among the fastest growing occupations in the U.S. economy by the Bureau of Labor Statistics.

Program of Study

Code	Title	Credit Hours
Core IMPACTS Area : Institutional Priorities ¹		4-5
Choose one of the following communication options		3
COMM 1110	Public Speaking	
Foreign Language Course Options		
AMSL, ARAB, CHIN, FREN, GERM, GREK, ITAL, JAPN, KREN, LATIN, PORT, SPAN - 1001, 1002, 2001, 2002; SWAH - 1001, 1002.		
Take one of the following courses		1-2
ITDS 1779	Scholarship Across the Disciplines	
LEAD 1705	Introduction to Servant Leadership	
PERS 1506	Perspectives 1-hour	
PERS 1507	Perspectives 2-hour	
Core IMPACTS Area : Mathematics & Quantitative Skills ¹		3-7
DATA 1501	Introduction to Data Science	3
MATH 1001	Quantitative Skills and Reasoning	3
MATH 1101	Introduction to Mathematical Modeling	3
MATH 1111	College Algebra	3
MATH 1113	Pre-Calculus	4
MATH 1125	Applied Calculus	3
MATH 1131	Calculus with Analytic Geometry I	4
MATH 1132	Calculus with Analytic Geometry II	4
MATH 1165	Computer-Assisted Problem Solving	3
MATH 1401	Introduction to Statistics	3
MATH 1501	Calculus I	4
MATH 2125	Introduction to Discrete Mathematics	3
STAT 1401	Elementary Statistics	3
Core IMPACTS Area : Political Science and U.S. History		6
HIST 2111	U. S. History to 1865	3
or HIST 2112	U. S. History since 1865	
POLS 1101	American Government	3

Core IMPACTS Area : Arts, Humanities, and Ethics		6
Select one Fine Arts course		3
ARTH 1100	Art Appreciation	
ARTH 2125	Introduction to the History of Art I– Prehistoric through Gothic	
ARTH 2126	Introduction to the History of Art II– Renaissance through Modern	
MUSC 1100	Music Appreciation	
THEA 1100	Theatre Appreciation	
ITDS 1145	Comparative Arts ²	
Select one Humanities course		3
ENGL 2111	World Literature I	
ENGL 2112	World Literature II	
ITDS 1155	The Western Intellectual Tradition	
ITDS 1774	Introduction to Digital Humanities	
PHIL 2010	Introduction to Philosophy	
ITDS 1145	Comparative Arts ²	
Core IMPACTS Area : Communicating in Writing		6
ENGL 1101	English Composition I	3
ENGL 1102	English Composition II	3
Core IMPACTS Area : Technology, Mathematics, and Sciences ^{1,3}		7-11
ANTH 1145	Human Origins	3
ASTR 1105	Descriptive Astronomy: The Solar System	3
ASTR 1106	Descriptive Astronomy: Stars and Galaxies	3
ASTR 1305	Descriptive Astronomy Lab	1
ATSC 1112	Understanding the Weather	3
ATSC 1112L	Understanding the Weather Lab	1
BIOL 1125	Contemporary Issues in Biology Non-Lab	3
BIOL 1215K	Introductory Biology	4
BIOL 1225K	Contemporary Issues in Biology with Lab	4
CHEM 1151 & 1151L	Survey of Chemistry I and Survey of Chemistry I Lab	4
CHEM 1152 & 1152L	Survey of Chemistry II and Survey of Chemistry II Lab	4
CHEM 1211 & 1211L	Principles of Chemistry I and Principles of Chemistry I Lab	4
CHEM 1212 & 1212L	Principles of Chemistry II and Principles of Chemistry II Lab	4
CPSC 1105	Introduction to Computing Principles and Technology	3
CPSC 1301K	Computer Science I	4
ENVS 1105	Environmental Studies	3
ENVS 1105L	Environmental Studies Laboratory	1
ENVS 1205K	Sustainability and the Environment	4
GEOG 2215	Introduction to the Geographic Information Systems	3
GEOG 1110	Natural Disasters: Our Hazardous Environment	3
GEOG 1121	Introductory Geoscience I: Physical Geology	3
GEOG 1121L	Introductory Geoscience I: Physical Geology Lab	1
GEOG 1122	Introductory Geo-sciences II: Historical Geology	3
GEOG 1322	Introductory Geo-sciences II: Historical Geology Lab	1
GEOG 2225	The Fossil Record	4

PHYS 1111 & PHYS 1311	Introductory Physics I and Introductory Physics I Lab	4
PHYS 1112 & PHYS 1312	Introductory Physics II and Introductory Physics II Lab	4
PHYS 1125	Physics of Color and Sound	3
PHYS 1325	Physics of Color and Sound Lab	1
PHYS 2211 & PHYS 2311	Principles of Physics I and Principles of Physics I Lab	4
PHYS 2212 & PHYS 2312	Principles of Physics II and Principles of Physics II Lab	4
Core IMPACTS Area : Social Sciences		6
Select one Behavioral Science course		
ECON 2105	Principles of Macroeconomics	
ECON 2106	Principles of Microeconomics	
PHIL 2030	Moral Philosophy	
PSYC 1101	Introduction to General Psychology	
SOCI 1101	Introduction to Sociology	
Select one World Cultures course		3
ANTH 1107	Discovering Archaeology	
ANTH 1105	Cultural Anthropology	
ANTH 2105	Ancient World Civilizations	
ANTH 2136	Language and Culture	
ENGL 2136	Language and Culture	
GEOG 1101	World Regional Geography	
HIST 1111	World History to 1500	
HIST 1112	World History since 1500	
ITDS 1156	Understanding Non-Western Cultures	
Core IMPACTS Total Hours		42
Health and Wellness		3
KINS 1106	Lifetime Wellness	2
	or PHED 1205 Concepts of Fitness	
Select one of the following		1
Any PEDS course		
MUSC 1206	Body Mapping (Music Majors Only)	

¹ The hours applied in the Institutional Priorities; Mathematics & Quantitative Skills; and Technology, Mathematics, and Sciences areas must add to 18 credit hours.

² ITDS 1145 Comparative Arts, though listed under both Fine Arts and Humanities, may be taken only once.

³ At least 4 of the credit hours in this area must be in a lab science course.

Major Requirements

Code	Title	Credit Hours
Core Requirements		
Complete the core requirements for this program		45
Core Total		45
Field of Study Requirements		
Minimum grade of C is required		
ATSC 1112	Understanding the Weather	3
ASTR 1105	Descriptive Astronomy: The Solar System	3
ENVS 1205K	Sustainability and the Environment	4

GEOL 1121	Introductory Geoscience I: Physical Geology	3
GEOL 1121L	Introductory Geoscience I: Physical Geology Lab	1
Select one of the following PHYS sequences:		4
Sequence 1:		
PHYS 1111	Introductory Physics I	
PHYS 1311	Introductory Physics I Lab	
Sequence 2:		
PHYS 2211	Principles of Physics I	
PHYS 2311	Principles of Physics I Lab	
Field of Study Requirements Total		18
Required for the Major		
Minimum grade of C is required		
GEOL 1122	Introductory Geo-sciences II: Historical Geology	3
GEOL 1322	Introductory Geo-sciences II: Historical Geology Lab	1
GEOL 2225	The Fossil Record	4
GEOL 3201	Mineralogy and Petrology I	4
GEOL 4201	Mineralogy and Petrology II	4
GEOL 4275	Structural Geology	4
GEOL 5255U	Environmental Geology	4
GEOL 5165U	Hydrology	3
	or GEOL 5215U Geomorphology	
GEOL 4235	Geographic Information and Global Positioning Systems	4
ATSC 5117U	Global and Climate Change	3
Select one of the following PHYS sequences (4 cr)		4
Sequence 1:		
PHYS 1112	Introductory Physics II	
PHYS 1312	Introductory Physics II Lab	
Sequence 2:		
PHYS 2212	Principles of Physics II	
PHYS 2312	Principles of Physics II Lab	
Required for the Major Total		38
Major Electives		
10 hours of 3000+ level GEOL course		10
12 hours of following*: any 3000+ level ANTH, ASTR, ATSC, ENGR, ENVS, GEOL, MATH, or UTCH		12
*Up to 8 hours of lower level (1000-2000) courses relevant to the program may be counted towards Major Electives with advisor approval if the 39 hour upper-level course requirement is met		
Major Electives Total		22
Total Credit Hours		123

Program Map

Course	Title	Credit Hours
First Year		
Fall		
MATH 1113	Pre-Calculus (minimum grade of C)	4
ENGL 1101	English Composition I (minimum grade of C)	3
GEOL 1121	Introductory Geoscience I: Physical Geology (minimum grade of C) ¹	3

GEOL 1121L	Introductory Geoscience I: Physical Geology Lab (minimum grade of C) ¹	1
Institutional Priorities	COMM 1110 Public Speaking or foreign language 1001, 1002, 2001, 2002	3
Credit Hours		14
Spring		
MATH 1131	Calculus with Analytic Geometry I	4
GEOL 1122	Introductory Geo-sciences II: Historical Geology (minimum grade of C) ¹	3
GEOL 1322	Introductory Geo-sciences II: Historical Geology Lab (minimum grade of C) ¹	1
ENGL 1102	English Composition II (minimum grade of C)	3
Institutional Priorities	ITDS 1779 (2), LEAD 1705 (2), PERS 1506 (1; may be repeated with different topic), PERS 1507 (2)	1-2
HIST 2111 or HIST 2112	U. S. History to 1865 or U. S. History since 1865	3
Credit Hours		15-16
Second Year		
Fall		
CHEM 1211	Principles of Chemistry I (minimum grade of C)	3
CHEM 1211L	Principles of Chemistry I Lab (minimum grade of C)	1
ATSC 1112	Understanding the Weather (minimum grade of C)	3
ASTR 1105	Descriptive Astronomy: The Solar System (minimum grade of C)	3
GEOL 2225	The Fossil Record (minimum grade of C)	4
KINS 1106 or PHED 1205	Lifetime Wellness or Concepts of Fitness	2
Credit Hours		16
Spring		
CHEM 1212	Principles of Chemistry II	3
CHEM 1212L	Principles of Chemistry II Lab	1
Program Electives	Elective ⁵	4
Arts, Humanities, and Ethics	Fine Arts	3
GEOL 3201	Mineralogy and Petrology I (minimum grade of C) ²	4
Credit Hours		15
Third Year		
Fall		
PHYS 1111 or PHYS 2211	Introductory Physics I (minimum grade of C) or Principles of Physics I	3
PHYS 1311 or PHYS 2311	Introductory Physics I Lab (minimum grade of C) or Principles of Physics I Lab	1
Program Electives	Elective ⁵	4
GEOL 4201	Mineralogy and Petrology II (minimum grade of C) ³	4

ENVS 1205K	Sustainability and the Environment (minimum grade of C)	4
Credit Hours		16
Spring		
PHYS 1112 or PHYS 2212	Introductory Physics II (minimum grade of C) or Principles of Physics II	3
PHYS 1312 or PHYS 2312	Introductory Physics II Lab (minimum grade of C) or Principles of Physics II Lab	1
GEOL 4235	Geographic Information and Global Positioning Systems (minimum grade of C)	4
Arts, Humanities, and Ethics	Humanities	
GEOL 4275	Structural Geology (minimum grade of C) ⁴	4
Health and Wellness	PEDS Elective	4
Credit Hours		16
Fourth Year		
Fall		
GEOL 5255U	Environmental Geology (minimum grade of C)	4
Program Electives	Elective ⁵	4
Program Electives	Elective ⁵	4
POLS 1101	American Government	3
Credit Hours		15
Spring		
GEOL 5165U	Hydrology (minimum grade of C)	3
Social Sciences	World Culture	3
Program Electives	Elective ⁵	4
Social Sciences	Behavioral Science Option	3
ATSC 5117U	Global and Climate Change (minimum grade of C)	3
Credit Hours		16
Total Credit Hours		123

¹ GEOL 1122 Introductory Geo-sciences II: Historical Geology/GEOL 1322 Introductory Geo-sciences II: Historical Geology Lab is a prerequisite for GEOL 4275 Structural Geology and some Program Electives for students in the Geology track.

² GEOL 3201 Mineralogy and Petrology I is offered once every 3 semesters and is a prerequisite for GEOL 4201 Mineralogy and Petrology II.

³ GEOL 4201 Mineralogy and Petrology II is only offered once every 3 semesters.

⁴ GEOL 4275 Structural Geology is offered every 3 semesters.

⁵ 1-4 hours from Institutional Priorities may be used in Program Electives.

Admission Requirements

There are no program specific admission requirements.

Additional Program Requirements

There are no program specific academic regulations.