

BS in Geophysics

Employment projections from the U.S. Bureau of Labor Statistics (BLS) indicate an overall 4.9% increase in geoscience jobs between 2019 and 2029, from 460,242 jobs in 2019 to 482,726 jobs in 2029. For comparison, the projected growth of the U.S. workforce over the same timeframe is expected to be 3.7%. Growth rates for individual geoscience occupations range between 0% and 8.4% for all but geoscience engineering managers (-1%).

Marketable Skills

Students will develop:

- Communication: Reach mutual understanding through effective exchange of information, ideas, and feelings
- Critical thinking: Analyze and evaluate issues in order to solve problems and develop informed opinions
- Problem-solving: Find solutions to difficult or complex issues
- Research: Be able to search, investigate and critically analyze information in response to a specific research question
- Teamwork: Participate as an effective, efficient member of a group in order to meet a common goal
- Writing: Communicate using text in a clear and concise manner

Additionally, students will learn about 3-D spatial thinking, the ability to interpret geological maps, mapping skills, sample collection, and organization skills.

Degree Plan

Code	Title	Hours
University Core Curriculum		
Complete the University Core Curriculum requirements.		42
Geophysics Major Requirements		
Supporting Math/Science courses		
CHEM 1105	Laboratory for CHEM 1305	1
CHEM 1106	Laboratory for CHEM 1306	1
CHEM 1305	General Chemistry	3
CHEM 1306	General Chemistry	3
MATH 1411	Calculus I	4
MATH 1312	Calculus II	3
MATH 2313	Calculus III	3
MATH 2326	Differential Equations	3
PHYS 2230	Thermal and Fluid Physics	2
PHYS 2320 & PHYS 2120	Introductory Mechanics and Laboratory for PHYS 2320	4
PHYS 2321 & PHYS 2121	Introductory Electromagnetism and Laboratory for PHYS 2321	4
Geophysics Required Courses		
GEOL 1313 & GEOL 1103	Intro to Physical Geology and Lab for GEOL 1313	4
OR		
GEOL 1211 & GEOL 1111	Principles of Earth Sciences and Principles of Earth Sci - Lab	
AND ONE OF		
GEOL 1314 & GEOL 1104	Intro to Historical Geol and Lab for GEOL 1314	4
OR		
GEOL 1212 & GEOL 1112	Principles of Earth Science and Laboratory for Geology 1212	
Required Courses:		
GEOL 2309 & GEOL 2109	Mineralogy & Petrology and Mineralogy & Petrology Lab	4

GEOL 3312 & GEOL 3112	Geoscience Processes and Geoscience Processes Lab	4
GEOL 3215 & GEOL 3115	Igneous/Metamorphic Petrology and Igneous/Metamorphic Petr. Lab	3
GEOL 3323 & GEOL 3123	Structural Geology and Structural Geology Lab	4
GEOL 3326 & GEOL 3126	Sedimentology & Stratigraphy and Lab for Sedim & Stratigraphy	4
GEOL 4375	Field Geology I	3
GEOP 3320A	Introduction to Geophysics	3
GEOP 3320B	Data Interp in the Geosciences	3
GEOP 4420A	Applied Geophysics I-Nonseismic	4
GEOP 4420B	Applied Geophysics II-Seismic	4
GEOP 4350	Field Geophysics	3
Geophysics Electives		
Select nine hours of upper division courses from CS, Engineering, GEOL, GEOP, MATH, STAT, or PHYS		9
Total Hours		120

University Core Curriculum

The department may make specific suggestions for courses which are most applicable towards your major.

All courses require a C or better

I. Communication (six hours)

Code	Title	Hours
Courses in this category focus on developing ideas and expressing them clearly, considering the effect of the message, fostering understanding, and building the skills needed to communicate persuasively. Courses involve the command of oral, aural, written, and visual literacy skills that enable people to exchange messages appropriate to the subject, occasion, and audience.		
Select six hours of the following:		6
For students whose secondary education was in English:		
COMM 1611	Written and Oral Communication	
ENGL 1313	Writing About Literature	
RWS 1301	Rhetoric & Composition I	
RWS 1302	Rhetoric & Composition 2	
RWS 1601	Rhetoric, Composition & Comm	
For students whose secondary education was not in English:		
ESOL 1311	Expos Engl Compos-Spkr Esl	
ESOL 1312	Res & Crit Writng Spkr Esl	
Total Hours		6

II. American History (six hours)

Code	Title	Hours
Courses in this category focus on the consideration of past events and ideas relative to the United States, with the option of including Texas History for a portion of this component area. Courses involve the interaction among individuals, communities, states, the nation, and the world, considering how these interactions have contributed to the development of the United States and its global role.		
HIST 1301	History of U.S. to 1865	3
HIST 1302	History of U.S. Since 1865	3
Total Hours		6

III. Language, Philosophy & Culture (three hours)

Code	Title	Hours
Courses in this category focus on how ideas, values, beliefs, and other aspects of culture express and affect human experience. Courses involve the exploration of ideas that foster aesthetic and intellectual creation in order to understand the human condition across cultures.		
Select one of the following:		3

AFST 2300	Intro-African Amer Studies
CHIC 2302	Latina/o Presence in the U.S.
ENGL 2311	English Literature
ENGL 2312	English Literature
ENGL 2313	Intro to American Fiction
ENGL 2314	Intro to American Drama
ENGL 2318	Intro to American Poetry
FREN 2322	Making of the "Other" Americas
HIST 2301	World History to 1500
HIST 2302	World History Since 1500
PHIL 1301	Introduction to Philosophy
PHIL 2306	Ethics
RS 1301	Introduct to Religious Studies
SPAN 2340	Seeing & Naming: Conversations
WS 2300	Introduction to Womens Studies
WS 2350	Global Feminisms
Total Hours	

IV. Mathematics (three hours)

Code	Title	Hours
Courses in this category focus on quantitative literacy in logic, patterns, and relationships. Courses involve the understanding of key mathematical concepts and the application of appropriate quantitative tools to everyday experience.		
Select one of the following:		3
MATH 1309	College Algebra	
MATH 1310	Trigonometry and Conics	
MATH 1319	Math in the Modern World	
MATH 1320	Math for Social Sciences I	
MATH 1411	Calculus I	
MATH 1508	Precalculus ^{1,2}	
MATH 2301	Math for Social Sciences II	
STAT 1380	Statistical Literacy	
STAT 2480	Elementary Statistical Methods	
1 A higher-level course in the calculus sequence can be substituted.		
2 TCCN MATH 1314 will also satisfy this requirement.		
Total Hours		3

V. Life & Physical Sciences (six hours)

Code	Title	Hours
Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on experiences.		
Select one of the following:		1-4
ASTR 1107	Astronomy Lab I	
ASTR 1307	Elem Astronomy-Solar System	
ASTR 1308	Elem Astr Stars & Galaxies	
BIOL 1103	Introductory Biology Lab	
BIOL 1104	Human Biology Laboratory	
BIOL 1107	Topics in Study of Life I	
BIOL 1108	Organismal Biology Laboratory	
BIOL 1203	Introductory Biology	
BIOL 1304	Human Biology	
BIOL 1305	General Biology	
BIOL 1306	Organismal Biology	
BIOL 2111	Human Anat/Physio Lab I	

BIOL 2113	Human Anat/Physio Lab II	
BIOL 2311	Human Anat/Physiology I	
BIOL 2313	Human Anat/Physiology II	
CHEM 1105	Laboratory for CHEM 1305	
CHEM 1106	Laboratory for CHEM 1306	
CHEM 1107	Intro General Chemistry Lab	
CHEM 1108	Intro Organic & Biochem Lab	
CHEM 1305	General Chemistry	
CHEM 1306	General Chemistry	
CHEM 1307	Intro to General Chemistry	
CHEM 1308	Intro Organic & Biochemistry	
ESCI 1101	Environmental Sci. Lab	
ESCI 1102	Non-major Lab for ESCI 1301	
ESCI 1202	Intro to Environment Science 2	
ESCI 1301	Intro to Environmental Sci	
GEOG 1106	Laboratory for GEOG 1306	
GEOG 1306	Physical Geography	
GEOL 1103	Lab for GEOL 1313	
GEOL 1104	Lab for GEOL 1314	
GEOL 1111	Principles of Earth Sci - Lab	
GEOL 1112	Laboratory for Geology 1212	
GEOL 1211	Principles of Earth Sciences	
GEOL 1212	Principles of Earth Science	
GEOL 1230	The Blue Planet	
GEOL 1231	Natural Hazards	
GEOL 1313	Intro to Physical Geology	
GEOL 1314	Intro to Historical Geol	
HSCI 2302	Fundamentals of Nutrition	
HSCI 2303	Wellness Dynamics	
MICR 2330	Microorganisms and Disease	
PHYS 1403	General Physics I	
PHYS 1404	General Physics II	
PHYS 2120	Laboratory for PHYS 2320	
PHYS 2121	Laboratory for PHYS 2321	
PHYS 2320	Introductory Mechanics	
PHYS 2321	Introductory Electromagnetism	
Total Hours		6

VI. Political Science (six hours)

Code	Title	Hours
Courses in this category focus on consideration of the Constitution of the United States and the constitutions of the states, with special emphasis on that of Texas. Courses involve the analysis of governmental institutions, political behavior, civic engagement, and their political and philosophical foundations.		
Required Courses:		
POLS 2310	Introduction to Politics	3
POLS 2311	American Gover & Politics	3
Total Hours		6

VII. Social and Behavioral Sciences (three hours)

Code	Title	Hours
Courses in this category focus on the application of empirical and scientific methods that contribute to the understanding of what makes us human. Courses involve the exploration of behavior and interactions among individuals, groups, institutions, and events, examining their impact on the individual, society, and culture.		

Select one of the following:		3
ANTH 1301	Intro-Phys Anth/Archeolog	
ANTH 1302	Intro-Cultural Anthropology	
ANTH 1310	Cultural Geography	
ANTH 2320	Intro to Linguistics	
CE 2326	Econ for Engrs & Scientists	
CHIC 2311	Intro to Chicano Studies	
ASIA 2300	Asian American Studies	
COMM 2350	Interpersonal Communication	
COMM 2372	Mass Media and Society	
ECON 2303	Principles of Macroeconomics	
ECON 2304	Principles of Microeconomics	
EDPC 1301	Introduction to Ed Psychology	
EDU 1342	Action Research in Classrooms	
ENGL 2320	Introduction to Linguistics	
GEOG 1310	Cultural Geography	
LEAD 2300	Community Service	
LING 2320	An Intro. to Linguistics	
LING 2340	Lang. Inside & Out: Sel Topics	
PSYC 1301	Introduction to Psychology	
SOCI 1301	Introduction to Sociology	
SOCI 1310	Cultural Geography	
Total Hours		3

VIII. Creative Arts (three hours)

Code	Title	Hours
Courses in this category focus on the appreciation and analysis of creative artifacts and works of the human imagination. Courses involve the synthesis and interpretation of artistic expression and enable critical, creative, and innovative communication about works of art.		
Select one of the following:		3
ART 1300	Art Appreciation	
ARTH 1305	History of Art I	
ARTH 1306	History of Art II	
CHIC 1311	Chicana/o Fine Arts Appreciat	
DANC 1304	Dance Appreciation	
FILM 1390	Intro-Art of Motion Pict.	
MUSL 1324	Music Appreciation	
MUSL 1327	Jazz to Rock	
MUSL 2321	Music, Culture, and Society	
THEA 1313	Introduction to Theatre	
Total Hours		3

IX. Component Area Option (six hours)

Code	Title	Hours
a. A minimum of 3 SCH must meet the definition and corresponding Core Objectives specified in one of the foundational component areas. b. As an option for up to 3 semester credit hours of the Component Area Option, an institution may select course(s) that: (i) Meet(s) the definition specified for one or more of the foundational component areas; and (ii) Include(s) a minimum of three Core Objectives, including Critical Thinking Skills, Communication Skills, and one of the remaining Core Objectives of the institution's choice.		
BUSN 1301	Intro to Global Business	
COMM 1301	Public Speaking	
COMM 1302	Business/Profession Comm	
CS 1310	Intro-Computational Thinking	
CS 1320	Computer Programming Sci/Engr	
EL 1301	Eng Innovation and Leadership	

LEAD 1300	Introduction to Leadership	
SCI 1301	Inquiry in Math & Science	
UNIV 1301	Seminar/Critical Inquiry	
Total Hours		0

Bachelor of Science in Geophysics (Starting with Calculus)

Code	Title	Hours
Bachelor of Science in Geophysics (Starting with Calculus)		
FRESHMAN		
Fall		
GEOL 1313 & GEOL 1103	Intro to Physical Geology and Lab for GEOL 1313	4
MATH 1411	Calculus I	4
RWS 1301	Rhetoric & Composition I	3
UNIV 1301	Seminar/Critical Inquiry	3
Spring		
CHEM 1305 & CHEM 1105	General Chemistry and Laboratory for CHEM 1305	4
GEOL 1314 & GEOL 1104	Intro to Historical Geol and Lab for GEOL 1314	4
MATH 1312	Calculus II	3
RWS 1302	Rhetoric & Composition 2	3
SOPHOMORE		
Fall		
CHEM 1306 & CHEM 1106	General Chemistry and Laboratory for CHEM 1306	4
GEOL 2309 & GEOL 2109	Mineralogy & Petrology and Mineralogy & Petrology Lab	4
GEOL 3312 & GEOL 3112	Geoscience Processes and Geoscience Processes Lab	4
PHYS 2320 & PHYS 2120	Introductory Mechanics and Laboratory for PHYS 2320	4
Spring		
Creative Arts Area		3
HIST 1301	History of U.S. to 1865	3
MATH 2313	Calculus III	3
GEOL 3215 & GEOL 3115	Igneous/Metamorphic Petrology and Igneous/Metamorphic Petr. Lab	3
GEOP 3320A	Introduction to Geophysics	3
JUNIOR		
Fall		
HIST 1302	History of U.S. Since 1865	3
MATH 2326	Differential Equations	3
PHYS 2321 & PHYS 2121	Introductory Electromagnetism and Laboratory for PHYS 2321	4
GEOL 3323 & GEOL 3123	Structural Geology and Structural Geology Lab	4
GEOL 3326 & GEOL 3126	Sedimentology & Stratigraphy and Lab for Sedim & Stratigraphy	4
Spring		
COMM 1302	Business/Profession Comm	3
GEOP 3320B	Data Interp in the Geosciences	3
PHYS 2230	Thermal and Fluid Physics	2
POLS 2310	Introduction to Politics	3

Social & Behavioral Sciences Area		3
SENIOR		
Fall		
GEOL 4375	Field Geology I	3
GEOP 4420A	Applied Geophysics I-Nonseismic	4
Elective		3
Language, Philosophy and Culture Area		3
Spring		
GEOP 4350	Field Geophysics	3
GEOP 4420B	Applied Geophysics II-Seismic	4
POLS 2311	American Gover & Politics	3
Elective		3
Elective		3
Total Hours		120

Bachelor of Science in Geophysics (Starting with Pre-Calculus)

Code	Title	Hours
Bachelor of Science in Geophysics (Starting with Pre-Calculus)		
FRESHMAN		
Fall		
RWS 1301	Rhetoric & Composition I	3
UNIV 1301	Seminar/Critical Inquiry	3
GEOL 1313 & GEOL 1103	Intro to Physical Geology and Lab for GEOL 1313	4
MATH 1508	Precalculus	5
Spring		
RWS 1302	Rhetoric & Composition 2	3
GEOL 1314 & GEOL 1104	Intro to Historical Geol and Lab for GEOL 1314	4
MATH 1411	Calculus I	4
CHEM 1305 & CHEM 1105	General Chemistry and Laboratory for CHEM 1305	4
SOPHOMORE		
Fall		
MATH 1312	Calculus II	3
CHEM 1306 & CHEM 1106	General Chemistry and Laboratory for CHEM 1306	4
GEOL 2309 & GEOL 2109	Mineralogy & Petrology and Mineralogy & Petrology Lab	4
PHYS 2320 & PHYS 2120	Introductory Mechanics and Laboratory for PHYS 2320	4
GEOL 3312 & GEOL 3112	Geoscience Processes and Geoscience Processes Lab	4
Spring		
HIST 1301	History of U.S. to 1865	3
Creative Arts Area		3
MATH 2313	Calculus III	3
GEOL 3215 & GEOL 3115	Igneous/Metamorphic Petrology and Igneous/Metamorphic Petr. Lab	3
GEOP 3320A	Introduction to Geophysics	3
JUNIOR		
Fall		
HIST 1302	History of U.S. Since 1865	3

MATH 2326	Differential Equations	3
PHYS 2321 & PHYS 2121	Introductory Electromagnetism and Laboratory for PHYS 2321	4
GEOL 3326 & GEOL 3126	Sedimentology & Stratigraphy and Lab for Sedim & Stratigraphy	4
GEOL 3323 & GEOL 3123	Structural Geology and Structural Geology Lab	4
Spring		
POLS 2310	Introduction to Politics	3
Social & Behavioral Sciences Area		3
COMM 1302	Business/Profession Comm	3
GEOP 3320B	Data Interp in the Geosciences	3
PHYS 2230	Thermal and Fluid Physics	2
SENIOR		
Fall		
Language, Philosophy and Culture Area		3
GEOP 4420A	Applied Geophysics I-Nonseismic	4
GEOL 4375	Field Geology I	3
Elective		3
Spring		
POLS 2311	American Gover & Politics	3
GEOP 4350	Field Geophysics	3
Elective		3
Elective		3
GEOP 4420B	Applied Geophysics II-Seismic	4
Total Hours		125