

BS in Geophysics

Admission to this program is suspended, pending review.

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 | Leadership in Action | |
| LING 2320 | Introduction 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 | Introduction to Dance | |
| 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 | |

| | |
|-----------|--------------------------------|
| ENGR 1302 | Engineering Design Experience |
| ENGR 1303 | Applied Engineering Analysis |
| LEAD 1300 | Introduction to Leadership |
| SCI 1301 | Inquiry in Math & Science |
| SPLP 1312 | Comm. Var. Across the Lifespan |
| 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 GeophysicsI-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**