GEOLOGY - BS

This program provides students with a strong foundation in geology as well as a background in other sciences and math, preparing students for careers in the environmental and energy industries, federal and state agencies, and private sector and nonprofit organizations.

The Bachelor of Science (BS) in Geology also prepares students for advanced study in graduate programs. The first two years of the BS program in Geology provide students with the basics of geology and the supporting fields of chemistry, physics and mathematics. The junior and senior years involve more advanced study in the subfields of geology and provide the opportunity for concentrated study in specific disciplines through the selection of technical electives. The Geology and Geophysics Department offers summer field camp (GEOL 350) in the Western US, in which students apply their geologic knowledge to collecting data and solving real problems. Seniors will participate in a group research capstone course (GEOL 450), in which they work in teams with a faculty advisor to solve a current problem and communicate their findings and experience. Students also have opportunities to become involved in individual research projects with faculty members and can receive course credit for this activity through GEOL 291 and GEOL 491.

The BS in Geology is the appropriate degree for students intending to pursue graduate study in geology and for those seeking starting positions in the energy industry, environmental consulting, and as professional geologists in government and non-profit sectors. The required courses are supplemented by electives that prepare students for chosen career paths and graduate study within particular subfields.

Some of society's most pressing problems, including groundwater contamination and remediation, water resources, and geologic hazards such as landslides, flooding and subsidence are addressed in the field of environmental geology. Environmental geologists typically find careers with environmental and engineering consulting companies and other industrial corporations, governmental agencies or academia. Students are well-prepared for the Association of State Boards of Geology (ASBOG) Fundamentals of Geology professional licensing exam. Specific elective classes recommended include GEOL 351, GEOL 410, GEOL 412, GEOL 420, GEOL 440, GEOG 410/OCNG 412 and approved classes in other departments including Soil Science, Chemistry, Physics and Civil Engineering. Geologists may also be employed in the energy industry; recommended classes include GEOL 301, GEOL 404, GEOL 416, GEOP 313. Qualified students (GPA of 3.0 or higher with dean's permission) may also take related graduate courses during the senior year.

To remain in satisfactory academic standing, students must maintain a 2.0 or better GPA in all technical courses (geology, geophysics, chemistry, math and physics). Some courses require field trips.

Program Requirements

First Year		
Fall		**Semester Credit Hours**
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
GEOL 150	Introduction to the Solid Earth	4
GEOL 180	Introduction to Geology and Geophysics	1
MATH 151	Engineering Mathematics I	4
	Semester Credit Hours	**16**
Spring		
CHEM 120	Fundamentals of Chemistry II	4
GEOL 152	History of the Earth	4
MATH 152	Engineering Mathematics II	4
Communication (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication)		3
	Semester Credit Hours	**15**
Second Year		
Fall		
GEOL 203	Mineralogy	4
GEOL 210	Geological Communication	3
MATH 251	Engineering Mathematics III	3
PHYS 206	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Physics of Motion Laboratory for the Sciences	1
	Semester Credit Hours	**14**
Spring		
GEOL 250	Geological Field Methods	4
GEOL 304	Igneous and Metamorphic Petrology	4
MATH 308	Differential Equations	3
PHYS 207	Electricity and Magnetism for Engineering and Science	3
PHYS 227	Electricity and Magnetism Laboratory for the Sciences	1
	Semester Credit Hours	**15**
Third Year		
Fall		
GEOL 306	Sedimentology and Stratigraphy	4
GEOP 341	Fundamentals of Geophysics	3
Select one of the following:		3
American history (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history)		
Government/Political science (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science)		
Language, philosophy and culture (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture) [1]		3
	Semester Credit Hours	**13**
Spring		
GEOL 312	Structural Geology and Tectonics	4
GEOL 314	Paleontology and Geobiology	4
Select one of the following:		3
American history (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history)		
Government/Political science (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science)		

Technical elective [2]		3
	Semester Credit Hours	**14**
Summer		
GEOL 350	Summer Field Geology	3
	Semester Credit Hours	**3**
Fourth Year		
Fall		
GEOL 450	Geology Senior Project	3
Select one of the following:		3
American history (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history)		
Government/Political science (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science)		
Technical elective [2]		9
	Semester Credit Hours	**15**
Spring		
Select one of the following:		3
American history (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history)		
Government/Political science (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science)		
Creative arts (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts) [1]		3
Social and behavioral science (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences) [1]		3
Technical elective [2]		6
	Semester Credit Hours	**15**
	Total Semester Credit Hours	**120**

[1] The Graduation requirements include a requirement for three hours of International and Cultural Diversity (https://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/) courses and three hours of Cultural Discourse (https://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/) courses. A course satisfying a Core category, a college/department requirement, or a free elective can be used to satisfy this requirement. See academic advisor.

[2] Any science, math or engineering course that augments the degree with the approval of the advisor.