

BS IN GEOLOGY (ENVIRONMENTAL GEOLOGY)

Units required for Major: 75
Total units required for BS: 120

Program Description

The BS in Geology with a concentration in Environmental Geology prepares students to enter the workforce or pursue further studies in near-surface processes such as water and soil that provide vital resources for humans and the environment. The program emphasizes the fundamentals of geology, including earth materials, stratigraphy, structural geology, and field geology. The program then builds on this foundation with coursework focusing on environmental systems and human interactions with the Earth and environment including water resources, soil processes, land and resource management, soil and water contamination and remediation, and related natural Earth processes.


Graduates from this program will meet the educational requirements for pursuing licensure as a Professional Geologist.

Program Requirements

Code	Title	Units
Required Lower Division Core Courses (26 Units)		
CHEM 1A	General Chemistry I	5
GEOL 10 & 10L	Physical Geology Physical Geology Lab	4
or GEOL 5	Geology Of Mexico	
GEOL 11	Digital Methods in Geoscience	1
GEOL 12	Historical Geology	3
GEOL 12L	Historical Geology Lab	1
MATH 30	Calculus I ¹	4
PHYS 5A	General Physics: Mechanics, Heat, Sound	4
or PHYS 11A	General Physics: Mechanics	
PHYS 5B	General Physics: Light, Electricity and Magnetism, Modern Physics	4
or PHYS 11B	General Physics: Heat, Light, Sound, Modern Physics	
Required Upper Division Core Courses (22 Units)		
GEOL 100	Earth Materials - Rocks and Minerals	4
GEOL 103	Sedimentology/Stratigraphy	4
GEOL 110A	Structural Geology and Tectonics	4
GEOL 110B	Structural Geology Field	1
GEOL 111A	Field Geology	2
GEOL 111B	Field Techniques	2
GEOL 121	Geology of California	3
GEOL 189	Geology Colloquium	2
Concentration (24-27 Units)		
Select from the following concentrations:		24
		-
		27
	General Geology	
	Environmental Geology	
Total Units		72-75

¹ Course also satisfies General Education (GE)/Graduation Requirement.

Concentration in Environmental Geology (27 units)

Code	Title	Units
Required Courses (8 Units)		
CHEM 1B	General Chemistry II	5
GEOL 140	Geology and the Environment 	3
Elective Courses (19 Units)		
Select at least 10 units from the following four classes with an environmental geology focus:		
GEOL 120	Surficial Processes	
GEOL 123	Geochemistry	
GEOL 126	Environmental Field Methods	
GEOL 127	Hydrogeology	
Remaining elective units may come from the following classes:		
GEOL 101	Optical Mineralogy	
GEOL 102	Igneous and Metamorphic Petrology	
GEOL 105	Paleontology	
GEOL 112	Geophysics For Geologists	
GEOL 114	Volcanology	
GEOL 125	Metallic Ore Deposits	
GEOL 132	Marine Geology	
GEOL 150	Computer Mapping in Geology	
GEOL 171	Petroleum Geology	
GEOL 188	Advanced Geologic Mapping	
GEOL 193C	Engineering Geology	
GEOL 198A	Senior Research Preparation	
GEOL 198B	Senior Research Project	

Total Units 27

General Education Requirements ¹

Code	Title	Units
Area 1: English Communication (9 Units)		
1A	English Composition	3
1B	Critical Thinking	3
1C	Oral Communication	3
Area 2: Mathematical Concepts and Quantitative Reasoning (3 Units)		
Area 2 Course	- Lower Division	3
Area 3: The Arts and Humanities (6 Units)		
3A	Arts	3
3B	Humanities	3
Area 4: Social and Behavioral Sciences (6 Units)		
Area 4 Course	-Lower Division	3
Area 4 Course	- Lower Division	3
Area 5: Physical and Biological Sciences (7 Units)		
5A	Physical Science	3
5B	Biological Science	3
5C	Laboratory	1
Area 6: Ethnic Studies (3 Units)		

Area 6 Course	3
Upper Division Courses: (9 Units)	
Area 3 Course - Upper Division	3
Area 4 Course - Upper Division	3
Area 2 OR Area 5 Course - Upper Division	3
Total Units	43

¹ To help you complete your degree in a timely manner and not take more units than absolutely necessary, there are ways to use single courses to meet more than one requirement (overlap). For further information, please visit the General Education page (<https://catalog.csus.edu/colleges/academic-affairs/general-education/>).

Note: There is no way to list all possible overlaps so please consult with a professional advisor. The Academic Advising Center can be visited online (<http://www.csus.edu/acad>), by phone (916) 278-1000, or email (advising@csus.edu).

² Required in Major; also satisfies GE.

Graduation Requirements ¹

Code	Title	Units
Graduation Requirements (required by CSU) (9 Units)		
American Institutions: U.S. History		3
American Institutions: U.S. Constitution & CA Government		3
Writing Intensive (WI)		3
Graduation Requirements (required by Sacramento State) (12 Units)		
English Composition II		3
Race and Ethnicity in American Society (RE)		3
Foreign Language Proficiency Requirement ²		6

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² If not satisfied before entering Sacramento State, it may be satisfied in General Education Area C2 (Humanities). "C- or better required." The alternative methods for satisfying the Foreign Language Proficiency Requirement are described here: <https://www.csus.edu/college/arts-letters/world-languages-literatures/foreign-language-requirement.html>

The following roadmaps are sample planning resources. Please consult your academic advisor and Academic Catalog for graduation requirements as you develop your individualized academic plan.

Geology (Environmental Geology), BS: 4-Year Roadmap

Course	Title	Units
Year 1		
First Semester		
GEOL 10 or GEOL 10L or GEOL 5	Physical Geology ³ or Physical Geology Lab or Geology Of Mexico	1 - 4
GE Area 1B - Critical Thinking ²		3
GE Area 1C - Oral Communication ²		3
GE Area 3A - Arts ²		3

GR American Institutions (GOVT) ²		3
Units		
		13-16

Second Semester		
CHEM 1A	General Chemistry I	5
MATH 30	Calculus I	4
GE Area 1A - English Composition ²		3
GE Area 5B - Biological Science ²		3
Units		
		15

Year 2

First Semester		
CHEM 1B	General Chemistry II	5
GEOL 12	Historical Geology	3
GEOL 12L	Historical Geology Lab	1
Foreign Language Semester 1 ²		4
GR American Institutions (US History) ²		3
Units		
		16


Second Semester		
GEOL 11	Digital Methods in Geoscience	1
PHYS 5A or PHYS 11A	General Physics: Mechanics, Heat, Sound or General Physics: Mechanics	4
GEOL Elective ³		3
Foreign Language Semester 2 ²		4
Second Semester Composition ²		3
Units		
		15

Year 3

First Semester		
GEOL 100	Earth Materials - Rocks and Minerals	4
PHYS 5B or PHYS 11C	General Physics: Light, Electricity and Magnetism, Modern Physics or General Physics: Electricity and Magnetism	4
GEOL Elective ³		4
GE Area 4 - Social & Behavioral Sciences ²		3
Units		
		15

Second Semester		
GEOL 103	Sedimentology/Stratigraphy	4
GEOL 111A	Field Geology	2
GEOL 111B	Field Techniques	2
GEOL Elective ³		4
GE Area 6 - Ethnic Studies ²		3
Units		
		15

Year 4

First Semester		
GEOL 140	Geology and the Environment 	3
GEOL 189	Geology Colloquium	1
GEOL Elective ³		3
GEOL Elective ³		3
Upper Division GE Area 5 or 2 - Science or Mathematical Concepts/Quantitative Reasoning ²		3
Units		
		13

Second Semester		
GEOL 110A	Structural Geology and Tectonics	4
GEOL 110B	Structural Geology Field	1
GEOL 121	Geology of California	3
GEOL 189	Geology Colloquium	1
GEOL Elective ³		3

Upper Division GE Area 3 - Arts or Humanities ²	3
Units	15
Total Units	117-120

Geology (Environmental Geology), BS: 2-Year Roadmap

Course	Title	Units
Year 1		
First Semester		
GEOL 100	Earth Materials - Rocks and Minerals	4
GEOL Elective ³		3
GEOL Elective ³		4
Foreign Language Semester 1 ²		4
GR American Institutions (GOVT) ²		3
Units		18
Second Semester		
GEOL 103	Sedimentology/Stratigraphy	4
GEOL 111A	Field Geology	2
GEOL 111B	Field Techniques	2
GEOL Elective ³		4
Foreign Language Semester 2 ²		4
Units		16
Year 2		
First Semester		
GEOL 140	Geology and the Environment ✍	3
GEOL 189	Geology Colloquium	1
GEOL Elective ³		3
GEOL Elective ³		3
Upper Division GE Area 5 or 2 - Science or Mathematical Concepts/Quantitative Reasoning ²		3
GR American Institutions (US History) ²		3
Units		16
Second Semester		
GEOL 110A	Structural Geology and Tectonics	4
GEOL 110B	Structural Geology Field	1
GEOL 121	Geology of California	3
GEOL 189	Geology Colloquium	1
GEOL Elective ³		3
Upper Division GE Area 3 - Arts or Humanities ²		3
Units		15
Total Units		65

¹. Any course not completed in the first semester should be taken in the second of a later semester.

². Please see General Education/Graduation Requirement course options (https://www.csus.edu/academic-affairs/curriculum-%20workflow/_internal/_documents/program-road-maps/als_2yr/art_transfer-%20roadmap-2024-25.pdf).

³. Please see an academic advisor for elective options.