

GEOLOGY, BS

Natural Sciences, Mathematics, and Engineering (nsme) (<https://catalog.csub.edu/general-information/csub-information/school-natural-sciences-mathematics-engineering/>)

Department of Geological Sciences (<https://catalog.csub.edu/general-information/csub-information/school-natural-sciences-mathematics-engineering/department-geological-sciences/>)

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www.csub.edu/geology (<http://www.csub.edu/geology/>)

Program Maps for Natural Sciences, Mathematics, and Engineering (<https://programmmap.csub.edu/academics/interest-clusters/4e942a6e-b8e4-4b60-a1ae-334235acc581/>)

Program Description

Geology is the study of the Earth and our neighboring planets in space, their composition, processes, and history. The degrees offered are the Bachelor of Arts, the Bachelor of Science, and the Master of Science in Geology. A minor in Geology is also available. The curriculum includes basic courses in geology and other cognate subjects and provides for independent research, field application, and Environmental Studies, when desired.

The curriculum and courses offered in Geology stress the physical framework of the environment and its relationships to organisms and to man. The University is located in an excellent geologic area with easy access to several mountain ranges, deserts, oil fields, agricultural areas, and the Pacific Coast.

At the completion of their Geology degree programs students will have basic knowledge and understanding of the content of modern geology, will have acquired knowledge and demonstrated skills to collect and analyze Earth's minerals and rocks, and will understand the philosophical, mathematical and physical science foundations of geology.

Graduates with degrees in Geology have excellent employment opportunities both locally and elsewhere in petroleum and minerals exploration, water resources, environmental applications, land use, and waste disposal management. The degree program also provides a strong foundation for secondary school science teaching or graduate study in geology and environmental science. Students planning on attending graduate school are advised to pursue the BS degree as the course work for this degree, particularly the cognate courses, generally represents the minimum requirements for acceptance into a graduate program, including the Master of Science program in Geology at CSUB. Visit our website at: <http://www.csub.edu/geology>. (<http://www.csub.edu/geology.html>)

The Department of Geological Sciences offers two tracks leading to a major in Geology and one track leading to a minor for a major in another field:

- Bachelor of Science in Geology
- Bachelor of Arts in Geology
- Minor in Geology

CSUB has developed a degree program, the Bachelor of Science in Natural Sciences, to prepare prospective science teachers for subject matter certification in California via the California Subject Matter Examinations for Teachers (CSET) in Science. See the catalog section under Natural Sciences for information about this degree program. Additional information may be obtained from the Geological Sciences Department office (661- 654-3027).

Program Requirements

Code	Title	Units
General Education Requirements		
	First-Year Seminar (FYS)	2
	Lower Division Area A: Foundational Skills	9
	Lower Division Area B: Natural Sciences ⁵	3
	Lower Division Area C: Arts and Humanities	6
	Lower Division Area D: Social and Behavioral Sciences	3
	Lower Division Area E: Student Enrichment and Lifelong Learning (SELF) ⁶	0
	Lower Division Area F: Ethnic Studies	3
	American Institutions: Government and History	6
	Junior Year Diversity & Reflection (JYDR)	3
	Graduation Writing Assessment Requirement (GWAR)	3
	Upper Division Thematic Area C and D	6
	General Education Capstone ⁵	0
	General Education Subtotal ⁷	44
Major Requirements ¹		
<i>Lower Division</i>		
GEOL 2010	Physical Geology	4
GEOL 2040	Historical Geology	4
<i>Upper Division</i>		
GEOL 3000	Mineralogy and Petrology	4
GEOL 3010	Fundamentals of Geochemistry	4
GEOL 3040	Sedimentology and Stratigraphy	4
GEOL 3060	Applied Geochemistry	4
GEOL 3070	Structural Geology	4
GEOL 3090	Principles of Geophysics	4
GEOL 4090	Field Course in Geology ²	5
GEOL 4200	Professional Development for BA-BS Students	2
GEOL 4908	Senior Field Seminar	4
A minimum of twelve additional GEOL units above 3000-level, 3 units of which must be at the 4000-level ³		
GEOL 3011	Natural History of National Parks	
GEOL 3031	Plate Tectonics	
GEOL 3050	Geological Oceanography	
GEOL 3080	Geomorphology	
GEOL 3339	Dinosaurs: Paleocology, Evolution and Extinction	
GEOL 4010	Hydrogeology	
GEOL 4020	Environmental Geochemistry	
GEOL 4030	Lithospheric Geodynamics	
GEOL 4050	GIS for Natural Sciences	

GEOL 4060	Fundamentals of Petroleum Exploration and Production	
GEOL 4070	Sequence Stratigraphy	
GEOL 4080	Physical Volcanology	
GEOL 4110	Clay Mineralogy	
GEOL 4150	Applied GIS	
GEOL 4170	Well Log Analysis	
GEOL 4770	Special Topics in Geology	
GEOL 4771	Special Topics in Geology 2	
<i>Cognates</i>		
CHEM 1000 or 1010 or EQUIVALENT	Foundations of Chemistry	3
MATH 2010	Calculus for the Biological and Chemical Sciences I	4
	or MATH 2310 Single Variable Calculus I for Engineers	
	or MATH 2510 Single Variable Calculus I	
PHYS 2110	College Physics I	4
	or PHYS 2210 Physics for Scientists and Engineers I	
Major Subtotal		66
Additional Units Needed Towards Graduation		10
Total Units		120

¹ The minimum acceptable GPA for these 66 units is 2.0

² GEOL 4090 Field Course in Geology is generally taken during the Summer following the senior year.

³ GEOL 3310 Integrated Science: Earth Science, GEOL 3318 California Geology and Society, and GEOL 3328 Water and the West are General Education courses intended for non-majors and do not count toward degree requirements); at least 3 units must be GEOL 4000 or above. Graduate level classes may be substituted with advisor approval.

⁴ Or equivalent

⁵ Area B1 satisfied in major and cognates, B4 satisfied in cognates, and Capstone satisfied in major

⁶ The SELF requirement is met by completing a LD C or D course with a SELF component.

⁷ Some General Education requirements are included in major.

The following additional courses are strongly recommended for students planning graduate studies:

Code	Title	Units
CHEM 1100 & CHEM 1600	Foundations of Analytical Chemistry and Foundations of Physical Chemistry	2
MATH 2020	Calculus for Biological & Chemical Sciences II	4
	or MATH 2320 Single Variable Calculus II for Engineers	
	or MATH 2520 Single Variable Calculus II	
PHYS 2120	College Physics II	4
	or PHYS 2220 Physics for Scientists and Engineers II	
Total Units		10

Note: One semester unit normally represents 50 minutes of lecture or 150 minutes of laboratory study. For every unit, students are expected to devote 2-3 hours of outside study per week.