

# Geology

## Bachelor of Arts

## Bachelor of Science

The Geology program at Sonoma State University is entirely undergraduate; all our attention is focused there. Ph.D. faculty with up to 35 years experience will teach all your geology major classes. Your classes will be small, with between 5–15 students. There are five full time faculty and about 40 majors. Classes are academically strong, but academic demands are balanced by a strong camaraderie between faculty and students.

Our program is devoted to geologic fundamentals. In our case, that especially means a strong emphasis on field studies, mineralogy, and petrology. We have 14 units of field work in seven classes distributed over the years a student is with us, more than in any other geology department we know of. Classes spend long weekends in Death Valley, the Sierras, and the Klamaths. If you like hiking and camping, this may be the profession for you! We also have 15 units of mineralogy and petrology in six classes over three semesters. These two class groups form the core of our program. Course details are spelled out on the back of this page.

For more information, try our Web site at [www.sonoma.edu/geology/](http://www.sonoma.edu/geology/). You can also call the geology advisor, Dr. Rolfe Erickson, at 707-664-2334, or e-mail him at [rolfe.erickson@sonoma.edu](mailto:rolfe.erickson@sonoma.edu). If you're interested, why not come for a visit? We'll spend time talking about the program and answer any questions you have. You'll enjoy the area, too.

### Job Outlook

Geologists work in a great variety of jobs. The job market has changed a lot in the last three decades; exploration jobs in mineral resources and oil and gas are very scarce, and most jobs now are related to urban development and enforcement of environmental regulations. The three main areas now are:

- *engineering geology*, working on foundation conditions, landslide hazards, or fault/seismic hazard studies;
- *hydrology*, developing and regulating surface and underground water supplies;
- *environmental geology*, working to clean up contaminated water, soil, or air; and enforcing environmental regulations.

A great deal of the work is outdoors and the geologist is frequently on his/her own much of the time.

The job market in the Bay Area is strong; all our majors who seek work find it. About half our graduates find jobs by referral, from requests by former graduates.

### Salaries

The starting salary for a geologist with a new B.S. or B.A. is about \$35,000/year. You would expect that to double in a decade or so, even without further training.

### Registration

A goal of all employed geologists is to become *registered*, after which they can operate independently. This requires seven years of full-time employment and passing a registration exam. Within companies registered individuals have considerably higher salaries than unregistered ones. Once registered, many geologists start their own companies.



## Bachelor of Science in Geology

This plan is intended to give the student basic professional competence in geology. It provides an excellent foundation for graduate school or a professional career for those students who have or desire a strong background in mathematics.

<b>Degree Requirements</b> .....	<b>Units</b>
General Education .....	51
Major Requirements .....	46
Supporting Courses.....	20
General Electives .....	7
<b>Total units needed for graduation</b> .....	<b>124</b>

### Major Core Requirements

GEOL 205 Mineralogy .....	2
GEOL 303 Advance Principles of Geology .....	4
GEOL 304 Geological Mapping and Report Writing .....	1
GEOL 305 Optical Mineralogy .....	3
GEOL 307 Igneous and Metamorphic Petrology, .....	4
GEOL 308 Igneous and Metamorphic Field.....	1
GEOL 411 Sedimentary Petrology .....	4
GEOL 412 Sedimentary Petrology Field Course .....	1
GEOL 413 Paleontology .....	4
GEOL 417 Structural Geology .....	4
GEOL 418 Structural Geology Field.....	1
GEOL 420 Field Geology .....	4
GEOL 427 Advanced Field Geology .....	4
<b>Total units in the major core</b> .....	<b>37</b>

### Major Electives

Choose 9 units of upper-division Geology electives in consultation with an advisor:

<b>Total units in major electives</b> .....	<b>9</b>
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### Required Supporting Courses

CHEM 115AB General Chemistry (6 in GE) .....	8
CHEM 116AB Recitation .....	2
PHYS 114 Introduction to Physics I.....	4
PHYS 116 Introductory Laboratory .....	1
PHYS 214 Introduction to Physics II .....	4
PHYS 216 Introductory Laboratory .....	1
MATH 161 Calculus I with Analytic Geometry.....	4
MATH 211S Calculus II with Analytic Geometry (MATH 211 is the 4-unit version of 211S and is highly recommended) .....	2

<b>Total units in supporting courses</b> .....	<b>26</b>
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<b>Total units in the major</b> .....	<b>72</b>
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## Bachelor of Arts in Geology

This plan is intended to give the student basic professional competence in geology, suitable as a foundation for either graduate school or a professional career. The geology course content is the same as in the B.S. degree, but the calculus and physics are less rigorous.

<b>Degree Requirements</b> .....	<b>Units</b>
General Education .....	51
Major Requirements .....	46
Supporting Courses.....	16
General Electives .....	11
<b>Total units needed for graduation</b> .....	<b>124</b>

## Major Core Requirements—See B.S. in Geology

### Major Electives

Choose 9 units of upper-division geology electives in consultation with an advisor:

<b>Total units in major electives</b> .....	<b>9</b>
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### Required Supporting Courses

CHEM 115AB General Chemistry (6 in GE) .....	8
CHEM 116AB Recitation .....	2
PHYS 209AB and PHYS 210AB General Physics with Laboratory .....	8
MATH 161 Calculus I with Analytic Geometry.....	4

<b>Total units in supporting courses</b> .....	<b>22</b>
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<b>Total units in the major</b> .....	<b>68</b>
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### Teaching Credential Preparation

Geology majors interested in pursuing either a Multiple Subject (elementary) Credential or a Single Subject (secondary) Credential may demonstrate competence by passing the appropriate portions of the National Teachers Examination. For further information contact Rolfe Erickson, Geology Department.

### Other Program Highlights

1. Classes are small, typically 10–15 students.
2. We have no graduate program and don't use teaching assistants. All your classes will be taught by Ph.D. faculty with long experience who like working with undergraduates.
3. Advising is thorough and given every semester. Your program will be carefully and individually planned and frequently reviewed. Problems will be resolved quickly.
4. Mineralogy, petrography, and petrology are strongly emphasized. Extensive student analysis with binocular petrographic microscopes is used in all petrology classes. This allows a much higher level of sophistication than hand-specimen based work. Students are taught to make thin sections and incorporate their analyzes in their reports. Extensive hand specimen analysis is also required.
5. Writing skills are stressed. All presentations are expected to be of professional caliber, and are graded for grammar and writing style as well as content. Cartographic training is emphasized.
6. The department's academic standards are well respected, students are expected to work hard. Academic rigor is, however, coupled with a friendly, informal, and supportive personal environment in which faculty and students work together.
7. Students are encouraged and assisted to go to professional meetings, subscribe to geological publications, to get summer jobs and internships, and to become involved in their new profession in every way.
8. An active geology club organizes extra-curricular field trips and a lecture series each semester.
9. We have an advanced computer-driven x-ray diffraction system (XRD) and a scanning electron microscope (SEM). Elective options allow development in these areas.
10. Independent research study is available as an elective for those students interested in it.

### Minor in Geology

Completion of a minimum of 20 units from Geology Department courses will constitute a Minor in Geology. Six of the 20 units must be upper division. Students should consult with an advisor in the Geology Department regarding required courses.

Contact: The Geology Advisor  
Dr. Rolfe Erickson  
707 664-2334 or  
rolfe.erickson@sonoma.edu

We hope this information will be helpful. Official requirements of all majors and programs are published in the Sonoma State University catalog. Sonoma State University is an Affirmative Action/Equal Opportunity Institution and has a strong commitment to the principal of diversity.  
A member of the California State University

