Bachelor of Science in Geological Sciences

Admission Requirements

- Complete the Application and Admission Requirements for Baccalaureate Programs (http://catalog.uaa.alaska.edu/academicpoliciesprocesses/admissions/undergraduate/).

Graduation Requirements

- Complete the General University Requirements for Baccalaureate Degrees (http://catalog.uaa.alaska.edu/undergraduateprograms/baccalaureaterequirements/).
- Complete the General Education Requirements for Baccalaureate Degrees (http://catalog.uaa.alaska.edu/undergraduateprograms/baccalaureaterequirements/gers/).
- Students who audit a Geology (GEOL) course or who are unable to earn a minimum grade of C may repeat the course. All prerequisites for GEOL courses must be completed with a minimum grade of C.
- Complete the following major requirements with a minimum grade of C:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM A105 &amp; A105L</td>
<td>General Chemistry I and General Chemistry I Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>CHEM A106 &amp; A106L</td>
<td>General Chemistry II and General Chemistry II Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>MATH A251</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS A123 &amp; A123L</td>
<td>College Physics I and College Physics I Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>PHYS A124 &amp; A124L</td>
<td>College Physics II and College Physics II Laboratory</td>
<td>4</td>
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</tbody>
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<tr>
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<tbody>
<tr>
<td>GEOL A121</td>
<td>Physical Geology for Science and Engineering Majors</td>
<td>4</td>
</tr>
<tr>
<td>or GEOL A111 &amp; A111L</td>
<td>Physical Geology and Physical Geology Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>or GEOL A115 &amp; A115L</td>
<td>Environmental Geology and Environmental Geology Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>GEOL A221</td>
<td>Historical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL A225</td>
<td>Earth Surface Processes</td>
<td>3</td>
</tr>
<tr>
<td>GEOL A310</td>
<td>Professional Practices in Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL A315</td>
<td>Geological Data Visualization and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>GEOL A321</td>
<td>Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>GEOL A322</td>
<td>Igneous and Metamorphic Petrology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL A331</td>
<td>Sedimentology and Stratigraphy</td>
<td>3</td>
</tr>
<tr>
<td>GEOL A332</td>
<td>Sedimentary Petrology Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>GEOL A335</td>
<td>Structural Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL A345</td>
<td>Hydrogeology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL A461</td>
<td>Geochemistry</td>
<td>3</td>
</tr>
<tr>
<td>GEOL A476</td>
<td>Applied Geophysics</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete 6 credits from the following:

- GEOL A480 Geologic Field Methods
- GEOL A481 Alaskan Field Investigations
  or GEOL A482 Geologic Field Investigations

Geology field camp

Electives

Complete 12 credits from the following:

- GEOL A320 Volcanology
- GEOL A325 Geology of Ore Deposits
- GEOL A333 Earthquakes and Seismic Hazards
- GEOL A350 Geomorphology
- GEOL A361 Earth Resources and Society
- GEOL A381 Kenai Peninsula Field Studies
- GEOL A382 Geologic Field Studies
- GEOL A426 Mineral Resources
- GEOL A436 Petroleum Geology
- GEOL A437 Depositional Systems and Dynamic Stratigraphy
- GEOL A438 Advanced Sedimentary Petrology
- GEOL A441 Paleoclimatology
- GEOL A444 The Cryosphere
- GEOL A445 Geothermal Energy
- GEOL A448 Structural Geology and Geomechanics
- GEOL A454 Glacial and Quaternary Geology
- GEOL A458 Geology of Alaska
- GEOL A463 Environmental Geochemistry
- GEOL A465 Isotope Geochemistry
- GEOL/MBIO A468 Geomicrobiology
- GEOL A477 Integrated Subsurface Mapping and Analysis
- GEOL A480 Geologic Field Methods
- GEOL A481 Alaskan Field Investigations
- GEOL A482 Geologic Field Investigations
- GEOL A490 Advanced Topics in Geology
- GEOL A492 Geology Seminar
- GEOL A495 Geology Internship
- GEOL A498 Student Research
- GEOL A499 Senior Thesis

Total 80

1 Additionally, MATH A252 is highly recommended for students majoring in geological sciences.
2 Geology field camps offered through other accredited academic institutions must be approved by the Department of Geological Sciences.
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Sciences. Credits must be transferable to UAA from the academic institution that is offering the course and must be completed with a minimum grade of 2.00.

GEOL A480 and GEOL A481 may be applied toward recommended electives if they are not being applied to satisfy core requirements.

<table>
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<tr>
<th>Code</th>
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<tbody>
<tr>
<td></td>
<td>Environmental Geological Track</td>
<td>12</td>
</tr>
</tbody>
</table>

Students wishing to receive a degree with an environmental geological sciences track should complete the above electives requirement with 12 credits from the following courses:

- GEOL A333 Earthquakes and Seismic Hazards
- GEOL A350 Geomorphology
- GEOL A361 Earth Resources and Society
- GEOL A436 Petroleum Geology
- GEOL A441 Paleoclimatology
- GEOL A444 The Cryosphere
- GEOL A445 Geothermal Energy
- GEOL A448 Structural Geology and Geomechanics
- GEOL A454 Glacial and Quaternary Geology
- GEOL A458 Geology of Alaska
- GEOL A463 Environmental Geochemistry
- GEOL A465 Isotope Geochemistry
- GEOL A495 Geology Internship

Total 12

A minimum of 120 credits is required for the degree, of which 39 must be upper-division credits.

Honors in Geological Sciences

The Department of Geological Sciences offers recognition to students who demonstrate exceptional promise in the science by awarding them with departmental honors in geological sciences. To graduate with departmental honors, the student must be a declared geological sciences major and meet the following requirements:

1. Satisfy all requirements for a BS in Geological Sciences.
3. Complete 6 credits of GEOL A499, or 3 credits of GEOL A498 and 3 credits of GEOL A499, with a minimum grade of B.
4. Students intending to graduate with departmental honors must notify the departmental honors committee in writing on or before the date they file their Application for Graduation with the Office of the Registrar.

Program Student Learning Outcomes

The curriculum of the UAA Geological Sciences program is designed to produce graduates who:

- Have a basic knowledge of the principles related to the geological sciences with either an emphasis in environmental geology or general geology.
- Have an understanding of how to think scientifically and apply their knowledge to solve geologic problems.
- Have sufficient competence to obtain employment as an entry-level geologist or environmental geologist, and be able to progress professionally within the discipline and are prepared for advanced study.
- Have a fundamental understanding of Alaskan geology and environmental problems in Alaska.
- Are able to communicate their ideas.
- Are prepared for and understand the need for continued professional development throughout their careers.

In keeping with the objectives, it is expected that graduates of the UAA Geological Sciences program will have:

- An ability to apply their knowledge of general geology and/or environmental geology.
- An ability to accept challenges and think through problems until they are solved.
- An ability to design and conduct projects that include field work, laboratory analyses and interpretation in their area of emphasis.
- Experience in field geology in Alaska.
- An ability to communicate effectively.
- A recognition of the need for, and ability to pursue, lifelong learning.