

# 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:

Code	Title	Credits
<b>Support Courses</b>		
CHEM A105 & A105L	General Chemistry I and General Chemistry I Laboratory	4
CHEM A106 & A106L	General Chemistry II and General Chemistry II Laboratory	4
MATH A251 or MATH A251F	Calculus I <sup>1</sup> F.A.T. Calculus I	4-6
PHYS A123 & A123L	College Physics I and College Physics I Laboratory	4
PHYS A124 & A124L	College Physics II and College Physics II Laboratory	4
<b>Core Courses</b>		
GEOL A121 or GEOL A111 & A111L or GEOL A115 & A115L	Physical Geology for Science and Engineering Majors Planet Earth and Planet Earth Laboratory Dangerous Earth and Dangerous Earth Laboratory	4
GEOL A221	Journey Through Time	4
GEOL A225	Earth Surface Processes	3
GEOL A310	Professional Practices in Geology	3
GEOL A315	Geological Data Visualization and Analysis	3
GEOL A321	Mineralogy	4
GEOL A322	Igneous and Metamorphic Petrology	4

GEOL A331	Sedimentology and Stratigraphy	4
GEOL A335	Structural Geology	4
GEOL A345	Hydrogeology	3
GEOL A461	Geochemistry	3
GEOL A476	Applied Geophysics	3
Complete 6 credits from the following:		6
GEOL A480	Geologic Field Methods	
GEOL A481 or GEOL A482	Alaskan Field Investigations Geologic Field Investigations	
Geology field camp <sup>2</sup>		
<b>Electives</b>		
Complete 12 credits from the following:		12
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 <sup>3</sup>	
GEOL A481	Alaskan Field Investigations <sup>3</sup>	
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	
<b>Total</b>		<b>80-82</b>

<sup>1</sup> Additionally, MATH A252 or MATH A252F is highly recommended for students majoring in geological sciences.

<sup>2</sup> Geology field camps offered through other accredited academic institutions must be approved by the Department of Geological

*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.*

<sup>3</sup> *GEOL A480 and GEOL A481 may be applied toward recommended electives if they are not being applied to satisfy core requirements.*

Code	Title	Credits
<b>Environmental Geological Track</b>		
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:		12
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	
<b>Total</b>		<b>12</b>

**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:

- Satisfy all requirements for a BS in Geological Sciences;
- Maintain a minimum cumulative GPA of 3.50;
- Complete 6 credits of GEOL A499, or 3 credits of GEOL A498 and 3 credits of GEOL A499, with a minimum grade of B;
- 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.