

EARTH SCIENCE

College of Natural Science and Mathematics
Department of Geology and Geophysics
907-474-7565
www.uaf.edu/geology/

BA Degree

Minimum Requirements for Degree: 120–130 credits

This program provides broad training in various aspects of earth systems science. Three concentrations are available: earth systems science, geological hazards and mitigation, and secondary education. The concentrations allow students to focus on different interests and career paths during their junior and senior years but offer considerable flexibility during the freshman and sophomore years.

The earth science concentration offers students a sound background in a broad spectrum of geoscience disciplines, with an emphasis on the interaction between earth systems. The geological hazards and mitigation concentration is designed for students who wish to pursue careers in communicating science, hazards analysis or emergency management-related natural disasters. The secondary education concentration is designed for students who plan to teach earth science in secondary school in Alaska. Requirements for certified teachers have been built in to this concentration in consultation with the School of Education. Students choosing this concentration should consult with both the Department of Geology and Geophysics and the School of Education for advising.

Major — BA Degree

1. Complete the general university requirements. (See page 129. As part of the core curriculum requirements, complete: NRM F303X*, CHEM F103X and CHEM F104X or CHEM F105X and CHEM F106X or PHYS F103X and PHYS F104X).
2. Complete the BA degree requirements. (See page 133. Note that social science (s) courses are included in each of the concentrations. These courses may also be applied to the BA degree requirements).
3. Complete the following foundation courses:*
GEOS F101X—The Dynamic Earth (4)
or GEOS F120X—Glaciers, Earthquakes and Volcanoes (4)4
GEOS F112X—The History of Earth and Life (4)
or GEOS F106X—Life in the Age of Dinosaurs(4).....4
4. Complete one of the following concentrations:

Earth Systems Science

- a. Complete the following:*
GEOS F304—Geomorphology3
GEOS F315W—Paleobiology and Paleontology4
- b. Complete one course from each of the following areas:*
Earth Systems
GEOG F101—Expedition Earth: Introduction to Geography3
MSL F111X—The Oceans.....4
NRM F101—Natural Resource Conservation Policy3
PHYS F175X—Introduction to Astronomy4
Earth Materials
GEOS F213—Mineralogy4
GEOS F262—Rocks and Minerals3
Geospatial Sciences
GEOG F338—Introduction to Geographic Information Systems3
GEOS F222—Fundamentals of Geospatial Sciences.....3
GEOS F225—Field and Computer Methods in Geology (2)
and GEOS F408—Photogeology (2)4

- c. Complete one course from any two of the following areas:*

Weather and Climate

ATM F101X—Weather and Climate of Alaska.....	4
GEOG F307—Weather and Climate.....	3

Natural Resources

GEOG F302—Geography of Alaska.....	3
GEOG F402—Resources and Environment.....	3

Geoscience

GEOS F309—Tectonics.....	3
GEOS F322—Stratigraphy and Sedimentation.....	4

Geobiology

GEOS F485—Mass Extinctions, Neocatastrophism, and the History of Life.....	3
GEOS F486—Vertebrate Paleontology.....	3

- d. Complete 9 additional credits at the F300 level or above with an emphasis in geology, geography, biology, natural resources management or other earth science-related field as approved by the undergraduate advisor, including one W (writing-intensive) course and one O (oral-intensive) course.9
- e. Complete any UAF minor. Courses used to satisfy the upper-division emphasis may also be applied towards the requirements for a minor.
- f. Minimum credits required120

Geological Hazards and Mitigation

- a. As part of the core curriculum requirements, complete SOC F100X and COMM F300X.
- b. Complete the following:*
ED F486O/2—Media Literacy3
ENGL F314W,O/2—Technical Writing.....3
GEOS F304—Geomorphology3
GEOS F380—Geological Hazards3
GEOS F406—Volcanology3
HSEM F301—Principles of Emergency Management and Homeland Security.....3
PHYS F175X—Introduction to Astronomy4
STAT F200X—Elementary Probability and Statistics.....3
- c. Complete one course from each of the following areas:*
Earth Materials
GEOS F213—Mineralogy.....4
GEOS F262—Rocks and Minerals3
Geospatial Sciences
GEOS F222—Fundamentals of Geospatial Sciences.....3
GEOS F225—Field and Computer Methods in Geology (2)
and GEOS F408—Photogeology (2)4
Weather and Climate
ATM F101X—Weather and Climate of Alaska.....4
GEOG F307—Weather and Climate.....3
- d. Complete a minimum of two courses from one of the following specialized areas:*
Mitigation
HSEM F412—Emergency Planning and Preparedness3
HSEM F423—Disaster Response Operations and Management.....3
HSEM F434—All Hazards Risk Analysis3
Communications
COMM F335O—Organizational Communications3
COMM F353—Conflict, Mediation, and Communication.....3
COMM F441—Persuasion3
- e. Complete any the requirements for a minor in geology, paleontology, geospatial sciences, geography, communications, journalism, sociology or other field related to communicating and mitigating natural hazards, as approved by the undergraduate advisor.
- f. Minimum credits required120

Secondary Education

- a. Complete the following:*
- GEOG F101—Expedition Earth: Introduction to Geography3
 - GEOS F262—Rocks and Minerals3
 - GEOS F315W—Paleobiology and Paleontology4
 - GEOS F475—Presentation Techniques in the Geosciences2
 - MSL F111X—The Oceans.....4
 - PHYS F175X—Introduction to Astronomy4
 - PSY F101—Introduction to Psychology3
- b. Complete one course from each of the following areas:*
- Landform Analysis**
- GEOG F111X—Earth and Environment: Elements of Physical Geography4
 - GEOS F304—Geomorphology3
- Geospatial Sciences**
- GEOS F222—Fundamentals of Geospatial Sciences.....3
 - GEOS F225—Field and Computer Methods in Geology.....2
 - GEOS F338—Introduction to Geographic Information Systems3
- Weather and Climate**
- ATM F101X—Weather and Climate of Alaska.....4
 - GEOG F307—Weather and Climate3
- Natural Resources**
- GEOG F302—Geography of Alaska3
 - GEOG F402—Resources and Environment3
- Evolutionary Processes**
- GEOS F309—Tectonics.....3
 - GEOG F485—Mass Extinctions, Neocatastrophism, and the History of Life3
 - GEOS F486—Vertebrate Paleontology.....3
- c. Complete the requirements for a minor in secondary education (see page 158) 16
- d. Complete the additional requirements of the secondary education licensure program (see page 159)** 19
- e. Minimum credits required130

* Students must earn a C- grade or better in each course.

**Note: We strongly recommend that prospective secondary science teachers seek advising from the UAF School of Education early in your undergraduate degree program, so that you can be appropriately advised of the state of Alaska requirements for teacher licensure.