# B.S., GEOSCIENCE

**Concentrations:** Geology, Paleontology, Geospatial Sciences and Geophysics

**Minimum Requirements for Degree:** 120 credits

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

**General University Requirements**
Complete the general university requirements. ([http://catalog.uaf.edu/bachelors](http://catalog.uaf.edu/bachelors))

**General Education Requirements**
Complete the general education requirements. ([http://catalog.uaf.edu/bachelors/general-education-requirements](http://catalog.uaf.edu/bachelors/general-education-requirements))

As part of the general education requirements, complete:
- CHEM F105X General Chemistry I 4
- MATH F251X Calculus I 4

**B.S. Degree Requirements**
Complete the B.S. degree requirements. ([http://catalog.uaf.edu/bachelors/summary-of-bachelors-deGREE-text](http://catalog.uaf.edu/bachelors/summary-of-bachelors-deGREE-text))

**Program Requirements**
- GEOS F101X The Dynamic Earth 4
- GEOS F112X The History of Earth and Life 4
- GEOS F309 Tectonics 3

**Concentrations**
Select one from the following concentrations: 62-73
- Geology
- Paleontology
- Geospatial Sciences
- Geophysics

**Total Credits**
81-92

**Concentrations**

**GEOLOGY**

**Program Requirements**
- CHEM F106X General Chemistry II 4
- PHYS F103X College Physics I 4
- PHYS F104X College Physics II 4
- GEOS F213 Mineralogy 4
- GEOS F214 Petrology and Petrography 4
- GEOS F225 Field and Computer Methods in Geology 2
- GEOS F304 Geomorphology 3
- GEOS F315 Paleobiology and Paleontology 4
- GEOS F322 Stratigraphy and Sedimentation 4
- GEOS F351 Field Geology 8
- GEOS F430 Statistics and Data Analysis in Geology 3
- STAT F200X Elementary Probability and Statistics 3
- or STAT F300 Statistics 4

Select at least two from the following electives: 5-7
- GEOS F453 Palynology and Paleopalynology
- GEOS F485 Mass Extinctions, Neocatastrophism and the History of Life
- GEOS F486 Vertebrate Paleontology
- GEOS F488 Undergraduate Research

Complete the requirements for a minor in biological sciences 20

**Total Credits**
71-73

1 GEOS F351 is offered at UAF during the summer of odd-numbered years. Students may substitute a 6-credit field geology class at another institution. The geology and geophysics undergraduate advisor will assist students in placement in an approved field geology class.

2 Fulfills the baccalaureate capstone requirement.

**GEOSPATIAL SCIENCES**

**Program Requirements**
- CHEM F106X General Chemistry II 4
- PHYS F103X College Physics I 4
- PHYS F104X College Physics II 4
- GEOS F213 Mineralogy 4
- GEOS F214 Petrology and Petrography 4
- GEOS/GEOG F222 Fundamentals of Geospatial Science 3
### B.S., Geoscience

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F225</td>
<td>Field and Computer Methods in Geology</td>
<td>2</td>
</tr>
<tr>
<td>GEOS F304</td>
<td>Geomorphology</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F314</td>
<td>Structural Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F322</td>
<td>Stratigraphy and Sedimentation</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F351</td>
<td>Field Geology</td>
<td>8</td>
</tr>
<tr>
<td>GEOS F430</td>
<td>Statistics and Data Analysis in Geology</td>
<td>3</td>
</tr>
<tr>
<td>STAT F200X</td>
<td>Elementary Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>or STAT F300</td>
<td>Statistics</td>
<td></td>
</tr>
</tbody>
</table>

**Electives**

**Remote sensing electives**

Select at least two of the following: 4-7 credits

- GEOS F408 Photogeology
- GEOS F422 Geoscience Applications of Remote Sensing
- GEOS F488 Undergraduate Research
- NRM F641 Natural Resource Applications of Remote Sensing

**GIS electives**

Select at least two of the following: 6-7 credits

- GEOG F309 Digital Cartography and Geo-Visualization
- GEOG F435 GIS Analysis
- GEOG F458 Applications of GPS and GIS in Geophysics
- NRM F338 Introduction to Geographic Information Systems

Complete 9 additional credits of upper-division GEOS courses or other upper-division courses approved by the undergraduate advisor including one O (oral-intensive) course and one additional W (writing-intensive) course from any department

Total Credits 69-73

1 GEOS F351 is offered at UAF during the summer of odd-numbered years. Students may substitute a 6-credit field geology class at another institution. The geology and geophysics undergraduate advisor will assist students in placement in an approved field geology class.

2 Fulfills the baccalaureate capstone requirement.

### GEOPHYSICS

Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F262</td>
<td>Rocks and Minerals</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F406</td>
<td>Volcanology</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F419</td>
<td>Solid Earth Geophysics</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F431</td>
<td>Foundations of Geophysics</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F475</td>
<td>Presentation Techniques in the Geosciences</td>
<td>2</td>
</tr>
<tr>
<td>GEOS F477</td>
<td>Ice in the Climate System</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F488</td>
<td>Undergraduate Research</td>
<td>2</td>
</tr>
<tr>
<td>MATH F252X</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH F253X</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH F302</td>
<td>Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>MATH F314</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>PHYS F211X</td>
<td>General Physics I and General Physics II</td>
<td>8</td>
</tr>
<tr>
<td>PHYS F213X</td>
<td>Elementary Modern Physics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F220</td>
<td>Introduction to Computational Physics</td>
<td>4</td>
</tr>
<tr>
<td>Select at least three of the following science and engineering electives: 9-12 credits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ES F331</td>
<td>Mechanics of Materials</td>
<td></td>
</tr>
<tr>
<td>ES F341</td>
<td>Fluid Mechanics</td>
<td></td>
</tr>
<tr>
<td>GEOS F314</td>
<td>Structural Geology</td>
<td></td>
</tr>
<tr>
<td>GEOS F322</td>
<td>Stratigraphy and Sedimentation</td>
<td></td>
</tr>
<tr>
<td>GEOS F422</td>
<td>Geoscience Applications of Remote Sensing</td>
<td></td>
</tr>
<tr>
<td>ME F441</td>
<td>Heat and Mass Transfer</td>
<td></td>
</tr>
<tr>
<td>PHYS F301</td>
<td>Introduction to Mathematical Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS F341</td>
<td>Classical Physics I: Particle Mechanics</td>
<td></td>
</tr>
</tbody>
</table>

Additional upper-division GEOS credits or other upper-division courses as approved by the undergraduate advisor

Complete one W (writing-intensive) course approved by the undergraduate advisor.

Total Credits 62-65

1 Fulfills the baccalaureate capstone requirement.