## 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.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (<a href="http://catalog.uaf.edu/bachelors/">http://catalog.uaf.edu/bachelors/</a>)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Education Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general education requirements. (<a href="http://catalog.uaf.edu/bachelors/general-education-requirements/">http://catalog.uaf.edu/bachelors/general-education-requirements/</a>)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As part of the general education requirements, complete:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHEM F105X General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>MATH F251X Calculus I</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>B.S. Degree Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the B.S. degree requirements. (<a href="http://catalog.uaf.edu/bachelors/summary-of-bachelors-degrees-#bachelorofsciencetext">http://catalog.uaf.edu/bachelors/summary-of-bachelors-degrees-#bachelorofsciencetext</a>)</td>
<td></td>
</tr>
</tbody>
</table>

### Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F101X</td>
<td>The Dynamic Earth</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F112X</td>
<td>The History of Earth and Life</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F309</td>
<td>Tectonics</td>
<td>3</td>
</tr>
</tbody>
</table>

### Concentrations

Complete one of the following concentrations: 62-73

- Geology
- Paleontology
- Geospatial Sciences
- Geophysics

### Concentrations

#### GEOLOGY

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHEM F106X General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>GEOS F213 Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>GEOS F214 Petrology and Petrography</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>GEOS F225 Field and Computer Methods in Geology</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>GEOS F304 Geomorphology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>GEOS F314 Structural Geology</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>GEOS F315 Paleobiology and Paleontology</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>GEOS F322 Stratigraphy and Sedimentation</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>GEOS F430 Statistics and Data Analysis in Geology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>GEOS F454 Field Geology</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>PHYS F123X College Physics I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>PHYS F124X College Physics II</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>STAT F200X Elementary Statistics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or STAT F300 Statistics</td>
<td></td>
</tr>
</tbody>
</table>

Complete 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

1. GEOS F454 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.

### PALEONTOLOGY

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHEM F106X General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>GEOS F213 Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>GEOS F214 Petrology and Petrography</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>GEOS F225 Field and Computer Methods in Geology</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>GEOS F314 Structural Geology</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>GEOS F315 Paleobiology and Paleontology</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>GEOS F317 Paleontological Research and Laboratory Methods</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>GEOS F322 Stratigraphy and Sedimentation</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>GEOS F454 Field Geology</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>GEOS F430 Statistics and Data Analysis in Geology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PHYS F123X College Physics I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>PHYS F124X College Physics II</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>STAT F200X Elementary Statistics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or STAT F300 Statistics</td>
<td></td>
</tr>
</tbody>
</table>

Complete the requirements for a minor in biological sciences 20

1. GEOS F454 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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM F106X</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F213</td>
<td>Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F214</td>
<td>Petrology and Petrography</td>
<td>4</td>
</tr>
<tr>
<td>GEOS/GEOG F222</td>
<td>Fundamentals of Geospatial Science</td>
<td>3</td>
</tr>
<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 F454</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>PHYS F123X</td>
<td>College Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F124X</td>
<td>College Physics II</td>
<td>4</td>
</tr>
<tr>
<td>STAT F200X</td>
<td>Elementary Statistics or STAT F300</td>
<td>3</td>
</tr>
</tbody>
</table>

### Electives

**Remote sensing electives**

Complete at least two of the following: 4-7
- GEOS F408 Geomorphology
- GEOS F422 Geoscience Applications of Remote Sensing
- GEOS F488 Undergraduate Research
- NRM F641 Natural Resource Applications of Remote Sensing

**GIS electives**

Complete at least two of the following: 6-7
- GEOG F309 Digital Cartography and Geovisualization
- GEOG F435 GIS Analysis
- GEOS 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 course from the following: 9
- GEOS F317 Paleontological Research and Laboratory Methods
- GEOS F375 Oral Communication Skills for Geoscientists
- GEOG F420 Geopolitics of Energy
- GEOG F427 Polar Geography
- GEOG F483 Research Design, Writing and Presentation Methods
- GEOG F490 Geography Seminar
- GEOG F493

Complete one additional course from the following:  
- GEOS F309 Tectonics
- GEOS F315 Paleobiology and Paleontology

### GEOPHYSICS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG F483</td>
<td>Research Design, Writing and Presentation Methods</td>
<td></td>
</tr>
</tbody>
</table>

1 GEOS F454 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.

3 Or equivalent course approved by undergraduate advisor.

## GEOPHYSICS

<table>
<thead>
<tr>
<th>Code</th>
<th>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 F375</td>
<td>Oral Communication Skills for Geoscientists</td>
<td>1</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 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>GEOG F483</td>
<td>Research Design, Writing and Presentation Methods</td>
<td></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</td>
<td>8</td>
</tr>
<tr>
<td>PHYS F212X</td>
<td>General Physics II</td>
<td></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>
</tbody>
</table>

Complete two of the following science and engineering electives or undergraduate advisor approved substitute: 6-8
- ES F331 Mechanics of Materials
- ES F341 Fluid Mechanics
- GEOG F314 Structural Geology
- GEOS F322 Stratigraphy and Sedimentation
- GEOG F422 Geoscience Applications of Remote Sensing
- ME F441 Heat and Mass Transfer
- PHYS F301 Introduction to Mathematical Physics
- PHYS F341 Classical Physics I: Particle Mechanics

Complete 6 additional credits of upper-division GEOS courses or other upper-division courses approved by the undergraduate advisor.

1 Fulfills the baccalaureate capstone requirement.