PH.D., GEOPHYSICS

Complete the following admission requirement:

- Submit GRE scores.
- Complete a master’s degree in geology, geophysics or an appropriate field of physical science or engineering.

Admission to Ph.D. Geophysics Program
Directly from a Bachelor’s Program

Entering graduate students whose highest earned degree is the baccalaureate are normally admitted as Master of Science candidates. However, exceptionally able and accomplished students in this category are eligible for direct admission to the Ph.D. program. For direct admission from the baccalaureate to the Ph.D. program, a student must receive approval from the graduate admission committee and also meet one of three criteria:

1. At least one first-authored manuscript published, accepted or submitted for publication in a peer-reviewed scientific journal
2. Receipt of an NSF, NIH or similar prestigious pre-doctoral fellowship.
3. Demonstrated research proficiency AND either
   • attained a GPA of at least 3.5 in mathematics and science courses at the undergraduate level, or
   • scored at or above the 80th percentile in two of three categories in the GRE.

The requirement of demonstrated research proficiency can be waived for exceptionally promising students. In this case the student is required to complete a research or review paper focusing on a thesis-related topic approved by the graduate advising committee. The paper should be roughly 4,000-5,000 words and must be submitted and approved by the advising committee within the first three semesters to maintain Ph.D. status. Failure will result in changing the student’s status to M.S. candidate.

After admission, M.S. candidates may, in exceptional cases, petition for conversion to the Ph.D. program if they satisfy one of the above criteria. Such petitions must be approved both by the student’s current (M.S.) and proposed (Ph.D.) advisory committee and the department director or designee.

Minimum Requirements for Degree: 18 thesis credits

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GEOS F626</td>
<td>Applied Seismology</td>
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<tr>
<td>GEOS F655</td>
<td>Tectonic Geodesy</td>
<td></td>
</tr>
<tr>
<td>GEOS F671</td>
<td>Volcano Seismology</td>
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Snow, Ice and Permafrost Geophysics

Complete 6 credits from the following:
- GEOS F614 | Ice Physics
- GEOS F615 | Sea Ice
- GEOS F616 | Permafrost
- GEOS F617 | Glaciers

Remote Sensing

Complete 6 credits from the following:
- ATM F613  | Atmospheric Radiation
- GEOS F622 | Digital Image Processing in the Geosciences
- GEOS F639 | InSar and Its Applications
- GEOS F654 | Visible and Infrared Remote Sensing
- GEOS F657 | Microwave Remote Sensing
- GEOS F676 | Remote Sensing of Volcanic Eruptions

Advanced Skills Categories

Complete 3 credits each in two of the following advanced skills categories: 6

Digital Signal Analysis and Remote Sensing
- GEOS F622  | Digital Image Processing in the Geosciences
- GEOS F654  | Visible and Infrared Remote Sensing
- GEOS F657  | Microwave Remote Sensing
- PHYS F628  | Digital Time Series Analysis

Statistics and Parameter Estimation
- ATM F610  | Analysis Methods in Meteorology and Climate
- GEOS F627 | Inverse Problems and Parameter Estimation
- STAT F401  | Regression and Analysis of Variance
- STAT F461  | Applied Multivariate Statistics

Mathematical Methods
- MATH F421 | Applied Analysis
- MATH F614 | Numerical Linear Algebra
- MATH F615 | Numerical Analysis of Differential Equations
- MATH F661 | Optimization
- ME F601  | Finite Element Analysis in Engineering

Skills course
One graduate-level advanced skills course approved by the student’s advisory committee

Ph.D. Degree Requirements

Complete the Ph.D. degree requirements. (http://catalog.uaf.edu/graduate/#phd)

Complete and pass a written and oral comprehensive examination.

Complete and submit a written thesis proposal for approval.

Complete a research program as arranged with the graduate advisory committee.
Ph.D., Geophysics