

# GEOPHYSICS PH.D.

## Admission Requirements

Complete the following admission requirements:

- 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.

## Program Requirements

< Back to Department (<http://catalog.uaf.edu/academic-departments/geoscience/>)

## Minimum Requirements for Geophysics Ph.D.: 35 credits

Code	Title	Credits
<b>General University Requirements</b>		
Complete the graduate general university requirements. ( <a href="http://catalog.uaf.edu/phd/#gurphdtext">http://catalog.uaf.edu/phd/#gurphdtext</a> )		
<b>Master's Degree Requirements</b>		
GEOS F631	Foundations of Geophysics	4
GEOS F682	Geoscience Seminar (fall semester)	1
Complete 6 credits from relevant graduate-level courses agreed by the advisory committee, or select one of the following concentrations:		6

### Solid-Earth Geophysics

Complete 6 credits from the following:

GEOS F604	Seismology
GEOS F605	Geochronology
GEOS F626	Applied Seismology
GEOS F669	Geodetic Methods and Modeling
GEOS F671	Volcano Seismology

### Snow, Ice and Permafrost Geophysics

Complete 6 credits from the following:

PHYS 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

### Advanced Skills Categories

Complete 3 credits each in two of the following four 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

#### Statistics and Parameter Estimation

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

#### Mathematical Methods

MATH F432	Introduction to Partial Differential Equations
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/phd/#phdrequirementstext>)

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.	
Complete 18 credits of thesis, write a thesis and pass an oral defense of thesis.	18
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<b>Total Credits</b>	<b>35</b>