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

Catalog Department Overview # (https://catalog.uaf.edu/academic-departments/geoscience/)

Minimum Requirements for Geophysics Ph.D.: 35 credits

Code	Title	Credits
General University Requirements		
Complete the graduate general university requirements. (https://catalog.uaf.edu/phd/#gurphdtext)		
Master's Degree Requirements		
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. (https://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
Total Credits	**35**