

# GEOPHYSICS, MINOR

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

## Program Description

The Geophysics minor provides the opportunity for students from outside the geosciences to apply the physics, quantitative, and technical skills they are developing in their major program to the geophysical aspects of Earth science, including seismology, volcanology, natural hazards, environmental geophysics, and petroleum and mineral exploration. For students majoring in Geosciences, the completion of the minor will strengthen their physics/quantitative background and develop links between theory and application for these technical and quantitative skills. The minor will prepare students for graduate programs in geophysics and/or employment opportunities in the environmental and exploration industries.

## What is Geophysics?

Geophysics is the application of physics to study of Earth (and other planetary bodies). The field is broadly focused on combining physics, mathematics, computation, and geology to investigate Earth's interior and dynamics, to understand and help mitigate natural hazards, and to explore for natural resources such as water, oil, gas, and minerals.

## You Might Like This Program If...

- You are curious about the mechanics of earthquakes, volcanism, and other natural hazards.
- You are interested in the physical processes that drive plate tectonics.
- You want to learn more about how geophysics is used to study the inaccessible parts of Earth (and other planets).
- You would like to apply your physics, math, and computer skills to investigate natural hazards and/or to develop a broad understanding of how the Earth works.

## Program Requirements

Requirement	Credits
Requirements for the Minor	29-32

## Requirements for the Minor

The minor consists of 18-20 credits satisfying the requirements below.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
<b>Prescribed Courses</b>		
<i>Prescribed Courses: Require a grade of C or better</i>		
GEOSC 1	Physical Geology	3
MATH 140	Calculus With Analytic Geometry I	4
PHYS 212	General Physics: Electricity and Magnetism	4
<b>Additional Courses</b>		<b>18-21</b>

*Additional Courses: Require a grade of C or better*

<b>Non-Geoscience Majors</b>	
GEOSC 203	Physical Processes in Geology
Select 3 credits from the following:	
EARTH 2	The Earth System and Global Change
EARTH 101	Natural Disasters: Hollywood vs. Reality
EARTH 105N	Environments of Africa: Geology and Climate Change
EARTH 106	
GEOSC 1	Physical Geology
GEOSC 10	Geology of the National Parks
GEOSC 40	The Sea Around Us
GEOSC 109H	Earthquakes and Society
Select 11-13 credits of the following:	
GEOSC 402Y	Natural Disasters
GEOSC 434	Volcanology
GEOSC 452	Hydrogeology
GEOSC 483	Environmental Geophysics
GEOSC 487	Analysis of Time Series
GEOSC 488	An Introduction to Seismology
GEOSC 489	Dynamics of the Earth

*Geoscience Majors*<sup>1</sup>

PHYS 212	General Physics: Electricity and Magnetism
Select 3-4 credits of the following:	
MATH 220	Matrices
MATH 230	Calculus and Vector Analysis
MATH 231	Calculus of Several Variables
MATH 232	Integral Vector Calculus
MATH 250	Ordinary Differential Equations
MATH 251	Ordinary and Partial Differential Equations
Select 11-13 credits of the following:	
GEOSC 402Y	Natural Disasters
GEOSC 434	Volcanology
GEOSC 452	Hydrogeology
GEOSC 483	Environmental Geophysics
GEOSC 487	Analysis of Time Series
GEOSC 488	An Introduction to Seismology
GEOSC 489	Dynamics of the Earth

<sup>1</sup> Geoscience majors may not double count these courses in their major.

## Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary

academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

## **University Park**

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## **Contact**

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