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 the Earth's inner workings. It is a broad field that studies the Earth's internal structure and dynamics through the use of physics and mathematics and applies that knowledge to such areas as oil and gas exploration and mitigation of natural hazards.

You Might Like This Program If...

- You are curious about mechanics of earthquakes, landslides, and other natural hazards.
- You are interested in the physical processes that drive plate tectonics.
- You want to learn more about how geophysical techniques are used to study parts of the Earth we cannot see because they lie beneath its surface.
- You would like to apply your physics, math, or computer skills to predict natural disasters or to develop a better understanding of how the Earth works.

Program Requirements

<table>
<thead>
<tr>
<th>Requirement for the Minor</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Requirements for the Minor</td>
<td>29-32</td>
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</table>

Non-Geoscience Majors

Prescribed Courses: Require a grade of C or better

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GEOSC 1</td>
<td>Physical Geology</td>
<td>3</td>
</tr>
<tr>
<td>MATH 140</td>
<td>Calculus With Analytic Geometry I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 212</td>
<td>General Physics: Electricity and Magnetism</td>
<td>4</td>
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Additional Courses: 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: The African Continent: Earthquakes, Tectonics and Geology
- 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

Prescribed Courses: Require a grade of C or better

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<tr>
<td>PHYS 212</td>
<td>General Physics: Electricity and Magnetism</td>
<td>3</td>
</tr>
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Select 3-4 credits from 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

1 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 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/)

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