## EARTH SCIENCES, B.S.

Begin Campus: Any Penn State Campus
End Campus: University Park

## Degree Requirements

For the Bachelor of Science degree in Earth Sciences, a minimum of 123 credits is required:

| Requirement | Credits |
| :--- | :--- |
| General Education | 45 |
| Requirements for the Major | $99-101$ |

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GWS courses.

## Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of $C$ or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/ \#82-44).


Select 3 credits of writing-intensive courses from within Earth and
Mineral Sciences to include, but not limited to the following:
GEOG 310 Introduction to Global Climatic Systems
GEOG 412
GEOSC 402Y Natural Disasters
GEOSC 470W Introduction to Field Geology
METEO 471
Additional Courses: Require a grade of $C$ or better
Select 15 credits of advanced earth science of the following: ${ }^{2} 15$
GEOG 412
GEOG 430 Human Use of Environment
GEOG 438W Human Dimensions of Global Warming
GEOSC 204 Geobiology
GEOSC 320 Geology of Climate Change
GEOSC 340 Geomorphology
GEOSC 402Y Natural Disasters
GEOSC 416 Stable and Radioactive Isotopes in Geosciences: Introduction
METEO 300 Fundamentals of Atmospheric Science
METEO 431 Atmospheric Thermodynamics

## Supporting Courses and Related Areas

Select 3-4 credits of advanced math, statistics, computer science in 3-4 consultation with an adviser
Select 3 credits of field, laboratory experience in consultation with an 3 adviser
Select 8-9 credits in other approved courses (students may apply $6 \quad 8-9$ credits of ROTC)
Supporting Courses and Related Areas: Require a grade of $C$ or better
Select 18 credits, in consultation from an adviser, from one of the 18
following Earth and Mineral Sciences interdisciplinary minors:
Climatology
Marine Science
Watersheds \& Water Resources
Earth Systems
Global Business Strategies for Earth and Environmental Industries
${ }^{1}$ The following substitutions are allowed for students attending campuses where the indicated course is not offered: CAS 100 or ENGL 202C can be substituted for EMSC 100S.
${ }^{2}$ Courses may not double count with minor requirements.

## General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (https://bulletins.psu.edu/undergraduate/general-education/baccalaureate-degree-general-education-program/) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

## Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits


## Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits


## Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits


## Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits


## University Degree Requirements

## First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

## Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits


## Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

## Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

## Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program

## Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (https://senate.psu.edu/ policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/\#83-80)). For more information, check the Suggested Academic Plan for your intended program.

