

# GEOGRAPHY, B.S.

**Begin Campus:** Any Penn State Campus

**End Campus:** University Park

## Program Description

The Department of Geography in Penn State's College of Earth and Mineral Sciences offers a strong mix of human, physical, and methodological components that comprise the core of the geography major. Combining geography with other areas of study allows students to choose from a broad range of topics in order to suit their individual interests. Undergraduate degrees in geography are offered in the Bachelor of Science (BS) and in the Bachelor of Arts (BA). Both programs offer an integrated course of study in which students learn fundamental concepts in physical and human geography while developing methodological proficiency in qualitative analysis, spatial analysis, and/or geospatial technologies.

In contrast to the broader liberal arts-oriented B.A., the Bachelor of Science (B.S.) major is a more disciplinary-focused program, emphasizing technical skills and preparation across the human/physical spectrum of geography. It includes rigorous training in the use of geographic tools and technologies as well as core and advanced courses on the ways people use environmental resources and how they arrange themselves and their economic, social, and political activities on the Earth's surface.

In both the B.S. and B.A., students can customize and specialize their programs through the completion of undergraduate certificates. The Geography major can provide preparation for a career in business, industry, or government. Geographers with bachelor's degrees are currently being placed in federal, state, and local administrative and planning agencies and in private firms that specialize in planning and development or in environmental, socioeconomic, or location analysis.

## What is Geography?

What do Amnesty International, Boeing, National Geographic, and Esri have in common? Penn State geographers are there, hard at work every day. Our students and alumni are behind the maps you use daily, as well as the policies that shape our cities, and the analysis that sustains our environment. Geographers help shape the future design of cities and infrastructure. Geographers assess impacts of rising sea levels, melting glaciers, and tropical storms, as well as study impacts of wild fires or manage wetlands. Geographers analyze new markets and locations for businesses. Geographers use cutting-edge satellite data to defend human rights by detecting large-scale abuses. Geographers also work directly with local people on social justice issues such as health and migration. If you want to change the world, there is no better discipline for people who thrive on complex challenges and want to make a real impact on lives and our environment.

## You Might Like This Program If...

- You want to understand and influence the economic, political, and environmental forces that shape our world.
- You want to make maps using cutting-edge technology to understand people and environments to make a difference in our world.

- You want to work at the intersection of science, technology, and policy in information technology; business; nonprofits; local, state, or federal governments; or education.
- You are passionate about issues of human and environmental justice.

## Entrance to Major

In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have at least third-semester classification (<https://www.registrar.psu.edu/enrollment/semester-classification.cfm>).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/>)

## Degree Requirements

**For the Bachelor of Science degree in Geography, a minimum of 120 credits is required:**

Requirement	Credits
General Education	45
Electives	9
Requirements for the Major	75

**9 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 3 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>).

Code	Title	Credits
<b>Prescribed Courses</b>		
<i>Prescribed Courses: Require a grade of C or better</i>		
EMSC 100S	Earth and Mineral Sciences First-Year Seminar	3
GEOG 210	Geographic Perspectives on Environmental Systems Science	3
GEOG 220	Perspectives on Human Geography	3
GEOG 230	Geographic Perspectives on Environment, Society and Sustainability	3
GEOG 260	Geographic Information in a Changing World: Introduction to GIScience	3
GEOG 301	Thinking Geographically	3
GEOG 364	Spatial Analysis	3
GEOG 390	Professional Development Seminar in Geography	1
GEOG 464	Advanced Spatial Analysis	3
STAT 200	Elementary Statistics	4
<b>Additional Courses</b>		
<i>Additional Courses: Require a grade of C or better</i>		
Calculus:		
Select one of the following:		
MATH 83	Technical Calculus	4

MATH 110	Techniques of Calculus I	
MATH 140	Calculus With Analytic Geometry I	
Engaged Scholarship:		
Select 3 credits from the following:		3
GEOG 493	Service Learning (1-3 credits)	
GEOG 494	Research Project in Geography (1-3 credits)	
GEOG 494H	Research Project in Geography (1-3 credits)	
GEOG 495	Internship (1-3 credits)	
GEOG 495B	Geography Teaching Internship (1-3 credits)	
GEOG 495G	Giscience Internship (1-3 credits)	
GEOG 499	Foreign Studies (1-3 credits)	
Geographic Information Science Skills:		
Select 6 credits from the following:		6
GEOG 361	Cartography—Maps and Map Construction	
GEOG 362	Image Analysis	
GEOG 363	Geographic Information Systems	
GEOG 365	Introduction to GIS Programming	
300-level geography:		
Select 9 credits, not including courses taken above:		9
GEOG 308	Research and Qualitative Inquiry in Geography	
GEOG 310	Introduction to Global Climatic Systems	
GEOG 310W	Introduction to Global Climatic Systems	
GEOG 314	Biogeography and Global Ecology	
GEOG 315	Landforms and Geomorphic Systems in the Anthropocene	
GEOG 320	Urban Geography: A Global Perspective	
GEOG 324	Place, Space and Culture	
GEOG 326	Geographic Perspectives on Economic Systems	
GEOG 328	War, Peace, and Diplomacy: Understanding Contemporary Geopolitics	
GEOG 330N	Political Ecology	
GEOG 333	Human Dimensions of Natural Hazards	
400-level geography:		
Select 12 credits, not including courses taken above:		12
GEOG 410		
GEOG 411	Forest Geography	
GEOG 411W	Forest Geography	
GEOG 412W	Climatic Change and Variability	
GEOG 414	Principles and Applications in Landscape Ecology	
GEOG 420Y	Comparative Urbanism	
GEOG 421	Population Geography	
GEOG 422W	Globalization, Migration, and Displacement	
GEOG 424	Geography of the Global Economy	
GEOG 424W	Geography of the Global Economy	
GEOG 425	Geography of Race, Class, and Poverty in America	
GEOG 426W	Gendered Worlds	
GEOG 428W	Political Geography	
GEOG 430	Human Use of Environment	
GEOG 431	Geography of Water Resources	
GEOG 432	Energy Policy	
GEOG 433	Geographies of Justice	
GEOG 434	Politics of the Environment	

GEOG 436	Ecology, Economy, and Society	
GEOG 438W	Human Dimensions of Global Warming	
GEOG 439	Property and the Global Environment	
GEOG 444	Resource Governance in Africa	
GEOG 461W	Dynamic Cartographic Representation	
GEOG 462	Advanced Observation of Earth and Its Environment	
GEOG 463	Geospatial Information Management	
GEOG 465	Advanced Geographic Information Systems Modeling	
GEOG 467	Applied Cartographic Design	
GEOG 481	Topographic Mapping with Lidar	
GEOG 485	GIS Programming and Software Development	
GEOG 493	Service Learning (1-3 credits)	
GEOG 494	Research Project in Geography (1-3 credits)	
GEOG 494H	Research Project in Geography (1-3 credits)	
GEOG 495	Internship (1-3 credits)	
GEOG 495B	Geography Teaching Internship (1-3 credits)	
GEOG 495G	Giscience Internship (1-3 credits)	
GEOG 496	Independent Studies (1-3 credits)	
GEOG 497	Special Topics	
GEOG 498	Special Topics	
GEOG 499	Foreign Studies (1-6 credits)	

#### Supporting Courses and Related Areas

Select 12 credits in geography or related areas (not used above) in consultation with adviser. 12

### 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.

## Program Learning Objectives

- Majors in Geography will demonstrate knowledge of fundamental geographic skills and concepts and apply them to complex spatial relationships (interactions, patterns, processes) within the human socio-cultural and natural environments at global, regional, and local scales.
- Majors in Geography will engage in spatial and environmental critical thinking by analyzing, discussing and synthesizing geographical

information that may include professional/technical documents, primary data, maps, graphics, and/or archival data.

- Majors in Geography will communicate geographic information utilizing oral, written, and visual formats to effectively process and integrate facts, ideas, and research results.
- Majors in Geography will develop research skills by locating, understanding, and explaining geographic challenges and opportunities related to human socio-cultural and/or environmental phenomena at global, regional, and local scales.

## 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

#### Jodi Vender

Undergraduate Advising Coordinator  
305 Walker Building  
University Park, PA 16802  
814-863-5730  
advising@geog.psu.edu

## Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2023-24 academic year. To access previous years’ suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition (*Note: the archive only contains suggested academic plans beginning with the 2018-19 edition of the Undergraduate Bulletin*).

### Geography, B.S. at University Park Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year	Credits Spring	Credits
Fall		
EMSC 100S (GWS) <sup>††</sup>	3 General Education	3
	Foundation selection (GWS)	
	(ENGL 15, 30, or ESL 15) <sup>‡</sup>	

MATH 110, 140, 140G, or 83 <sup>††</sup>	4 STAT 200 <sup>††</sup>	4
General Education Knowledge Domain selection	3 General Education Knowledge Domain selection	3
General Education Knowledge Domain selection	3 General Education Knowledge Domain selection	3
GEOG 210, 220, 230, or 260 <sup>*</sup>	3 GEOG 220, 210, 230, or 260 <sup>*</sup>	3
<b>16</b>		<b>16</b>

**Second Year**

Fall	Credits Spring	Credits
General Education Knowledge Domain selection	3 General Education Foundation selection (GWS) (ENGL 202A, ENGL 202B, ENGL 202C, ENGL 202D, CAS 100A, CAS 100B, or CAS 100C) <sup>†</sup>	3
General Education Knowledge Domain selection	3 General Education Knowledge Domain selection	3
GEOG 230, 210, 220, or 260 <sup>*</sup>	3 GEOG 301 <sup>*</sup>	3
GEOG 260, 210, 220, or 230 <sup>*</sup>	3 300-level GEOG selection <sup>*</sup>	3
GEOG 364 <sup>*</sup>	3 300-level GEOG selection <sup>*</sup>	3
GEOG 390 <sup>*</sup>	1	
<b>16</b>		<b>15</b>

**Third Year**

Fall	Credits Spring	Credits
General Education Knowledge Domain selection	3 General Education Knowledge Domain selection	3
GEOG 361, 362, 363, or 365 <sup>*</sup>	3 GEOG 361, 362, 363, or 365 <sup>*</sup>	3
300-level GEOG selection <sup>*</sup>	3 GEOG 464 <sup>*</sup>	3
Supporting Course selection	3 400-level GEOG selection <sup>*</sup>	3
Supporting Course selection	3 400-level GEOG selection <sup>*</sup>	3
<b>15</b>		<b>15</b>

**Fourth Year**

Fall	Credits Spring	Credits
General Education Health and Wellness (GHW)	1.5 General Education Health and Wellness (GHW)	1.5
400-level GEOG selection <sup>*</sup>	3 400-level GEOG engaged scholarship selection (GEOG 493, 494, 494H, 495, 495B, 495G, or 499) <sup>*</sup>	3
400-level GEOG selection <sup>*</sup>	3 Elective	3
Supporting Course selection	3 Elective	3
Supporting Course selection	3 Elective	3
<b>13.5</b>		<b>13.5</b>

**Total Credits 120**

\* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

# Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

**University Requirements and General Education Notes:**

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

<sup>1</sup> Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS) or ENGL 202A (GWS) or ENGL 202B (GWS) or ENGL 202C (GWS) or ENGL 202D (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First year Seminar (3) is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

**Advising Notes:**

To enter the major, students need a minimum 2.00 grade point average and third semester standing.

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

For 300-level selections, students should choose one course each from physical geography (GEOG 31x), human geography (GEOG 32x) and environment-society geography (GEOG 33x). Additional 300-level courses (any topic) may be selected for "Supporting Courses" and "Electives" to complete undergraduate certificate requirements.

Geography majors are encouraged to complete at least one 12-credit undergraduate certificate in geography as part of their degree program. With careful planning, there is room in the curriculum to complete 2 certificates. Certificate topics include Human Geography; Physical Geography; Environment & Society Geography; Geographic Information Science; Geospatial Big Data Analytics; Justice, Ethics, Diversity in Space; and Landscape Ecology. Certificate courses double-count with major requirements, but students completing more than one certificate may only double-count a single course for each.

**Geography course notes:**

- Students who have taken GEOG 10, GEOG 20, GEOG 30N/Geographic Perspectives on Sustainability and Human-Environment Systems (GEOG 30), GEOG 115, Urban Geography (GEOG 120), GEOG 124, GEOG 126, GEOG 128, or GEOG 160 should NOT take GEOG 210,

GEOG 220, GEOG 230, GEOG 315, GEOG 320, GEOG 324, GEOG 326, GEOG 328, or GEOG 260 as the latter courses are functionally equivalent to the former and substitutions will be made as needed.

- The following courses are typically offered in **Fall semesters only** at UP: GEOG 210, GEOG 220, GEOG 310, GEOG 324, GEOG 328, GEOG 361, GEOG 362, GEOG 364, GEOG 365, GEOG 461W
- The following courses are typically offered in **Spring semesters only** at UP: GEOG 301, GEOG 314, GEOG 315, GEOG 363, GEOG 464, GEOG 467
- Some courses may alternate between Fall and Spring offerings depending on teaching resources, and some 400-level courses may be offered only once every other year. Consult with geography undergraduate adviser ([advising@geog.psu.edu](mailto:advising@geog.psu.edu)) for current offering schedule.
- Geography majors must select at least one writing-intensive course (WAC) in their 300/400-level courses. Some courses alternate between writing-intensive and non-writing-intensive offerings (e.g., GEOG 310/GEOG 310W; GEOG 411/GEOG 411W; GEOG 410/GEOG 412W, whose number will be changed to GEOG 410W). Other courses are offered only as writing-intensive, even if the suffix W/Y does not appear (e.g. GEOG 461W).



## Geography, B.S. at Commonwealth Campuses

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

### First Year

Fall	Credits	Spring	Credits
General Education	3	General Education	3
Foundation selection (GWS) (ENGL 15, 30, or ESL 15) <sup>‡</sup>		Foundation selection (GWS) (CAS 100, 100A, 100B, or 100C) <sup>††1</sup>	
MATH 110, 140, or 83 <sup>††</sup>	4	STAT 200 <sup>††</sup>	4
General Education Knowledge Domain selection	3	General Education Health and Wellness (GHW)	1.5
General Education Knowledge Domain selection	3	General Education Knowledge Domain selection	3
General Education Knowledge Domain selection	3	General Education Knowledge Domain selection	3
	<b>16</b>		<b>14.5</b>

### Second Year

Fall	Credits	Spring	Credits
General Education Foundation selection (GWS) (ENGL 202A, ENGL 202B, ENGL 202C, ENGL 202D) <sup>‡</sup>	3	General Education Health and Wellness (GHW)	1.5
General Education Knowledge Domain selection	3	Elective	3
General Education Knowledge Domain selection	3	Elective	3
General Education Knowledge Domain selection	3	Elective	3
General Education Knowledge Domain selection	3	Supporting course	3
	<b>15</b>		<b>13.5</b>

### Third Year

Fall	Credits	Spring	Credits
GEOG 210 <sup>*</sup>	3	GEOG 301 <sup>*</sup>	3
GEOG 220 <sup>*</sup>	3	300-level GEOG selection <sup>*</sup>	3
GEOG 230 <sup>*</sup>	3	300-level GEOG selection <sup>*</sup>	3
GEOG 260 <sup>*</sup>	3	GEOG 464 <sup>*</sup>	3
GEOG 364 <sup>*</sup>	3	Supporting Course	3
GEOG 390 <sup>*</sup>	1		
	<b>16</b>		<b>15</b>

### Fourth Year

Fall	Credits	Spring	Credits
GEOG 361, 362, 363, or 365 <sup>*</sup>	3	400-level GEOG selection <sup>*</sup>	3
GEOG 362, 361, 363, or 365 <sup>*</sup>	3	400-level GEOG selection <sup>*</sup>	3
300-level GEOG selection <sup>*</sup>	3	400-level GEOG engaged scholarship selection (GEOG 493, 494, 494H, 495, 495B, 495G, or 499) <sup>*</sup>	3
400-level GEOG selection <sup>*</sup>	3	Supporting Course	3
400-level GEOG selection <sup>*</sup>	3	Supporting Course	3
	<b>15</b>		<b>15</b>

### Total Credits 120

\* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

# Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

### University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

<sup>1</sup> Students who begin their studies at non-UP locations and/or join the college after their first year should substitute CAS 100 (GWS) or ENGL 202A (GWS) or ENGL 202B (GWS) or ENGL 202C (GWS) or ENGL 202D (GWS) for EMSC 100S (GWS). EMSC 100S Earth and Mineral Sciences First-Year Seminar is a required course only for students who begin their studies at UP in the College of Earth and Mineral Sciences.

### Advising Notes:

Commonwealth campus students are **strongly** advised to complete all GWS, GQ, and GHW credits before transitioning to UP, as these courses may be challenging to schedule at UP. STAT 200 is a prerequisite for GEOG 364, which is only offered at UP in fall semesters.

To enter the major, students need a minimum 2.00 grade point average and third semester standing.

Courses required for the major may be offered fall semester only, spring semester only, or both fall and spring semesters. Consult with your adviser and department to discuss your academic progress and course sequencing.

For 300-level selections, students should choose one course each from physical geography (GEOG 31x), human geography (GEOG 32x) and environment-society geography (GEOG 33x). Additional 300-level courses

(any topic) may be selected for "Supporting Courses" and "Electives" to complete undergraduate certificate requirements.

Geography majors are encouraged to complete at least one 12-credit undergraduate certificate in geography as part of their degree program. With careful planning, there is room in the curriculum to complete 2 certificates. Certificate topics include Human Geography; Physical Geography; Environment & Society Geography; Geographic Information Science; Geospatial Big Data Analytics; Justice, Ethics, Diversity in Space; and Landscape Ecology. Certificate courses double-count with major requirements, but students completing more than one certificate may only double-count a single course for each.

Geography course notes:

- Some courses may be available online to students at Commonwealth Campuses via the Digital Learning Cooperative. Interested students should consult with their academic adviser and campus registrar regarding availability, and with the geography department undergraduate adviser ([advising@geog.psu.edu](mailto:advising@geog.psu.edu)) regarding how such courses may fit into the academic plan.
- Students who have taken GEOG 10, GEOG 20, GEOG 30N/Geographic Perspectives on Sustainability and Human-Environment Systems (GEOG 30), GEOG 115, Urban Geography (GEOG 120), GEOG 124, GEOG 126, GEOG 128, or GEOG 160 should NOT take GEOG 210, GEOG 220, GEOG 230, GEOG 315, GEOG 320, GEOG 324, GEOG 326, GEOG 328, or GEOG 260 as the latter courses are functionally equivalent to the former and substitutions will be made as needed.
- The following courses are typically offered in **Fall semesters only** at UP: GEOG 210, GEOG 220, GEOG 310, GEOG 324, GEOG 328, GEOG 361, GEOG 362, GEOG 364, GEOG 365, GEOG 461W
- The following courses are typically offered in **Spring semesters only** at UP: GEOG 301, GEOG 314, GEOG 315, GEOG 363, GEOG 464, GEOG 467
- Some courses may alternate between Fall and Spring offerings depending on teaching resources, and some 400-level courses may be offered only once every other year. Consult with geography undergraduate adviser ([advising@geog.psu.edu](mailto:advising@geog.psu.edu)) for current offering schedule.
- Geography majors must select at least one writing-intensive course (WAC) in their 300/400-level courses. Some courses alternate between writing-intensive and non-writing-intensive offerings (e.g., GEOG 310/GEOG 310W; GEOG 411/GEOG 411W; GEOG 410/GEOG 412W, whose number will be changed to GEOG 410W). Other courses are offered only as writing-intensive, even if the suffix W/Y does not appear (e.g. GEOG 461W).

## Career Paths

There are many potential careers for Geography majors. The Geography major teaches students a variety of useful skills for the marketplace. Employers value the wide-ranging computer, research, and analytical skills that geography students bring to work as employees. Geography undergraduates find jobs in all levels of government, nonprofit organizations, and industry. In preparation for the job market both majors and non-majors can enhance their educational experience by enrolling in one or more of our certificate programs. The geography department offers certificates in Environment and Society, Geographic Information Systems, Geospatial Big Data Analytics, Human Geography, Landscape Ecology, and Physical Geography.

## Careers

Very few geography-related jobs have the title of "geographer," but students with geography degrees find employment with diverse organizations including (but not limited to): Amnesty International, BAE Systems, Boeing, Esri, Federal Emergency Management Agency, Heifer International, NASA, National Geographic, National Park Service, Teach for America, United Nations, U.S. Army Corps of Engineers, U.S. Census Bureau, U.S. Environmental Protection Agency, U.S. Forest Service, U.S. State Department, local, regional, and state planning agencies, environmental and engineering consulting firms, policy research institutes, private corporations, and humanitarian organizations.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE GEOGRAPHY PROGRAM (<https://www.geog.psu.edu>)

## Opportunities for Graduate Studies

A Geography undergraduate degree is ideal for students who are interested in pursuing graduate degrees in the computational, environmental, and social sciences. Alumni enter graduate and professional studies in a variety of programs, including (but not limited to) geography, planning, international development, urban studies, sustainability, environmental sciences, ecology, geographic information sciences, information technology, environmental informatics, geodesign, business administration, supply chain management, emergency management, law, and education. They sometimes begin graduate or professional programs directly after finishing undergraduate studies, but often get several years' work experience before returning to school, either full-or part-time.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://www.geog.psu.edu>)

## Professional Resources

- American Association of Geographers (AAG) (<https://www.aag.org>)
- American Geographic Society (AGS) (<https://americangeo.org>)
- National Geographic Society (NGS) (<https://www.nationalgeographic.com>)
- International Geographic Union (IGU) (<https://igu-online.org>)
- Society of Woman Geographers (SWG) (<http://iswg.org>)
- North American Cartographic Information Society (NACIS) (<https://nacis.org>)
- ASPRS: The Imaging & Geospatial Information Society (<https://www.asprs.org>)
- National Council for Geographic Education (<https://ncge.org/>)

## Contact

### University Park

DEPARTMENT OF GEOGRAPHY  
302 Walker Building  
University Park, PA 16802  
814-865-3433  
[geography@psu.edu](mailto:geography@psu.edu)

<https://www.geog.psu.edu>