

# Bachelor of Science in Geography

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## Why study geography?

A much more specialized degree, the Bachelor of Science offers concentrated specializations in one of two aspects of Geography: physical geography or geographic information science (GIS). The BS has fewer general education requirements and require solid backgrounds in mathematics and basic science.

There are two B.S. degree options:

**Physical Geography Option**  
Students prepare for a career in environmental assessment and problem solving. Basic requirements include preparation in chemistry, biology, physics and mathematics. Advanced course work includes the study of the processes that affect the physical environment (soils, vegetation, climate and geomorphology), and techniques for performing statistical and computational analysis of these processes (statistics, GIS and remote sensing).

**Geographical Information and Analysis Option**  
Students prepare for a career in the area of geographic information science and problem solving using a variety of spatial analysis techniques. Basic requirements include preparation in mathematics, science and computer science. Advanced course work includes work in cartography, GIS, remote sensing, spatial statistics, spatial analysis and data presentation and visualization. In addition, students are expected to take some coursework in one of the other areas of geography (physical, human, and regional).

Beyond the basic requirements listed under each option, both Geography B.S. degrees have a common set of general education requirements, including courses in English, mathematics, communications, humanities,

social sciences and a history or philosophy of science course. Some courses are shared by the two options; however, different course selection menus apply for the remaining requirements.

## Undergraduate Admission

### Admission to KU

All students applying for admission must send high school and college transcripts to the Office of Admissions. Prospective first-year students should be aware that KU has qualified admission requirements that all new first-year students must meet to be admitted. Consult the Office of Admissions (<http://admissions.ku.edu/>) for application deadlines and specific admission requirements.

Visit the International Support Services (<http://www.iss.ku.edu/>) for information about international admissions.

Students considering transferring to KU may see how their college-level course work will transfer on the Office of Admissions (<http://credittransfer.ku.edu/>) website.

### First- and Second-Year Preparation

Students should begin the major by meeting the core requirements and preparing for major courses.

### Requirements for the B.S. Degree

Geography B.S. General Education Requirements

### Written Communication – Core Skill and Critical Inquiry.

Code	Title	Hours
<b>Composition</b>		
Satisfied by one of the following. Requirement must be completed during initial term of admission at KU.		
ENGL 101	Composition	
ACT English score of 27 or above or SAT English score of 600 or above		
AP English Literature & Composition score of 3 or above		
Equivalent transfer course		
<b>Critical Reading and Writing</b>		
Satisfied by one of the following. Requirement must be completed during initial term of admission at KU.		
ENGL 102	Critical Reading and Writing	
or ENGL 105 Honors Introduction to English		
AP English Literature & Composition score of 4 or above		
Equivalent transfer course		
<b>Sophomore Reading and Writing II</b>		
Satisfied by one of the following:		
ENGL 203	Topics in Reading and Writing: _____	
or ENGL 205 Freshman-Sophomore Honors Proseminar: _____		
ENGL 209	Introduction to Fiction	
ENGL 210	Introduction to Poetry	
ENGL 211	Introduction to the Drama	
ENGL 362	Foundations of Technical Writing (recommended)	

AP English Literature & Composition score of 5 or above

Equivalent

**Communications.** Satisfied by COMS 130 (COMS 230, PHIL 148, PHIL 310 or exemption).

**History or philosophy of science.**

Code	Title	Hours
Select one of the following or consult undergraduate committee for approval of alternatives:		
HIST 103	Environment and History	3
HIST 305	Technological Revolutions and Global Transformations	
HIST 347	Environmental History of North America	
HIST 407	Technology in American History	
PHIL 370	Moral Issues in Medicine	
PHIL 375	Moral Issues in Computer Technology	
PHIL 380	Environmental Ethics	
PHIL 620	Philosophy of Natural Science	
PHIL 622	Philosophy of Social Science	

### Physical Geography Option

Code	Title	Hours
<b>Geography Prerequisite or Co-requisite Knowledge</b>		
Calculus I. Satisfied by:		4
MATH 125	Calculus I	
Calculus II. Satisfied by:		4
MATH 126	Calculus II	
(MATH 220 and 320 are also recommended)		
Physics I. Satisfied by one of the following:		4-5
PHSX 211 & PHSX 216	General Physics I and General Physics I Laboratory (recommended)	
PHSX 114 & PHSX 201 & PHSX 216	College Physics I and Calculus Supplement to College Physics I and General Physics I Laboratory	
Physics II. Satisfied by one of the following:		4-5
PHSX 212 & PHSX 236	General Physics II and General Physics II Laboratory	
PHSX 115 & PHSX 202 & PHSX 236	College Physics II and Calculus Supplement to College Physics II and General Physics II Laboratory	
Biology. Satisfied by:		8
BIOL 150 & BIOL 152 & BIOL 154	Principles of Molecular and Cellular Biology and Principles of Organismal Biology and Introductory Biology Lab for STEM Majors	
Chemistry. Satisfied by:		10
CHEM 130 & CHEM 135	General Chemistry I and General Chemistry II (or CHEM 190 and CHEM 191 and CHEM 195 and CHEM 196)	
Information Technology. Satisfied by:		3
EECS 138	Introduction to Computing: _____	
<b>Geography Overview Courses</b>		
GEOG 104	Introduction to Physical Geography	3

GEOG 105	Introductory Laboratory in Physical Geography	2
One course in Human or Regional Geography		3
<b>Core System Courses</b>		
GEOG 321	Climate and Climate Change	3
GEOG 336	Introduction to Environmental Hydrology and Water Resources	3
or CE 455	Hydrology	
GEOG 335	Introduction to Soil Geography	4
or GEOG 535	Soil Geography	
GEOG 332	Glaciers and Landscape	3
BIOL 414	Principles of Ecology	3
<b>Geoinformatics Courses</b>		
GEOG 316	Methods of Analyzing Geographical Data	4
GEOG 358	Introduction to Geographic Information Systems	4
One 500-level or above course from GIS Studies. (GEOG 526 recommended)		3
<b>Senior Capstone</b>		
GEOG 500	Senior Capstone in Geography	3
<b>Elective Courses</b>		
Select two or more of the following:		6
GEOG 540	Ecohydrology	
GEOG 521	Microclimatology	
GEOG 532	Geoarchaeology	
GEOG 541	Geomorphology	
Other 300-level or above courses in Physical Geography		

## Physical Geography Option Major Hours & Major GPA

While completing all required courses, majors must also meet each of the following hour and grade-point average minimum standards:

### Major Hours

Satisfied by 44 hours of major courses.

### Major Hours in Residence

Satisfied by a minimum of 15 hours of KU resident credit in the major.

### Major Junior/Senior (300+) Hours

Satisfied by a minimum of 36 hours from junior/senior courses (300+) in the major.

### Major Junior/Senior (300+) Graduation GPA

Satisfied by a minimum of a 2.0 KU GPA in junior/senior courses (300+) in the major. GPA calculations include all junior/senior courses in the field of study including F's and repeated courses. See the Semester/Cumulative GPA Calculator (<http://clas.ku.edu/undergrad/tools/gpa/>).

## Geographical Information and Analysis Option

Code	Title	Hours
<b>Geography Prerequisite or Co-requisite Knowledge</b>		
Calculus I. Satisfied by one of the following:		4
MATH 125	Calculus I	
or MATH 145	Calculus I, Honors	
Calculus II. Satisfied by one of the following:		4
MATH 126	Calculus II	

or MATH 146	Calculus II, Honors	
General Physics I. Satisfied by one of the following:		4-5
PHSX 211	General Physics I	
PHSX 114 & PHSX 201	College Physics I and Calculus Supplement to College Physics I	
General Physics II. Satisfied by one of the following:		3-5
PHSX 212	General Physics II	
PHSX 115 & PHSX 202	College Physics II and Calculus Supplement to College Physics II	
Computing Fundamentals. Satisfied by:		3
GEOG 360	Computer Programming for Mapping and Spatial Analysis	
or EECS 138	Introduction to Computing: _____	

### Overview Geography Courses 17-18

Principles of Physical Geography or Scientific Principles of Environmental Studies. Satisfied by one of the following:

GEOG 104 & GEOG 105	Introduction to Physical Geography and Introductory Laboratory in Physical Geography
GEOG 140 & GEOG 160	Global Environment I: The Discovery of Environmental Change and Environmental Solutions

Maps and Mapping or Computers, Maps, and Geographical Analysis. Satisfied by:

GEOG 111	Mapping Our Changing World
or GEOG 358	Introduction to Geographic Information Systems

Principles of Human Geography. Satisfied by:

GEOG 102	People, Place, and Society
or GEOG 102P	People, Place, and Society, Honors

2 GEOG 300+ courses. One in Physical and one in Human and/or Regional Geography

### Core Geographic Information Science Courses 21

Six courses, at least one from each category:

Cartography and Visualization. Satisfied by:

GEOG 311	Introductory Cartography and Geovisualization
GEOG 512	Advanced Cartography and Geovisualization

Geographical Information Systems. Satisfied by:

GEOG 558	Spatial Data Analysis
GEOG 560	GIS Application Programming

Remote Sensing. Satisfied by:

GEOG 526	Remote Sensing of Environment I
GEOG 726	Remote Sensing of Environment II

Statistics. Satisfied by:

GEOG 316	Methods of Analyzing Geographical Data
GEOG 716	Advanced Geostatistics

### Senior Capstone in Geography 3

Satisfied by:

GEOG 500	Senior Capstone in Geography
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### Geographic Information Science Electives 6

Two other courses (300-level or above) from geographic information science

### Allied Field

Three courses and nine hours minimum ( 300-level or above) in one field (or a minor) (area studies, atmospheric science, biology, computer science, design, environmental studies, engineering, geology, psychology, urban planning). 9

## Geographical Information and Analysis Option Major Hours & Major GPA

While completing all required courses, majors must also meet each of the following hour and grade-point average minimum standards:

### Major Hours

Satisfied by 56 hours of major courses.

### Major Hours in Residence

Satisfied by a minimum of 15 hours of KU resident credit in the major.

### Major Junior/Senior (300+) Hours

Satisfied by a minimum of 45 hours from junior/senior courses (300+) in the major.

### Major Junior/Senior (300+) Graduation GPA

Satisfied by a minimum of a 2.0 KU GPA in junior/senior courses (300+) in the major. GPA calculations include all junior/senior courses in the field of study including F's and repeated courses. See the Semester/Cumulative GPA Calculator (<http://clas.ku.edu/undergrad/tools/gpa/>).

## Departmental Honors in Geography

To be accepted as a candidate for honors, an undergraduate major must have completed at least 9 hours of upper-division credit in geography with a grade-point average of 3.5 in all geography courses. In addition to outstanding work in geography, the program requires GEOG 499, an independent study course consisting of an honors paper.

The student presents the results of this paper in an oral examination to a committee of at least 2 faculty members, normally from the geography department, chaired by the GEOG 499 supervisor. To graduate with honors, the student must complete the paper and the examination and maintain the 3.5 grade-point average.