Bachelor of Science in Geography

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.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ENGL 101</td>
<td>Composition</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACT English score of 27 or above or SAT English score of 600 or above</td>
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<tr>
<td></td>
<td>AP English Literature &amp; Composition score of 3 or above</td>
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<tr>
<td></td>
<td>Equivalent transfer course</td>
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<tr>
<td>ENGL 102</td>
<td>Critical Reading and Writing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENGL 105Honors Introduction to English</td>
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<tr>
<td></td>
<td>AP English Literature &amp; Composition score of 4 or above</td>
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<tr>
<td></td>
<td>Equivalent transfer course</td>
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<tr>
<td>ENGL 203</td>
<td>Topics in Reading and Writing: _____</td>
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<tr>
<td></td>
<td>or ENGL 205Freshman-Sophomore Honors Proseminar: _____</td>
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<tr>
<td>ENGL 209</td>
<td>Introduction to Fiction</td>
<td></td>
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<tr>
<td>ENGL 210</td>
<td>Introduction to Poetry</td>
<td></td>
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<tr>
<td>ENGL 211</td>
<td>Introduction to the Drama</td>
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</tr>
<tr>
<td>ENGL 362</td>
<td>Foundations of Technical Writing (recommended)</td>
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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.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>HIST 103</td>
<td>Environment and History</td>
<td>3</td>
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<tr>
<td>HIST 305</td>
<td>Technological Revolutions and Global Transformations</td>
<td></td>
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<tr>
<td>HIST 347</td>
<td>Environmental History of North America</td>
<td></td>
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<tr>
<td>HIST 407</td>
<td>Technology in American History</td>
<td></td>
</tr>
<tr>
<td>PHIL 370</td>
<td>Moral Issues in Medicine</td>
<td></td>
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<tr>
<td>PHIL 375</td>
<td>Moral Issues in Computer Technology</td>
<td></td>
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<tr>
<td>PHIL 380</td>
<td>Environmental Ethics</td>
<td></td>
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<tr>
<td>PHIL 620</td>
<td>Philosophy of Natural Science</td>
<td></td>
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<tr>
<td>PHIL 622</td>
<td>Philosophy of Social Science</td>
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Physical Geography Option

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENGL 103</td>
<td>Composition or Co-requisite Knowledge</td>
<td></td>
</tr>
<tr>
<td>MATH 125</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 126</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 127</td>
<td>Calculus II (MATH 220 and 320 are also recommended)</td>
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</tr>
<tr>
<td>PHSX 211</td>
<td>General Physics I</td>
<td>4-5</td>
</tr>
<tr>
<td>PHSX 115</td>
<td>College Physics II</td>
<td>4-5</td>
</tr>
<tr>
<td>PHSX 212</td>
<td>General Physics II</td>
<td>4-5</td>
</tr>
<tr>
<td>CHEM 130</td>
<td>General Chemistry I</td>
<td>10</td>
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<tr>
<td>CHEM 135</td>
<td>General Chemistry II</td>
<td></td>
</tr>
<tr>
<td>EEECS 138</td>
<td>Introduction to Computing: _____</td>
<td>3</td>
</tr>
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</table>

Geography Overview Courses

| GEOG 104 | Introduction to Physical Geography        | 3     |
Bachelor of Science in Geography

GEOG 105 Introductory Laboratory in Physical Geography 2
One course in Human or Regional Geography 3

Core System Courses
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

Geoinformatics Courses
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)

Senior Capstone
GEOG 500 Senior Capstone in Geography 3

Elective Courses
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

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>Geography Prerequisite or Co-requisite Knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calculus I. Satisfied by one of the following:</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>MATH 125  Calculus I</td>
<td></td>
<td></td>
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<tr>
<td>or MATH 146 Calculus I, Honors</td>
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<tr>
<td>Calculus II. Satisfied by one of the following:</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>MATH 126  Calculus II</td>
<td></td>
<td></td>
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<tr>
<td>or MATH 146 Calculus II, Honors</td>
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</table>

or MATH 146 Calculus II, Honors

General Physics I. Satisfied by one of the following: 4-5
PHSX 211  General Physics I
PHSX 114  College Physics I & PHSX 201 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  College Physics II & PHSX 202 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  Introduction to Physical Geography
& GEOG 105 and Introductory Laboratory in Physical Geography
GEOG 140  Global Environment I: The Discovery of Environmental Change
& GEOG 160  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 103 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

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).

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.