GEOGRAPHY, B.S.

The Bachelor of Science degree in Geography affords the student an opportunity to focus more deeply on the technical and applied aspects of the discipline specific to one of three concentrations: earth science, geographic information science, or urban planning.

**Overall Requirements**

- 120 credit hours, to include a minimum of 36 credits at or above the 300 course level.
- 63-66 credits from the major and concentrations.
- A minimum of 27 credits in geography above the 100 level. Only grades of C- or higher in GES courses will count toward completion of the major and concentrations.
- No more than 6 credit hours from GES courses numbered 160-170, 260-289, 360-399, 460-489 may be applied to the major.

**Degree Program Requirements**

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<th>Code</th>
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<th>Credit Hours</th>
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University Requirements

General Education Requirements (MAC) (/catalog.uncg.edu/academic-regulations-policies/undergraduate-requirements/undergraduate-degrees-and-degree-requirements/)

General Education Requirements (MAC) (/catalog.uncg.edu/academic-regulations-policies/undergraduate-requirements/general-education-program/#generaleducationcorerequirementstext)

College of Arts and Sciences Additional Requirements (CIC) (/catalog.uncg.edu/arts-sciences/#additionalundergraduaterequirementstext)

**Major Requirements**

Select one of the concentrations as detailed following the major requirements.

- Earth Science
- Geographic Information Science (GIS)
- Urban Planning

**Electives**

Electives sufficient to complete the 120 credit hours required for the degree.

**Earth Science Concentration Requirements**

A central theme of geography is human interaction with the earth's physical environment. This concentration permits students to apply the basic scientific principles of physical geography, cartography, and natural resource analysis to the problem of ensuring a high quality of life through maintenance of the natural processes that support human existence. This concentration also provides training to enhance the employment opportunities of students with a strong interest in environmental assessment and resource evaluation.

- Only grades of C- or higher in GES courses will count toward completion of the concentration.

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**Earth Science Foundational Courses**

- GES 103 Introduction to Earth Science & GES 103L Earth Science Laboratory
- CHE 111 General Chemistry I & CHE 112 General Chemistry I Laboratory
- CHE 114 General Chemistry II & CHE 115 General Chemistry II Laboratory
- MAT 191 Calculus I

**Plus, select three of the following options:**

- BIO 111 Principles of Biology I & 111L Principles of Biology I Laboratory
- BIO 112 Principles of Biology II & 112L Principles of Biology II Laboratory
- PHY 211 General Physics I
- PHY 212 General Physics II

**Geographic Techniques**

- GES 121 Introduction to Geographic Information Science & Intro to Geographic Information Science Laboratory

**Plus, select one of the following courses:**

- GES 322 Research Methods in Spatial Science
- GES 325 Introduction to Spatial Analysis
- GES 357 Principles of Cartography
- GES 358 Geographic Information Systems
- GES 359 Earth from Space

**Human Geography**

- GES 105 Introduction to Human Geography
- GES 301 Cities of the World
- GES 302 Urban Geography: Sustainable Land Use
- GES 303 World Population Problems
- GES 304 Sustainable Transport and Mobility
- GES 306 World Economic Geography
- GES 315 The Geography of World Affairs

**Regional Geography**

- GES 102 The Historical Geography of the Western World
- GES 104 World Regional Geography
- GES 313 Natural Resource Regions of North America
- GES 333 Geography of Europe
- GES 340 Geography of East Asia
- GES 344 Geography of the United States and Canada
- GES 451 Seminar in Regional Geography
- GES 491 Current Topics in Regional Geography

**Earth Science Requirement**

- GES 314 Physical Geography: Landscape Processes & 314L and Physical Geography Laboratory
- GES 319 Weather and Climate & 319L and Climatology Laboratory
- GES 418 Biogeography

**Select five of the following courses:**

- GES 205 Environmental Change: Its Nature and Impact
GES 305  Environmental Hazards Assessment
GES 312  Geomorphology of North America
GES 325  Introduction to Spatial Analysis
GES 328  The Water Planet
GES 330  Elements of Hydrology
GES 358  Geographic Information Systems
GES 359  Earth from Space
GES 419  Advanced Weather and Climate-Synoptic Climatology
GES 450  Applied Physical Geography

* Courses selected cannot have been taken above.

Geographic Information Science Concentration Requirements

Students with this concentration will develop skills in using maps, geospatial computer programs, and remotely sensed images to answer geographic questions relevant to land use planning, urban development, geomorphologic or biogeographic processes, or environmental impact assessment. A capstone course (GES 421), which includes a faculty-directed major project, is completed in the final semester.

- Only grades of C- or higher in GES courses will count toward completion of the concentration.

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<tbody>
<tr>
<td>GES 102</td>
<td>The Historical Geography of the Western World</td>
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<tr>
<td>GES 104</td>
<td>World Regional Geography</td>
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<tr>
<td>GES 313</td>
<td>Natural Resource Regions of North America</td>
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</tr>
<tr>
<td>GES 333</td>
<td>Geography of Europe</td>
<td></td>
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<tr>
<td>GES 340</td>
<td>Geography of East Asia</td>
<td></td>
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<tr>
<td>GES 344</td>
<td>Geography of the United States and Canada</td>
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<tr>
<td>GES 451</td>
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<tr>
<td>GES 491</td>
<td>Current Topics in Regional Geography</td>
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Geographic Information Science Requirements

- Only grades of C- or higher in GES courses will count toward completion of the concentration.

Urban Planning Concentration Requirements

The inter-regional shift of people and jobs in the United States and elsewhere over the past decades coupled with the movement away from large central cities has increased the need for formal urban and regional planning. Planners are needed in the private sector as well as in state and local governments to provide the appropriate kinds of economic and community development that will ensure a high quality of life in both developed and developing countries. In a growth region like the Southeast, geographers with a planning background are in increasing demand.

- Only grades of C- or higher in GES courses will count toward completion of the concentration.

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<tbody>
<tr>
<td>CSC 120</td>
<td>Introduction to Computer Programming for Non-Majors</td>
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<tr>
<td>GES 325</td>
<td>Introduction to Spatial Analysis</td>
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<tr>
<td>GES 357</td>
<td>Principles of Cartography</td>
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<tr>
<td>GES 358</td>
<td>Geographic Information Systems</td>
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<td>GES 359</td>
<td>Earth from Space</td>
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<tr>
<td>GES 457</td>
<td>Advanced Cartography</td>
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<tr>
<td>GES 458</td>
<td>Advanced Geographic Information Systems</td>
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<tr>
<td>GES 459</td>
<td>Advanced Remote Sensing-Imaging</td>
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Urban Planning Foundational Courses

- Only grades of C- or higher in GES courses will count toward completion of the concentration.
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<tr>
<td>GES 319 &amp; 319L</td>
<td>Weather and Climate and Climatology Laboratory</td>
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<tr>
<td>GES 303</td>
<td>World Population Problems</td>
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<tr>
<td>GES 306</td>
<td>World Economic Geography</td>
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<td>GES 315</td>
<td>The Geography of World Affairs</td>
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**Human Geography**

Select one of the following courses:

- GES 303 World Population Problems
- GES 306 World Economic Geography
- GES 315 The Geography of World Affairs

**Regional Geography**

Select one of the following courses:

- GES 102 The Historical Geography of the Western World
- GES 104 World Regional Geography
- GES 313 Natural Resource Regions of North America
- GES 333 Geography of Europe
- GES 340 Geography of East Asia
- GES 344 Geography of the United States and Canada
- GES 451 Seminar in Regional Geography
- GES 491 Current Topics in Regional Geography

**Urban Planning Requirements**

- GES 301 Cities of the World
- GES 302 Urban Geography: Sustainable Land Use
- GES 304 Sustainable Transport and Mobility
- GES 358 Geographic Information Systems
- GES 402 Sustainable Urban Planning in an Entrepreneurial Environment
- GES 432 Geography of Livable Cities

Select six of the following courses:

- GES 303 World Population Problems
- GES 306 World Economic Geography
- GES 320 Tourism Planning and Development
- GES 322 Research Methods in Spatial Science
- GES 325 Introduction to Spatial Analysis
- GES 331 Sustainable Tourism and Transportation
- GES 344 Geography of the United States and Canada
- GES 357 Principles of Cartography
- GES 359 Earth from Space
- GES 433 Regional Economic Development

*Courses selected cannot have been taken above.*