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

Code	Title	Credit Hours
University Requirements (https://catalog.uncg.edu/academic-regulations-policies/undergraduate-requirements/undergraduate-degrees-and-degree-requirements/)		
General Education Requirements (MAC) (https://catalog.uncg.edu/academic-regulations-policies/undergraduate-requirements/general-education-program/#generaleducationcorerequirementstext)		
College of Arts and Sciences Additional Requirements (CIC) (https://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.

Code	Title	Credit Hours
Earth Science Foundational Courses		**27**
GES 103 & 103L	Introduction to Earth Science and Earth Science Laboratory	
CHE 111 & CHE 112	General Chemistry I and General Chemistry I Laboratory	
CHE 114 & CHE 115	General Chemistry II and General Chemistry II Laboratory	
MAT 191	Calculus I	
Plus, select three of the following options:		
BIO 111 & 111L	Principles of Biology I and Principles of Biology I Laboratory	
BIO 112 & 112L	Principles of Biology II and Principles of Biology II Laboratory	
PHY 211	General Physics I	
PHY 212	General Physics II	
Geographic Techniques		**7**
GES 121 & 121L	Introduction to Geographic Information Science and Intro to Geographic Information Science Laboratory	
Plus, select one of the following courses:		
GES 322	Research Methods & Data Analysis	
GES 325	Introduction to Spatial Analysis	
GES 357	Principles of Cartography	
GES 358	Geographic Information Systems	
GES 359	Earth from Space	
Human Geography		**3**
Select one of the following courses:		
GES 105	People, Place, and Environment	
GES 301	Cities of the World	
GES 302	Urban Geography: Sustainable Land Use	
GES 303	World Population Problems	
GES 304	Sustainable Transport, Mobility, Wellbeing	
GES 306	World Economic Geography	
GES 315	The Geography of World Affairs	
Regional Geography		**3**
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	Topics in Regional Geography	
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		**26**
GES 314 & 314L	Physical Geography: Landscape Processes and Physical Geography Laboratory	
GES 319 & 319L	Weather and Climate 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, geomorphic 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.

Code	Title	Credit Hours
Geographic Information Science Foundational Courses		**15**
GES 103 & 103L	Introduction to Earth Science and Earth Science Laboratory	
CHE 111 & CHE 112	General Chemistry I and General Chemistry I Laboratory	
PHY 211	General Physics I	
MAT 191	Calculus I	
Geographic Techniques		**7**
GES 121 & 121L	Introduction to Geographic Information Science and Intro to Geographic Information Science Laboratory	
GES 322	Research Methods & Data Analysis	
Earth Science		**8**
GES 314 & 314L	Physical Geography: Landscape Processes and Physical Geography Laboratory	
GES 319 & 319L	Weather and Climate and Climatology Laboratory	
Human Geography		**3**
Select one of the following courses:		
GES 105	People, Place, and Environment	
GES 301	Cities of the World	
GES 302	Urban Geography: Sustainable Land Use	
GES 303	World Population Problems	
GES 304	Sustainable Transport, Mobility, Wellbeing	
GES 306	World Economic Geography	
GES 315	The Geography of World Affairs	
Regional Geography		**3**
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	Topics in Regional Geography	
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	
Geographic Information Science Requirements		**27**
CSC 120	Introduction to Computer Programming for Non-Majors	
GES 325	Introduction to Spatial Analysis	
GES 357	Principles of Cartography	
GES 358	Geographic Information Systems	
GES 359	Earth from Space	
GES 457	Advanced Cartography	
GES 458	Advanced Geographic Information Systems	
GES 459	Advanced Remote Sensing-Imaging	
GES 421	Geographic Information Science *	

* *Taken after the completion of the other Concentration Requirements.*

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.

Code	Title	Credit Hours
Urban Planning Foundational Courses		**10**
GES 103 & 103L	Introduction to Earth Science and Earth Science Laboratory	
GES 105	People, Place, and Environment	
Select one of the following courses:		
MAT 112	Contemporary Topics in Mathematics	
STA 108	Elementary Introduction to Probability and Statistics	
Geographic Techniques		**7**
GES 121 & 121L	Introduction to Geographic Information Science and Intro to Geographic Information Science Laboratory	
GES 357	Principles of Cartography	
Earth Science		**4**
Select one of the following options:		
GES 314 & 314L	Physical Geography: Landscape Processes and Physical Geography Laboratory	

GES 319 & 319L	Weather and Climate and Climatology Laboratory	
Human Geography		**3**
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		**3**
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	Topics in Regional Geography	
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		**36**
GES 301	Cities of the World	
GES 302	Urban Geography: Sustainable Land Use	
GES 304	Sustainable Transport, Mobility, Wellbeing	
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 & Data Analysis	
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.*