

GEOGRAPHY

Department Website (<http://www.cas.sc.edu/geog/>)

Geography helps answer big questions about Earth's physical and human system. In the Department of Geography, students work with renowned faculty using modern technology to develop the skills necessary to find real-world solutions to pressing issues such as climate change, migration, food shortages and natural disasters.

Our department offers several degree programs and covers a range of topics, including the nature of places and sustainability. Majors may choose between a Bachelor of Arts or a Bachelor of Science in geography. We also offer a flexible geography minor and a more specialized minor in climate and society. In addition, the Geospatial Intelligence Certificate Program equips students to respond to situations like natural disasters, humanitarian crises and environmental monitoring.

Minors

The Department of Geography offers a flexible general geography minor that requires 18 credit hours in geography courses. Students may not apply more than 3 credit hours from the 100 level and not more than 9 credit hours from the 200 level.

Besides the general geography minor, students may instead choose a specialized minor in the following areas: environmental geography, geographic information science, meteorology and climatology, physical geography, and regional geography. Please see a faculty advisor in the Department of Geography for more details on the requirements for specialized minors.

Programs

- Climate and Society Minor (<https://academicbulletins.sc.edu/undergraduate/arts-sciences/geography/climate-society-minor/>)
- Geography Minor (<https://academicbulletins.sc.edu/undergraduate/arts-sciences/geography/geography-minor/>)
- Geography, B.A. (<https://academicbulletins.sc.edu/undergraduate/arts-sciences/geography/geography-ba/>)
- Geography, B.S. (<https://academicbulletins.sc.edu/undergraduate/arts-sciences/geography/geography-bs/>)

Courses

GEOG 103 - Foundations of Geography (3 Credits)

A survey of the principles and methods of geographic inquiry. Not required for the geography major.

Carolina Core: GSS

GEOG 104 - Introduction to Physical Geography (3 Credits)

Basic concepts of landform geography, climatology and meteorology, and biogeography.

Carolina Core: SCI

GEOG 105 - The Digital Earth (3 Credits)

Introduction to geographic data; use of digital maps and aerial/satellite images as means of Earth observation; basics of spatial data analysis; location-based Web APPs; digital map services.

Carolina Core: ARP

GEOG 121 - Geographies of Global Change (3 Credits)

Introduction to processes of political, economic, social, and environmental change around the world; topics include geopolitical transitions, nationalism, trade, uneven development, conflict, environmental geopolitics, and demographic change, with an emphasis on non-U.S. contexts.

Carolina Core: GSS

Graduation with Leadership Distinction: GLD: Professional and Civic Engagement Leadership Experiences

GEOG 201 - Landform Geography (4 Credits)

Hydrology, soil science, and interpretation of physical features formed by water, wind, and ice, with emphasis on environmental change. Three hours of lecture and one two-hour laboratory per week.

Carolina Core: SCI

GEOG 202 - Weather and Climate (4 Credits)

Processes that influence weather and climate patterns on the earth. Three lectures and one two-hour laboratory per week.

Carolina Core: SCI

GEOG 210 - Peoples, Places, and Environments (3 Credits)

Basic principles of human geography.

Carolina Core: GSS

Graduation with Leadership Distinction: GLD: Community Service, GLD: Professional and Civic Engagement Leadership Experiences

GEOG 221 - Geography of South Carolina (3 Credits)

An intensive regional analysis of South Carolina. Selected phenomena such as urbanization, industrialization, land use, the physical environment, and their interrelationships.

Carolina Core: GSS

GEOG 223 - Geography of Latin America (3 Credits)

Physical and human geography of Latin America.

Cross-listed course: LASP 331

Carolina Core: GSS

Graduation with Leadership Distinction: GLD: Global Learning

GEOG 224 - Geography of North America (3 Credits)

Physical and human geography of North America with emphasis on the United States.

Carolina Core: GSS

GEOG 225 - Geography of Europe (3 Credits)

Physical and human geography of Europe.

Carolina Core: GSS

Graduation with Leadership Distinction: GLD: Global Learning

GEOG 226 - Geography of the Middle East (3 Credits)

A regional geographic approach to the environmental, social, economic, and political aspects of the Middle East (Southwest Asia and north Africa) with emphasis on contemporary problems.

Carolina Core: GSS

Graduation with Leadership Distinction: GLD: Global Learning

GEOG 227 - Geography of Russia and Central Asia (3 Credits)

A geographical investigation of the historical, cultural, political, and economic processes that shape Central Asian states and societies from antiquity, through periods of colonialism and empire, the formation of the Soviet Union, and into the current context of globalization and international development.

GEOG 228 - Geography of Sub-Saharan Africa (3 Credits)

A regional approach to the physical, social, economic, and political aspects of Sub-Saharan Africa with emphasis on contemporary problems.

Carolina Core: GSS

Graduation with Leadership Distinction: GLD: Global Learning

GEOG 263 - Geographic Information Systems (3 Credits)

Introduction to principles and methods of geographic information systems including discussion of computers, spatial data, analysis, and display. Includes discussion of applications and hands-on experience.

GEOG 285 - Introduction to Drones for Airborne Spatial Data (3 Credits)

This course is an introduction to the use of small unmanned aerial systems (UAS) in collecting/processing imagery for mapping/information analysis. Course content includes UAS characteristics, small camera considerations, project planning and processing, and legal requirements in the United States and selected European countries.

GEOG 310 - Topics in Geography (3 Credits)

Selected topics of special interest in geography. May be repeated as content varies by title.

GEOG 311 - Landscape and Cultural Geography (3 Credits)

The temporal-spatial relationship between humans and the natural environment with emphasis on the role through time of human activity in changing the face of the earth.

GEOG 312 - Geography and Global Geopolitics (3 Credits)

Geographic perspectives on problems in international relations. Political geographic analysis of contemporary world problems.

Graduation with Leadership Distinction: GLD: Global Learning

GEOG 313 - Economic Geography (3 Credits)

Spatial interrelation and linking of economic activities and how location affects the nature of economic systems.

GEOG 314 - Geopolitics and Refugees (3 Credits)

An overview of conflict, displacement, and humanitarianism in the context of the modern interstate-system. Topics include refoulment, border externalization, transit, resettlement, and asylum politics.

GEOG 319 - Cities in a Changing World (3 Credits)

An overview of historical and contemporary urban development and growth, with an emphasis on post-colonial and non-Western contexts.

GEOG 321 - Sustainable Cities (3 Credits)

Overview of the relationships between urbanization and environmental processes and an exploration of pathways to greater sustainability.

GEOG 324 - Landscapes of the United States (3 Credits)

Geographic change through time in the United States, with emphasis on evolution of the American landscape. Physical environment as modified by human intervention over time within a regional framework.

GEOG 330 - The Geography of Disasters (3 Credits)

The study of disasters, their triggering mechanisms (natural, human, technological), their spatial distributions from local to global scales, and associated human responses.

GEOG 341 - Cartography (3 Credits)

Introduction to the theory and principles of map construction including discussions of equipment and materials, lettering and symbolization, scale and generalization, data manipulation and representation. Presentation of geographic information on maps.

GEOG 343 - Environment and Society (3 Credits)

A geographic consideration of the interactions between environment and society. The ways in which social, economic, and cultural processes interact across local to global scales and influence environmental practices, policies, and patterns of change will be emphasized.

GEOG 344 - Geographies of American Cities (3 Credits)

Overview of the development of American cities from industrial period to the present. Special attention given to the political, economic, social processes that shape urban space and urban ways of life.

GEOG 345 - Introduction to Remote Sensing (3 Credits)

Basics of remote sensing and image interpretation in aerial photography, drone technology and satellite imagery for earth observations. Emphasis on competent use of remote sensing data for a variety of geographic and multidisciplinary applications.

GEOG 346 - Climate and Society (3 Credits)

Major theories and methodologies for studying the relationship between climate and society.

GEOG 347 - Water as a Resource (3 Credits)

Introduction to spatial and institutional aspects of water availability, demand, and quality. Water storage/conveyance strategies and facilities. Real and perceived flood, drought hazards.

GEOG 348 - Biogeography (3 Credits)

Spatial distributions of plants and animals as they relate to historical biogeographic patterns and human impact on the biosphere.

GEOG 349 - Cartographic Animation (3 Credits)

Introduction to theories and principles of cartographic animation.

Prerequisites: GEOG 341 or GEOG 363.

GEOG 360 - Geography of Wind (3 Credits)

Fundamental principles of wind formation, measurement, and its impacts on the natural and human environment – landscape, human settlement and health, transportation, and energy.

GEOG 365 - Hurricanes and Tropical Climatology (3 Credits)

Atmospheric circulation, structure, and processes of tropical climates and hurricanes. Forecasting and model simulations of hurricanes. Temporal variations of tropical climate change and hurricanes.

GEOG 370 - America's National Parks (3 Credits)

Resource, managerial, and recreational-use components of the national park system; contemporary issues, problems, and managerial alternatives.

GEOG 371 - Air Pollution Fundamentals (3 Credits)

Fundamentals, processes, and issues that relate to air pollution. Emphasis is on the role of the atmosphere. Additional topics include pollution sources, environmental and health effects of air pollution, air quality measurements, urban smog, and ozone depletion, regulations, and societal impacts.

GEOG 380 - Global Geography of Human Rights (3 Credits)

Geopolitical, historical, cultural, and economic geographies of human rights around the world; issues of development, environment, health, inequality, violence.

GEOG 399 - Independent Study (3-6 Credits)

Contract approved by instructor, advisor, and department chair is required for undergraduate students.

Graduation with Leadership Distinction: GLD: Research

GEOG 495 - Seminar in Geography (3 Credits)

Research methods and projects; restricted to students with at least 15 hours of credit in geography. Restricted to students with at least 15 hours of credit in geography.

Graduation with Leadership Distinction: GLD: Research

Experiential Learning: Experiential Learning Opportunity

GEOG 497 - Special Topics: Service Learning in Geography (1 Credit)

Service learning experience in conjunction with designated Geography courses. Direct, hands-on service experience with an agency, voluntary organization, or community-based project. May be repeated, as content varies by title. Students enrolled in designated Geography courses by Instructor permission.

Corequisite: Must be taken simultaneously with designated Geography courses, levels 200 and above.

Experiential Learning: Experiential Learning Opportunity

GEOG 498 - Undergraduate Research (3 Credits)

Research on a significant geography problem in the local environment. Emphasis will be on the development of relatively individualized experiences in scientific investigation.

Graduation with Leadership Distinction: GLD: Research

GEOG 499 - Senior Thesis (3 Credits)

Senior research thesis on a problem of fundamental geographic significance, supervised by faculty member; must include a written final project report.

Graduation with Leadership Distinction: GLD: Research

GEOG 510 - Special Topics in Geographic Research (3 Credits)

Selected topics of special interest in geography. May be repeated as content varies by title.

GEOG 511 - Planning and Locational Analysis (3 Credits)

Scientific approaches to locational problems in urban and regional planning, including regional growth and decline, land use control, public facility location and provision, and locational efficiency.

GEOG 512 - Migration and Globalization (3 Credits)

A survey of the political, economic, and social causes and consequences of migration. Topics include immigration policy, border control, settlement patterns, transnationalism, multiculturalism, and integration. Selected contemporary and historical cases.

GEOG 515 - Political Geography (3 Credits)

Concepts of space and power and their relationship to politics, elections, geopolitics, identities, law, economics, populations, and civil society.

GEOG 516 - Coastal Zone Management (3 Credits)

Analysis of the competing demands for limited resources in the coastal zone with emphasis on the role of management in the resolution of conflicts over resource use.

Graduation with Leadership Distinction: GLD: Professional and Civic Engagement Internships

GEOG 517 - Socionatural Coastlines in Global Perspective (3 Credits)

A discussion-based seminar course that examines nature-society relations in coastal regions globally. The course will use social theory to understand how uneven development processes shaped – and continue shaping – current coastlines. We will explore key topics including coastal capitalism, delta ecologies, and climate justice via several global case studies.

Cross-listed course: ENVR 517

GEOG 521 - Landscapes of South Carolina (3 Credits)

An examination of the factors responsible for creating the contemporary South Carolina cultural landscape.

GEOG 525 - Geographical Analysis of Transportation (3 Credits)

Analysis of transportation systems and the application of geographic tools to transportation planning.

GEOG 530 - Environmental Hazards (3 Credits)

Human and environmental contributions to the generation and management of hazards originating from extreme natural events to technological failures. Contemporary public policy issues at the national and international level.

GEOG 531 - Quantitative Methods in Geographic Research (3 Credits)

A survey of basic quantitative approaches for handling and interpreting geographically related data; univariate and bivariate procedures applicable to a variety of problems.

GEOG 535 - Hazards Analysis and Planning (3 Credits)

Examination of the geo-spatial aspects of hazards analysis and planning with specific reference to disaster preparedness, recover, mitigation, and resilience.

Prerequisites: GEOG 363 and GEOG 530, or equivalents.

GEOG 538 - Global Food Politics (3 Credits)

Political, social, and cultural landscapes of food and farming around the world; issues of agricultural production, trade, consumption, and food security.

Cross-listed course: ENVR 538

GEOG 541 - Advanced Cartography (3 Credits)

Planning, compiling, constructing, and evaluating thematic maps. Theory and practice in scribing, separation and screening, color proofing, and map reproduction. Discussions of the process of map communication and the ways the cartographer can improve that communication.

Prerequisites: GEOG 341.

GEOG 542 - Dynamic Cartography (3 Credits)

Theories and principles of interactive and animated cartographic design.

Prerequisites: GEOG 341.

GEOG 544 - Geography of the City (3 Credits)

The influence of political boundaries, historical forces, settlement patterns, and transportation processes on urban life.

GEOG 545 - Weather Analysis and Forecasting (4 Credits)

Principles and controls of weather and climate as they occur at the regional/synoptic scale. Background on the critical tools and concepts used for daily weather forecasting by the National Weather Service and prominent government agencies, and used by broadcast meteorologists.

Prerequisites: C or better in GEOG 202.

GEOG 546 - Applied Climatology (4 Credits)

Analysis of climate applications in natural and human-modified environments. Content may include water resources, solar energy, urban planning, air quality, agriculture, and tourism. Course work includes lab and field experimentation.

GEOG 547 - Fluvial Geomorphology (3 Credits)

Introduction to landforms and processes associated with flowing water at the earth's surface. Hydrology, sedimentology, and theories of channel formation and drainage basin evolution.

GEOG 548 - Landscape Ecology (3 Credits)

Analysis of emergent patterns in landscape structure and its linkage to ecological processes; application of relevant principles, methodologies, and geospatial technologies to solving real-world challenges focused on species and ecosystem conservation.

GEOG 549 - Water and Watersheds (3 Credits)

Spatial variation of hydrology, water quality, and water-related hazards, including runoff generation, soil erosion, sedimentation, and flood hazards. Emphasizes a watershed perspective using geographic data and methods.

Prerequisites: GEOG 347, GEOL 371, or ECIV 360.

GEOG 551 - Remote Sensing of the Environment (3 Credits)

Computer-assisted digital image analysis; Image correction; Spatial/spectral transformation; image classification and change detection; Use of remote sensing for solving real-world environmental problems.

GEOG 552 - LiDARgrammetric and Photogrammetric Digital Surface Mapping (3 Credits)

Introduction to fundamental concepts used to map topographic and planimetric Earth surface features using digital LiDAR (LiDARgrammetric) and digital soft-copy photogrammetry (Photogrammetric).

Prerequisites: GEOG 363 or GEOG 341 or GEOG 345 or GEOG 551 or GEOG 563.

GEOG 554 - Spatial Programming (3 Credits)

Computer programming of spatial problems; spatial statistical analysis, interactive graphics, and computer maps.

GEOG 556 - WebGIS (3 Credits)

Web-based Geographic Information Systems (WebGIS), including concepts and principles of WebGIS, web programming fundamentals, web-based mapping techniques, and developing WebGIS applications.

Prerequisites: GEOG 363.

GEOG 561 - Contemporary Issues in Geography Education (3 Credits)

Key concepts of geography and current approaches to teaching geography with specific attention to classroom materials, curriculum reform, cross-curricular integration, learning theory, and the use of geospatial/instructional technology.

GEOG 562 - Satellite Mapping and the Global Positioning System (3 Credits)

Technology and use of Global Positioning Systems (GPS). GPS space segment, receiver technologies, range observables, and positioning accuracy. Applications to large/medium scale mapping, remote sensing, and aerial photography.

Prerequisites: GEOG 345 or GEOG 363 or GEOG 551.

GEOG 563 - Advanced Geographic Information Systems (3 Credits)

Theory and application of geographic information systems including discussions of automated input, storage, analysis, integration, and display of spatial data. Use of an operational geographic information system.

GEOG 564 - GIS-Based Modeling (3 Credits)

Geographical information systems for modeling physical/human processes in space and time using raster and vector data. Cartographic modeling concepts, embedded models, and GIS-model coupling.

GEOG 565 - Geographic Information System (GIS) Databases and Their Use (3 Credits)

Representation, construction, maintenance, and analysis of spatial data in a geographic information system (GIS) database.

Prerequisites: GEOG 363 or GEOG 341 or GEOG 551 or GEOG 563.

GEOG 566 - Climate Adaptation and Community Resilience Planning (3 Credits)

The processes of climate adaptation planning and management from central concepts in adaptation to issues such as projecting impacts, vulnerability assessment, coping with uncertainty, and decision making.

GEOG 567 - Long-Term Environmental Change (3 Credits)

Climatic changes of the past and their impact on the physical landscape, with an emphasis on the Quaternary period.

Prerequisites: C or better in a 200-level course in physical geography or geology or equivalent.

Cross-listed course: GEOL 567

GEOG 568 - Human Dimensions of Global Environmental Change (3 Credits)

Consequences of increasing anthropogenic changes on environmental systems including the sources of change, regional impacts, and social and policy responses.

Prerequisites: GEOG 343.

GEOG 569 - International Development and the Environment (3 Credits)

Intersections of international development and environmental change; study of general theoretical perspectives balanced with case studies from the Global South.

Cross-listed course: ANTH 569

Graduation with Leadership Distinction: GLD: Diversity and Social Advocacy, GLD: Global Learning

GEOG 570 - Geography of Public Land and Water Policy (3 Credits)

Geography of public land, water, and related public trust resources (wildlife, timber, minerals, fuels, recreation, wetlands, coastal zones, wilderness); historical geography of policy; spatial aspects of current research and management.

GEOG 571 - Microclimatology (4 Credits)

Field techniques and processes in the atmospheric boundary layer including radiation, soil heat fluxes, turbulence, momentum, latent and sensible heat fluxes, moisture, and evaporation.

Prerequisites: GEOG 202.

GEOG 573 - Climatic Change and Variability (3 Credits)

Observations and theories of climatic change and variability as they occur at different space and time scales. Projections of future climates. Techniques used in climatic change research and impact analysis.

Prerequisites: GEOG 202 or equivalent.

GEOG 581 - Globalization and Cultural Questions (3 Credits)

This course examines cultural understandings of and responses to globalization, examining topics such as its history and theories, migration, economic integration and inequality, identity, social movements, and the environment.

Cross-listed course: ANTH 581

Graduation with Leadership Distinction: GLD: Global Learning

GEOG 590 - Beach-Dune Interactions (3 Credits)

Influence of wind on coastal systems, with emphasis on nearshore currents, sediment transport and bedforms, aeolian transport, and dunes. Minimum Junior standing required.

Cross-listed course: MSCI 590

GEOG 595 - Internship in Geography (1-6 Credits)

Internship in government agencies, private-sector businesses, and non-profit organizations under the joint supervision of sponsor and departmental. A maximum of three credits may be applied to undergraduate Geography major or to Geography master's degree. May be repeated to a maximum of six credits.

Graduation with Leadership Distinction: GLD: Professional and Civic Engagement Internships

Experiential Learning: Experiential Learning Opportunity