Geography and Environmental Resources

Geography and Environmental Resources is the study of place and space; the intersection of the physical environment and human activities; patterns of climate, land forms, soils and water. Majors earning a Bachelor of Science degree in Geography and Environmental Resources study the environment in the field, the computer laboratory, and the traditional classroom. Job opportunities for our degree are broad and diverse. For example, graduates of our program have careers that include: Recycling Coordinator, Social Studies Teacher, GIS Coordinator, Geospatial Intelligence Analyst, Environmental Educator, Cartographer, Emergency Manager, Natural Resource Consultant, Regional Planner, Water Quality Manager, among others.

SIU Carbondale's Department of Geography and Environmental Resources focuses on environmental sustainability. Faculty expertise is in water resources, land use, climatology, and geospatial techniques. Our courses are taught by faculty with excellent national and international reputations in their fields. We take an integrated environmental problem-solving approach in our courses. Our Environmental GIS Laboratory and Advanced Geospatial Analysis Laboratory train students to use current GIS and remote sensing technologies for environmental analysis. Many courses have labs to provide students with more personal attention. We also have an active mentoring program, through which every undergraduate has access to a faculty mentor.

Our undergraduate program is divided into two parts: Major Courses and Specialization. First, there are seven courses taken by all Geography and Environmental Resources majors to ensure that all of our students have an understanding of key concepts and tools used by professionals in the field. Then, students select one of three areas of specialization: 1) Environmental Sustainability is intended for students who want a broad background in the social and environmental sciences that relates to environmental planning and management, 2) Geographic Information Science is intended for students who are interested in applying geospatial technologies to geographic and environmental problems, or 3) Climate and Water Resources is for students interested in weather, climate and surface water resources.

Practical experience is an important part of our program. We have an active internship program that places students with local natural resource agencies. Students receive academic credit for these internship and cooperative work experiences. Our department provides several awards and scholarships for outstanding undergraduate majors. We welcome all students and invite them to participate in department activities. We have a diverse faculty and we actively promote diversity among our faculty, staff, and students.

GENV students need a solid mathematics background to prepare them for advanced-level courses. We strongly recommend that GENV majors fulfill the University Core Curriculum requirement by taking MATH 108, College Algebra.

Bachelor of Science Degree in Geography and Environmental Resources, College of Liberal Arts

<table>
<thead>
<tr>
<th>Degree Requirements</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Core Curriculum Requirements</td>
<td>41</td>
</tr>
</tbody>
</table>

2017-2018 Academic Catalog
<table>
<thead>
<tr>
<th>Degree Requirements</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>College of Liberal Arts Academic Requirements</td>
<td>14</td>
</tr>
<tr>
<td>Requirements for Major in Geography and Environmental Resources</td>
<td>42</td>
</tr>
<tr>
<td>Geography and Environmental Resources Major Courses (GEOG 300I, GEOG 303I, GEOG 401, GEOG 433, and GEOG 404 or GEOG 412)</td>
<td>15</td>
</tr>
<tr>
<td>Two of the following: GEOG 100, GEOG 103, GEOG 104, GEOG 304, GEOG 310I, GEOG 320, or GEOG 330</td>
<td>6</td>
</tr>
<tr>
<td>Specialization (one of the following)</td>
<td>21</td>
</tr>
<tr>
<td>Environmental Sustainability:</td>
<td></td>
</tr>
<tr>
<td>GEOG 320, GEOG 422, GEOG 424; and four additional GEOG classes at the 400-level</td>
<td></td>
</tr>
<tr>
<td>Geographic Information Science (GIS):</td>
<td></td>
</tr>
<tr>
<td>GEOG 406, GEOG 408, GEOG 416, GEOG 420 and three additional GEOG classes at the 400-level</td>
<td></td>
</tr>
<tr>
<td>Climate and Water Resources:</td>
<td></td>
</tr>
<tr>
<td>GEOG 330, GEOG 431, GEOG 434, GEOG 439 and three additional GEOG courses at the 400-level</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>23</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
</tr>
</tbody>
</table>

**Geography and Environmental Resources Minor**

A minor in geography and environmental resources consists of 15 credit-hours from a combination of the core courses and any one of the specializations.

**GIS Minor**

The Undergraduate GIS Minor enables students to focus on the fundamentals of geospatial techniques and analytical skills. This minor meets the needs of the expanding job opportunities for undergraduate students. This minor ensures that students understand earth-map relationships; understand principles of cartography; know the technical aspects of remote sensing and have competence in visual interpretation and digital processing and analysis of imagery; understand the basic representation and modeling of spatial data in GIS. Further, they will demonstrate an understanding of GIS concepts, database management, and the process of decision-making in the GIS context and obtain yield basic skills of spatial analysis and modeling and the analytical capabilities of ESRI’s ArcGIS and ERDAS IMAGINE. Finally, they will be competent in planning, developing, and implementing a major GIS project.

Course Requirement: The program requires students to complete 18 credit hours of undergraduate level coursework, as follows: GEOG 310I, GEOG 401, GEOG 404, GEOG 406, GEOG 416, GEOG 428.
Sustainability Minor

The Undergraduate Minor in Sustainability enables students to expand their knowledge and understanding of the long-term sustainable use of the earth’s resources, including water, land use and food systems, climate change, urban sustainability, and “green” energy. This minor meets the needs of the expanding job opportunities in environmental sustainability.

Course Requirement: Students must maintain a 2.7 GPA in the certification courses. The program requires students to complete at least 15 credit hours of coursework, as follows: GEOG 300I, GEOG 320, and GEOG 424, and two of the following: GEOG 421, GEOG 422, GEOG 426, GEOG 429, GEOG 431, GEOG 435, GEOG 436, GEOG 439, GEOG 454, GEOG 480, GEOG 481.

Geography and Environmental Resources Honors Program

The Geography and Environmental Resources Honors Program is a program within the major that is designed to recognize the outstanding scholarship of our top students and reward them with additional challenging and stimulating course options. Participation in the GENV Honors Program is contingent upon a student’s admission to the University Honors Program (UHP). The UHP requirements are found at: honors.siu.edu. Honors students in our major should meet with the department Chair to discuss their interests and determine their course schedules.

Honors courses in Geography and Environmental Resources are: open to GENV majors; have prerequisites as listed by course number in the next section below; and have special assignments as arranged with each instructor.

Geography and Environmental Resources Courses

GEOG100 - Environmental Conservation 100-3 Environmental Conservation. (University Core Curriculum) Human activity has changed every place on planet Earth. This course explores how and where these changes take place, and practical ways people can interact with the environment in a more sustainable manner. Themes to be explored include: biodiversity, global climate change, human population growth, and sustainability of food, soil, and water resources. Through lectures, discussions, and field trips students will investigate and map patterns integral to understanding environmental conservation issues.

GEOG103 - World Geography 103-3 World Geography. (University Core Curriculum) [IAI Course: S4 900N] Examination of the world’s major geographic patterns, the diversity of environments, cultures and economic activities, differences between developing and developed nations, interdependence of nations and regions through communication and trade and in-depth assessment of representative environmental issues.

GEOG104 - Weather Climate Society 104-3 Weather, Climate, and Society. (University Core Curriculum) A scientific introduction to the physical processes responsible for weather and climate and the application of fundamental scientific skills to address aspects of weather and climate that are of particular importance to society at large. Lab fee: $20.

GEOG300I - Geog, People & Environment 300I-3 Geography, People and the Environment. (University Core Curriculum) The goal of this course is to understand complex contemporary environmental problems using case studies. The problems we will study are "wicked": they are difficult to formulate exactly, and they have no simple technological solutions. The class aims at teaching how to use a variety of perspectives to understand complex problems, and how to analyze coupled human and natural systems across time and space. We will study four case studies such as deforestation, but you will acquire the methodological knowledge to assess other wicked problems. We will emphasize 1) a science-based systems approach; 2) the role of geography as a linchpin discipline that spans the social and physical sciences; 3) the importance of interdisciplinary perspectives; 4) issues of collaboration, institution building, and policy development.
GEOG303I - Physical Geography 303I-3 Physical Geography. (University Core Curriculum) [IAI Course: P1 909L] This course explores how biogeography, geomorphology and climatology interact in shaping the Earth’s environments. Case studies from North, Central, and South America illustrate how the physical environment plays a dynamic role in human lives. On-campus field trips, labs, and student projects stress application of core concepts. Lab Fee: $20.

GEOG304 - Geography of Globalization 304-3 Geography of Globalization. Evolution of the world economic system over time and space emphasizing the recent rapid increase in economic interdependency among nations, regions, and urban and rural areas. Changing global patterns of production and trade in nature resources, manufactured goods, services, information, and economic control are emphasized. This course satisfies the CoLA Writing-Across-the-Curriculum requirement.

GEOG310I - Intro to GIS 310I-3 Introduction to Geographic Information Systems. (University Core Curriculum) An interdisciplinary course that provides students the skills and knowledge to use geospatial technologies such as geographic information systems (GIS), global positioning systems (GPS), and remote sensing. Applications drawn from diverse fields: environmental science, ecology, social sciences and others. Course includes lectures, discussions, interactive and hands-on computer exercises and projects. Lab fee: $20.

GEOG312 - Intro GPS, LiDAR, Radar 312-3 Introduction to GPS, LiDAR, and Radar Applications. This course provides the practical skills, knowledge, and understanding of quantitative measurement tools in the field of environmental and geospatial applications. The course focuses on the basic concepts and applications of GPS (Global Positioning System), LiDAR (Light Detection and Ranging), and Radar systems. Use of the GPS, a way of accurately determining positions on the earth has grown exponentially and is currently used in mapping, navigation, surveying, agriculture, construction, vehicle tracking and recovery, archaeology, biology, cell phones and automobiles. The course also introduces fundamental concepts of accuracy assessment and appropriate use of these data products. Students will also master the basic skills needed to leverage these data sources and information products in the context of application domains. Course component includes lectures, labs, and field work.

GEOG320 - Intro Environ Sustainability 320-3 Introduction to Environmental Sustainability. The course provides students with an introduction to the philosophy and tools of environmental sustainability, with an emphasis on the integration of the ecological, economic and social aspects of sustainability. The aim of the course is to provide students with practical examples of the methods used to design, implement and assess environmental sustainability at multiple management levels. The course examines issues and case studies with a local through global perspective. Prerequisites: None.

GEOG330 - Severe Weather 330-3 Severe and Hazardous Weather. This course focuses on physical and societal aspects of high impact weather and climate. Students will learn basic physical meteorology and climatology and then apply that knowledge to understand the major types of severe and hazardous weather impacting the United States: mid-latitude and tropical cyclones, thunderstorms (wind, lightning, hail, and tornadoes), ice storms, blizzards, heat waves, cold waves, droughts, and floods. Prerequisite: GEOG 104 with a grade of C or better or consent of instructor. Lab fee: $20.

GEOG361 - Regional Geography of the US 361-3 Regional Geography of the United States. A survey of environmental, economic, and historical factors and problems in the development of the United States and its regions. Analysis of population trends, assessment of economic activities, and analysis of transportation networks from a geographic perspective are introduced. Some attention is given to the United States in the world economy.

GEOG401 - Geographic Information Systems 401-3 Geographic Information Systems. (Same as GEOG 502) An overview of geographic information systems (GIS)-related topics, including GIScience (theoretical foundation), GIS technology (software training), and GIS applications (real world solutions). Provides basic principles, concepts, and applications of GIS in the context of GIScience - a basic research field which seeks to redefine geographic concepts and their use. The theoretical foundations of GIS are informed by three basic areas: cognitive models of geographic concepts, computational implementations of geographic models, and interactions between GIS and society. Recommended: GEOG 310I or CE 263. Lab fee: $20.

GEOG404 - Spatial Analysis 404-3 Spatial Analysis. (Same as GEOG 504) This spatial analysis course is an introduction to statistical methods for geographers. The course provides an overview of
the application of spatial data analysis techniques, with a concentration on spatial statistical theories, concepts and approaches in the general context of the emerging fields of geographic information system (GIS) and science (GISci). The main focus of this course is on how techniques for the analysis of spatial data can effectively be applied in a GIS environment, with a particular emphasis on the study of spatial patterns, distributions, and associations. Prerequisite: GEOG 401. Lab fee: $20.

**GEOG406 - Intro to Remote Sensing** 406-3 Introduction to Remote Sensing. (Same as GEOG 506) 
An introduction to the fundamentals of remote sensing as applied to environmental management. This course will examine the theoretical and practical aspects associated with the use and analysis of aerial photography and satellite imagery. These include how remote sensing data are acquired, displayed, analyzed and how information on our environment can be extracted from such data. Students will be introduced to manual interpretation and digital image processing techniques of remotely sensed imagery. Students will have the opportunity to gain hands-on experience using image processing software. Lab fee: $30.

**GEOG408 - Advanced Remote Sensing** 408-3 Advanced Remote Sensing. (Same as GEOG 508) 
Advanced techniques in the analysis of remotely sensed data. Emphasis is placed on digital image processing using state of the art technology. Students will be expected to develop individual problem-driven projects that use the knowledge, tools and techniques that are developed in this course. Prerequisite: GEOG 406 with a minimum grade of C. Lab fee: $30.

**GEOG412 - Applied Geographic Stats** 412-3 Applied Geographic Statistics. Introduction to basic statistical methods and skills related to the application of statistics to problems in geography. Lectures are supplemented with meetings in computer labs to stress the applied aspects of the course. Topics covered include descriptive statistics, time series analysis, probability, confidence intervals, hypothesis testing, correlation and regression, and spatial statistics.

**GEOG416 - Cartographic Design** 416-3 Cartographic Design. (Same as GEOG 516) Introduction to the concepts and principles of map design and automated cartographic techniques used to promote the understanding of a map as a powerful communication model. Examines techniques for the representation, manipulation, display, and presentation of spatial data using computer mapping techniques and graphics software. Team based projects will address a geographic problem and produce a professional final map. Prerequisite: GEOG 401 with a minimum grade of C. Lab fee: $20.

**GEOG417 - GIS Programming** 417-3 GIS Programming and Customization. (Same as GEOG 517) An introduction to computer programming principles and their application in a GIS environment. GIS scripting language principles will be introduced and students will learn the structure of ArcObjects, the program organization of ERSI and ArcGIS products as well as the use of Visual Basic application to manipulate the basic mapping objects. Coursework will involve developing a more advanced program using an extension of choice. Prerequisite: GEOG 401, GEOG 502 with grades of C or better, or consent of instructor. Lab fee: $20.

**GEOG419 - Enterprise GIS Planning** 419-3 Enterprise GIS Planning and Implementation. Students will gain both theoretical and practical understanding of the design process of enterprise GIS; be able to assess the scope of a system and address data and technology requirements of that system; become exposed to a host of the state-of-the-art tools and concepts in enterprise GIS; and learn skills for hardware, software and computer networking issues. Students are expected to have a basic working knowledge of ArcGIS and ArcIMS. Prerequisite: GEOG 401 or consent. Lab fee: $20.

**GEOG420 - Advanced GIS Studies** 420-3 Advanced Geographic Information Systems (GIS) Studies. (Same as GEOG 520) This course focuses on six emerging themes of geographic information science: geospatial ontologies, enterprise GIS, GIS design, geographic data mining and knowledge discovery, geographic data structure and algorithms, 3D imaging and visualization. A seminar approach will be adapted to organize the class into five groups to capture skills in computer programming, cognitive science, database design and systems, computational and mathematical knowledge, and 3D imaging and visualization. Five studio exercises to provide hands-on training and practice will be conducted in the GIS laboratory. Students will be expected to develop individual problem-driven projects that use the knowledge, tools, and techniques that are developed in this course. Prerequisite: GEOG 401 with a minimum grade of C. Lab fee: $20.
GEOG421 - Urban Sustainability 421-3 Urban Sustainability. Sustainability of urban areas is viewed from a geographical perspective to focus on the complex relationships among environmental, sociocultural, economic, and political phenomena. Considerable time is devoted to identifying, analyzing and explaining selected urban problems and their sustainable solutions.

GEOG422 - Environ & Energy Economics 422-3 Environmental and Energy Economics. (Same as GEOG 422H, GEOG 522) Economics of renewable and nonrenewable natural resources management and environmental policy. Topics covered include: static and dynamic efficiency, market efficiency and market failures (market power, externalities and public goods), the economics of nonrenewable resource extraction, renewable resources management (with a focus on forests and water), mechanism design choices and their implementation in the real world, and the role of the private and public sectors in research and development.

GEOG422H - Environ & Energy Economics 422H-3 Environmental and Energy Economics. (University Honors Program) (Same as GEOG 422, GEOG 522) Economics of renewable and nonrenewable natural resources management and environmental policy. Topics covered include: static and dynamic efficiency, market efficiency and market failures (market power, externalities and public goods), the economics of nonrenewable resource extraction, renewable resources management (with a focus on forests and water), mechanism design choices and their implementation in the real world, and the role of the private and public sectors in research and development.

GEOG424 - Sustainable Development 424-3 Sustainable Development. Analysis of the human, economic, technological, environmental and political dimensions of sustainable development focusing on public and private sector institutions that manage renewable and non-renewable natural resources. Emphasis is sustainable development as applied to: (a) population, (b) energy and the atmosphere, and (c) agricultural impacts on soil and water resources.

GEOG424H - Sustainable Development 424H-3 Sustainable Development. (University Honors Program) Open to undergraduates. Available for Honors credit by special arrangement. Not for graduate credit.

GEOG426 - US Environmental Policy 426-3 US Environmental Policy. This course investigates the US system of environmental regulation: the background of social and environmental movements that influence US policy and the agencies involved in US environmental regulation. Emphasis is on US regulations and US participation in global environmental policies. Overall, the focus is on spatial variations in environmental regulations; or the geography of environmental quality.

GEOG428 - GIS Portfolio Project 428-3 GIS Portfolio/GIS Capstone Project. (Same as GEOG 528) Independent development and implementation of a major GIS project based on analysis of spatially referenced data sets to produce digital products and to solve real world problems. Data obtained from multiple sources, including downloads from online sources, field-collected data, and published map data. A project portfolio and a poster approved by the instructor must be submitted for successful completion. Prerequisite: GEOG 401 or 406, or consent of instructor. Lab fee: $20.

GEOG429 - Geog Local/Organic Food 429-3 Geography of Local and Organic Food. A discussion of geographic topics in local and organic food and farming. This includes: spatial distributions, landscapes, policy influences, organic agricultural productivity, food safety, consumer concerns, organic farmers' decision making, organic marketing, local food systems, and organic certification.

GEOG430 - Environmental Systems Analysis 430-3 Environmental Systems Analysis. Exploration of the major environmental systems relevant to planning. Topics include concepts of systems and system behavior; basics of systems analysis and modeling environmental systems; environmental fluxes of energy and materials (e.g., hydrologic cycle, carbon cycle, energy budgets, erosion and sediment transport, role of biosphere in organizing fluxes); environmental variability.

GEOG431 - Climatology 431-3 Climatology. Contemporary view of climatology as an interdisciplinary science which focuses on advanced understanding of the physical processes that drive the climate system and the development of skills related to climate prediction and assessment of human impacts on global and regional climate. Prerequisite: GEOG 330 with a minimum grade of C.
GEOG431H - Climatology 431H-3 Climatology. (University Honors Program) Open to undergraduates. Available for Honors credit by special arrangement. Prerequisite: GEOG 330, or consent.

GEOG433 - Field Methods in Geography 433-3 Field Methods in Geography. Quality geographic research depends on obtaining reliable data through an informed research design. Exploring both social and environmental processes, students will actively participate in developing and conducting investigations. Using the SIU Carbondale campus and surrounding region as a laboratory, lab exercises will include human geography, geomorphology, climatology and biogeography. Analytical techniques will include introductory statistics and mapping. Prerequisite: GEOG 303I with a minimum grade of C. Not for graduate credit. Restricted to junior and senior majors in Geography and Environmental Resources or consent of instructor. Lab fee: $20.

GEOG433H - Field Methods in Geography 433H-3 Field Methods in Geography. (University Honors Program) Open to undergraduates. Available for Honors credit by special arrangement. Prerequisite: GEOG 303I with a minimum grade of C. Restricted to junior and senior majors in Geography and Environmental Resources or consent of instructor.

GEOG434 - Water Resources Hydrology 434-3 Water Resources Hydrology. Microclimatic factors which affect the hydrologic events of various climatic regions are treated extensively. Methods of estimating geographic variations in hydrologic relations to climatic and microclimatic especially evapotranspiration, are compared and evaluated. Consequences of alternative land uses on climate and hydrology are considered regionally.

GEOG435 - Energy Planning 435-3 Energy Planning. Regional and national differences in energy supply and demand are reviewed followed by a study of current energy resources, the range of demands and environmental impacts. National and international planning strategies for dealing with changes in energy demand and supply are explored and assessed for present and future implementation probability.

GEOG436 - Natural Hazards 436-3 Natural Hazards. This course develops the skills and perspectives needed to effectively manage natural and technological disasters. Major themes include risk analysis, hazard mitigation and preparedness, response and recovery of the economic and social infrastructure in areas impacted by earthquakes, floods, drought, toxic material releases and other catastrophic events. Geographic training places a geographer at the forefront of developing hazard management solutions for society.

GEOG439 - Global Climate Change 439-3 Global Climate Change. This course examines the major environmental, social and policy, issues relevant to global climate change, including natural and anthropogenic causes, environmental pollution, land use/land cover change, extinction and biodiversity issues, and potential climate change-related impacts on human health.

GEOG439H - Global Climate Change 439H-3 Global Climate Change. (University Honors Program) Open to undergraduates. Available for Honors credit by special arrangement.

GEOG440 - Water Resource Management 440-3 Water Resource Management. (Same as GEOG 540) Provides students with an in-depth understanding of relevant concepts, theory, and policies in water resource management. The course is designed to be an interdisciplinary class taught largely in a seminar style. During the first half of the semester, the class is led by the instructor and reviews the physical, biological, and social concepts which underpin water resource management. In the second half of the semester, students lead the class to review and discuss human impacts on aquatic systems and the role water resource management plays in striking the balance between human uses of aquatic services and the preservation of these important systems.

GEOG452 - Environment & Population 452-3 Environment and Population. Introduction to population geography. Emphasis is on the relationships between population trends, resource use patterns and environmental impacts. Topics include methods and data used to describe and predict populations, theories of population and policy issues that relate to the interaction between population, quality of life and environmental quality. Prerequisite: GEOG 320 or consent of instructor.

GEOG454 - Environmental Movements 454-3 Conservation and Environmental Movements. Emphasizes the ways in which humans view and interact with the environment. Conservation literature
and the works of influential environmentalists are studied. Specific theories and environmental movements which help to explain society's current perception and use of the environment are studied.

**GEOG456 - Geographic Visualization** 456-3 Geographic Visualization. (Same as GEOG 556) This course will provide an overview of geographic visualization with a concentration on the theories, concepts and approaches of information visualization. Lectures and laboratory exercises will focus on the practical issues of exploratory data analysis (EDA), cartographic design process, web cartography, data quality and generalization, themetic mapping, map animation and multimedia applications. The course will provide students with a working knowledge of commercial software commonly used for graphic-based applications. Students are expected to utilize their hands on experience gained from the lab exercises to further enhance their proficiency in graphic software. Two hours of seminar and classroom presentations, two hours of studio exercises each week. Lab fee: $30.

**GEOG457 - American Environmental History** 457-3 American Environmental History. (Same as HIST 457) An exploration of the attitudes toward and the interaction with the natural resource environment of North America by human settlers. Coverage from the Neolithic Revolution to the present.

**GEOG458 - Applied GIS** 458-3 Applied GIS. This course provides practical GIS applications and draws from special topics in data visualization and environmental applications. The topic on data visualization includes an overview of techniques for visualizing large-scale datasets and is inspired by concepts from information visualization. Topics in environmental applications consist of risk assessment, digital elevation model processing, and watershed delineation and hydrological modeling. Students taking this course will distinctively learn: (1) how to visualize geographic data; (2) how to use different environmental risk assessment methods; (3) how to assess, detect, and characterize environmental risks and potential threats; and (4) how to create meaningful visualization scenes to support environmental decision-making. Active learning experiences will be achieved through the use of classroom lectures, lab exercises, group tasks, and presentations. Prerequisite: GEOG 401 or GEOG 310I or consent of instructor. Lab fee: $20.

**GEOG470 - Contemp Issues Env Studies** 470-3 Contemporary Issues in Environmental Studies. Background, current, and future issues linking social responses to scientifically relevant environmental issues. Students learn about the multiple geographic, social and ecological factors that influence environmental citizenship and participation. Topics include conservation/preservation, green jobs, environmental non-governmental organizations, policy influences, and environmental education. Lectures, guest lectures and seminar style discussions. Students develop and demonstrate skills in problem solving, communication, and professionalism.

**GEOG471 - Environmental Impact Analysis** 471-3 Environmental Impact Analysis. Techniques of assessing the impact of human activities on the environment, including weighting schemes, cost-benefit analysis, linear programming, ecological impact assessment. Emphasis is on placing NEPA and EIS writing in legal, economic, and environmental perspective.

**GEOG480 - Internship in Geography** 480-2 to 6 Internship in Geography. Supervised field work in private or public organization dealing with environmental management or GIS. A report or professional poster on the work is required at the end of the semester. Courses may be repeated, but no more than 3 credit hours of either 480 or 481 may be applied to an undergraduate major or graduate degree. Restricted to students majoring in Geography and Environmental Resources or minoring in Environmental Studies. Special approval needed from the department.

**GEOG480H - Internship in Geography** 480H-3 to 6 Internship in Geography. (University Honors Program) Open to undergraduates. Available for Honors credit by special arrangement. Restricted to Geography major or consent.

**GEOG481 - Coop Work in Geography** 481-3 to 12 Cooperative Work Experience in Geography. Placement of advanced undergraduate or graduate student in private or public organization for one or more semesters in paid career-related position. Student gains professional experience, under faculty and on-site supervision. A report or professional poster on the work is required at the end of the semester. Three credit hours of either 480 or 481 may apply toward requirements for a Geography undergraduate major or graduate degree. Restricted to students majoring in Geography and Environmental Resources or minoring in Environmental Studies. Special approval needed from the department.
GEOG487A - Honors in Geography: Tutorial 487A-1 Honors in Geography-Honors Tutorial. Must be spread over the last two years of the undergraduate’s career. May be taken in either A, B, C, or B, A, C sequence. Special approval needed from the department.

GEOG487B - Honors in Geography: Reading 487B-2 Honors in Geography-Honors Reading. Must be spread over the last two years of the undergraduate’s career. May be taken in either A, B, C, or B, A, C sequence. Special approval needed from the department.

GEOG487C - Honors in Geography: Research 487C-3 Honors in Geography-Honors Supervised Research. Must be spread over the last two years of the undergraduate’s career. May be taken in either A, B, C or B, A, C sequence. Prerequisite: GEOG 487A & B or consent of department.

GEOG490 - Readings in Geography 490-2 to 4 Readings in Geography. Supervised readings in selected subjects. Restricted to geography majors.

Geography and Environmental Resources Faculty

Baumann, Duane D., Professor, Emeritus, Ph.D., Clark University, 1968.
Duram, Leslie A., Professor, Ph.D., University of Colorado at Boulder, 1994.
Dziegielewski, Benedykt, Professor, Emeritus, Ph.D., Southern Illinois University Carbondale, 1983.
Ford, Trenton W., Assistant Professor, Ph.D., Texas A&M University, 2015.
Horsley, Doc, Assistant Professor, Emeritus, Ph.D., Southern Illinois University Carbondale, 1974.
Li, Ruopu, Assistant Professor, Ph.D., University of Nebraska, 2012.
Lieber, Stanley R., Professor, Emeritus, Ph.D., University of Iowa, 1974.
Perk, H. F. W., Lecturer, Emeritus, A.B., University of California at Los Angeles, 1951.
Remo, Jonathan, Assistant Professor, Ph.D., Southern Illinois University Carbondale, 2008.
Schoof, Justin, Professor and Chair, Ph.D., Indiana University, 2004.
Secchi, Silvia, Associate Professor, Ph.D., Iowa State University, 2000.
Wagner, Audrey, Lecturer, M.S., Southern Illinois University, 2009.
Wang, Guangxing, Professor, Ph.D., University of Helsinki, Finland, 1996.
Weinert, Julie, Senior Instructor, Ph.D., Ohio State University, 2008.

Last updated: 02/06/2017

Southern Illinois University
Carbondale, IL 62901
Phone: (618) 453-2121

Catalog Year Statement:
Students starting their collegiate training during the period of time covered by this catalog (see bottom of this page) are subject to the curricular requirements as specified herein. The requirements herein will extend for a seven calendar-year period from the date of entry for baccalaureate programs and three years for associate programs. Should the University change the course requirements contained herein subsequently, students are assured that necessary adjustments will be made so that no additional time is required of them.