

# Course Catalog - Spring 2010

## Geography

100 ***Introduction to Meteorology*** credit: 3 hours.  
See ATMS 100. Same as ATMS 100.

101 ***Geog of Developing Countries*** credit: 3 hours.  
Examines the manner in which environmental and cultural factors promote and inhibit change in developing countries (i.e., India, Iran, Egypt, Nigeria, China, Kenya, Brazil, Venezuela, Guatemala); makes comparisons between these countries and others in both the developing and the developed world.

This course satisfies the General Education Criteria for a Non-Western Cultures, and UIUC Social Sciences course.

103 ***Earth's Physical Systems*** credit: 4 hours.  
Systems approach to the physical environment, including landforms, soils, and vegetation, from a human ecological perspective. Same as ESES 103.

This course satisfies the General Education Criteria for a Physical Sciences course.

104 ***Social and Cultural Geography*** credit: 4 hours.  
Introduces the basic concepts of social and cultural geography, and the application of these concepts to a variety of topics; mental maps, territoriality, cultural regions, cultural elements and their diffusion, population movement and migration, settlement patterns, environmental hazards, and spatial patterns of social problems.

This course satisfies the General Education Criteria for a UIUC Social Sciences course.

105 ***The Digital Earth*** credit: 3 hours.  
Geospatial technologies such as global positioning systems (GPS) and geographic information systems (GIS) are becoming increasingly important tools in research and policy arenas and in everyday life. This course will provide an introduction to these emerging technologies and to the principles of mapping science that underpin them. At the same time, the course will explore how these innovative technologies are changing the spaces and places around us, including how we interact with the environment and each other. Lab exercises will provide hands-on experience in collecting and mapping geospatial information, interpreting digital imagery and the Earth's environments, and critically thinking about the social implications of the digital Earth.

106 ***Geographies of Globalization*** credit: 3 hours.  
A survey of major world regions by systematically considering five themes: environment, population and settlement patterns, cultural coherence and diversity, geopolitical fragmentation and unity, and economic and social development. While examining the persistence of unique regions, the course will both scale up to global linkages and scale down to place-specific impacts of globalization processes. Same as ESES 106. This course can be used to fulfill either Western or Nonwestern general education categories, but not both.

This course satisfies the General Education Criteria for a Non-Western Cultures, UIUC Social Sciences, and Western Compary Cult course.

110 **Geography of Intl Conflicts** credit: 3 hours.

Focuses on contemporary cultural conflicts, competition among nations for economic and mineral resources; treats territorial disputes from a cultural and geographic perspective. Case studies vary to illustrate types of contemporary conflicts. Same as GBLB 110.

This course satisfies the General Education Criteria for a UIUC Social Sciences course.

198 **Freshman Honors Seminar** credit: 3 hours.

Through discussions and research projects, the seminar is designed to provide an in-depth understanding of topics in the field of systematic or regional geography which are selected for group study. Appropriate geographic methodology is emphasized. Prerequisite: James Scholar standing or other designation as a superior student.

199 **Undergraduate Open Seminar** credit: 1 to 5 hours.

May be repeated.

204 **Cities of the World** credit: 3 hours.

Introduces the form and function of cities around the world; emphasizes cross-cultural comparisons of urban landscapes and living environments as illustrated by case studies of specific cities.

This course satisfies the General Education Criteria for a UIUC Social Sciences course.

205 **Business Location Decisions** credit: 3 hours.

Analyzes location decision-making emphasizing industrial and commercial location patterns; identifies important institutional factors and their changing roles over the recent past; and focuses on plant closings, economic disruptions, and problems of structural change. Same as BADM 205. Prerequisite: ECON 102 or ECON 103, or equivalent.

210 **Contemp Social & Env Problems** credit: 3 hours.

Geographic perspectives on contemporary national and international problems. Topics vary each term and include such themes as environmental quality, food production, urban problems, and particular social and political conflicts. Same as ESES 210.

This course satisfies the General Education Criteria for a UIUC Social Sciences course.

214 **Conserv Natural Resources** credit: 3 hours.

Survey of distribution of natural resources and major forms of utilization of these resources; emphasizes consequences of utilization systems which deplete or degrade resources and systems which conserve these resources with respect to future needs of human populations.

This course satisfies the General Education Criteria for a UIUC Social Sciences course.

222 **Big Rivers of the World** credit: 3 hours.

An interdisciplinary approach to the study of big rivers, encompassing geomorphology, engineering, ecology, risk assessment and planning. Commencing with an assessment of the nature of big rivers; their hydrology and geomorphic setting; hazards associated with large rivers, and issues of river impoundment and management,

then proceed to examine the geography, geomorphology, and ecology and management of a range of the World's greatest rivers, focusing on how a geomorphological understanding of such large rivers can aid study of riverine ecohabitats and inform decisions regarding water usage and engineering management. If the weather permits, a one day field-trip will be organized in the second half of the course to view aspects of a local river in Illinois/Indiana. Same as ESES 222.

224 **Geog Patterns of Illinois** credit: 3 hours.

Systematic analysis of the environmental and human processes that have shaped the regional landscapes of rural and urban Illinois.

This course satisfies the General Education Criteria for a UIUC Social Sciences course.

280 **Intro to Social Statistics** credit: 4 hours.

Same as SOC 280. See SOC 280.

This course satisfies the General Education Criteria for a Quant Reasoning I course.

287 **Environment and Society** credit: 3 hours.

Same as ESES 287, NRES 287, PS 273 and SOC 287. See NRES 287.

This course satisfies the General Education Criteria for a UIUC Social Sciences, and Western Compартv Cult course.

310 **Political Geography** credit: 3 hours.

Problems and issues surrounding the geographic distribution of political actions and outcomes in the context of globalization. Topics include war and peace, access to natural resources, nationalism, democratization, terrorism, and the politics of identity. Prerequisite: Junior standing or consent of instructor.

370 **Water Planet, Water Crisis** credit: 3 hours.

Same as ESES 320 and GEOL 370. See ESES 320.

371 **Spatial Analysis** credit: 4 hours.

Overview of the spatial analysis (nomothetic) approach to geographic research, both physical and human; includes discussion of the scientific method, with explanations and uses of analytic geographic concepts in studying real world problems. Prerequisite: A course in geography.

373 **Spring Field Course** credit: 4 hours.

Field observation and mapping of human and physical phenomena using basic geographic field techniques; required ten-day field trip during spring term break. Prerequisite: Geography majors, or non-majors with consent of instructor.

379 **Introduction to GIS** credit: 4 hours.

Introduction to fundamental methods of data analysis using geographic information systems. This course emphasizes hands-on experience and will expose students to geographic data structures, analysis and representation through a variety of real-world applications. Same as ESES 379.

381 ***Environmental Perspectives*** credit: 3 hours.

Focus on the major ideas in contemporary environmentalism, especially on how humans do and should interact with the environment. Same as ESES 381. Prerequisite: Junior or senior undergraduate standing.

384 ***Population Geography*** credit: 3 hours.

Problems and issues surrounding the geographic distribution of populations at the world, regional, and local levels; emphasizes problems associated with population growth and decline, recent population redistribution, births and deaths, and elderly and minority populations.

390 ***Individual Study*** credit: 2 to 4 hours.

Supervised independent study of special topics or regions. May be repeated once. Prerequisite: Junior standing; at least one formal course in the topic or region of interest; consent of instructor.

391 ***Honors Individual Study*** credit: 2 to 4 hours.

Individual study and research projects for students who are working toward the degree with distinction in geography. May be repeated to a maximum of 8 hours. Prerequisite: Junior standing; consent of honors adviser.

394 ***Special Topics Social Geog*** credit: 4 hours.

Introduction to current research in social geography; includes such topics as access to public facilities, geography of crime, innovation diffusion, geography of communications, spatial assimilation of minorities, and geography of social well-being. See Schedule for current topics. May be repeated.

401 ***Watershed Hydrology*** credit: 3 hours.

Same as NRES 401. See NRES 401.

406 ***Fluvial Geomorphology*** credit: 4 hours.

Systematic overview of the forms and processes associated with rivers and drainage basins; topics include basin hydrology, drainage networks, river hydraulics, sediment transport processes, channel morphology, channel change, and human impacts on fluvial systems. Same as GEOL 406, and NRES 406. Prerequisite: PHYS 101, and GEOG 103 or GEOL 107, or consent of instructor.

408 ***Watershed Analysis*** credit: 4 hours.

Systematic analysis of the geomorphological processes operating in watersheds and the impact of humans on these processes. The course will emphasize the importance of watershed geomorphology in watershed management. Class discussion and a class project will focus on a practical watershed assessment problem. Prerequisite: GEOG 103 or equivalent.

410 ***Geography of Dev and Underdev*** credit: 4 hours.

Patterns and processes of Third World development geography. Lectures and discussion draw upon theoretical and case study material by development geographers working in Asia, Africa, and Latin America. Prerequisite: GEOG 101, GEOG 110, and ECON 101 are highly recommended.

421 **Earth Systems Modeling** credit: 4 hours.  
Same as ATMS 421, ESES 421, GEOL 481, and NRES 422. See ATMS 421.

427 **Amer Vernacular Cultural Land** credit: 4 hours.  
Same as LA 427. See LA 427.

436 **Biogeography** credit: 3 hours.  
Same as ANTH 436, ESES 439, IB 439, and NRES 441. See IB 439.

438 **Geography of Health Care** credit: 3 or 4 hours.  
Methods and perspectives of health care. Emphasizing the spatial analysis of health and health care. The organization, provision and competition of health care will be highlighted. Same as SOC 478. 3 undergraduate hours. 4 graduate hours. Prerequisite: GEOG 384 or SOC 274 or consent of instructor.

439 **Health Applications of GIS** credit: 3 hours.  
Same as CHLH 439 and PATH 439. See PATH 439.

446 **Sustainable Planning Seminar** credit: 4 hours.  
Same as NRES 446 and UP 446. See UP 446.

455 **Geog of Sub-Saharn Africa** credit: 3 hours.  
Regional geography of Africa south of the Sahara. Geographic analysis of Africa which includes topics in both physical and human geography and provides a general overview of the processes and interactions between human and environmental factors that shape Africa's physical and human geography.

460 **Anal & Interp Aerial Photo** credit: 3 or 4 hours.  
Review of methods for extracting quantitative and qualitative information from aerial photographs using computer-based techniques and visual interpretation. The first part of the course will cover basic photogrammetry and mapping. The second part will focus on interpretation of physical, biological, and cultural features. Same as NRES 460. 3 undergraduate hours. 4 graduate hours. Prerequisite: Knowledge of trigonometry (MATH 014 or equivalent) and basic physical geography (GEOG 103 or equivalent).

465 **Trans Systems and Spatial Dev** credit: 2 to 4 hours.  
Descriptors of transportation systems; allocation models; transportation as an industrial activity and public good; and transportation and spatial development, including the role of transportation in developing countries and in urban and regional development and problems involved in measuring the impact of transport investment. 3 undergraduate hours. 2 or 4 graduate hours.

466 **Environmental Policy** credit: 3 or 4 hours.

Examination of the geographical and political aspects of human-environmental relations; focusing on how environmental problems are defined, negotiated, and addressed through policy formulation. Specific approaches to environmental policy will be considered at different geographical scales. Same as ESES 466. 3 undergraduate hours. 4 graduate hours. Prerequisite: One course in Geography or Political Science or consent of instructor.

467 **Dynm Simul of Nat Res Problems** credit: 3 or 4 hours.

Examines the development of the physically based theories of scarcity and a comparison to the historical and most recent economic theories of scarcity of critical resources, especially energy, and their expected application in local, regional, national, and international situations. Same as ECON 415 and ESES 467. 3 undergraduate hours. 3 or 4 graduate hours. Prerequisite: MATH 231 or MATH 234; ECON 102 or ECON 103, or equivalent; ECON 302 or consent of instructor.

468 **Biological Modeling** credit: 3 or 4 hours.

Interdisciplinary modeling course for students interested in dynamic system modeling of living processes; each student will build a model by the end of the course. No special mathematical background required. Same as ANSC 449, CPSC 448, and IB 491. 3 undergraduate hours. 4 graduate hours. Prerequisite: IB 441, IB 444, or equivalent, depending on curriculum.

469 **Spatial Ecosystem Modeling** credit: 3 or 4 hours.

Students will build a spatial dynamic ecosystem computer model as a research team, focusing on a specific endangered species or ecosystem. Same as CPSC 449, IB 492, and NRES 469. 3 undergraduate hours. 4 graduate hours. Prerequisite: GEOG 468 or consent of instructor.

470 **Intro Quant Methods in Geog** credit: 4 hours.

Introduction to statistical, numerical, and mathematical techniques used in geographic research; introduction to computer usage in geographic research. Prerequisite: GEOG 280, one year of college mathematics, or one course in statistics, or equivalent.

471 **Recent Trends in Geog Thought** credit: 4 hours.

Examination of recent trends in human and physical geography. Themes include empiricism, logical positivism, regionalism, Marxism, realism, phenomenology, and post-modernism as applied to geographic research. Emerging geographic literature is explored to identify the latest conceptual developments.

473 **Map Compilation and Construct** credit: 4 hours.

Instruction and practice in the basic techniques of map making followed by a consideration of problems involved in the construction of maps for presentation in a reproduced form (i.e., printed, photographed); the selection of proper source materials for the base and body of the map, the compilation and correlation of these materials, and methods of mechanical and photographic reproduction.

476 **Applied GIS to Environ Studies** credit: 3 hours.

Demonstrates how Geographic Information Systems have become a fundamental application to study major problems encountered in physical and environmental geography. Prerequisite: GEOG 103 or GEOG 104, consent of instructor.

477 ***Introduction to Remote Sensing*** credit: 3 hours.

Fundamentals of energy-matter interaction mechanisms, and the manifestation of reflected and emitted radiation on photographs and images; introduces characteristics of aerial films and filters, electro-optical scanners, and digital processing; and emphasizes applications in environmental problems. Same as NRES 477. Prerequisite: GEOG 280 (beginning statistics) or equivalent, or consent of instructor.

478 ***Techniques of Remote Sensing*** credit: 4 hours.

Optical and digital information processing of imagery acquired from aircraft and satellite remote sensing platforms; includes systems design, mensuration theory, photographic enhancement techniques, and automatic digital classification for all of the standard sensor systems; and laboratory focusing on the design and implementation of information processing techniques with application limited to a survey of uses. Prerequisite: GEOG 470 and GEOG 477, or equivalent.

479 ***Advanced Geog Info Systems*** credit: 3 hours.

Introduces the concepts of digital cartographic data, spatial analysis methods, and process modeling. Prerequisite: GEOG 280, GEOG 371, GEOG 379; or equivalent.

480 ***Principles of GIS*** credit: 3 hours.

Focuses on Geographic Information Science (GIScience) principles that underlie the development of Geographic Information Systems (GIS) software and its intelligent use. Helps students adapt to rapidly changing geospatial technologies. Knowledge gained in this course will be general and, thus, not be limited to any specific software product that may be revised in the future. Prerequisite: GEOG 379 is recommended.

482 ***Challenges of Sustainability*** credit: 3 hours.

Same as ESES 482. See ESES 482.

483 ***Urban Geography*** credit: 3 hours.

Distribution, functions, and internal structures of cities; emphasizes contemporary metropolitan and central city problems.

489 ***Programming for GIS*** credit: 4 hours.

Customization of GIS application with academic and commercial programming tools. Topics include GIS user-interface design, advanced functions and tools coding, fundamental spatial data structures and algorithms, and geospatial database management. Prerequisite: GEOG 379 or GEOG 473 or any other equivalent introductory GIS course.

491 ***Research in Geography*** credit: 2 hours.

Detailed examination and discussion of the methods of initiating and executing research projects in human or physical geography (taught in separate sections); requires students to write a research proposal of a quality suitable for a graduate thesis. Prerequisite: GEOG 471; either graduate standing in geography or senior standing as a geography major and consent of department.

505 ***Seminar in Physical Geography*** credit: 2 to 4 hours.

Advanced study of one of several topics that vary from term to term and include: (a) mathematical models/numerical analysis in physical geography; (b) problems in physical geography; and (c) professional seminar. Prerequisite: Advanced course work in physical geography and consent of instructor.

520 **Political Ecology** credit: 3 hours.

Political ecology integrates social and biophysical processes in the study of nature-society relations. Examination of the conceptual origins of the field of political ecology and identification of influential bodies of research and promising research directions. Readings focus on recent advances, debates, and the ongoing evolution of political ecology as an integrative approach to Geography and environment-development studies. May be repeated to a maximum of 6 graduate hours. Prerequisite: One of the following courses, or consent of the instructor: GEOG 410, GEOG 466, SOC 447, HIST 460, or equivalent.

556 **Regional Science Methods** credit: 4 hours.

Examines models of regional growth and development, including export base, input-output and econometric, cohort component and spatial interaction; emphasizes socioeconomic impact analysis and forecasting subnational economic and demographic change. Same as UP 556. Prerequisite: UP 506 or consent of instructor.

557 **Seminar in Regional Science** credit: 4 hours.

Discusses advanced topics in regional science; prepares students for dissertation and thesis research, applied study for public agency, or other student research. Same as UP 557. Prerequisite: GEOG 556 or consent of instructor.

560 **Spatial Epidemiology** credit: 4 hours.

Same as CHLH 560 and PATH 560. See PATH 560.

570 **Advanced Spatial Analysis** credit: 4 hours.

Advanced techniques of spatial analysis, including spatial autocorrelation, trend surface analysis, grouping and regionalization procedures, and point pattern analysis. Prerequisite: GEOG 470 or equivalent.

583 **Environ History Cities&Regions** credit: 4 hours.

Same as LA 583 and UP 583. See UP 583.

587 **Qualitative Research Methods** credit: 4 hours.

Same as UP 587. See UP 587.

594 **Seminar in Social Geography** credit: 4 hours.

Advanced study of a current research topic in social geography. Topic varies from term to term; prepares students for dissertation and thesis research through study of advanced literature and the completion of a research paper. Prerequisite: GEOG 470 and GEOG 471, or equivalent; graduate coursework in social geography or in one of the social sciences.

595 **Advanced Studies in Geography** credit: 0 to 8 hours.

Seminar and directed individual investigation of selected problems or regions; designed to develop ability to conduct independent investigation. Scheduled seminars are detailed in each term's Class Schedule. All students are required to register each term in section Z (the departmental colloquium) for 0 hours in addition to other GEOG 495 work which may be selected. Approved for both letter and S/U grading. May be repeated.

599 **Thesis Research** credit: 0 to 16 hours.  
Approved for S/U grading only. May be repeated.