

Undergraduate Handbook

Department of Geography University of Kentucky

(Revised: April 2014)

<http://www.uky.edu/ArtsSciences/Geography/>

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PREAMBLE

IF

If you are interested in the Earth as the home of human beings and how we appraise, occupy, use and misuse it --

If you are curious about where things are on the Earth, why they are in those locations, and what are the consequences of their being where they are --

If you like to investigate places and areas -- what they are like, how they became that way, and how they function in relation to other places or areas --

If you love to observe landscapes -- their composition and character and how people perceive and change them --

If you like to pore over maps, or devise new ones, as keys to all of the above --

*You are a Geographer, born
or made!*

*Enter
these
halls
and
Study!
Learn!
Enjoy!*

Clarence W. Olmstead

INTRODUCTION

Welcome to Geography; welcome to the discipline, and to the Department and its people here at the University of Kentucky. As you first read through the materials that follow, you will be setting forth on a journey that will change your life. The interests and expertise you develop over the next several years could very well dictate the direction and success of your career after graduation. More important, we hope, is that Geography will broaden your knowledge of the world and its many elements, from physical landscapes and climates, to social, political, and economic systems, to cultures and individual perspectives and behaviors. We hope that Geography will deepen your understanding of these many areas, and especially of the complex interrelations between them. We also hope that Geography will help you appreciate the role that *YOU* have in this world, as an active participant in the human race and as an informed student within a discipline that can certainly “make a difference.”

This *Handbook* is intended to serve as an aid to undergraduate majors and minors presently in Geography as well as prospective geography majors and minors. The *Handbook* addresses issues and answers questions specifically related to this department. Although a brief section is included about university and college requirements, students should consult the most recent *University of Kentucky Bulletin* (<http://www.uky.edu/Registrar/bulletin.html>) and the major sheets for the B.A. and B.S. degrees in geography at <http://www.uky.edu/Registrar/Major-Sheets/> for a detailed description of requirements. Important features of this *Handbook* include career opportunities, requirements for the major, requirements for the minor, information about undergraduate course offerings, departmental facilities and activities. We encourage you to carefully review this Handbook, and to keep it on file. Above all, we invite you to talk with anyone and everyone in the Department.

Geography Defined

Geography is the science of place and space. Geographers ask where things are located on the surface of the earth, why they are located where they are, how places differ from one another, and how people interact with the environment. Geography is unique in linking the social sciences and natural sciences together.

There are two main branches of geography: human geography and physical geography. Human geography is concerned with the spatial aspects of human existence — how people and their activities are distributed in space, how people use and perceive space, and how they create and sustain the places that make up the earth's surface. Human geographers work in the fields of urban and regional planning, transportation, marketing, real estate, tourism, and international business.

Physical geographers study patterns of climates, landforms, vegetation, soils, and water. They are concerned with the relationships between the living and non-living elements of the Earth's surface and seek to explain the landscapes and processes at work.

Geographers also study the relationships between human activity and natural systems. Geographers were, in fact, among the first scientists to sound the alarm that human-induced changes to the environment were beginning to threaten the

balance of life itself. They are active in the study of climate change, desertification, deforestation, loss of biodiversity, groundwater pollution, and flooding.

Geographers use many tools and techniques in their work, and geographic technologies are increasingly among the most important emerging fields for understanding our complex world. They include Geographic Information Systems (GIS), Remote Sensing, Global Positioning Systems (GPS), digital mapping, and others.

CAREER OPPORTUNITIES AND GEOGRAPHY

Occupational Outlook and Major Career Options

Perhaps the single most frequently asked question of geographers is, “*What can you do with Geography?*” Many careers are available to people trained as geographers and, furthermore, the occupational outlook in most areas of our profession continues to be good. During the 1980s, the United States Department of Labor stated that, “Employment of geographers is expected to grow about as fast as the average for all occupations....” During the 1990s, however, there was explosive growth in job opportunities favoring geographic training. The emergence of Geographic Information Systems (GIS), for example, and their application within a host of professions from planning to marketing, has provided immediate employment for geographers. By 2004, the Department of Labor had identified geospatial science and technology as one of the four highest-growth sectors of the economy for the 21st Century. In addition, the movement to incorporate geographic standards in K-12 education offers an ever-increasing potential for employment as the true nature and value of geography become more universally understood.

Examples of jobs that students with bachelor's degrees in geography from the University of Kentucky are working in, or have recently worked in, include:

- Local government land use planning, urban planning, economic development, zoning, and transportation (Lexington, Louisville, Georgetown, Paris, Cynthiana, and other Kentucky cities and counties)
- State transportation planning (Frankfort; Lexington).
- Geospatial science, technology, & applications (Lexington, Louisville, Frankfort, Redlands, CA, Washington, D.C.)
- Sustainable agriculture (Louisville)
- Environmental consulting (Lexington, Louisville, northern Kentucky)
- Geoscience and engineering consulting (Louisville, Lexington, Cincinnati, Chicago)
- Cartography (Louisville, Lexington, Washington, DC)
- Real estate management and development (Lexington, Morehead)
- Military intelligence (Washington, DC, Afghanistan, Germany)
- Area studies/analysis (Washington, DC)
- Refugee resettlement (Cincinnati)
- Energy (coal, oil, gas) development (Houston, Tulsa, Lexington, Richmond VA, Ashland)

- Wildlife & fisheries management (Frankfort)
- Middle and high school social studies and Earth science teaching (numerous locations in Kentucky and adjacent states)
- International trade (Tokyo, Osaka, Chicago, Washington)
- Peace Corps (Bolivia)

Careers in Geography, a publication of the Association of American Geographers, lists the following job titles held by geographers and places of employment for geographers.

Representative Job Titles

Agricultural Geographer
Aerial Photo Interpreter
Cartographer
Cartographic Draftsman
Cartographer-Geographer
Cartographer-Illustrator
Climatologist
Community Development Specialist
Demographer
Earth Scientist
Ecologist
Editorial Assistant
Geographic Analyst
Geographic Attache'
Geographic Engineer
Geographer-Planner
Industrial Development Specialist
Industrial Developer
Intelligence Analyst
International Economist
Land Economist
Land Use Planner
Librarian
Map Analyst
Map Curator
Map Editor
Map Librarian
Market Analyst
Political Analyst
Regional Planner
Research Analyst
Research Coordinator
Research Geographer
Recreational Resource Planner
Resource Economist
Site Researcher
Soil Conservationist
Soil Geographer
Teacher
Transportation Planner
Urban Planner

Places of Employment

Private Business(General)

Aircraft Companies
Airlines Architects
Computer Systems

Department Stores
Engineering Companies
Graphic Design
Marketing & Research
Motor Companies
Newspapers
Oil Companies
Publishers
Railroad Companies
Research Laboratories
Travel Consultants
Urban Planners
Utility Companies
Wholesale Grocers
International Organizations
Int'l.Bank for Reconstruction & Development. (World Bank)
Organization of American States
United Nations
U.S. Government
ACTION
Agency for International Development
Central Intelligence Agency
Department of Agriculture
Foreign Agriculture Service.
Forest Service
Soil Conservation Service
Department of Commerce
Bureau of the Census
National Oceanic and Atmospheric Administration
Department of Defense
Defense Intelligence Agcy.
Defense Mapping Agency
Aerospace Center (DMA)
Hydrographic Center (DMA)
Topographic Center (DMA)
Department of the Air Force
U.S. Army Engineer
Topographic Laboratory
U.S. Army Research & Development
Office of Naval Research
National Security Agency
Department of Health, Education, & Welfare
Department of Housing & Urban Development
Department of the Interior
Bureau of Indian Affairs
Bureau of Land Management
Bureau of Mines

Division of Personnel & Mgmt.
Bureau of Reclamation
National Park Service
U.S. Geological Survey
Department of Justice
Department of State
Office of Geographer
Department of Transportation
Energy Research & Dev. Agency
Environmental Protection Agency
Library of Congress
Congressional Resrch Service
Geography & Map Division
National Academy of Sciences
National Aeronautics & Space Administration
Natn'l Archives & Records Svc.
National Science Foundation
Smithsonian Institution
U.S.Information Agency
U.S. Postal Service
State & Local Government
State
Geological Survey
Forest Service
Dept. of Public Works
Dept. of Commerce
Planning Agency
Highway Department
Transportation Dept.
Health Dept.
Chamber of Commerce
Economic Development Agency
Business & Industrial Development
County
Natural Resource Center
Public Works
City
Urban League
Public Health Service
Chamber of Commerce
Science Museum
Dept. of Housing & Community Development
Planning Agency
Metro. Area Transportation
Dept. of Urban Renewal
Public Libraries
Regional
Airport
Planning Agency

For further information on career opportunities in geography go to the homepage of the Association of American Geographers at: <http://www.aag.org/>

Recent UK geography graduates have also gone on to do graduate work in geography, planning, environmental science, urban studies, geology, meteorology, soil science, history, biology, medicine, dentistry, health care, and international relations at a number of universities, including:

University of Virginia
 University of North Carolina-Chapel Hill
 University of Texas-Austin
 University of British Columbia
 University of California-Los Angeles (UCLA)
 University of Indiana
 University of Arizona
 University of South Carolina
 University of Kentucky
 University of Louisville
 University of Colorado
 Texas A&M University
 Boston University
 Western Kentucky University
 Syracuse University
 University College, London
 London School of Economics

Standing Out in the Job Market

Employment opportunities for students of geography are truly unlimited. The previous section demonstrates just some of the potential. There *IS* a career for you, regardless of your particular interests in the discipline. You should be aware, however, that few jobs explicitly advertise for “Geography Majors.” Don’t let this reality discourage you. The more you know about geography, and the better you understand the discipline, the easier it will be to move into a rewarding career.

SUCCESS IN YOUR GEOGRAPHY DEGREE

This section is included to help you prepare for life after college. It offers suggestions on how to improve personal marketability and gain confidence in the marketplace. Employers must sift through scores of resumes in search of appropriate individuals to fill positions. Therefore, some items that follow are suggested as a way to make you “stand out” above the crowd, and to demonstrate areas where geography can provide a tremendous advantage. These are NOT requirements for the major and, depending on your interests, not all suggestions may apply to you.

GPA is increasingly important. It wasn’t that long ago when having a college diploma provided enough clout to gain employment. Times change. Societies change. And a college education is now almost common-place. A grade point average is now a

common first indicator of adequacy in the job market. The moral of this story is that you should not neglect your studies. If you are concerned about

your GPA, feel free to talk with your advisor or the Director of Undergraduate Studies.

Extracurricular activities can be a plus. A student's GPA is important, but potential employers also look for the ability to balance academics with other organized activities. Participation in departmental committees, the undergraduate Geographical Society, university student organizations, or community affairs can demonstrate attractive abilities to work well in groups and to assume effective leadership positions. Besides the career benefits, such participation allows you to build strong friendships and better enjoy your time at the university.

International Experience. Americans are, in general, not well traveled. Students who have any sort of international interests should certainly consider opportunities to study abroad. Besides an immediate impact on job applications, international experiences allow students to live what they have learned through exposure to different physical landscapes, social and political systems, and cultures. Find out how to make this a part of your curriculum by talking with a departmental advisor, and contacting the *U.K. Office of International Affairs*, and *Study Abroad Programs and Services* (<http://abroad.ad.uky.edu/>), located in Bradley Hall.

Foreign Language. If you hope to work in, or be involved with, countries outside of the United States, then foreign language skills may certainly be a plus. Besides the "traditional" languages of French, German, or Spanish, the university offers training in Italian, Russian, Japanese, Chinese, and Arabic. Contact the *U.K. Office of International Affairs* (<http://www.uky.edu/IntlAffairs/>) for information on such groups. In addition, students interested in learning more about course offerings in languages other than Spanish should contact the A&S Department of Modern and Classical Languages:

http://www.as.uky.edu/academics/departments_programs/MCLLC/MCLLC/Pages/default.aspx

On-the-Job Experience. There is no doubt that applied training is beneficial in the job search. Besides the careful selection of part-time employment while in school, you might also consider internship credit through GEO 399, or through the *U.K. Office of Experiential Education* (<http://www.uky.edu/careercenter/students/internships>). The geography department also has a faculty member designated as internship coordinator. Contact the departmental office to find out who is currently appointed. Also, opportunities often emerge for students to work with faculty members on research projects. Such experiences are especially good for graduate school preparation.

UK's Career Center (<http://www.uky.edu/CareerCenter>). The Career Center, located in the Stuckert Building at 408 Rose Street, provides students with many opportunities to enhance their potential employment. On-campus interviews, individual career advising, resume critiques, career fairs, job search workshops, and videotaped practice interviews are some of the services offered.

UNDERGRADUATE PROGRAM IN GEOGRAPHY AT THE UNIVERSITY OF KENTUCKY

Summary of University and College Requirements

To complete an undergraduate program a student must satisfy University, College of Arts and Sciences, and Department of Geography requirements. To be awarded a baccalaureate degree (in geography a student can earn a Bachelor of Arts or a Bachelor of Science degree) each student must complete 120 semester hours of courses acceptable to the College. At least 90 of these hours must be in Arts and Sciences courses and 39 hours must be in geography (see below). Also, a student must have at least a 2.0 (on a 4 point scale) grade point standing to graduate. Students pursuing a B.A. or a B.S. degree in geography should ensure that they fulfill the General Education requirements. Suggested programs of study for specific interests or career paths within geography are available from geography faculty.

Geography Major Requirements

Geography has adopted a ‘flexible curriculum’ approach in structuring degree requirements through the adoption of a three-track system for majors. The curriculum emphasizes development of solid intellectual foundations in the discipline, while selection of a “track” promotes opportunities to tailor coursework around personal interests, areas of expertise, and career aspirations. Students should work closely with their advisor in planning a program, and should discuss their progress, semester course scheduling, and post-baccalaureate plans with their faculty advisor. Two worksheets are supplied at the end of this handbook to assist in planning.

Changes to Major Requirements in 2013

As of Fall 2013, all incoming majors will complete the new program that comes into effect during that semester. Students that declared a Geography Major before Fall 2013 will be able to EITHER keep the previous requirements OR switch to the new set of major requirements. Both current (below) and pre-2013 (listed below current 2013 requirements) are listed below for comparative and reference purposes.

Geography Major (since Fall 2013):

Major core hours	18
Methods requirements	3
Tracks	18
Total	39

Major Core Requirements

GEO 130 Earth's physical environment

GEO 172 Intro to Human Geography

GEO 200 Orientation to Geography (minor course change)

GEO 406 Integrated Field Studies in Geography

(NOTE: STUDENTS who have already taken GEO 300 may substitute this course for GEO 406—we will no longer offer GEO 300 in the future)

GEO 309 Introduction to GIS

GEO 499 Senior Research Seminar

Methods requirements

Choose one methods course from the following options:

GEO 305 Cartography; GEO 310 Quantitative Techniques; GEO 311 Qualitative Methods; GEO 409 Advanced GIS

Writing Requirement: GEO 499

NEW Breadth Requirement: None

NEW From Outside the Major Department: None Required

NEW Geography TRACKS

Choose at least 18 hours of additional geography courses to include: no more than three hours of 100-level courses; no more than six hours of GEO 560 and GEO 399; a minimum of 3 hours of 400+ level courses (not including GEO 409, 406, or 499). The following focus areas represent specializations within Geography and are provided as guidelines. Most students will find it useful to concentrate their 18 hours within these focus areas, but this is not a requirement. On completion of 15 hours within any focus area, the Geography Department will award a certificate of completion of studies in the area of specialization. Consult with your advisor in making selections of courses.

NEW TRACKS

1. ENVIRONMENTAL GEOGRAPHY OPTION

Suggested Courses:

GEO 135 Global Climate Change

GEO 162 Introduction to Global Environmental Issues

GEO 231 Environment and Development

GEO 235 Environmental Management and Policy

GEO 261 Global Dynamics of Health and Disease

GEO 321 Land, people and development in Appalachia

GEO 331 Global Environmental Change

GEO 334 Environment, Society and Economy of Japan

GEO 431 Political Ecology

GEO 530 Biogeography and conservation

GEO 531 Landscape Ecology

2. PHYSICAL GEOGRAPHY OPTION

Suggested Courses:

GEO 135 Global Climate Change

GEO 130 Earth's Physical Landscape
 GEO 230 Weather and Climate
 GEO 235 Environmental Management and Policy
 GEO 351 Physical Landscapes
 GEO 406G Field Studies in Geography
 GEO 451G Fluvial forms and processes
 GEO 530 Biogeography and conservation
 GEO 531 Landscape Ecology

3. URBAN GEOGRAPHY AND PLANNING OPTION

Suggested Courses:

GEO220 US Cities
 GEO285 Introduction to Planning
 GEO485G Urban Planning and Sustainability
 GEO235 Environmental Management and Planning
 GEO309 Introduction to GIS
 GEO310 Quantitative Techniques
 GEO 415 Map Interpretation
 GEO422 Urban Geography
 GEO455 Economic Geography
 GEO490G American Landscapes
 GEO544 Human Population Dynamics
 GEO545 Transportation Geography

4. GIS FOCUS

Suggested Courses:

GEO 109 Digital mapping
 GEO 164 iWorlds
 GEO 309 Introduction to GIS
 GEO 409 Advanced GIS
 GEO 549 Workshop in geospatial technologies
 GEO 419 Introduction to remote sensing
 GEO 305 Cartography
 GEO 506 Computer cartography
 GEO 505 Practicum in cartography
 GEO 310 Quantitative methods
 GEO 415 Map interpretation
 GEO 365 Geospatial analysis

5. HUMAN GEOGRAPHY OPTION

Suggested Courses:

GEO 161 Global Inequalities
 GEO 240 Geography and Gender
 GEO 260 Geographies of Development in the Global South
 GEO 422 Urban Geography
 GEO 442G Political Geography

GEO 455 Economic Geography
 GEO 475G Medical Geography
 GEO 490G American Landscapes
 GEO 544 Human Population Dynamics
 GEO 545 Transportation Geography
 GEO 546 Tourism and Recreation Geography

6. INTERNATIONAL STUDIES OPTION

Suggested courses:

GEO 163 Global Conflicts
 GEO 221 Immigrant America
 GEO 222 Cities of the World
 GEO 255 Geography of the Global Economy
 GEO 326 Geography of Europe
 GEO 328 Geography of the Middle East and North Africa
 GEO 329 Geography of the former Soviet Union
 GEO 331 Global Environmental Change
 GEO 334 Environment, Society and Economy of Japan
 GEO 546 Tourism and Recreation Geography

7. DESIGN YOUR OWN GEOGRAPHY MAJOR OPTION

Any Geography courses fulfilling the requirements for the major.

Pre-2013 requirements: no longer available, but pre-2013 declared majors may keep these requirements

All majors must complete 21 credit hours in Premajor and Major Core requirements, which provide the basic thematic, regional, and technical foundations of the discipline.

<u>Premajor Requirements</u> (6 hours)	Hours
GEO 130 Earth's Physical Environment.....	3
GEO 172 Human Geography	3

<u>Major Core Requirements</u> (15 hours)	Hours
GEO 200 Concepts and Methodology in Geography ..	3
GEO 300 Geographic Research	3
GEO 305 Elements of Cartography	3
GEO 310 Quantitative Techniques in Geography	3
GEO 499 Senior Research Seminar	3

Breadth Requirements (6 hours)

All majors must take at least one regional course and one thematic course in geography numbered at the 300 level or above

Core Requirements (minimum of 12 hours)

Majors will work with an advisor in selecting additional courses from within geography numbered at the 200 level or above. Required and recommended core

courses are included below for each track. Eligible students may include Independent Work (GEO 560) and Internship experience (GEO 480) for no more than six of these core hours.

Note that *the tracks (major concentrations) are optional*. While students are encouraged to follow a track, it is not required. On degree audits, a fourth option under tracks, called simply “studies in geography” accommodates those students who do not choose a track.

Related Area Requirements (minimum of 15 hours)

Majors will work with an advisor in selecting courses numbered at the sophomore level or above from other disciplines; recommended related area courses are recommended below for each track.

Students are required to have a minimum of 39 credit hours numbered at the 300 level or higher on their transcripts to graduate, with at least 24 of these credit hours being used towards the major.

Geography Major Concentrations (Tracks)

In addition to the tracks/concentrations listed below, a 4th option, *Studies in Geography*, is listed in the university degree audit program. This is to accommodate students who do not wish to follow one of the established tracks.

Track 1. Earth Environmental Systems (EES) (Physical Geography)

Background. This concentration emphasizes the earth’s physical environment, including soils and landscapes; fluvial and other hydrologic systems; weather and climate; and the biosphere. Emphasis is on (a) the pattern of spatial variation these regimes exhibit; (b) the physical processes that underpin their historical and spatial development; and (c) the interactions between these regimes and human activity.

Careers and Marketable Skills. The theoretical background, analytic, and applied skills developed in this concentration are much in demand as interest in environmental change and the impact of human activities on the physical environment increases. These skills are much in demand at the local, state, national, and international levels.

Analytical Skills developed in this concentration include:

- Field techniques
- Map reading, orientation, and analysis
- Digital spatial data collection, storage, and analysis
- Laboratory analysis

Career Opportunities: Both public and private sectors hire EES students in the following fields:

- Natural resource mapping and inventory, including soils, vegetation, geology, and land use
- Hydrology, wetland delineation and management, and water resources
- Environmental impact assessment
- Natural resource management (parks and conservation, agriculture, forestry, mining and minerals)
- Erosion and sedimentation assessment and control
- Soil, water, and biological conservation
- Natural hazard assessment, response, and mitigation

Requirements: The Department strongly recommends that students in the Earth Environmental Systems Concentration complete all requirements leading to a Bachelor of Science in Geography. The student must complete University, College, and Departmental requirements in mathematics and science leading to the BS Degree. The student must take the courses that satisfy the pre-major, professional, and interdisciplinary requirements in addition to the Concentration's core requirements.

B.S. Requirements: Though there are several differences in the requirements for the B.S. and B.A. Degrees, the major difference is that students seeking the B.S. Degree are required to complete 60 credit hours in the "physical, biological, and/or mathematical sciences." Students seeking the B.A. Degree must insure that 90 of their credit hours are in A&S courses, and that at least 39 credit hours are at the 300-level or above (see the *University Bulletin*). Geography majors seeking a concentration in EES are strongly encouraged to complete the following:

- Mathematics: MA 113, MA 114 or MA 123, MA 132
- Statistics: STA 291 recommended by Department
- Department recommends MA 322 (matrix algebra) or MA 152 (finite mathematics)
- Natural Science: CHE 105, 107 and PHY 231, 241
- Department recommends BIO 150, 152 for students interested in biogeography or landscape ecology
- Department recommends GLY 101, 111 and GLY 102, 112 for students interested in geomorphology and earth surface processes

Concentration Core Requirements (select 12 credits)

- GEO 235 Pollution, Hazards & Environmental Management
- GEO 230 Weather and Climate
- GEO 331 Global Environmental Change
- GEO 351 Physical Landscapes
- GEO 441G Fluvial Forms and Processes
- GEO 530 Biogeography & Conservation
- GEO 531 Landscape Ecology

Track 2. Human Geography (HG)

Background. Human Geography focuses on the identification, description, and analysis of: (a) human spatial behavior and cognition; (b) social, economic, and political processes as they are manifest locally and globally; and (c) the cultural impress of human activity on the landscape. Within these areas, students can focus on the socio-psychological aspects of space and place, including cultural differences in ways of knowing the world. They will learn about the processes that produce local-to-global distinctiveness in key problem areas including: poverty, injustice, and hunger; illness, disability, and disease; patriarchy, racism, and homophobia; and unequal access to natural resources, education, health, and safety. Students will also find an opportunity to learn how human practices and broader processes affect both our natural and built environments. Finally, students will learn practical tools to contribute to better world through their research, or professional participation in civil society, the private sector, or government agencies. The HG Track permits students to specialize in a particular region of interest, including East, South, Southwest (Middle East), and Southeast Asia, Europe, the Caribbean, and the United States, especially Appalachia and the South.

Professional Skills and Career Opportunities. Theoretically and methodologically, the HG Track focuses upon the conceptual knowledge necessary to understand and evaluate the spatial dimensions of human activities and processes. Students who want to concentrate on a particular region will develop a regional knowledge base together with a focus on a systematic area such as economic development, tourism, population dynamics, or medical geography. Students who opt for this track will be provided with a package of professional skills that are currently in demand in private business, public service employers including planning agencies, and non-governmental organizations.

Analytical Skills developed in the HG Track include:

- Analysis of an issue in abstract, theoretical terms; being able to account for and assess different ways of understanding the world
- Collecting and analyzing survey and/or participant observation data
- Collecting and analyzing survey and census data as it pertains, for example, to the evaluation of economic markets, demographic patterns, or access to social services
- Interpreting and analyzing historic and contemporary landscapes
- Participatory field research in local organizations

Career Opportunities Public service agencies (local and state government, US government agencies, international organizations) and private organizations (firms specializing in consulting, international business, marketing, and research) are potential employers for HG students. So too are non-governmental organizations involved in issues of civil society including civil rights, fair housing, anti-globalization coalitions, and HIV/AIDS. Some examples of employment opportunities include:

- Market research
- Socio-economic planning (urban, regional, land use)
- Recreational tourism studies/planning
- Conservation management
- Historic preservation
- Education
- Transportation planning
- Disease surveillance and health planning
- Population studies
- Intelligence analyst
- International area studies

Requirements: The HG student must complete all University, College and Department requirements for either the BA or BS degree. In addition, the student must complete the Department's Geography Major requirements. Beyond these requirements, the HG student, with the advice and consent of a faculty advisor, can select from a number of courses offered within the Department and other Departments, corresponding to a particular focus in HG.

Concentration Core Requirements (select 12 credits)

- GEO 231 Environment and Development
- GEO 240 Geography and Gender
- GEO 255 Geography of the Global Economy
- GEO 260 Third World Development
- GEO 285 Introduction to Planning
- GEO 409G Geographic Information Systems and Science
- GEO 422 Urban Geography
- GEO 455 Economic Geography
- GEO 460 Urban Geography
- GEO 475G Medical Geography
- GEO 490G American Landscapes
- GEO 544 Human Population Dynamics
- GEO 545 Transportation Geography
- GEO 546 Tourism and Recreation Geography
- GEO 550 Sustainable Resource Development and Environmental Management
- GEO 585 Aging and Environment

Recommended Additional Courses Regional courses (from among GEO 320, GEO 324, GEO 326, GEO 328, GEO 329, GEO 330, GEO 332, GEO 333, GEO 334, GEO 336, GEO 365). At least one regional course is required.

Related Area Courses (minimum of 15 hours): Any courses (must be 200-level or above) that relate logically to the student's career interests such as those in Anthropology, Sociology, Economics, History, Latin American Studies, Political Science, Women's Studies, Social Theory, African American Studies, Psychology, or as approved by advisor.

Track 3: Geographic Information Systems (GIS)

Background. The Geographic Information Systems Concentration is concerned with all aspects of geographical information/data, including identification of data sources, collection, storage/retrieval, manipulation, analysis, and visualization. The GIS Concentration encompasses geographical information science, cartography, remote sensing, and spatial analysis.

Careers and Marketable Skills. The GIT Concentration introduces the student to the theory/concept of geographic information science. In addition, the student will learn the practical application of GIS theory in the development and implementation of graphical analysis and display, remote sensing and image interpretation, digital processing, map design and computer mapping. These skills and experience will provide the GIT student with numerous job opportunities in a variety of sectors both public and private.

Analytical Skills developed in the GIT Concentration include:

- GIS computer software (data entry/editing, spatial analysis, map development and display)

- Map design and construction
- Air photo interpretation
- Applications of GIS
- Remote sensing technique and application in land-use mapping
- Workshop and desktop mapping

Career Opportunities: The career opportunities for the GIT student are many and varied in both the public and private sectors at the local, state, national and international levels. A sample list of the types of opportunities includes the following:

- Remote sensing and aerial surveys
- Land use and natural resources data acquisition, survey and mapping
- Socio-economic surveys/analysis
- Urban planning
- Disease surveillance
- Environmental assessment, reclamation, protection, and management
- Economic development
- Employment in GIS companies

Requirements: The GIS Concentration student must satisfy all University, College, and Department requirements for either the BA or BS Degree. Beyond this, the student must select the following courses in order to complete the GIT Concentration.

Concentration Core Requirements (minimum of 12 credits)

- GEO 309 Digital Geographic Data: Sources, Characteristics, Problems, and Uses
- GEO 409G Geographic Information Systems and Science: Fundamentals
- GEO 399 Internship in Geography
- GEO 415 Map Interpretation
- GEO 505 Practicum in Cartography
- GEO 506 Introduction to Computer Cartography

Recommended Additional Courses

- GEO 210 Pollution, Hazards, and Environmental Management
- GEO 285 Introduction to Planning
- GEO 351 Physical Landscapes
- GEO 485G Urban and Regional Planning
- GEO 441G Fluvial Forms and Processes
- GEO 455 Economic Geography
- GEO 460 Urban Geography
- GEO 475G Medical Geography
- GEO 530 Biogeography and Conservation
- GEO 544 Human Population Dynamics
- GEO 545 Transportation Geography
- GEO 550 Sustainable Resource Development and Environmental Management

Related Area Courses (minimum of 15 hours): Must include one course in mathematics or computer science or statistics. Examples include the following:

- CE 106 Computer Graphics and Communication
- CE 211 Surveying
- CS 115 Introduction to Computer Programming
- ENS 200 Introduction to Environmental Studies
- FOR 200 Map Reading and Photogrammetry

- FOR 300 Forest Measurements
- JOU 330 Web Publishing and Design
- LIS 601 Information Sources and Services
- MA 322 Matrix Algebra and its Applications
- STA 291 Statistical Methods

Geography Minors:

Geography has two minors, the '**Minor in Geography**' and the '**Minor in Mapping and GIS**'. All geography minors should work closely with a departmental advisor in coordinating geography with the chosen major or majors.

Minor in Geography Requirements

The minor in geography requires a minimum of 21 hours taken within the department. Students must complete courses as follows:

1. GEO 130; GEO 172; GEO 152 OR GEO 160 (9 hrs)
2. GEO 300 OR GEO 305 OR GEO 310 (3 hrs)
3. Nine additional hours at the 200 level or above

Minor in Mapping and GIS requirements:

1. Introduction to Digital Mapping (3 credits)

Either of the following: GEO 109 Digital mapping **OR** GEO 164 iWorlds

2. Mapping/GIS Theories, Techniques and Methods (6 credits)

Complete both of the following: GEO 309 Intro to GIS **AND** GEO 409 Advanced GIS

3. Mapping/GIS Design and Application (9 credits)

Complete ANY 3 of the following classes (9 credits):

- GEO 305 Cartography
- GEO 399 Internship *
- GEO 415 Map interpretation
- GEO 419 Introduction to Remote Sensing
- GEO 505 Cartography Practicum
- GEO 506 Intro to Computer Cartography
- GEO 509 GIS Workshop
- GEO 560/565 independent study *

* with approval of the Geography DUS for GIS/Mapping related internships or independent study

Note: Geography majors can also have a minor in Mapping and GIS but no more than

six credits can be used to "double-dip" for the requirements of the major and the minor.

Tips for Successfully Negotiating the Major/Minor

- ☐ Meet with your advisor or the Director of Undergraduate Studies (DUS). The DUS will explain the program, answer any questions, and direct you to a departmental advisor for discipline-specific advice.
- ☐ Formally declare the Major/Minor. You can declare a major, or change your major to Geography, in the College of Arts and Sciences Advising Center. It is important to do this as soon as possible so that the department receives regular updates of your transcripts.
- ☐ Meet with your advisor on a regular basis. They are here to help, and really want to get to know you! Above all, *be prepared* when you meet with your advisor to preregister.
- ☐ Use the USP/College and Departmental Checklists to plan schedules and to keep track of your progress. Careful planning and record keeping will help you avoid many of the problems that keep seniors from graduating on time.
- ☐ Become involved!! The Department offers many opportunities for learning outside of the classroom, from guest lectures and workshops to a wide range of social activities to membership in the department's Kentucky Geographical Society. There is no better way to enrich your undergraduate experience.

Undergraduate Course Offerings

Undergraduate course offerings are described in the *University of Kentucky Bulletin* (<http://www.uky.edu/Registrar/bulletin.html>). Students review these descriptions when planning a schedule.

Keep in mind, however, that many descriptions are intentionally written to provide flexibility in instruction and learning opportunities. Students should, therefore, contact the instructor if additional information or detail is needed. Students should also be aware that many upper-division courses may be offered only infrequently; an advisor, the Director of Undergraduate Studies, or the Department Chair should be consulted when planning schedules for more than two semesters in advance.

University and Departmental Facilities

Students with interests in geographic techniques (including GIS and computer cartography) will gain experience with and have access to a range of equipment housed in the Department's Center for Cartography and Geographic Information located in Miller Hall. The Center consists of the Gyula Pauer Cartographic Information Laboratory, the Cartography and Geographic Information Laboratory, and the Geographic Information Systems Laboratory. The department also maintains a GIS teaching laboratory in the Whitehall Classroom Building.

The department's students and faculty have access to the campus Convex Exemplar supercomputer for course work and research. The cartography program and the University's computer facility are closely interrelated. In addition to a host of statistical software packages on the mainframe computer, the University facility supports several microcomputer laboratories on campus. Undergraduates are encouraged to take advantage of these laboratories; information about their locations and operating hours may be obtained by contacting the Computing Center in McVey Hall and W.T. Young Library.

The university library system is the largest in the state. More than 2 million volumes and 24,000 periodicals and serials are available in the main W.T. Young Library or in one of fourteen branch libraries <<http://www.uky.edu/Libraries/>>. The geography holdings, including journals, are substantial. Among the more important items is a collection of the personal papers of Ellen Churchill Semple, an internationally respected geographer from Louisville who was President of the Association of American Geographers (AAG) in 1921. The branch libraries of special interest to geographers include agriculture, architecture, and science libraries. The university is a regional repository for federal government publications and many of these documents are housed in the Government Publications Department. The Map Library in Margaret I. King houses a substantial map and aerial photograph collection including a large collection of old and rare maps. To augment faculty interest in Appalachia, the university Appalachian Studies Center and the W.T. Young Library curate a large collection of Appalachian materials.

Faculty members are involved in the activities of a number of professional associations, including the Association of American Geographers, the Southeastern Division of the AAG, and the National Council for Geographic Education. Annually faculty and graduate students present papers at meetings of the above associations, and at meetings of scholars interested in Appalachia,

Asian studies, regional science, regional development, cultural geography, medical geography, gerontology, social geography, political geography, geomorphology, pedology, hydrology, geographical information science, and cartography. Undergraduates commonly participate in these meetings, and students are encouraged to work with faculty on research projects and in presenting research findings at professional meetings.

Departmental Activities

Like any other academic department, Geography comes equipped with a fair share of committees. These committees include: Personnel Committee; Undergraduate Committee; Laboratory Advisory Committee; Semple Day, Awards, and Colloquium Committee; and External Relations Committee. The Undergraduate Committee examines matters pertaining to the undergraduate program, including curriculum and policy matters. The Director of Undergraduate Studies is a member of the committee. Undergraduate participation in this committee is especially encouraged, and participation in other committees and indeed all matters pertaining to the undergraduate program is necessary and vital for the program to be successful. Each year the Undergraduate Committee considers a number of topics that we hope will improve the program and enhance communication between undergraduate majors and minors, as well as between students and faculty. Geography majors have a student representative on this committee.

The department periodically publishes a *Newsletter* that is available in published form and posted on the departmental web page. It contains information about past and forthcoming meetings, awards, publications, and news about alumni and former faculty. Undergraduates too should play a role in its publication, and interested individuals should contact the DUS or department chairperson.

Throughout the academic year the department hosts a number of colloquia and seminars led by members of the department faculty, graduate students, or by well-known visiting scholars from other institutions. You are invited to attend, and participate in, each of these activities. Dates, places, and times are posted regularly on department bulletin boards on the 14th floor of Patterson Office Tower.

Our major social event is the annual Ellen Churchill Semple Day, which is held in the spring semester (usually in April). Ms. Semple, a native of Louisville, Kentucky, is the state's best known geographer. She lived from 1863 to 1932 during which time she published widely and in 1921 was the first woman president of the Association of American Geographers. The day's activities include a presentation by a well-known scholar who is invited to be our guest speaker for an afternoon colloquium. An evening banquet is the culmination of the day's activities, and provides an opportunity to recognize outstanding achievement through the presentation of awards and formal initiation of members to Gamma Theta Upsilon, the international geographical honor society. Since this event

showcases the accomplishments of our undergraduates, we strongly encourage all majors to attend.

Undergraduate Social and Professional Activities

The University of Kentucky Geographic Society. This society is an organization for undergraduate majors and minors that was founded in 1983. The purpose of the Society is to provide a social and academic meeting ground for students with common goals and interests. Each year the undergraduates elect officers for the Society, and members generally have monthly meetings and sponsor a number of social activities during the academic year. In the past they have sponsored field trips, guest speakers, spaghetti and pizza dinners, travel to national and regional professional meetings, study groups for exam week, and advising groups that tutor other students enrolled in geography classes. Society membership is an excellent way to develop one's professional interests as well as make friends. All majors are strongly urged to join the group and participate in its organized activities. The Director of Undergraduate Studies, or another designated faculty member, serves as the Society advisor.

Gamma Theta Upsilon. Gamma Theta Upsilon (GTU) is an International Geographical Honor Society that recognizes high academic achievement by geography undergraduates, graduates, and faculty. Established in 1931, this society has grown to include over 200 college and university chapters and over 50,000 members worldwide. The Sigma Chapter of the University of Kentucky was chartered in 1948, and the number of qualified undergraduate initiates has grown dramatically in recent years. Eligible students will be contacted by Professor John Watkins, who is the Sigma Chapter's Faculty Sponsor.

Professional Organizations. Undergraduate Majors are strongly urged to begin developing their professional interests early on. This would include joining an appropriate professional organization such as the Association of American Geographers (AAG), and the Southeastern Division of the Association of American Geographers (SEDAAG). Special student membership rates are available for nearly all professional organizations. For example, the membership cost for SEDAAG is only \$7.00, for which you receive the *Southeastern Geographer*, a regional scholarly research journal, a newsletter, and eligibility to participate in student honors sessions at the annual meeting. Many organizations, such as the AAG, sponsor several student award competitions and also provide career opportunity services at their annual meetings, where students can schedule interviews with potential employers.

Personal Libraries. "A few good books can go a long way...." We're not sure who originally said this, but it certainly holds true for undergraduate studies in geography. Although the campus' library system has a very good collection of books in the field, it is to the student's advantage to build a personal library, which will provide immediate information for tests, assignments, and research. We strongly recommend that you keep the textbooks used for classes meeting the

department's premajor and major requirements (GEO 130, 152, 160, 172, 300, 305, 310) as well as books/readings used in other upper-division geography classes or 'related area' classes.

Honors and Awards

Each year the Geography Department recognizes outstanding student achievement through awards given to majors. The awards announcement has become a traditional part of our annual Ellen Churchill Semple Day celebration each spring semester. You will notice that some awards require completion of special projects that therefore involve some planning if you wish to be considered. In addition to those listed below, the College of Arts and Sciences and the University sponsor numerous awards and scholarships. We suggest that you contact the Dean's Office for a list, and consult the section on awards in the University Bulletin.

Departmental Awards

1. The Joseph A. Schwendeman Award (named for the Department's first Chairperson)

Requirements: Student must be a declared geography major with at least 60 hours of undergraduate course work and 18 hours in geography course credits. This award will be presented to the student with the highest grade point average for overall coursework as determined by Arts and Sciences or Registrar's records. In case of a tie, the award will go the student with the highest GPA in geography courses. The student's name will be engraved on a special plaque that is displayed in the departmental office.

2. Gyula Pauer Cartography Project Award (named for the Department's first Cartography Lab Director)

Requirements: Student must be a declared geography major with at least 60 hours of undergraduate course work. Students who wish to be considered for this award should assemble a portfolio of maps prepared in conjunction with GEO 305, 309, 405, 505, and/or 506, and appropriate internships or independent study courses they have taken. Each spring term, the Awards committee posts an announcement of the year's award competition with a deadline for submission of materials some time in late March. Students will be asked to submit a written statement outlining the circumstances in which the maps were prepared and personal biographical information. This award may not be given each year. Rather, the quality of work submitted is the principal criterion used in making the award. This means overall quality, indications of technical maturity, and an indication of potential as a professional. This recognition will include a cash award.

3. Ellen Churchill Semple Award for Outstanding Undergraduate Student Research Paper

Requirements: Student must be a declared geography major with at least 60 hours of undergraduate course work. Research papers prepared for geography courses or

presented at regional or national professional meetings are eligible for consideration. The quality of the research problem and the writing and presentation of findings are the principal criteria used in making the award. This includes originality and relevance of the work, professional potential as indicated by the project, and letters of reference. Students should submit three copies of their paper, a statement of career goals and objectives, and letters of recommendation from at least two faculty members. As with the Cartography Project Award, a submission deadline in the spring semester will be posted, and the award may be given only when the quality of submitted materials is exceptional. This recognition includes a cash award.

4. Withington Human/Cultural Geography Award (Sponsored by Dr. William A. Withington, Professor Emeritus, University of Kentucky)

Requirements: This award, which may be awarded at each of the Bachelors, Masters, and Doctoral levels, recognizes outstanding student writing in topics following the traditional cultural/behavioral theme in geography. A submission deadline will be posted in the spring, and all students should contact the Director of Undergraduate Studies for guidelines. This recognition includes a cash award.

5. Thomas M. Geoghegan Award (Sponsored by the UK Geographical Society in memory of former undergraduate major Tommy Geoghegan)

Requirements: This award recognizes exceptional dedication and spirit to undergraduate studies in geography. Candidates are in their sophomore or junior year, and selection is made by the UK Geographical Society and the department's Awards Committee.

6. Departmental Honors (this award is given by Arts & Sciences at the discretion of the department)

Requirements: Candidates should be graduating seniors with GPAs of 3.5 or higher, both overall and within the department. Students should express their interest with graduating with Honors in a short letter to the Director of Undergraduate Studies before the last semester of course work begins. The department would like to recognize several students for Honors each year.

Nondepartmental Awards

1. AAG Specialty Group Undergraduate Paper Awards.

There are 39 formal Specialty Groups within the Association of American Geographers that support interests ranging from Africa and Aging to Transportation and Urban. Many of these Groups sponsor student award competitions each year. Details on these Specialty Group Awards are provided in the AAG Newsletter. Students may also contact a faculty member in the department for additional information.

2. GTU Robert G. Buzzard Scholarship.

Gamma Theta Upsilon provides this annual scholarship, in the amount of \$500, for superior scholars in geography. The Buzzard Scholarship is for undergraduate seniors

who have been accepted to, and will be enrolled in a graduate program in geography. All active GTU members are eligible. Contact Professor John Watkins for information.

3. GTU Benjamin F. Richason III Scholarship.

Gamma Theta Upsilon provides this annual scholarship, in the amount of \$500, for undergraduate juniors and seniors having either career or graduate school aspirations in geography. The Richason Scholarship is based on service to GTU and the local chapter's department and noteworthy academic performance. All active GTU members are eligible. Contact Lynn Phillips for information.

Department Faculty

The geography faculty at the University of Kentucky, along with their research and teaching interests and information about their backgrounds and professional activities, are listed at:

<http://www.uky.edu/AS/Geography/People/Faculty/>

This section provides information on how to contact individual faculty members, including their office addresses, e-mails, and telephone numbers.

Students should feel free to contact any geography faculty for professional, academic, and advising advice related to geography.

USEFUL ADDRESSES

Department of Geography
University of Kentucky
817 Patterson Office Tower
Lexington, KY 40506-0027
Departmental Office (859) 257-2931

Be sure to visit our department's home page on the World Wide Web!!

<http://www.uky.edu/ArtsSciences/Geography/>

Advising Information

<http://www.as.uky.edu/advising/Pages/default.aspx>