DEPARTMENT OF GEOGRAPHY

DOCTORAL PROGRAM

GEOGRAPHY AND ENVIRONMENTAL SCIENCE AND POLICY

STUDENT HANDBOOK
2009-10

Revised 6/15/09

Geography and Environmental Science and Policy Doctoral Program

http://www.cas.usf.edu/geography/index.html

DEPARTMENT OF GEOGRAPHY
MISSION STATEMENT

The mission of the Department of Geography at the University of South Florida is threefold: (1) to conduct basic and applied research; (2) to provide exceptional, quality education and professional development opportunities at the undergraduate and graduate levels; and (3) to serve the region, community, and the university. Teaching and research themes focus on: (i) Environmental Processes and Policy, (ii) Environmental Hazards, Sustainable Communities, and Vulnerability Assessment, (iii) Geographic Information Sciences, (iv) Globalization and International Development, and (v) Urban and Regional Development and Planning. The Department maintains a strong international focus and undertakes research in many settings in North America and throughout the world, particularly Africa, Asia (particularly China, India, and the Middle East), Europe, and Latin America. The Department encourages engaged teaching and scholarship within communities and has strong connections with community partners in the Tampa Bay region and many other locations around the world.

The department offers six degree programs and three graduate certificate programs. There is a BA in Geography and a BS in Environmental Science and Policy, an MA in Geography, an MA in Urban and Regional Planning, an MS in Environmental Science and Policy, an integrated Ph.D. in Geography and Environmental Science and Policy and three graduate and one undergraduate certificates. The Department is also home to the USF Botanical Gardens, the College's Community Initiative Program, the USF Weather Station, the GIS and Cartographic Services Laboratory, and the Center for Brownfields Rehabilitation. The undergraduate programs offer a broad education in geography and environmental science and policy, which, combined with undergraduate research and practical knowledge, provides the necessary experience for a range of employment opportunities. The undergraduate certificate in Urban Studies provides opportunities for in-depth examination of urban topics. The masters' degrees develop hands-on research undertaken with faculty mentors. The graduate certificate in GIS is designed for advanced learners interested in spatial information systems, the graduate certificate in Environmental Management and Policy focuses on training individuals in managing complex issues related to the environment, and the Community Development certificate promotes engaged scholarship. The doctoral degree is designed for advanced students specializing in research at the cutting edge of the discipline. www.cas.usf.edu/geography

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GEOGRAPHY AND ENVIRONMENTAL SCIENCE AND POLICY DOCTORAL PROGRAM

PROGRAM DESCRIPTION

The Ph.D. degree in Geography and Environmental Science and Policy (ESP) is an interdisciplinary program, the curriculum of which is designed around the strengths of USF in critical areas of geography and the environment. The program is designed to integrate fully the strengths of the Department of Geography and the ESP Program. Emphasis is placed on providing theoretical rigor and methodological skills enabling students to make significant and original research and policy contributions in an integrated interdisciplinary environment. In addition, the degree has a very strong applied component emphasizing working on solutions to real-world geographical and environmental problems.

The Department of Geography at the University of South Florida serves the needs of a growing urban population in one of the largest metropolitan areas in the southeastern United States. As such, its research focus, although varied, is centered on urban processes, both physical and human. Course offerings emphasize economic, social, and planning issues in the urban environment; physical/environmental geography, natural/technological hazards and environmental justice; and geographic information systems (GIS) and spatial analysis.

The Environmental Science & Policy Program is an interdisciplinary research and teaching program that emphasizes the integration of sound science into environmental policy development and analysis. Students take classes in the natural and physical sciences, as well as areas of public policy, environmental, law, ethics, and economics. Accordingly, the department draws faculty from diverse educational backgrounds, including Biology, Ecology, Geology, Geography, Engineering, Public Administration, Political Science, Law, Philosophy, Public Health, and related disciplines. Through a commitment to quality interdisciplinary teaching, combined with research and hands-on learning opportunities, the department is dedicated to ensuring that students are well prepared for careers in academics and the private and public sectors.

PROGRAM AREAS OF EMPHASIS

Many organizations, including the National Science Foundation and the National Institutes of Health, have recognized the need for expanding interdisciplinary research to handle real-world problems. The Geography and ESP Doctoral Program distinctly focuses on developing state-of-the-art researchers able to navigate in today's complex world. We anticipate that our students will address many important local, regional, national, and global issues that require a cross-disciplinary perspective. To that end, the Ph.D. in Geography and ESP serves their respective disciplines by expanding opportunities for students interested in complex social and environmental problems. The degree currently has five areas of emphasis that reflect the strengths of existing faculty and key research needs. New areas of emphasis can also be created that reflect student needs and desires, and additional faculty interests. The five current areas of emphasis are:

1. **Economic, Social, and Planning Issues in the Urban Environment**
2. **Karst Science and Climate Change**
3. **Natural/Technological Hazards and Health**
4. **Biogeography and Landscape Ecology**
5. **Water Resources and Policy**

The ***Economic, Social, and Planning Issues in the Urban Environment*** emphasis provides a framework for studying the economic and social issues associated with urbanization. As much of the world is transitioning from rural to urban societies, there are a number of research questions that are critical to the understanding of this process and the overall implications of development to human society. The ***Karst Science and Climate Change*** emphasis provides a unique niche for the department. There are only a handful of departments in the world that offer Ph.D. level instruction in the area of karst science, although approximately 20 percent of the earth's land surface is considered a karst landscape. Similarly, the study of climate change is important at both the regional and global level. This area of the proposed degree program has a high-tech, applied orientation through which an understanding of emerging problems related to such change is gained. The ***Natural/Technological Hazards and Health*** emphasis encourages research on a wide array of issues such as vulnerability of populations to hazards, the impact of environmental pollution on health, and environmental issues. This type of research is becoming increasingly important as our societies become more susceptible to the impacts of hazards due to population locations and economic conditions. Risk assessment and management for natural/technological hazard mitigation is a growing area of concentration. The *Biogeography and* ***Landscape Ecology*** emphasis builds on strengths of faculty engaged in examining ecological research and public policy questions associated with the geography of plant and animal communities and the conservation of rare and endangered species. This area of research is increasingly important as development and urban growth increasingly place humans and human activities in conflict with the habitats and ranges of native animal and plant species in different regions of the world. The ***Water Resources and Policy*** emphasis provides a concentration in the science and policy study of water quality and water supply. Research and teaching topics include developing new and innovative methods to detect and evaluate changes to water quality and availability resulting from urban systems and other human impacts; and assessing effectiveness of protection and control measures that have been implemented or proposed to prevent or reverse these impacts.

ADMISSION REQUIREMENTS

Background Requirement

Students wishing to gain admittance into the Geography and ESP Doctoral program should have a master's degree, or its equivalent from an approved college or university. These students are required to take a minimum of 60 hours prior to obtaining the Ph.D. It is also possible to enter directly into the doctoral program without a Masters Degree. These students must complete the coursework portion of the Masters Degree required in either the Department of Geography, or Environmental Science & Policy, and complete a minimum of 90 hours prior to obtaining the Ph.D. Exceptional students already enrolled in the Geography or ESP Masters Programs can potentially move into the doctoral program prior to completing the Masters Degree. In this case, the student's advisor recommends the student for possible entry into the program to the Geography and ESP Doctoral Program Committee. After review of the student's credentials, this

committee either approves or denies the student entry. If approved, the student will need to formally apply to the program via the Graduate Admissions application process.

Typically, applicants have degrees in geography, environmental science, public health, or earth science. However, applicants with degrees in other disciplines are also encouraged to apply. Those students admitted without a degree(s) in one of the disciplines listed above may be required to take selected undergraduate courses as determined by the Geography and ESP Graduate Program Committee.

Grade Point Average and Graduate Record Exam (GRE)

Students must have a minimum grade point average of 3.2 (on the four point scale) for all work prior to admission, and submission of GRE scores is required. The GRE must be taken within five years preceding the application and the score submitted regardless of the grade point average. Official copies of GRE scores and all transcripts should be sent to the Geography and ESP Doctoral Program Coordinator.

Letter of Intent

A letter of intent must be submitted to the Geography and ESP Doctoral Program Coordinator. The letter should outline the applicant's specific academic interests and goals.

Letters of Recommendation

The applicant should arrange to have at least three letters of recommendation submitted to the Graduate Director prior to the application deadline. Prospective students should solicit the letters of recommendation from sources who are familiar with the applicant's academic/work history and performance.

Resume

The applicant should submit and complete and up to date resume as part of the application packet.

Please submit the items outlined above directly to:

Graduate Director
Department of Geography
University of South Florida
4202 East Fowler Avenue, NES 107
Tampa, FL 33620-5250

Application Deadlines

The Geography and ESP Doctoral Program is a Fall Admission only program. The application deadline is:

February 15th whether applying for Graduate Assistant (GA) position or not.

Students are encouraged to apply at least one month before the application deadline to allow time for application processing. Applications will continue to be reviewed after the deadlines until early May until all GA and non-GA openings in the program have been filled. Please visit the Graduate Admissions website at **http://admissions.grad.usf.edu/** for application forms and application fee information. The application and application and fee must be submitted online as per the instructions provided at the Graduate Admissions website.

Students admitted to the Doctoral Program

Normally, students are admitted into the doctoral program conditional on the successful completion of their master's degree program or its equivalent. Documentation of this will be requested.

Students Moving into the Doctoral Program Without a Masters Degree

A student can apply directly to the doctoral program in his/her original application, or can be in either the Geography M.A. program or the Environmental Science and Policy M.S. program a minimum of one semester, and then his/her advisor/major professor can recommend that he/she apply for the doctoral program. The Geography and ESP Doctoral Program Committee reviews the student's credentials and makes a recommendation regarding whether the student should apply to the program. If the student applies to the program, the application is then reviewed via the established process of program application review and recommendations are made regarding admission to the program and funding.

ADVISING

When a student is admitted to the program, the student, with the assistance of the Graduate Director, will have a designated advisor based upon mutual interests of the student and faculty member. The role of the advisor is to guide the student in selecting appropriate coursework for his/her program of study and to work with the student in developing research ideas and an eventual dissertation topic. In consultation with his/her advisor, the student will select a committee that will serve not only as the student's dissertation committee, but as the qualifying exam committee as well (more information on these topics are found in the degree requirement section).

FINANCIAL SUPPORT

Graduate Assistants

The department awards graduate assistantships annually. Doctoral students are usually given one-year contracts that are renewable for up to three years dependent upon satisfactory work and academic progress. If an applicant wishes to be considered for a graduate assistantship position, he or she should complete the Graduate Assistantship Application (available at the USF Geography Department website) and send it, along with other application materials, to the Graduate Director. Graduate assistantships are awarded based upon grade point average, GRE scores, letters of recommendation, student area of interest, and prior experience.

Graduate assistants in the Geography and ESP Doctoral Program are under the direct supervision of the Chair of Geography and the Graduate Program Director, who assign the specific duties to

students. Typically students are required to teach one section of an introductory-level course, (or supervise/instruct laboratory, or discussion sections), that is linked to a course that is instructed by a faculty member. In addition to the general supervision provided by the department chairs and graduate program director, the student will be assigned a faculty supervisor for the assignment.

The nine-month contract runs from early August to mid-May and graduate assistants are legally and contractually required to be on campus during that period.

Applicants with a combined verbal and quantitative GRE score above 1250 and a GPA above 3.6 for graduate level work may be awarded a Dean's Scholarship in addition to the assistantship stipend. Additional funding via summer school instruction is sometimes possible depending on the teaching needs of the Geography Department and Environmental Science and Policy Program. Doctoral Graduate Assistant positions currently include tuition waivers for up to 12 credit hours per semester.

Project (Research) Assistants

Research assistants are students who are hired to assist faculty with grant-funded projects. Students hired as Project Assistants will complete, for example, literature reviews, computer analysis, cartography, fieldwork, and/or laboratory analysis related to the project. Students may be hired on salary or on an hourly basis. The rate of pay varies from project to project. Students are selected for these positions based upon the skills needed for individual projects. These positions may, or may not, provide tuition waivers.

Other Financial Support

The Center for Urban Transportation Research (CUTR), the United States Geological Survey (USGS), and the Florida Center for Community Design and Research (FCCDR) sometimes hire geography graduate students. Students may submit applications for employment at these offices. In addition, part-time and full-time jobs that become known to the department are posted on the bulletin board outside of the department office (NES 201).

Fellowships

Fellowships are funds received by the student for which no work is required. A listing of potential fellowships can be found at the Graduate Studies website at:
http://www.grad.usf.edu/fellowship.asp

Scholarships, Grants, Work Study, and Loans

The Graduate School houses a Scholarship Library that allows students to access information on private sources of funding through computerized databases as well as source books. The Office of Financial Aid administers the Federal Work Study Program as well as several loan programs. Students interested in loans or work study should apply as soon as possible, after January 1 each year, for the coming academic year, which starts in August. Application packets are available outside the Office of Financial Aid (SVC 1102) or by calling (813) 974-4700.

DEGREE INFORMATION AND REQUIREMENTS

Doctoral degree requirements established by the University of South Florida Graduate School are found in the USF Graduate Catalog that can be accessed at:
http://catalog.grad.usf.edu/

The university guidelines include information related to: (1) time limitations, (2) academic residency, (3) the major professor and the doctoral advisory committee, (4) the comprehensive qualifying exam, (5) admission to candidacy, (6) the written dissertation, and (7) the dissertation defense. Additional guidelines and policies specific to the Geography and Environmental Science and Policy Doctoral Program are included below, along with other pertinent information about the degree program.

Degrees Offered

Ph.D. in Geography and Environmental Science and Policy

Degree Requirements

Credit Hour:

The curriculum consists of 60 semester hours past the master's degree, or 90 hours past the bachelor's degree, and allows for a distinct concentration in Geography or Environmental Science and Policy.

Specifically, the Ph.D. curriculum consists of two tracks with the following requirements:

Core Requirements	9 credits
Area of Emphasis/Elective Requirements	9 Credits
Other Electives and Dissertation	42 credits

Required Core Courses (Nine Hours)

GEO/EVR 7021	Doctoral Dissertation Preparation	3 credits
GEO 7606	Seminar in Urban Environments	3 credits
EVR 6934	Seminar in Natural Environments	3 credits

Doctoral Dissertation Preparation - This course is designed to assist students in the development of their dissertations. It is focused on proposal preparation, presentation skills, and research methods.

Seminar in Urban Environments - Explores topics in the study of urban environments through readings, discussion, and research. Students will be exposed to a wide variety of perspectives and scientific methodologies.

Seminar in Natural Environments - Explores topics in the study of natural environments through readings, discussion, and research. Students will be exposed to a wide variety of perspectives and scientific methodologies.

Area of Emphasis/Elective Requirements (9 Hours)

Upon entering the program students select one area of emphasis from the list of five current areas: (1) Economic, Social, and Planning Issues in the Urban Environment, (2) Karst Science and Climate Change, (3) Natural/Technological Hazards and Health, (4) Landscape Ecology, or (5) Water Resources and Policy. New areas of emphasis can also be created that reflect student needs and desires, and additional faculty interests. Students must take 9 credit hours in their area of emphasis. Course selection is determined after consultation with the student's major professor and dissertation committee. There are a wide variety of graduate courses in the areas of emphasis available in the Geography and ESP Departments, and approved coursework can also be completed in other departments to fulfill this requirement.

Other Electives and Dissertation Credits

Students must complete a minimum of 42 other hours in the form of electives, directed reading, directed research, independent study, or dissertation hours. Students' Advisory Committees will advise students on the number of elective courses required, the selection of elective courses, and the number of dissertation hours required. A minimum of 18 dissertation hours is completed as part of the degree program, and no more than 50% of the required dissertation hours can be taken as directed reading, directed research, and/or independent study hours. Graduate hours can be completed outside of the Geography and ESP Departments to support the elective requirements for the degree.

Note: Students entering the Ph.D. program directly from the bachelor's degree must take the courses required for the Masters' degrees in either the Department of Geography or the Environmental Science and Policy Program, and/or other courses designated by the Graduate Director of the program before taking core courses toward the Ph.D.

Policy for Taking Graduate Courses at USF St. Petersburg

Graduate courses offered at the USF St. Petersburg campus can have a different focus than those offered on the USF Tampa campus. Students must get approval from their advisors and the Graduate Director of Department of Geography (Tampa) prior to taking any courses at the USF St. Petersburg campus to verify that these courses will count toward the degree. Additionally, only faculty on the USF Tampa campus can serve as the major professor/advisor for graduate students enrolled on the Tampa campus.

Policies for PhD Students Regarding Teaching

1. PhD students are not expected to teach classroom courses in their first semester.
2. They cannot teach 4000 level classes unless they have a proven teaching background.
3. If not teaching a course, GAs will be given no more than 2 assignments per semester.
4. All PhD GAs have to take one class in their first semester at the 21st Century Teaching Center.
5. If a student is having trouble teaching, they will be instructed to contact the 21st Century Teaching Center for help in addressing their area of weakness. After this, if the student's work is still deemed unsatisfactory by the department, GA support may be removed.

6. THE DISSERTATION PROPOSAL, QUALIFYING EXAM, AND THE DISSERTATION

Major Professor and Doctoral Committee

Following the guidelines established by the USF Graduate School (Section 7 - University Degree Requirements at http://catalog.grad.usf.edu/), the student designates a major professor no later than the time that the student has completed 50% of the program. As soon as the area of research is determined for the student, in consultation with the major professor, a doctoral advisory committee is appointed. This committee will consist of the major professor and at least four other members, with at least one, and no more than two members external to the Geography and Environmental Science and Policy Programs. Full time faculty members at the level of assistant, associate or full professor in the Department of Geography and the Environmental Science and Policy Program can serve as the major professor or as an in-program committee member. Faculty members with less than a 100% appointment in Geography or ESP can only serve as external committee members.

The Qualifying Examination - Written and Oral

The purpose of the Qualifying Examination is to evaluate whether or not a student is prepared to teach and conduct research at the collegiate level. In general terms, questions are asked in relationship to three fields of competence. Fields of competence may be defined by AAG specialty group categories, common upper division courses, emerging areas of study, regions, or major methodologies, including theoretical perspectives. The questions are intended to test knowledge of (a) the scope, historical development, and current debates in the student's fields of interest (including how they fit into the history of geography and environmental science and policy); (b) the main theoretical and methodological approaches to the fields of interest; and (c) as appropriate, the specific techniques (e.g. specific statistical, qualitative, GIS, cartographic, language, or other skills) necessary to undertake and evaluate research in the fields of interest.

The examination has both written and oral parts, and can only be completed in the Fall and Spring Semesters. The written exam is prepared for the student by the major professor and the advisory committee. Each examination question is given to the student by his/her major professor and must be completed and returned to the major professor within 24 hours before the next question is provided. The whole written exam must be completed within 72 hours. The oral portion of the examination will be held within two weeks after the completion of the written examination. The student's major professor serves as chair of the oral examination, and is responsible for organizing and facilitating the examination. Within two weeks, the student's major professor and the advisory committee evaluate the written exam. If the answer to any question is determined to be incorrect or incomplete, the student is informed and this information is addressed during the oral exam. If it is determined the student did not successfully complete the oral exam, the major professor and the advisory committee recommend the next course of action. This can be, but is not limited to: (1) completion of another oral exam within two weeks; (2) completion of additional written questions; (3) completion of both items #1 and #2; or (4) dismissal from the program.

Dissertation Proposal
After the successful completion of the oral qualifying examination, each student must prepare a formal written dissertation research proposal in consultation with his/her major professor and advisory committee. Upon approval of the proposal by the major professor, the document is forwarded to the student's committee for an initial review; normally a two week period is required for this. If the committee sees no major problems, the student then gives an open, formal presentation of the proposal, which is followed by an oral defense of the proposal.

Order for Completing Some of the Degree Requirements
The order in which the written examination, oral qualifying examination and dissertation proposal defense must be taken is: (1) Written comprehensive examination; (2) Oral qualifying examination; (3) Dissertation research proposal defense. The whole process must be completed over a 90-day period (Summer excluded). The 90-day period will stop on the last day of final exams in each Fall and Spring semester and will pick-up on the first day of classes in the following semester.

Admission to Candidacy
After designation of a major professor and appointment of an advisory committee, and upon successful completion of: (1) all required coursework, (2) the written and oral Qualifying Exam, and (3) the Dissertation Proposal Defense, the student becomes a Doctoral Candidate.

Preparation Guidelines for the Qualifying Examination
1. The student should meet with his/her major professor to set the date for the written and oral portions of the comprehensive qualifying exam. After consultation with the student's advisory committee, the intended dates for the exams are submitted to the Graduate Program Director for final approval to avoid time conflicts with other departmental and university activities.
2. The student's major professor and advisory committee will develop the exam.
3. Prior to the written exam, the student will be provided with preparation materials for the exam by the major professor and the advisory committee.
4. These preparation materials can consist of the following:
    a. Specific themes for the question(s) to be asked on the exam. The information provided should be specific enough to allow the student to prepare on his/her own for the question(s).
    b. A reading list that consists of materials related to the question(s) to be asked on the exam. By reviewing and understanding this literature the student should be able to successfully answer the question(s) on the exam.
5. Any questions or concerns that the student has related to the written and oral qualifying exams should be directed to his/her major professor.

The Dissertation
The dissertation is an original scholarly contribution to the field of geography and environmental science and policy. It has no prescribed length and may be highly varied in methodology, topic, and style of presentation based upon the guidance and recommendations of the major professor and the advisory committee. After approval by the major professor, the written dissertation will

be forwarded to the advisory committee. The student must allow three weeks for the advisory committee to review the dissertation. If the committee sees no major problems, the student can proceed to the oral defense.

Oral Defense of the Dissertation

A public oral defense of the dissertation is held after the approval of the written dissertation content by the major professor and the advisory committee. An external chair is required for this part of the examination as determined by the graduate school. Acceptance of the dissertation may be conditional upon the student adding to or modifying some of its parts. Upon successful defense of the dissertation, the examining committee recommends to the University that the student be awarded the Ph.D. degree.

Graduation Requirements

(1) A minimum cumulative graduate GPA at USF of 3.00.

(2) Completion of all course requirements.

(3) Successful completion of written and oral comprehensive qualifying exams.

(4) Successful presentation and defense of a Ph.D. dissertation proposal.

(5) Successful completion of a doctoral dissertation.

(6) Successful defense of the doctoral dissertation.

(7) Recommendation from the major professor and dissertation committee for awarding the Ph.D. Degree.

List of Graduate Courses Offered by the Department of Geography, and Environmental Science and Policy Program

Geography

GEA 6195 SEMINAR IN ADVANCED REGIONAL GEOGRAPHY (3) Analytic study of a selected region of the world. Repeat once for credit, but region may not be repeated. (PR: GS in Geography)

GEA 6215 SEMINAR IN NORTH AMERICAN GEOGRAPHY (3) Advanced survey of historical and contemporary issues in North American geography including: west and non-west exchange, revolutionary transformation, nation-building, regional disparities, and continental relations among states. (PR: GS in Geography or CI)

GEA 6252 SEMINAR IN THE GEOGRAPHY OF THE AMERICAN SOUTH (3)
Intensive examination of regional geographic studies and their application to the American South, integrating concepts related to the physical and cultural landscapes, economic growth and change, urbanizations, and cultural diffusion processes. (PR: GS in Geography or CI)

GEA 6406 SEMINAR IN LATIN AMERICAN AND CARIBBEAN GEOGRAPHY (3) Readings and discussions organized around an examination of regional and systematic analysis of selected topics of Latin American and Caribbean geography. Emphasis is on combining physical and cultural analysis of this region. (PR: GS in Geography or CI)

GEA 6504 SEMINAR IN EUROPEAN GEOGRAPHY (3) Readings and discussions organized around an examination of regional and systematic analysis of selected topics of European Geography. Emphasis is on combining physical and cultural analysis of this region. (PR: GS in Geography or CI)

GEA 6745 ASIAN GEOGRAPHY SEMINAR (3) Analysis of regional divisions and spatial variations within Asia. Examines the significance of Asia in the global context. Focus on political, economic, cultural, and historical geographies, including development, environment, religion and gender. (PR: GS in Geography or CI)

GEO 6058 GEOGRAPHIC LITERATURE AND HISTORY (3) The origins and development of the discipline as revealed through an examination of the principal written sources. (PR: GS in Geography, or CI)

GEO 6115 ADVANCED FIELD TECHNIQUES (3) Field examination of one region. Students will complete field work in human and physical geography in a selected area. (PR: GS in Geography or CI)

GEO 6116 PERSPECTIVES ON ENVIRONMENTAL THOUGHT (3) Analysis of the evolution of the major schools of environmental thought from antiquity to present-day green analysis, deep ecology, eco-feminism, and post-modern ecology. (PR: GEO 6058 or CI

GEO 6119 GEOGRAPHICAL TECHNIQUES AND METHODOLOGY (3) Analytic study of a technique or investigation into an aspect of methodology. Repeat. once for credit, but topic may not be repeated. (PR: GS in Geography)

GEO 6166 MULTIVARIATE STATISTICAL ANALYSIS (3) Examination of advanced statistical approaches used by geographers. Descriptive, spatial and inferential statistics and multivariate analysis are highlighted. (PR: GS in Geography or CI, GEO 3164C)

GEO 6209C PHYSICAL GEOGRAPHY SEMINAR (3) Analytic study of one or more topics from physical geography. Selected problems may include hydrology, physiography, meteorology, climatology, soils, or vegetation, etc. May be repeated once. (PR: GS in Geography or CI)

GEO 6215 GEOMORPHOLOGY SEMINAR (3) Advanced examination of geomorphic processes and landforms with an emphasis placed on the formation and evolution of landscapes on a variety of scales. (PR: GEO 4372 or CI)

GEO 6217 KARST GEOMORPHOLOGY (3) An in-depth examination of the geomorphic aspects of karst landforms. The objectives, methods and results of karst geomorphic studies in which both field and laboratory analysis have been applied to geomorphic problems are reviewed. (PR: GS in Geography or CI)

GEO 6255 WEATHER, CLIMATE AND SOCIETY (3) This course explores the societal impact of weather, as well as the human impact on weather and climate. Students lead and participate in discussions on topics such as weather hazards, extreme temperature and human physiology, historical civilization and extreme climate, economic value of forecasts, weather modification, urbanization, and other land use change, anthropogenic aerosols, past and future climates. (PR: undergraduate general meteorology or CI)

GEO 6263 SOILS SEMINAR (3) Examination of how earth systems influence soil formation and variation. Detailed analysis of soils climosequences, biosequences, toposequences, lithosequences, chronosequences, and anthrosequences. (PR: GEO 4372 or CI)

GEO 6286 ADVANCES IN WATER RESOURCES (3) Water resources policies are viewed from theoretical and practical perspectives focusing on management strategies in different physical and human environments. (PR: GS in Geography or CI)

GEO 6288 HYDROLOGICAL SYSTEMS (3) A systematic approach to hydrology using the drainage basin as the fundamental unit of analysis is used to explore form and process, while modeling streamflows. (PR: GEO 4372 or CI)

GEO 6345 TECHNOLOGICAL HAZARDS AND ENVIRONMENTAL JUSTICE (3) examination of theories, debates, methods, and models that improve our understanding of human vulnerability to technological hazards and risks, with emphasis on issues of fairness and equity in the distribution and impacts of hazards, (PR: GS in Geography or CI)

GEO 6347 NATURAL HAZARDS (3) Analysis of natural hazards integrating principles of physical, social, economic, political, and technical forces that affect extreme geophysical events. (PR: GEO 4372 or CI)

GEO 6428 SEMINAR IN ADVANCED HUMAN GEOGRAPHY (3) Analytic study of a problem selected from aspects of the human landscape (urban, political, economic, population, settlement). (PR: GS in Geography or CI)

GEO 6475 POLITICAL GEOGRAPHY SEMINAR (3) Advanced investigation of geopolitical issues including: the human construction of territoriality, ethnic relations, the making of nations and states, the geopolitics of localities, and environmental policy making. (PR: GEO 4470 or CI)

GEO 6545 ECONOMIC GEOGRAPHY SEMINAR (3) An intensive examination of selected issues in economic geography including: regional development and decline; spatial labor market trends; business locational analysis; and comparative economic policy. (PR: GEO 4502 or CI)

GEO 6605 CONTEMPORARY URBAN ISSUES (3) Advanced survey of urban issues such as: industrial restructuring and urban development, inner-city ethnic relations, the geopolitics or urban governance, and urban culture. (PR: GEO 3602; GEO 4604 or CI)

GEO 6627 SITE FEASIBILITY ANALYSIS (3) A project-oriented geographic examination of urban real estate development and site feasibility practices. Hands-on course including concepts of real estate development patterns, urban growth, and site-specific factors related to feasibility of specific developments. (PR: GS in Geography, or CI)

GEO 6704 TRANSPORTATION GEOGRAPHY (3) Review of transportation issues and analysis, focusing on modeling and planning for flows of goods and people. Provides a hands-on approach to the use of GIS for such analysis. (PR: GEO 4114C; GEO 4700 or CI)

GEO 6908 INDEPENDENT STUDY (1-19 Var.) Independent study in which students must have a contract with an instructor. S/U.

GEO 6918 DIRECTED RESEARCH (1-19 Var.) Repeat. S/U. (PR: GR. ML, CC)

GEO 6944 INTERNSHIP IN GEOGRAPHY (3) The internship in Geography is designed to provide students the opportunity to work in an appropriate governmental agency to gain practical field experience. S/U. (PR: GS in Geography, CC)

GEO 6947 DIRECTED TEACHING (1-6 Var.) (PR: GS or CI)

GEO 6970 RESEARCH METHODS IN GEOGRAPHY (3) This course stresses conducting geographic research within the scientific method. Include aspects of both quantitative and qualitative research. Specific topics include sample design, data collection, defending and discussing results and conclusions, developing oral presentations, construction of written proposals and production of a thesis. (PR: GS and CI)

GEO 6971 THESIS: MASTER'S (1-19 Var.) Repeat. S/U. (PR: CC)

GEO 7021 DOCTORAL DISSERTATION PREPARATION (3) This course is designed to assist students in discovering, framing, and developing dissertation topics; to think creatively about the theoretical issues raised by their topics; to begin research on these issues; to draft a dissertation proposal; and to draft a dissertation outline. (PR: GS and CI)

GEO 7606 SEMINAR IN URBAN ENVIRONMENTS (3) This seminar will explore topics in the study of urban environments through readings, discussion, and research. Students will be exposed to a wide variety of perspectives and scientific methodologies related to various aspects of the urban environment. (PR: GS and CI)

GEO 7980 DOCTORAL DISSERTATION RESEARCH (2-15 var.) The dissertation will be a cohesive, original, and independent contribution to scholarship. The research is to be performed under the guidance of the major professor and the supervisory committee, which determine how many total dissertation hours each student completes (maximum 42 hours). (PR: Accepted into program, GEO 7920 and permission of the student's advisor)

GIS 5049 GIS FOR NON MAJORS (3) An introduction to the concepts underlying digital information systems for non-geography majors and non-geography graduate students.

GIS 5075 GLOBAL POSITIONING SYSTEMS (3) Examination of the theory, operation and application of Global Positioning Systems (GPS).(PR: GIS for Non-Majors or permission of instructor).

GIS 6038C REMOTE SENSING (3) Study of digital image processing techniques. Topics include filtering techniques, geometric and radiometric normalization, and classification algorithms with emphasis on developing. (PR: GS in Geography or CI, GEO 4124C)

GIS 6039 REMOTE SENSING SEMINAR (3) Analytic study of selected topics in remote sensing. Discussions around topics include data acquisition, sensor systems, multispectral and radar image analysis, change detection, and integration of remote sensing with GIS. (PR: GIS 6038C)

GIS 6100 GEOGRAPHIC INFORMATION SYSTEMS (3) Spatial problem solving utilizing GIS mapping and statistical methods. The course is designed to give students hands-on experience in using computerized techniques for geographic analysis. (PR: GS in Geography or CI)

GIS 6103 PROGRAMMING FOR GIS (3) Examination of the concepts and techniques for the customization of Geographic Information Systems (GIS) using object-oriented programming. (PR: GEO 6157 OR CI)

GIS 6112 SPATIAL DATABASE DEVELOPMENT (3) Development and management of spatial data for use in a Geographic Information System (GIS), including creating, editing, modifying and validating spatial data. (PR: GIS 6100 or CI).

GIS 6146 GIS SEMINAR (3) Analytic study of selected topics in GIS. The course will familiarize students with case studies involving GIS applications in environmental studies, coastal modeling, and urban planning. (PR: GIS 6100 or CI)

GIS 6306 ENVIRONMENTAL APPLICATION OF GIS (3) Examination of GIS applications in agriculture, forestry, wildlife management, biodiversity conservation, environmental assessment, water resources, and pollution modeling. Use of advanced GIS analysis techniques relevant to the specific applications. (PR: GIS 6100)

GIS 6355 WATER RESOURCES APPLICATION OF GIS (3) Examination of GIS applications in water resources, including watershed analysis, pollution modeling, and water resources modeling. Use of advanced GIS analysis techniques relevant to the specific applications. (PR: GIS 6100 or CI)

MET 6149 – SAME AS GEO 6255.

Environmental Science and Policy

EVR 6034 **Seminar in Environmental Policy** (3)

EVR 6048 **Wildlife Ecology** (3)

EVR 6216 **Advances in Water Quality Policy and Management** (3)

EVR 6594 **Geomorphology for Environmental Scientists** (3)

EVR 6921 **Scholarly Presentation of Environmental Research** (3)
Prerequisite: Second year in the M.S. program in ESP, or permission of instructor

EVR 6922 **ESP Capstone Seminar** (3)
Prerequisite: Standing in the M.S. program or Graduate Certificate program in ESP, or permission of instructor

EVR 6930 **Research Colloquium in Environmental Science and Policy** (1)

EVR 6934 **Special topics in environmental science and policy** (3)
(An example, frequently offered, is a course in Environmental Management.)

EVR 6934 **Special topics in environmental science and policy/Seminar in Natural Environments (3)** A core course in the Geography and Environmental Science and Policy Doctoral Program that examines natural environments via sets of readings, discussion, and research. Students will be exposed to a wide variety of perspectives and scientific methodologies related to various aspects of the natural environment. (PR: GS and CI)

EVR 6936 **Seminar in Environmental Science** (3)

EVR 7021 **DOCTORAL DISSERTATION PREPARATION** (3)

EVR 7980 **DOCTORAL DISSERTATION RESEARCH** (2-15 var.)

FACULTY AND STAFF

Graduate Faculty Advisors:

Fenda Akiwumi	*Assistant Professor*, Ph.D. Texas State University (2006) Water Resources, Cultural Geography, Hydrology
Kamal Alsharif	*Assistant Professor*, Ph.D. University of Minnesota (2004) Water Resources, Conservation, Management
Kevin Archer	*Associate Professor*, Ph.D. John Hopkins University (1990) Urban Geography, Political Geography, Social Theory, Globalization
Pratyusha Basu	*Assistant Professor*, Ph.D. University of Iowa (2003) Rural Economies, Environmental Movements, Gender Issues.
Martin Bosman	*Associate Professor*, Ph.D. University of Kentucky (1999) History and Philosophy of Geographic Thought, Global City Formation, Economic Restructuring and Urban and Regional Revitalization, Globalization and Regionalization, Geographical Dimensions of the Digital Divide, Citizenship and the Production of Global Space
Robert Brinkmann	*Professor*, Ph.D. University of Wisconsin-Milwaukee (1989) Human Alteration of Soils, Sediments, and Water; Karst Geomorphology and Land Use
Jayajit Chakraborty	*Associate Professor*, Ph.D. University of Iowa (1999) Technological Hazards, Pollution, Environmental Justice, Environmental Health, Transportation Geography, Racial/Ethnic Disparities, Quantitative Methods
Jennifer Collins	*Assistant Professor*, Ph.D. University College London (England) (2001) Tropical climatology, Hurricane Activity, Environmental Factors Influencing the Inter-Annual Variation of Hurricane Numbers
Joni Downs	Assistant Professor, Ph.D. Florida State University (2008), Geographic Information Science, Landscape Ecology
Ruiliang Pu	*Assistant Professor*, Ph.D. University of California-Berkley (2000) Remote Sensing
Steven Reader	*Associate Professor*, Ph.D. University of Bristol (England) (1989) Geographical Information Systems, Computer Cartography, Spatial Analysis, Medical Geography
Philip Reeder	*Associate Professor*, Ph.D. University of Wisconsin-Milwaukee (1992)

	Environmental Science and Policy Program Director, Water Resources, Geoarchaeology, Karst Studies, Soils Geography, Geomorphology, Middle East (Israel), Latin America (Belize), Southeast Asia (Philippines)
Elizabeth Strom	*Associate Professor*, Ph.D. City University of New York (1996) Urban Development; Urban Governance; Arts and Cultural Policies
Graham Tobin	*Professor*, Ph.D. University of Strathclyde (Scotland) (1978) Natural Hazards, Water Resources, Environmental Contamination
Philip van Beynen	*Associate Professor*, Ph.D. McMaster University (1998) Paleoclimate and Paleoenvironmental Reconstruction, Human-Environment Interactions, Karst Environments, Climate Change, Environmental Indices

Additional Faculty:

Mark Hafen	*Instructor*, Ph.D. University of South Florida (2001) Water Quality & Conservation, Wetlands Hydrology & Ecology, Coastal Sedimentary Processes, Cultural Ecology, Environmental Ethics, Education
Jianguo Ma	*Instructor*, Ph.D. Cornell University (2005) Geographic Information Systems
Connie Mizak	*Instructor*, Ph.D. University of South Florida (2004) Air Quality, Environmental Health

Directors:

Robin Jones	*Director*, M.A. University of Pittsburg (1974) University of South Florida - Community Initiative
Laurie Walker	*Director*, M.S. University of South Florida (1998) USF Botanical Gardens

Department Staff:

Fredericka Williams	*Office Manager*
Shay Ferrell	*Office Assistant*
Luisa Ojeda	*Program Assistant*

Karen Schrader *Program Assistant*