

Department of Geography

Environmental Science and Policy Graduate Handbook 2009-10

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I. Environmental Science and Policy Graduate Programs

The Environmental Science and Policy (ES&P) Program at the University of South Florida (USF), is housed within the Department of geography, and it is intended to bring together faculty and students with a breadth of knowledge and curiosity about the environment. The program is broad in that it allows students to explore issues in both environmental science and policy, but it is specific in that students may specialize in an area that focuses on his/her unique interests.

Located in the Tampa Bay region, USF serves as a center of knowledge and research about our natural and built environments. With the largest economic growth in Florida, and on par with some of the faster growing regions in the United States, the Tampa Bay area is an ideal place to study issues related to environmental science and policy.

The programs of study in ES&P are: the Master of Science (M.S.) Degree program (thesis and non-thesis options); the Graduate Certificate in Environmental Policy and Management, and the doctoral program in Geography and Environmental Science and Policy. The doctoral program is discussed, in detail, in a separate handbook (Department of Geography at <http://www.cas.usf.edu/geography>). The programs are interdisciplinary in nature, intended to educate students in the cross-boundary problems facing researchers and decision-makers in today's complex environmental problems.

II. Admission to the M.S. Degree Program

Students wishing to gain admittance into the graduate program in Environmental Science and Policy must have a baccalaureate degree or its equivalent from an accredited college or university, typically in a discipline related to environmental science or environmental policy. Guidelines for admission, and items applicants must submit, are as follows:

- A completed application form. This can be found at the USF Graduate Admissions website. It is to be completed online and no paper forms are used.
- Transcripts from the undergraduate degree. Originals are submitted to USF Graduate Admissions and copies are submitted to the ES&P Graduate Program Director as part of the application process. Applicants will be considered if they have attained a grade point average of at least 3.0 (on a 4-point scale) for the last 60 credits taken as an undergraduate.
- Scores from a Graduate Record Examination (GRE) taken **within five years** of the date of application. Originals are submitted to USF Graduate Admissions and copies are submitted to the ES&P Graduate Program Director as part of the application process.
- A letter of intent and statement of interests is submitted to the ES&P Graduate Program Director by the applicant. The letter should summarize the applicant's relevant achievements and academic preparation; describe the applicant's academic and career goals, and ways in which studies toward the M.S. will further those goals; and state the applicant's intended area(s) of academic interest within the field of environmental science and policy, preferably identifying faculty members who share those areas of interest and who might serve as faculty mentors for the applicant's studies and research.

- At least two letters of recommendation from persons familiar with the applicant's achievements, abilities, and performance. It is important that at least one of these letters be from someone familiar with the applicant's academic performance, stating his/her judgment of the applicant's likelihood of success in the graduate program.
- A Graduate Assistant (GA) application if the student is applying for a GA position. This form can be downloaded from the Department's website.
- Applicants for the Graduate Certificate Program in Environmental Policy and Management should see the admission and applications guidelines available at <http://www.outreach.usf.edu/gradcerts/>

Students admitted to the M.S. Program are expected to have adequate academic preparation to complete advanced coursework and research in a range of scientific disciplines, and in the application of scientific information to public policy and decision-making in the environmental field. Suitable undergraduate degrees may include: geography, biology; geology; chemistry; civil, chemical, or environmental engineering; urban planning; environmental studies, with quantitative coursework included; and other degrees where the student has mastered some quantitative methods, some analysis of environmental systems, and some assessment of public policy and decision-making for environmental protection. As a rule, applicants should expect to have completed the following pre-requisites before acceptance to the M.S. program:

1. Math: two courses, calculus and/or statistics preferred
2. Biology: one course
3. Chemistry: one course
4. Geosciences (geology, soils, agricultural science, other): one course
5. Physics, engineering mechanics, or equivalent: one course
6. Environmental policy: Demonstrated interest in and aptitude for public policy, preferably environmental policy and/or management. This may be demonstrated through coursework, professional or volunteer activities, written projects, or other evidence.

Applicants may be accepted into the Program if they have not completed one or more of these pre-requisites, though their preparation will be considered on a competitive basis during the admission process. A student who enters the M.S. program lacking any of these pre-requisites will be expected to complete them by taking additional coursework during his/her M.S. program, or demonstrate his/her proficiency in some other fashion, to the satisfaction of the student's major professor and faculty Supervisory Committee.

Students are encouraged to apply by February 15th for fall admission and October 15th for spring admission. For fall admission the decisions for financial support (graduate assistantships - GA) for the following year will be made from among completed applications received by February 15th. Generally, all financial support is provided to Fall applicants successful in obtaining a GA, and consequently, in most cases, GAs are not available for Spring applicants. Application materials will be accepted at any time, and students may begin their studies during any semester, but students applying for a GA position should adhere to the February deadline.

III. General Information and Overview of Procedures

General guidelines and procedures for the M.S. Degree Program and Graduate Certificate in Environmental Management are as follows.

1. It is the responsibility of the student to be acquainted with all requirements and regulations of the University and the Department of Geography, and to complete all requirements of the ES&P program.
2. New Graduate Assistants attend a Department orientation session prior to the beginning of classes, as well as a two-day workshop offered by the Center for 21st Century Teaching Excellence for Teaching Assistants, which typically occurs during the week preceding the beginning of classes for the fall semester.
3. Graduate Assistants are required to take a minimum of nine hours per semester and a maximum of twelve hours.
4. Graduate students must maintain a cumulative GPA of 3.0 (“B”) averaged over all courses. Students who fail to do so are placed on Department and USF probation. A student may remain on probationary status for one semester only, after which he or she must raise his or her GPA to above 3.0. Students who remain below 3.0 for two semesters will be dismissed from the graduate program. No grade below “C” will be accepted toward a graduate degree, but all grades will be counted in computing the overall grade point average.
5. Graduate students (both thesis and non-thesis option) may include a maximum of six hours of Independent Study or Directed Research/Readings coursework in the program. Thesis option students must complete a minimum of six thesis hours (EVR 6971) and only six thesis hours will be counted toward the degree.
6. A grade of “incomplete” (an “I” grade) may be awarded at the discretion of the instructor only when the student is otherwise earning a passing grade and only if the incomplete is due to circumstances beyond the control of the student or the instructor. *Students are advised to initiate a written contract for completing work to satisfy the course requirement and remove the incomplete grade.* The contract should include a description of the work to be completed and the date by which the work is to be submitted; and must be approved and signed by the student and the course instructor. Until removed, the “I” is not computed in the grade point average. If not removed after two terms (including summer), “I” grades will be converted to “IF” or “IU” (Incomplete-Fail or Incomplete-Unsatisfactory). Students may not re-register for courses to change an “I” grade, but should complete the missing course requirements and receive a grade change from “I” to a letter grade. All grades of “I” must be removed before the student applies for graduation.
7. M.S. degree candidates must apply for graduation within 15 days after beginning of the term in which they expect to graduate, as specified in USF Office of Graduate Studies regulations. Other procedures and actions for graduation are described on the USF Graduate School website which can be found at <http://www.grad.usf.edu/newsite/main.asp>.
8. Candidates for the Graduate Certificate in Environmental Policy and Management must also apply for graduation. Students who have completed all necessary coursework are not awarded the Certificate until they complete the application listing completed courses and the application is approved by the Graduate Director.

IV. Advising

For each student accepted into the M.S. degree program, the Department Graduate Director will initially appoint a faculty member from the Department as an advisor (major professor). The advisor will guide the student in selecting appropriate courses and overall program planning. A student is encouraged to change his/her advisor if his/her academic interests become more closely aligned with the interests of another faculty member and that faculty member can accommodate another student. All changes in advisors must be approved by the Graduate Director.

For students pursuing the Graduate Certificate, the Director of Environmental Science and Policy Program remains the major advisor, and approves all coursework and completion requirements.

Guidelines for advising in the M.S. program are as follows:

1. Each student (both thesis and non-thesis options) will select, or be provided with, a major professor, who will also serve as the student's Supervisory Committee chair and academic advisor.
2. The major professor should be a faculty member with whom the student is willing to work and who is willing to give thoughtful direction with respect to the selection of courses, and for thesis option students, all aspects of the thesis. Students with particular areas of interest in mind, but are unsure of which faculty to approach, should consult the Graduate Director.
3. To qualify as a candidate for major professor:
 - a) The professor must be a tenured or tenure-track faculty member in the Department of Geography.
 - b) For thesis option students, the professor's research interest, area of expertise, and/or experience should relate to the interests of the student.
 - c) The professor must be willing and reasonably available to assist and direct the student to completion of degree (or assist in the transition to another major professor should the need arise).
4. Each student, in consultation with his or her selected major professor, selects two additional members to complete the Supervisory Committee (thesis option students), and in the case of non-thesis option students, an examination committee. At least one of the committee members must be a tenured or tenure-track faculty member in the Department of Geography. Typically, it is in the student's best interest to consider potential committee members early by seeking out faculty who work in areas relating to the student's research and/or academic interests.
5. A completed Supervisory Committee Appointment form must be signed by all members of the committee, and then submitted to the Graduate Director for approval. Non-thesis option student's forms are internal, and thesis option student's forms are submitted to the College of Arts and Sciences (CAS) Graduate Office. Students subsequently may change committee members, including the major professor, by completing a change of committee form and submitting it for approval to the Graduate Director. Upon approval this form is forwarded to the CAS Graduate Studies Office.
6. Students are expected to present a thesis research proposal to their thesis committee shortly before or after the completion of 18 credit hours (which is to include the core courses). The thesis committee will be given at least two weeks to review the written proposal, after which the committee will meet with the student to discuss the proposal and make recommendations.

This meeting will take place at least one semester before the semester in which the student plans to graduate.

7. Non-thesis option students continue to work with their advisors and committees regarding course planning, and the comprehensive written examinations.

Graduate Student Supervisory Committee Expectations of Conduct

The following expectations will be followed by all participants involved in a dissertation/thesis committee, including student, advisor (major professor) and committee members:

- 1) Regular communication of research between the student and the committee members.
- 2) If major changes occur to the proposed study, the student in consultation with their advisor, is responsible to call a committee meeting.
- 3) If concerns arise either with regards to what can be considered major changes between committee members or other matters pertaining to the pursuit of the proposed study, these should be resolved by the graduate director working in conjunction with an ad hoc committee appointed by the Chair. If the graduate director is the student's major professor, then the Chair will appoint another faculty to head that committee. If the concerns cannot be resolved at that level, then the matter will be referred to the Department Chair. If resolution cannot be reached at the departmental level, the student has the right to file a grievance with the College. If a student is considering such a step, they are encouraged to review the USF Graduate Catalog section on University Academic Grievance Procedures as time limits do apply.

V. M.S. Degree Requirements: Coursework

To earn the M.S. degree, students must complete at least 36 hours of coursework according to guidelines specified below. Thesis option students must complete a thesis and pass a comprehensive oral exam to the satisfaction of the student's Supervisory Committee. Non-thesis option students must pass a six-hour written comprehensive exam.

General guidelines for the coursework requirements are as follows:

1. The coursework is expected to be at the graduate level (courses numbered in the 5000 or 6000 levels). A total of six (6) semester hours of upper-division undergraduate coursework (courses numbered in the 4000 level) may be included among the required credit hours in the area of concentration, provided the courses are approved in advance by the student's major professor and the Graduate Director.
2. Students select coursework in consultation with their major professor and Supervisory Committee. The Committees will direct students to complete coursework necessary to the selected areas of concentration. Committees may direct students to complete additional courses beyond the minimum requirements for the Master's Degree, for example to master subjects of pre-requisite courses not completed prior to entering the Program or to master techniques needed to complete the selected thesis research for thesis option students.
3. Students may count a maximum of nine (9) credits from previously completed courses toward fulfilling the M.S. Degree requirements, provided the credit is appropriate to the program, and subject to approval by the Graduate Director and the USF Graduate School. Courses will be approved for credit toward the M.S. in ES&P only if those courses have not been applied by the student to another earned degree, at USF or elsewhere. Students completing the Environmental Policy and Management Certificate Program, and other approved (by the Graduate Director)

USF Certificate Programs, can apply 12 hours from that program toward the ES&P M.S. Program.

4. All credits used to satisfy the requirements for the M.S. degree must be earned by the student within a period of seven (7) academic years prior to the date of graduation.
5. Students are expected to remain continuously enrolled while seeking the M.S. degree. Upon successful completion of all degree requirements except for thesis, students must enroll in a minimum of 2 credit hours (except summers) and they must be enrolled in at least two semester hours in the semester they graduate (thesis option students should enroll in EVR 6971).
6. Prior to applying for graduation, the student will meet with his/her major professor to verify that all degree requirements have been met. During the student's program courses should be selected in consultation with the student's advisor to ensure that the coursework satisfies all guidelines and requirements.

Coursework for the M.S. Degree is divided into 3 or 4 categories, with students selecting the thesis option completing items A-D below; non-thesis option students complete A, B and D, and item C is replaced with 8 or 9 additional hours of elective coursework.

- A. Core courses: 15 credits
- B. Elective courses: 12 credits
- C. Supervised research (thesis preparation and research methods/design course): 8 or 9 credits
- D. Research Colloquium 1 credit

Coursework in the three categories is selected according to the following guidelines:

A. Core Requirements (15 credits)

1. **Advanced Environmental Topics (12 credit hours):** Students complete both of the following courses:

GEO 6116 Perspectives on Environmental Thought

EVR 6922 ESP Capstone Seminar (taken after a minimum of 24 program hours have been completed).

Students must take two courses from the following list. At least one class must be an EVR course.

EVR 6934 Seminar in Environmental Science (varying special topics)

EVR 6937 Seminar in Environmental Science and Policy (varying special topics)

EVR 6216 Advances in Water Quality Policy and Management

EVR 6101 Geomorphology for Environmental Scientists

EVR 6408 Wildlife Ecology

GEO 6347 Natural Hazards

GEO 6288 Hydrologic Systems

GEO 6286 Advances in Water Resources

GEO 6263 Soils Seminar

GEO 6217 Karst Geomorphology
GEO 6215 Geomorphology Seminar
GEO 6209C Physical Geography Seminar
GEO 6345 Technological Hazards and Environmental Justice
PHC 6712 Air Pollution Research

Other courses may be accepted toward this core requirement subject to prior approval by the Graduate Director.

2. Applications/Tools (3 credit hours): Quantitative methods suitable for advanced analysis of environmental problems. Students select one of the following:

GIS 5049 Geographic Information Systems for Non-Majors
GIS 6100 Advanced Geographic Information Systems
STA 5166 Computational Statistics I
PCB 6456 Biometry
GEO 6166 Multivariate Statistical Analysis

Other courses with the primary objective of quantitative methodology for environmental science or policy decision-making will be considered, subject to the approval of the Graduate Director and the student's Supervisory Committee.

B. Elective Requirements (12 credits)

Students must complete 12 credit hours of elective courses within an area of concentration selected according to their interests and career goals. Students should select appropriate advanced coursework within their chosen area of concentration, in close consultation with their major professor and Supervisory Committee, to develop programs of study that fit their scholarly and career interests, and for thesis option students, the needs of their research. Students completing an approved (by the Graduate Director) graduate certificate as part of their programs can count 12 hours from the certificate program towards the M.S. degree elective requirements. Students completing the Environmental Policy and Management Certificate can apply GEO 6116 and EVR 6922 (or approved course substitutions) toward the M.S. degree core requirements. Additional certificate courses that meet M.S. degree core requirements will be applied to the core and remaining courses will be counted as electives in the MS program. Each student's elective program of study is subject to the approval of the Graduate Director.

General guidelines for elective coursework are as follows:

- Each student's elective program of study should include at least one course in quantitative methods, guided by the description of core courses in the Applications/Tools category, in addition to the one course used to fulfill the Department's Core Requirements as described above.
- Each student's elective program of study should include at least one course designed to integrate science and policy considerations, guided by the description of core courses in the Advanced Topics in Environmental Science category, in addition to the one course used to fulfill the Department's Core Requirements as described above.

- In other respects, the coursework selected by the student within the areas of concentration may be reasonably flexible, as long as it meets the guidelines in this manual and comprises an area of concentration consistent with the ES&P Program's educational objectives.
- Areas of concentration for the M.S. degree that also lead to a Graduate Certificate from another USF Department are further constrained by the requirements of each Certificate. MS students are encouraged to complete a certificate program as part of their program. The certificate program needs to be approved by the Graduate Director. A listing of all graduate certificate programs offered at USF can be found at <http://www.outreach.usf.edu/gradcerts/>.

Areas of concentration supported by ES&P faculty research interests and Department educational objectives, where students may choose to focus their elective coursework, include the following:

1. **Ecology.** 12 credits primarily from courses offered within the ES&P Program in the Department of Geography, and courses in the Department of Biology, to be selected in consultation with the student's major professor and Supervisory Committee. This area features a particular concentration in landscape ecology, wildlife ecology and management, conservation biology, ecological modeling, and field methods, including the use of GIS, GPS, and remote sensing technologies.
2. **Environmental Policy and Management.** 15 credits (only 12 hours can be applied toward the MS program) guided by the guidelines for the Graduate Certificate in Environmental Policy and Management. Credits will be applied to the core and elective requirements for the M.S. program as described above.
3. **Geology.** 12 credits primarily from courses offered within the ES&P Program in the Department of Geography and courses in the Department of Geology, to be selected in consultation with the student's Supervisory Committee. This area features a particular concentration in karst geology and public policy planning in karstic environments; and a concentration in paleogeology.
4. **Hydrogeology.** 15 credits (only 12 hours can be applied toward the MS program) as required by the Graduate Certificate in Hydrogeology, as specified by the Department of Geology.
5. **Hazards Assessment and Mitigation.** 12 credits primarily from courses offered within the ES&P Program in the Department of Geography, and courses in the Departments of Geology, and Civil Engineering, to be selected in consultation with the student's major professor and Supervisory Committee.
6. **Urban Environment.** 12 credits primarily in the Department of Geography, to be selected in consultation with the student's major professor and Supervisory Committee.
7. **Water Quality and Policy.** 12 credits drawn from relevant courses offered within the ES&P Program in the Department of Geography, and courses in the Departments of Civil and Environmental Engineering, and Government and International Affairs, to be selected in consultation with the student's major professor and Supervisory Committee. This area features a particular concentration in urban runoff water quality, watershed-based water quality assessment, and watershed planning and management for water quality protection.
8. **Others.** 12 credits in other areas of concentration are also considered. The student may select an area of concentration that is strongly supported by graduate studies at USF and by one or more faculty members in the Department of Geography Department. The student should be able to describe how the courses form a coherent area of concentration relevant to

his or her scholarly interests, research objectives, and/or career goals, and prepare a brief statement to that effect for the approval of the Graduate Director. The student should then select courses in consultation with his/her major professor and Supervisory Committee.

3. Research (9 credits)

- a. Thesis Research:** All students selecting the thesis option will complete at least 6 credits of Thesis (EVR 6971) under the supervision of their major professors. Thesis credits should be obtained only after the student has completed an approved research proposal as described below under the section entitled M.S. Degree Requirement: Research. Normally students register for 3 or more credits of thesis over their final two semesters, but students may register for additional thesis credits, but normally only six thesis credits are counted toward the degree requirements.
- b. Research Methods/Design:** All students selecting the thesis option will complete a research methods/design course (GEO 6970 – Research Methods in Geography, Old Title Geographic Research Design). Other courses (structured courses) may be substituted for this requirement with the permission of the student's advisor and the Graduate Director.
- c. Research Colloquium:** All M.S. degree candidates (both thesis and non-thesis option students) must complete the 1-credit Research Colloquium in Environmental Science and Policy (EVR 6930) at least once during their programs.

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. Therefore, a student must get approval from his/her advisor and the Graduate Director prior to taking any courses at the USF St. Petersburg campus to verify that these courses will count toward the degree. Additionally, only graduate faculty members in the Department of Geography on the USF Tampa campus can serve as thesis advisors for graduate students enrolled on the Tampa campus.

DEPARTMENT POLICY ON ACADEMIC DISHONESTY

It is the student's responsibility to review the graduate catalog's section on academic dishonesty, which covers plagiarism. This section provides detailed examples of plagiarism, hence there should be no confusion on this matter. The university takes academic dishonesty extremely seriously and possible consequences of such actions include an F or FF grade for the class or even dismissal from the university. Please see the following website link:

http://www.grad.usf.edu/newsite/grad_council/Catalog/2008_09/Grad_School_Policy_Academic_Integrity.pdf

VI. M. S. DEGREE REQUIREMENTS: DEGREE OPTIONS

There are two options to complete the M.S. Degree:

A. Thesis Option. The thesis option is a 36-hour program designed for students who wish to complete original research as part of their graduate studies. The thesis option is a viable option for all students. Those intending to continue graduate work to the Ph.D. level are strongly encouraged to complete a thesis.

B. Non-Thesis Option students complete a minimum of 36 hours, with 24 hours of electives, keeping in mind that a minimum degree requirement is 16 hours at the 6000 level. Students must pass a comprehensive written examination that is administered during the semester they plan to graduate.

VII. M.S. DEGREE REQUIREMENTS: COMPREHENSIVE EXAMINATION

Thesis Option:

1. The student is required to present his/her thesis research at a public thesis defense.
2. As part of the thesis defense, an oral comprehensive exam is also administered. The defense and oral exam is scheduled and organized by the student's major professor, in consultation with the student's Supervisory Committee and the Graduate Director. As part of this process, a Presentations Form (available in the department office) needs to be completed one week prior to the defense date.
3. The exam can be completed only during the spring and fall Semesters.
4. A copy of the thesis must be made available in the department office one week prior to the defense for public review.

Non-Thesis Option:

1. The examining committee will be comprised of the student's Supervisory Committee.
2. Non-thesis students are required to complete a six-hour long, written, closed book, comprehensive exam, which typically consists of series of questions that are prepared by the examination committee. Students are not allowed any outside materials during the exam, which is to be hand-written on paper supplied by the examination committee.
3. The exam can be completed during the spring or fall semesters, but not during the summer.
4. Students are encouraged to complete the exam during the last semester of their coursework. The exam must be completed no later than one semester after the student completes the coursework for the degree. You must be registered for two credits in that semester in the semester that the exam is completed.
5. All non-thesis examinations will be scheduled for the same day each semester (i.e. all students will sit for the exam at the same time), the date being set by the Graduate Director. Students must coordinate with their major professors when they will take the exam.
6. Questions are solicited and organized by the student's major professor in consultation with the student's examination committee.
7. The answers to the questions are evaluated by the student's Supervisory Committee within two weeks of the exam.

8. If the answer to any question is determined to be incorrect or incomplete, the student may be required to retake that portion of the exam in the form of an oral exam that is only open to the committee. Students are encouraged to complete the oral exam in the same semester they completed the first written exam.
9. If the student fails all portions of the exam, they will have one opportunity to retake the entire exam. This second exam must be completed no later than the semester after the student receives notification that a second exam is necessary.
10. If it is determined that the student did not successfully complete his/her comprehensive exam after their second attempt, he/she will be dismissed from the program.

Preparation Guidelines for the Non-Thesis M.S. Written Comprehensive Exam:

1. The student should meet with his/her advisor at the beginning of the semester that he/she intends to sit the comprehensive exam. The Graduate Director is then notified of the intent to take the exam.
2. The date for the exam, set by the Graduate Director in conjunction with the Department of Geography Graduate Committee, is typically at least two months past the beginning of the semester, and no later than two weeks prior to the beginning of final exam week. The exam must be completed no later than one semester after the student completes the coursework for the degree. Please remember that students must be enrolled for at least two graduate hours in the semester they plan to graduate.
3. Questions are developed by the student's major professor in consultation with the student's examination committee.
4. At least six weeks prior to the exam, the student should consult with his/her advisor and the members of his/here examination committee regarding preparation materials for the exam.
5. 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.
6. Any questions or concerns that the student has related to the comprehensive exam are directed to his/her advisor.

Guidelines for Students Switching from the Thesis to Non-Thesis Option:

1. Students planning to switch from the thesis option to the non-thesis option should consult his/her major professor and the Graduate Director prior to making the switch.

2. Students switching to the non-thesis program will be required to complete all requirements for the non-thesis option as set forth in the most current Graduate Catalog.
3. As per the guidelines set forth by the USF Graduate Handbook, if a student changes from thesis to non-thesis in a semester in which they are enrolled in thesis hours, these credits can be exchanged without academic penalty if a Graduate Studies Petition is filed with Graduate Studies prior to the last day of the drop/add period.
4. If a student enrolled in the thesis option has already taken thesis credits but elects to change to the non-thesis option, the accumulated thesis credits may not be exchanged or converted to another non-structured credit. The thesis hours will remain in the transcript and will retain the “Z” grade (in progress grade).
4. Students switching from the thesis to the non-thesis option will be required to complete the comprehensive written exam as indicated in the “Guidelines for Non-Thesis Comprehensive Exams.”
5. These students can also transfer up to 9 graduate credits from other institutions for inclusion in their non-thesis program of study. Transfer courses intended to meet non-thesis Program requirements must be approved by the Graduate Director.

VIII. Financial Support

Graduate Assistants

Graduate assistantships are awarded annually. Students are usually given a two-year contract as a graduate assistant subject to satisfactory academic progress and satisfactory work performance. If a student would like to be considered for a graduate assistantship, he or she should complete the Graduate Assistantship Application form (available at the USF Department of Geography Website) and send it to the Graduate Director along with other application materials. Graduate assistantships are awarded based upon grade point average, GRE scores, and original application materials.

Graduate assistants are under the direct supervision of the Chair of the Department of Geography and the Graduate Director who assign the specific duties to the students. Typically students are required to supervise labs, grade exams, assist with audio-visual equipment, and teach specific lectures in courses. Students may be assigned to assist particular faculty. When this occurs, the faculty member is the direct supervisor of the graduate assistant.

Project Assistants

Project assistants are students who are hired to assist faculty with grant-funded projects. Students hired as Project Assistants, for example, will complete 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.

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 department 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 of Geography office (NES 201).

Fellowships

Fellowships are funds received by the student for which no work is required. USF's Graduate Fellowship is awarded annually, on a competitive basis, to full-time students of outstanding academic potential. Recipients receive \$7,000 for the academic year (fall and spring semesters) and a partial tuition waiver.

For specific information and an application, students are advised to contact the Graduate School at (813) 974-2846, or check the Graduate School web page at www.grad.usf.edu

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.

IX. Graduate Certificate in Environmental Policy and Management

The environment represents one of the most critical issues facing nearly all nations individually as well as the earth's community as a whole. Increased population, greater consumption and diminishing resources combined with technological advances and new scientific revelations all play an important role in the study of the environment. By now, we realize that the environment is a multidisciplinary field where neither problems nor solutions honor traditional disciplinary boundaries. It is a field where information is fast flowing and technologies are rapidly evolving. Scholars of environmental management and policy, and decision-makers in agencies with environmental responsibilities or impacts, need to think in ways that cross those boundaries using the best available knowledge and tools of many fields.

The Graduate Certificate in Environmental Policy and Management fills this need by providing a broad-based, multidisciplinary educational program to professionals, practitioners, citizens and students who wish to acquire or strengthen their knowledge of the environment. The Certificate program is designed to meet the needs of either the traditional or the non-traditional student. The curriculum is rigorous yet flexible to cater to individual needs; and courses taken toward the Certificate will qualify for inclusion in the ES&P M.S. Program and may qualify for graduate degree programs in other departments. An overview of the program as well as admission and application guidelines can be found at: <http://www.outreach.usf.edu/gradcerts/>

Admissions

Admission requirements also are rigorous yet flexible. Along with the completed application, the applicant submits the following:

- Transcript of courses for an earned undergraduate degree
- Letter of recommendation describing the applicant's academic and personal abilities (from a colleague, supervisor or professor)
- Statement of interest describing the applicant's achievements, abilities, interests in the environment, and ways in which career goals would benefit from the proposed studies

Who should apply

The Certificate is designed for students with any relevant undergraduate degree and a committed interest in the environment. It fits the needs of the traditional or the non-traditional student, including:

- Environmental professionals with science and engineering degrees who wish to strengthen their understanding of policy decision-making and the political, economic, and social context in which science is applied to the real world.
- Professionals and public administrators who are not trained in the environmental field but are working in that field, or would like to improve their expertise.
- Graduate students enrolled in other disciplines with interests in the environment, or who wish to make the environmental field a focus in their careers.
- Students who have completed an undergraduate degree, have an interest in environmental issues, and are not ready to pursue a graduate degree but wish to strengthen their credentials.
- Concerned citizens who wish to pursue the satisfaction of intellectual exploration in the environmental field.

Curriculum

The Environmental Policy and Management Certificate curriculum is designed to allow students to choose courses from across the spectrum of disciplines that explore the human and natural environments. All credits used to satisfy the requirements for the Certificate must be for courses completed within three (3) academic years prior to the date of graduation. The courses fall into three categories, as follows:

Required Courses

All students complete the following:

- | | |
|----------|---|
| GEO 6116 | Perspectives on Environmental Thought |
| EVR 6922 | Environmental Science and Policy Capstone Seminar
(To be taken after completion of at least 3 courses) |

Core Courses

Students select two from the following list, or another course in environmental management and policy approved in advance by the ES&P Graduate Director:

- | | |
|----------|--|
| EVR 6934 | Environmental Management |
| EVR 6937 | Graduate Seminar in Environmental Policy |
| PHI 6934 | History of Environmental Thought/Selected Topics |
| POS 6933 | Seminar in Environmental Law/Selected Topics |

EVR 6216	Advances in Water Quality Policy and Management
GEO 6605	Contemporary Urban Issues
EVR 6934	Seminar in Environmental Science

*Courses from this list not used to fulfill core requirements can be taken as electives.

Elective Courses

Students select one or more graduate-level courses appropriate to his/her interests, subject to approval of the ES&P Graduate Director. Examples of courses typically approved include:

GEO 6347	Advances in Natural Hazards
GEO 6286	Advances in Water Resources
PHC 6357	Environmental and Occupational Health
PHI 6405	Seminar in Philosophy of Natural Science
GEO 6345	Technological Hazards and Environmental Justice

*see <http://www.cas.usf.edu/esp/gradcert.htm> for a more complete list of possible electives.

X. List of Graduate Courses Offered by the ES&P Program and Geography Department

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 6937 Seminar in Environmental Policy (3)

EVR 7021 DOCTORAL DISSERTATION PREPARATION (3)

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

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. Special attention paid to leading personalities and modern periodicals. (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 OF ENVIRONMENTAL THOUGHT (3) Analysis of the evolution of the major schools of environmental thought from antiquity to present-day green analysis, deep ecology, ecofeminism, 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 multi-variate 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. Includes 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.

XI. Department of Geography - Graduate Faculty

Fenda Akiwumi	Assistant Professor, Ph.D. Texas State University (2006), Water Resources, Cultural Geography, Hydrology.
Kamal Alsharif	Assistant Professor, Ph.D. University of Minnesota (2002), Environmental and water policy, water quality and 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, and 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, The Geographical Dimensions of the Digital Divide, Citizenship and the Production of Global Space.
Robert Brinkmann	Professor, Department Chair, 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), Interactions between technology, society, and the environment, with an emphasis on racial/ethnic and economic inequalities.
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
Mark Hafen	Instructor, Ph.D. University of South Florida (2001) Water Quality & Conservation, Wetlands Hydrology & Ecology, Coastal Sedimentary Processes, Cultural Ecology, Environmental Ethics/Education.
Connie Mizak	Instructor, Ph.D. University of South Florida (2004), Air Quality, Environmental Health.
Ruilian Pu	Assistant Professor, Ph.D. University of California-Berkeley, Remote Sensing.
Philip Reeder	Environmental Science and Policy Program Director, Environmental Policy and Management Graduate Certificate Program Director, Associate Professor, Ph.D. University of Wisconsin-Milwaukee (1992), Water Resources, Geoarchaeology, Karst Studies, Soils Geography, Geomorphology, Middle East (Israel), Latin America (Belize), Southeast Asia (Philippines).

Steven Reader	Associate Professor, Ph.D. University of Bristol (England), Geographical Information Systems, computer cartography, spatial analysis, medical Geography.
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 management and policy, Environmental contamination.
Philip van Beynen	Associate Professor, Ph.D. McMaster University (1998), climate change, paleoenvironmental reconstruction, karst environments, human-environment interactions.

Department Staff:

Shay Ferrell	Office Assistant
Luisa Ojeda	Program Assistant
Karen Schrader	Program Assistant
Fredericka Williams	Office Manager

Community Initiative and Botanical Gardens

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