University of South Florida St. Petersburg

Environmental Science and Policy Graduate Program

GUIDELINES and MANDATES

(Revised 22 August 2008)

Welcome to the most unique graduate program in the sciences. **The Environmental Science and Policy Graduate Program Committee uses a guideline of an undergraduate GPA of 3.0 and GRE scores (verbal and quantitative sections) of 1000 to determine admission status.** This is a program which requires you to undertake advanced education in many disciplines, including biology, chemistry, geology, and environmental policy. **You are expected to have already demonstrated your background in physical geology, introductory biology, introductory chemistry, organic chemistry, statistics as well as environmental policy.** If you are weak in one of these areas, you have already been advised by the Environmental Science and Policy Graduate Committee that there will be extra courses or activities that you must complete in order to be granted full admission to the program. Regardless, you are about to embark on a course of study **very** unlike your undergraduate career. The purpose of these guidelines is to give you an idea of what you will be expected to do, as a graduate student, at the University of South Florida St. Petersburg.

First, you must understand that being in a **science and policy** graduate program is not like other graduate programs that you may have heard about. Most often, potential graduate students think that a graduate program in environmental science and policy is just another year of classes. This may be true in some other disciplines, but in our program, which is research based, the requirements are different. If your career goals are to become a professional in environmental sciences and policy, the most important skill you can develop (and sell to a potential employer) is the ability to organize and conduct a research project or some sort of applied investigation. This includes the formulation of a hypothesis, collection of essential data, and the critical analysis of those data. More importantly, you must be able to communicate the results of your research to other scientists and policy makers in both written and oral forms. Employers in the "environmental arena" consider these to be the **essential** skills demonstrated by your graduate degree. Thus, the focus in USFSP's environmental science and policy graduate program is upon **research**. Yes, you will take additional specialized classes, but until you complete your research, present it in the form of a thesis and successfully defend that work,

your graduate career will be incomplete. It is important to remember that the Masters' thesis is **not** an extended term paper, nor is it a minor requirement in the program. If at this point, you have gone through your academic career by doing everything at the last minute, you will be surprised by the work that must be put into thesis research. As a grad student in the Environmental Science and Policy program, you should expect to spend the majority of your time on your research. This will include time in the field or lab collecting and analyzing data, conducting the literature research necessary to prepare your research program, and comparing the results of your data with those of other scientists who have conducted similar types of work. On average, a good Masters' thesis will take between 1000 and 1500 hours to complete. Of course, during all of this, you will be taking courses to assure the faculty and your future employers that you have developed some basic skills in the various disciplines within environmental science and policy.

Finally, you must remember that this is a program in **Environmental Science AND Policy.** So, even if you have undergraduate expertise in biology, you may be conducting your thesis research in some other area, like environmental geology or chemistry. At the very least, you should expect that the focus of your research will involve several of the disciplines within the environmental arena, not just the one you had as your major, as an undergraduate.

So... Now that I'm at USFSP, what do I do next?

Below is a checklist of all of the things you must complete in order to obtain the Master of Science Degree in Environmental Science and Policy.

□ **Having** been admitted to the graduate program, your first task should be to discuss your program plans with your advisor. In all probability, you will not have formed your thesis/advisory committee, so you should contact the Graduate Coordinator. Until you have decided upon your research program and selected a thesis/advisory committee, the Graduate Coordinator will advise you on your plan for completing the **Core Courses** and in choosing an appropriate research direction. Furthermore, you should make arrangements to meet with the Graduate Coordinator once each term to make sure you are making adequate progress toward your degree. Indeed, the Graduate Coordinator is the person to whom all questions regarding the academic requirements of the ESP graduate program requirements should be directed.

☐ **At** the next available time, make sure to enroll in EVR 6936, **Seminar in Environmental Science**, which is your introduction to graduate level science and our program. This course is more than just a seminar course. You will get your first opportunity to do some literature research and make a class presentation. This course will address the basics of literature research, scientific citation formats, thesis preparation, and thesis/advisory committees. In addition, primary faculty in the Environmental Science and Policy Graduate Program will present seminars where they will lecture on their current research and present personal views on research and employment opportunities in their sub-disciplines of environmental science and policy.

Program Requirements include completion of 30 credit hours of formal didactic classes, 6 hours of thesis research (EVR 6971), completion of the comprehensive examination, and your thesis defense. The **CORE** courses, elective courses, and basic requirements for graduation are all contained within the description of the graduate program in the university catalog.

However, to reiterate, the **15 credit hours** of core courses that you must complete are:

CORE COURSEWORK

EVR 6936 Seminar in Environmental Science

EVR 6937 Seminar in Environmental Policy

STA 5166 Computational Statistics 1

GEO 6116 Perspectives on Environmental Thought

AND

<u>One</u> from the following* (upon recommendation and approval of the Graduate Committee or thesis committee)**:**

GLY 5932 Environmental Geology

PCB 6933 Seminar in Ecology (Ecological Methods)

CHM 6938 Environmental Chemistry

***Note: These courses can <u>also</u> be taken as electives.**

□ **Soon** after completion of Seminar in Environmental Science, if you have not already done so, you should be in the position to choose your thesis/advisory **committee**. This includes your thesis advisor ("major professor" or just "advisor") and at least two other members, at least one of whom must be on the Graduate Faculty at USFSP. Your first step will be to contact a professor with whom you would like to work and discuss the formation of the remainder of your committee. Indeed, during your first semester here (or even earlier) you should be contemplating your research career and discussing your alternatives with the Graduate Coordinator. At least one of your thesis committee members should be from a different discipline than your major professor/thesis advisor. From that point on, your advisor and your committee will oversee the rest of your graduate career. They will approve your thesis proposal, read and review your thesis and conduct your defense. In addition, your advisor and committee will provide advice on future coursework. Indeed, you should plan to meet with your committee soon after it is formulated so that you and your committee can "map out" your remaining graduate career and preliminarily approve your research topic and potential elective specialty courses you will take outside of the Core requirements. **You are required to form your Thesis Committee no later than the second week of the semester following your completion of 9 (nine) credit hours.** You MAY NOT be able to register for further coursework without approval of your thesis advisor and/or committee.

The thesis advisor (major professor) chosen by the student must be a member of the graduate faculty of USFSP at the time of the thesis defense. External members of the thesis committee can be qualified professionals in the discipline and may be affiliated with other universities or professional organizations or government agencies. However, at least two of your three committee members (or a majority if

there are more than three committee members, including the thesis advisor) must be members of the graduate faculty at USFSP. A non-tenure-earning faculty member (Visiting Assistant Professor, for example) can act as your research supervisor. However, a tenure-earning professor must chair your Thesis Committee. You will be made aware of the potential risks associated with that decision and will be asked to sign a document acknowledging that you understand those risks should you still wish to have a non-tenure earning faculty member act as your research supervisor.

In the event that the thesis advisor leaves the faculty at USFSP, within one semester of that faculty member's departure, you must choose a new thesis advisor from among the graduate faculty in the program. The former thesis advisor may continue to supervise your research and will, then, continue to remain as an external member of the student's thesis committee.

All graduate students will enroll in a minimum of 6-credit hours of **thesis research**. Although you may register for more than 6 credit hours of thesis research, no more than 6-credit hours of thesis (EVR 6971) will count towards the required 36 hours for the Master's degree.

EVR 6971 Masters' Thesis Research

□ Thesis Proposal Format

[**Note:** A copy of your committee-approved thesis proposal must be on record with the Graduate Coordinator. The proposal and Thesis Proposal Form are due in the Graduate Coordinator's office no later than the end of the semester following completion of your 9th credit hour of course work.]

Your thesis proposal should follow this format:

Introduction

In this section you identify the problem you will be examining. This will include a preliminary review of the pertinent literature so that you have demonstrated knowledge of the state-of-the-art, what conclusions have been made, what questions have yet to be asked, and how your research might fit into this body of literature.

Objective

In this section, you create your working hypothesis and state what your goals will be in order to reach a successful conclusion. It is here that you indicate specifically, how your research will fit into the body of existing knowledge.

Methods

This is a detailed description of potential sample sites and locations, as well as a description of the protocol you have designed to conduct your data collection, experiments, laboratory analysis, and data analysis. If necessary you should reference specific literature in research methods and indicate which statistical tests or other analytical methods will be used to test your results for significance. If you plan to engage in research involving human subjects, you may have to earn the approval of the University's Institution Review Board (IRB). See you advisor if you think your work might require IRB approval.

Expected/Anticipated Results

In this section, you will tell your committee (and anyone else who reads your proposal) what results (or suite of results) are most likely to be obtained and reiterate, again, how these results will answer (or not answer) the question you posed in the introduction and objective sections.

Project Funding

Indicate what funding might be required for this research in the form of a short budget and what the source(s) of this funding might be. That is, if you are supported on a specific research grant or contract to your major professor/thesis advisor, a teaching or research assistantship, or out-of-pocket, report that information in this section.

Information Transfer

Other than your thesis, indicate how you plan to disseminate the results of your research to the rest of the environmental community. That is, tell us of your plans to present your results at a regional or national scientific meeting/conference (a specific meeting or society would be nice) or a journal (or potential journals), which might publish your work. [You may need to consult your thesis advisor or other members of your committee for advice in this area. Do not hesitate to contact them!]

References

This section is derived, mostly, from your Introduction and Methods sections. These are the citations to other scholarly works that support the proposal. List only those works cited in your text.

Graduate Faculty Members

The current graduate faculty members able to serve as your advisor/major professor are:

Dr. Henry Alegria
Assistant Professor of Chemistry

The fate and transport of pollutants, including organic pollutants (e.g. pesticides, PCBs and PAHs) and others (e.g. nutrients, metals) in air, soil and water.

(727) 873-4777
halegria@stpt.usf.edu
Office DAV 212

Dr. Erika Asano
Assistant Professor of Mathematics

(727) 873-4066
easano@stpt.usf.edu
Office DAV 210

Dr. Armando Hoare
Assistant Professor of Mathematics

(727) 873-4157
ahoare2@stpt.usf.edu
Davis Hall

Dr. Kathy Carvalho-Knighton
Assistant Professor of Chemistry

Water quality, phytoremediation of heavy metals by aquatic species, remediation of organic and chlorinated compounds, and chemical education.

(727) 873-4063
carvalho@stpt.usf.edu
Office DAV 213

Dr. Deby Cassill
Associate Professor of Biology

The biology and ecology of the imported fire ant, *Solenopsis invicta* , is a serious, invasive pest in Florida.

(727) 873-4064
cassill@stpt.usf.edu
Office DAV 221

Dr. Barnali Dixon
Assistant Professor of Geography

Advancement of environmental modeling through enhancement of remotely sensed data (image processing) and GIS using fuzzy logic, neural networks and neuro-fuzzy techniques; including soil erosion, surface and ground water quality, ground-water vulnerability, watershed risk assessment and management (soils, land-use and water quality relationship), contaminant transport processes, land-use and ground-water recharge, rainfall- runoff simulation, and land use planning (urbanization, soils and water quality relationship).

(727) 873-4066
bdixon@stpt.usf.edu
Office Piano Man

Dr. Joseph Dorsey
Assistant Professor of Environmental Policy

Brownfield redevelopment and greenfield protection, resource use and environmental degradation in developed and developing nations; corporate environmental decision making for pollution management effectiveness and eco-efficiency; and empowering communities to participate more effectively in sustainable development initiatives.

(727) 873-4967
dorseyj@stpt.usf.edu
Office DAV 226

Dr. James Gore, Professor of Environmental Science

Aquatic ecology/Hydrology/Conservation. Hydrodynamic and hydraulic change as an influence on the distribution of aquatic biota. Habitat modeling and instream flow requirements of aquatic biota as a means of regulated river management. Human impacts upon running water ecosystems, with emphasis on benthic macroinvertebrates. Habitat restoration for lotic ecosystems. Impacts and flow management of hydroelectric facilities, particularly peaking hydropower. Ecology of arid and semi-arid rivers of southern Africa. Bioassessment of lotic ecosystems using GIS filters to pick reference sites and conditions combined with physical and biological metrics to create a numerical stream classification system. Water quality and biotic distributions related to coal mine and other petroleum development

technologies (especially coal bed methane generation).

(727) 873-4825
jagore@stpt.usf.edu
Office DAV 117

Dr. Rebecca Johns
Associate Professor of Geography

Community organization around economic or environmental issues, problems of cross-border labor organizing, globalization and the labor movement, gender and globalization, Native American cultural conflict, Gender and outsourcing in India, intentional communities as resistance, and globalization and the built environment.

(727) 873-4556
rjohns@stpt.usf.edu
Office DAV 269

Dr. James Krest
Assistant Professor of Geology

The use of natural and injected tracers to track the movement and mixing of water; currently using short-lived radioactive tracers to study the cycling of phosphorus in the Everglades and marine groundwater discharge in the coastal ocean.

(727) 873-4970
krest@stpt.usf.edu
Office DAV 220

Dr. Chris Meindl, *Graduate Coordinator*
Associate Professor of Geography

Human-environment interaction, particularly in people's perceptions of environmental issues, especially wetlands, natural hazards, and sustainability. Regional focus is on Florida, methods being qualitative and archival; recently, in defining the relations between political/economic power and environmental problems.

(727) 873-4961
cmeindl@stpt.usf.edu
Office DAV 262

Dr. Melanie Riedinger-Whitmore
Associate Professor of Biology

Aquatic ecology, wetland ecology, and paleolimnology of lakes in Florida, The Galapagos Islands, and mainland Ecuador. The use of fossil algal pigments and diatoms recovered from lake sediments to examine historical changes in algal communities that result from environmental or climatic events, or anthropogenic activities.

(727) 873-4971
mariedin@stpt.usf.edu
Office DAV 222

Dr. Donny Smoak, *Chair ESP&G Department,* Associate Professor of Geology

The use of naturally occurring radionuclides as tracers of water and sediments; especially in the Everglades, as well as Antarctica, Brazil, Mexico, Puerto Rico, and Venezuela.

(727) 873-4078
smoak@stpt.usf.edu
Office USGS Center for Coastal and Regional Marine Studies

Comprehensive Examination

□ A **Comprehensive Examination** must be satisfactorily completed before graduation. The comprehensive exam may be in written or oral format, at the discretion of the student's thesis committee. In general, the format will be a series of discussions (written or oral) of fundamental concepts in Environmental Science and Policy.

You must take the comprehensive exam within two semesters of completion of your final core course.

- You must be enrolled for at least 2-semester hours of credit during the semester that the comprehensive examination is administered or,
- If the exam is taken between semesters, you must enroll for a minimum of two (2) hours of graduate credit in the semester before or following the exam.
- The exam may contain material covered in the program courses as well as a selection of topics that you should have studied in your undergraduate career. Your thesis committee will provide a reading list or study guidance upon request, for they are responsible for administering the comprehensive exam.
- At a minimum, the Comprehensive Examination will contain at least three sections, including questions from Research Methods/Statistical Analysis plus at least two of the following topic areas:
    1. Environmental Chemistry
    2. Environmental Geology
    3. Ecological Methods
    4. Environmental Policy
    5. Human Ecology
    6. Global Conservation

Each section of the Comprehensive Exam will be evaluated and graded as "pass," "conditional pass" or "fail." A "pass" grade must be obtained for each section of the Comprehensive Exam. If you receive a "conditional pass" or "fail" on any portion of the exam, you will be required re-take that portion of the exam after engaging in additional preparation to be determined by your committee. If you receive a "fail" on more than one portion of the exam, you will be dismissed from the program. The results of all Comprehensive Exams will be reported annually to the Graduate Coordinator and will be used as a graduate program assessment measure.

Thesis Matters

□ **At** some point, you will begin to write your thesis. Your thesis advisor will be able to provide you with the details of the thesis format and contents, but, in general,

the environmental science/policy thesis will contain:

- an **abstract**, which is a summary of the major details, from beginning to end, of your thesis;

- an **introduction**, which is a survey of the literature pertaining to your research topic, a discussion of major conclusions or theories, a statement of your research question(s) and your hypothesis; and a justification of your own research;

- a **"materials and methods"** section which contains such things as a description of sample sites, a detailed description of specific protocols (field and laboratory) that you used, and any descriptions (or discussions of appropriateness) of any analytical methods/tests you used;

- a **results** section which reports the results of your experiments or data collection trips or analyses. This is probably the most difficult section to write since so many people confuse "results" with "discussion;

- a **discussion** or **conclusion** section which is a comparison of your results with those of other scientists (usually presented in the introduction), a discussion of the contribution of your results to answering the questions you posed in the introduction, and recommendations for future research in the same areas;

- a **references cited** section, indicating the materials you referenced throughout your thesis;

- **appendices**, which may include extensive tables of data or listings of specific taxonomic or analytical texts used in your study;

These are only general details of the content of the thesis. Again, the thesis is the major focus of your graduate work in environmental science and policy. The best way that you can prepare yourself to begin writing your thesis is to read completed theses of other graduate students in environmental science at USFSP and other universities, research papers by noted scientists in your particular area of research, and one or two brief books on how to write scientific papers. In biology and ecology, for example, one of the most commonly consulted books is ***Writing Papers in the Biological Sciences*** by Victoria E. McMillan and the *CBE Style Manual* by the Council of Biological Editors. Your thesis advisor can recommend other similar books.

□ **Final** preparation of the thesis must follow a specific format that is described in a thesis guide provided by the Office of Graduate Studies in Bayboro Hall. This information will provide material on margins, type styles, etc., and other requirements of USFSP.

Thesis Defense

□ **Thesis Defense** will be conducted at some point after your committee approves a "near-final" version of your thesis. You will make an oral presentation of your research work and answer questions from a general audience consisting of your committee, other faculty, and fellow students. After that presentation, there will be a private

examination administered by your committee and you alone. **It is your obligation** to arrange for the time and meeting place of your thesis defense. Your Major Professor should announce your defense at least ten (10) days prior to the examination date, in order to provide faculty and students with sufficient time to plan to attend.

Some Extra Reminders!

You will be given an email account from the University computer center. Be sure to activate it with your password. Most notices to faculty, staff, and graduate students are posted on email. If you insist upon using your non-usf e-mail address, please have your usf mail forwarded to your non-usf e-mail account. Please inform the Graduate Coordinator of any changes in your contact information!

If you are given an electronic key-card for entry into the URL or various teaching labs, you must pay a $10 deposit. You must KEEP the receipt in order to have the $10 refunded to you when you leave the university.

Unfortunately, there is little room to provide you with your own office. However, once you have chosen a research project and thesis committee, your major professor may provide you with a work area and study space in his/her laboratory.

You must earn a 3.0 GPA calculated on all graduate work attempted for which letter grades are awarded and cannot include grades of C or below. At least 36 hours are required for the degree, including the program core—which must be earned in residence. A maximum of eight (8) semester hours of relevant coursework with no grade lower than B may be transferred from another university. Students should not assume that coursework taken elsewhere will automatically be counted toward their graduate program at USFSP. Transfer credit will not be used in computing your GPA at USFSP.

A limited number of graduate teaching assistantships are available through the ESP Graduate Program. If you are interested in obtaining one of these assistantships, you should contact the Graduate Coordinator. Teaching assistantships pay a stipend, and may include a tuition waiver if program funds permit. You will be obligated to work up to 20 hours per week preparing for and teaching lab classes—and holding office hours for students in your labs.

Research assistantships are available, from time to time, through grants and contracts awarded to individual faculty. Your thesis advisor can tell you about any opportunities in your field of study. The amount of support is variable, depending upon the research grant, but generally range from $600 to $1000 per month.

You must complete your Comprehensive Evaluation Examination at least one term prior to your thesis defense.

You must be enrolled for at least 2-semester hours of credit during the semester that the thesis defense is completed.

You must be enrolled for a minimum of two (2) graduate hours during the semester of graduation.

All degree requirements must be completed within **five (5)** years of first enrollment.

The maximum recommended course-load for a graduate student at USFSP is **13** semester hours, except that the

recommended maximum course-load for a student holding a graduate assistantship is **9** semester hours.

For more information (and for program updates), contact the website at: http://www.stpt.usf.edu/coas/espg/USFSP_ESPG_Home.asp; and go to http://www.stpt.usf.edu/coas/espg/gradprogram/forms.asp to find the appropriate forms.

Please keep in mind that this Handbook is intended to serve only as a guide regarding the ESP Graduate Program. The USF St. Petersburg Graduate Catalog is the ultimate authority regarding all academic matters at USF St. Petersburg.