Introduction

Welcome to the graduate program in Environmental Science and Policy. This is a program which requires you to undertake advanced education in many disciplines including biology, chemistry, geology, geography and environmental policy. You are expected to have already demonstrated your background in physical geology, introductory biology, introductory 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 detail what you will be expected to do as a graduate student, at the University of South Florida St. Petersburg (USFSP).

It is important that you 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 or two of classes. This may be true in some other disciplines, but not in this program.

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 an applied investigation. This includes the formulation of a hypothesis, collection of essential data, critical analysis of those data, and demonstration of knowledge of pertinent literature. 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 and other stakeholders in the “environmental arena” consider these to be the essential skills demonstrated by your graduate degree.
The Environmental Science and Policy (ESP) Graduate Program at USFSP offers two options, a thesis-based M.S. in Environmental Science and Policy and a non-thesis M.A. in Environmental Science and Policy. These two options have different requirements, which are detailed below.

**The M.S. is a research-based program.** This means you are required to complete a thesis. It is important to remember that the Masters thesis is **not** an extended term paper, nor is it a minor requirement in the program. Your thesis will constitute the most significant evidence of your academic learning outcomes. It represents tangible evidence of your intellectual achievement at the master’s level. The thesis represents your intellectual contribution to the scientific community. You will be required to substantiate, communicate and defend your thesis. Your thesis should demonstrate your mastery of the current state of knowledge in your topic area; your ability to use approved scientific methods of research, analyze data, and demonstrate original thinking.

As a graduate 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 review 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. Beyond the required core courses, your elective courses should be carefully chosen with input from your thesis advisor and thesis committee to help you in your research project.

The M.S. option is designed for students who wish to pursue research-focused positions in government, private, and non-profit organizations. It is also designed for those who wish to pursue doctoral studies in environmental science or related fields.

**The M.A. option does not require a thesis.** The M.A. in ESP aims to prepare graduate students with the necessary skills and knowledge to assume non-research based professional positions in government, private, and non-profit organizations. Graduates of this program will be prepared to face increasingly complex environmental challenges with a solid understanding of scientific principles, methodologies and the socio-economic and political context in which environmental policies are formulated and debated. The program is designed to emphasize interdisciplinary training to master skills in data analysis and interpretation, policy analysis, as well as oral and written communication.

Instead of a thesis, students in the MA Program will complete a final project. Each student will work with the instructor of the final project course to identify a relevant final project of interest to the student which should result in professional growth. The final project requires students to integrate and apply the knowledge and skills acquired in their course work via completion of a project. The final project results will be written up and presented to the department.

**Significant Milestones**

Below are listed the major steps that you must take upon your arrival at USFSP. They are detailed to help you remain focused on progressing towards graduation in a timely manner.
**M.S. Option**

When you applied to the M.S. in ESP you were required to identify potential thesis advisors. Your first major step, as soon as you start your graduate studies, is to finalize your choice of thesis advisor. If you are pursuing full-time studies it is expected that you will choose a thesis advisor during your first semester. If you are a part-time student, you must choose a thesis advisor by the time you complete your first 9 credit hours. This is important since your next step is to work with your thesis advisor in selecting the other members of your thesis committee.

Your second major step, therefore, is the selection of a thesis committee. This is not a task to be taken lightly. Your thesis committee should play an integral role in your graduate studies. Committee members should help in the selection of elective courses to provide necessary background, training and a course of study that will culminate in the successful completion of the thesis. The Committee should meet regularly to ensure you are maintaining appropriate progress towards your degree; it should provide guidance in your research work. Therefore, your thesis committee members should be selected based on their expertise and the relevance of their expertise to your thesis topic. This is to ensure that your thesis committee members are qualified and experienced to provide you necessary guidance. They should be members with the expertise necessary to help you produce a quality thesis. Once you have selected your thesis committee (in consultation with your advisor and based on the expertise your thesis requires), you must ensure that you submit to the Graduate Coordinator a Thesis Committee Approval Form containing the signature of every committee member. Along with this form you should submit a Thesis Committee Justification Form (Form 1a), providing a brief justification for including each committee member if that person is a regular or affiliated ESPG faculty member. If you have an external member (defined as a member not a regular graduate faculty in ESPG), you need to complete a Credentialing Form (1b) to accompany the Thesis Committee Approval Form. You need to obtain all the signatures in the appropriate forms (see under credentialing for details).

The third step is for you to develop and defend a thesis proposal – note that the thesis proposal defense constitutes your Comprehensive Examination. Since the major focus in the M.S. degree is in producing a thesis, you should start working on developing a thesis proposal with your thesis advisor as soon as you select him/her. In fact, you should have a well-defined concept for your thesis as you go about selecting your other thesis committee members (in consultation with your thesis advisor) since these should have some level of expertise in your research area to determine if they are comfortable serving in your thesis committee. Therefore, in practical terms this means that this third major step is intertwined with your second major step. In other words, you and your thesis advisor should have an initial version of your research project that is complete enough to allow potential thesis committee members to determine if they have enough expertise to serve on your thesis committee. As you develop a thesis proposal, some pertinent questions to keep in mind are the following:

1. What is your specific research question?
2. Do you have a hypothesis or hypotheses?
3. Why bother? What is the significance of this research? Why do you care about this research question?

4. Why would someone else care about this research question?

5. What is the current state of knowledge about the question? Where would you go to find it?

6. What methods will you be using to answer your research question or investigate your hypotheses (be specific)?

7. Describe the kind of data you will be gathering.

8. What method of analysis will you be using to understand these data?

9. How do you anticipate that your conclusions will feed back and make a contribution to, the broader literature in your field?

Once you have developed a complete thesis proposal detailing your research project (which will become your thesis) you will be required to defend this thesis proposal publicly. **Please note that this step constitutes your Comprehensive Examination.** Should you be successful in this defense, you will file a **Thesis Proposal Approval Form** along with the approved thesis proposal with the Graduate Coordinator. This form must be signed and dated by all thesis committee members. You must file this form with the Graduate Coordinator before you start your research full-fledged. Note that this is to protect you so that you are not held to anything other than the research proposal approved by your thesis committee. Each thesis committee member will be required to complete a rubric with grades in different areas to provide evidence of how he/she graded your defense. **This rubric will be filed along with the Thesis Proposal Approval Form.**

If you fail on your first thesis proposal defense you will be given a second opportunity to defend your thesis proposal. Your thesis committee will determine the timeframe for this second attempt – that is, whether you will wait until weeks 12 or 13 of the following semester or whether they want you to defend sooner. In the latter case, your thesis advisor must consult with the Graduate Committee to determine if this will be allowed. If you fail the thesis defense on the second attempt you will be **dismissed from the program.** At this point you may discuss the possibility of being moved to the non-thesis M.A. option, understanding that of the courses you have taken to that point, only those that conform to the program requirements of the M.A. degree will be transferred (assuming you have passed the course with a B). You will be required to take all courses to complete the MA degree requirements.

The **fourth and final major** step is for you to defend your thesis. As soon as you successfully defend your thesis proposal you should start doing the research in order to complete your project in a timely manner. Your thesis advisor should work with you closely to guide your work and your thesis committee should be kept abreast and should meet periodically to ensure you are making timely progress.

To help you make timely progress in your graduate studies, the following deadlines are in effect.

1. **Thesis Committee Approval Form** must be filed with the Graduate Coordinator by the **third week of the semester following the completion of the first 9 credit**
**hours of coursework.** If you are a full-time student this means the third week of your second semester.

2. Thesis Proposal Defense
   (Comprehensive Examinations Defense): You must defend your thesis proposal **during week 12 or 13 of the second semester following your completion of 9 credits of coursework.** For full-time students this means that you will defend your thesis proposal during either week 12 or week 13 of your second semester.

Note that it is your responsibility to have all forms filed and processed in a timely manner, but **no later than the semester prior to the semester of your thesis defense.**

**M.A. Option**

You must complete a Final Project instead of a thesis. It is your responsibility to consult the Graduate Coordinator to plan your coursework to ensure you are making timely progress towards your degree.

Upon completion of 27 credit hours of coursework you will have to successfully pass a Comprehensive Examination. This examination will consist of questions from the courses in Themes I and II (see section below on Program Requirements).

Comprehensive Examination will be given on the Friday of the third week in Spring and Fall only. No summer comprehensive exam will be given for the MA students. Students will have from 9:00am – 5:00pm on the Friday (with an hour of lunch) to complete individual section of the exam. If you fail your comprehensive examination on your first attempt, you will be given a second chance. If you fail a second time, you will be **dismissed from the program.**

During your second year, you must complete a significant project focusing on an approved topic. You will register for 6 credit hours of EVR 6908 or EVR 6934. You will work closely with the course instructor to choose a project that is of interest to you and will result in professional growth. This final project will require that you integrate and apply the knowledge and skills acquired in your coursework.

**Program Requirements**

**M.S. Option**

You must complete 30 credit hours of formal didactic classes (which may include a maximum of 6 credit hours of Independent Study/Directed Reading), 6 hours of thesis research (EVR 6971), and successfully defend your thesis research proposal and your final thesis.

The requirements for successfully earning the M.S. in Environmental Science and Policy are all contained within the description of the graduate program in the university catalog. They are repeated here for your convenience. As noted previously, your coursework should be planned in consultation with your thesis advisor and thesis committee. Therefore, **it is extremely important that you do not engage in self-advising.** If you self-advise and take the wrong courses – in the view of your thesis advisor and/or committee – you may be required to take additional courses that are deemed critical to your thesis development and defense.
You must complete 15 credit hours of core courses as follows:

EVR 6936 Seminar in Environmental Science
EVR 6937 Seminar in Environmental Policy
STA 5166 Statistical Methods I
GEO 6116 Perspectives on Environmental Thought

AND

One of the following Science courses*
GLY 5932 Environmental Geology
PCB 6933 Seminar in Ecology
CHM 6938 Environmental Chemistry

*Note: These courses can also be taken as electives.

You must also take 15 credits of electives – chosen in consultation with your thesis advisor and thesis committee to further the successful completion of your research project. A complete list of elective courses is available on the departmental website.

You must complete a minimum of 6 credits of Thesis Preparation (EVR 6978). If you register for more than 6 credits of EVR 6978 only 6 will count towards your degree.

You must also successfully defend your thesis proposal as well as your thesis. Both defenses consist of two parts: oral and written. You will be graded separately in each part and you may pass/fail in each part or both. If you fail the oral part you will have to defend again. If you pass the oral part and fail the written part, you will work with your committee to address their concerns and bring the document to the acceptable level.

M.A. Option

The basic requirements for obtaining the M.A. in Environmental Science and Policy are repeated here for your convenience.

You must complete 30 credit hours of prescribed graduate coursework, 6 hours of Final Project, and complete a comprehensive examination.

Your 30 credit hours of prescribed coursework are divided as follows:

Theme 1: Core Concepts in Science (all 5 courses required = 15 credit hr)
EVR 6936 Seminar in Environmental Science
PCB 6933 Seminar in Ecology
CHM 6938 Environmental Chemistry
STA 5166 Statistical Methods
EVR 6934 Global Climate Change

Theme 2: Core Concepts in Policy (all 4 courses required = 12 credit hr)
EVR 6937 Seminar in Environmental Policy
EVR 6934 Wetlands, People and Public Policy
GEO 6116 Perspectives in Environmental Thought
GIS 6100 Geographic Information Systems

Theme 3: Electives (choose at least 1 = 3 credit hr)
GIS 6038C Advanced Remote Sensing
EVR 6934 Qualitative Research Methods  
GEO 6428 Seminar in Advanced Human Geography

EVR 6934 Environmental Justice  
EVR 6216 Advances in Water Quality Policy and Management  
GEO 6286 Advances in Water Resources

Or other Appropriate Electives as listed for the ESP Graduate Program.

**Theme 4: Final Project (6 credit hours)**

Final Project can be done in either EVR 6934 (Special Topics) or EVR 6908 (Directed Independent Study)

**Important Considerations on Graduate Thesis Committee (M.S. Option)**

**Role of Thesis Committee**

Your thesis committee is your critical support group that will guide you through your graduate studies. The thesis committee will, at a minimum, help you develop your thesis proposal, prepare you to successfully defend the thesis proposal, select appropriate elective courses that will help you in your research efforts, meet periodically to provide guidance on your research, ensure you are making timely progress towards graduating, review drafts of your thesis and provide feedback to help you finalize it, prepare you for your thesis defense, and evaluate your thesis defense. You need to select and justify the selection (in conjunction with your thesis advisor) of your thesis committee. It is required that you select committee members based on their expertise as required for your research.

**Role of your thesis advisor**

Choosing your thesis advisor may be the most critical decision you make in graduate school. Your thesis advisor will be your mentor. He/She will assist you to:

- develop a research project
- choose appropriate courses
- provide you with the support/resources and guidance to successfully execute your research project
- identify possible sources of funding
- meet with you often to ensure you are making progress in your ensure graduate studies
- help you select your committee members based on the expertise that is needed to complete your research
- set up periodic meetings with the thesis committee
- assist you in writing your thesis by giving you critical feedback
- share the department-approved grading rubric for both proposal and thesis defense (oral as well as written part)
- ensure you are prepared to defend your thesis
- share and collect grading rubrics for proposal and thesis defense from the committee members and turn them to the Graduate Coordinator with appropriate forms.

It should be obvious to you that your thesis advisor must be someone with an adequate level of expertise in the area of your research project so that he/she can carry out the obligations above.

At the earliest opportunity you should select your thesis advisor if you have not already done so at the time of admission. The
Graduate Coordinator should serve as your main resource to help guide you through the process of selecting your thesis advisor.

If a thesis advisor cannot be identified or in the event a thesis advisor is unable or unwilling to continue serving on your committee, you are responsible for finding another thesis advisor. If you are unable to find a replacement thesis advisor, you should confer with the Graduate Director for available options (including converting to the non-thesis program). If no other options exist you may be requested to voluntarily withdraw from the program or may be honorably withdrawn in good academic standing.

A thesis advisor must be a member of the graduate faculty of ESPG, USFSP. Faculty who do not meet this definition may serve as co-thesis advisors upon credentialing by the Graduate Committee. Similarly, off campus personnel may serve as thesis advisors, but only if they are successfully credentialed by the Graduate Committee and a USFSP faculty member must serve as co-thesis advisor.

In the event a thesis advisor leaves the University (e.g. for an appointment at another university, due to retirement, etc.) and the thesis advisor is willing to continue serving on your committee, the thesis advisor then becomes a co-thesis advisor on the committee and another faculty is appointed as the other co-thesis advisor. It is important that one of the co-thesis advisors be accessible on the university campus for you to make satisfactory progress on the thesis.

In the event a thesis advisor is on temporary leave (e.g. sabbatical, research, etc.) the thesis advisor shall coordinate with the Graduate Coordinator to facilitate the needs of the student.

Committee Formation

You are required to form your thesis committee no later than the third 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 committee includes your thesis advisor and at least two other members. However, at least two of your three committee members (or at least half if there are more than three committee members, including the thesis advisor) must be members of the graduate faculty at ESPG, USFSP. At least one of your thesis committee members should be from a different discipline than your thesis advisor. 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 but they must be credentialed by the Graduate Committee before they are allowed to serve on a thesis committee. Remember that your Thesis Committee Approval Form should be accompanied by a brief justification for adding each committee member and their expertise (even if they are graduate faculty at ESPG). When committee members are regular ESPG graduate faculty and/or affiliated ESPG graduate faculty, Form1a is the justification form that you must complete. When a committee member is NOT an ESPG regular or affiliated graduate faculty, Form 1a must be used and a CV for a potential committee member must be included along with the Thesis Committee Approval Form. This information will be used to credential the committee member.
**Credentialing of Committee Members**

When including a committee member who is NOT a regular graduate faculty in ESPG Dept or an affiliated graduate faculty in ESPG, the committee member must go through a credentialing process. In order to go through the credentialing process, the Thesis Committee Approval Form should be accompanied by Form 1b and a CV for that committee member to justify why this person is suitable to serve on the committee. The Graduate Committee will review these forms to determine suitability. The thesis advisor or thesis co-advisors may be called to the meeting to explain the rationale if needed. The Graduate Committee by a majority vote can refuse a thesis committee composition upon providing a valid reason. In such cases a student (in consultation with the thesis advisor or co-advisors) may have to form a new committee and resubmit the forms and CVs for approval by the graduate committee.

**Changes to Committee**

Changes to a thesis committee must be submitted on a Change of Committee Form (available from the Graduate Coordinator). Original signatures of faculty being added to the thesis committee, along with the approval signature of the thesis advisor, must be on the form.

A student wishing to remove a thesis committee member must provide written justification for requesting the removal, and must be supported by the thesis advisor. Faculty who are being removed from the thesis committee must sign the form indicating agreement at being removed. It is important that you consider the ethical dimensions of asking that one of your thesis committee members be removed. If that thesis committee member has made significant intellectual contributions to your thesis proposal, he/she may request that you remove this component from your research project. The later into your studies that you wait to request that a thesis committee member be removed, the heavier the burden you have to justify the request. If the member in question rejects the request to be removed, the Graduate Committee will review the request and reserves the right to reject it. No thesis committee member may be removed during the semester of the thesis defense.

Change of Committee Forms should be submitted to the Graduate Coordinator in a timely manner. Changes to a thesis committee are official only once approved and filed by the program and college.

**Thesis Proposal Format**

Your thesis proposal will detail what research project you intend to carry out to produce a thesis. It should be detailed enough that others should be able to follow. It 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 current status of knowledge in the field, what conclusions have been made, what questions have yet to be asked, and how your research might fit into this body of literature.

*Goals*

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. Your research design must be acceptable based on the current scientific standard in the field, and should be supported by references to the literature in the field. This section should also 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, will require to submit your proposal for approval of the University’s Institution Review Board (IRB). See your advisor if you think your work might require IRB approval. Work involving human subjects cannot be conducted without IRB approval or waiver.

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.

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.

Dismissal From Program

Graduate studies demand a great amount of independence. While your thesis advisor, if you are pursuing the M.S. option, is tasked with guiding your progress and your thesis committee will support you, ultimately it is your responsibility to carry out the research, alert your thesis advisor if you are having problems, seek help, etc. Remember that your thesis advisor and committee members have many responsibilities in addition to those towards to you so it is your responsibility to maintain them updated on your progress. If you are pursuing the M.A. option you must maintain passing grades. You should also ensure that you work closely with the Graduate Director to ensure you are progressing well in your graduate studies.
Unfortunately, sometimes a student fails to make adequate progress in his/her graduate studies and it may become necessary to dismiss the student from the program. There are some clear-cut cases that will lead to your dismissal:

- Failing to maintain the required grades in your coursework.
- Failing your written comprehensive examinations twice if you are pursuing the M.A. option.
- Failing your proposal defense twice if you are pursuing the M.S. option.
- Failing your thesis defense twice if you are pursuing the M.S. option.

You may also be dismissed from the program if you fail to make adequate progress in your research, as determined by your thesis advisor(s) and if you violate any ethical issues related to ‘doing science’. Additionally, if you are found to have violated the University’s policies on academic integrity, you may be dismissed. It is strongly suggested that you read this policy and ensure that you understand it.

If your thesis advisor determines that despite his/her guidance you are failing to make adequate progress in your research project, he/she will write you a letter putting you on notice. Your thesis advisor must provide evidence and/or a rationale for taking this step and provide concrete benchmarks to demonstrate improvement. A copy of this letter must be filed with the Graduate Coordinator to place in your file. The Graduate Coordinator will meet with you to discuss the matter and allow you the opportunity to respond to your thesis advisor’s letter of notice.

Your thesis advisor’s letter of notice must include a reasonable period of time (not to exceed 6 months) to allow you to remedy the situation and demonstrate significant progress towards achieving the benchmarks set out by your thesis advisor in the original letter of notice. At the end of the time period your thesis advisor must determine if he/she is satisfied with your progress. Your thesis advisor will write you a letter that either expresses satisfaction with your progress and reinstates you in good standing in his/her research lab or dismisses you from his/her research program. The Graduate Coordinator will receive a copy of this letter. If your thesis advisor dismisses you from his/her research program, your options are: 1) you may seek an alternative thesis advisor and restart your research project; 2) you may seek admission to the M.A. option; 3) you may be dismissed from the program. The Graduate Committee will meet with you to determine which option is appropriate in your case.

**Graduate Faculty Members**

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

Dr. Henry Alegria
Associate Professor of Chemistry

My area of research is in the general field of fate and transport of pollutants. I have over fifteen years of designing, executing and supervising research projects on 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 in the U.S., Mexico, Central America, Canada and Europe (independently and in team setting). My research has included modeling and determination of the impact of pollutants on sensitive ecosystems and public health. I have also done research on chiral analysis of pesticides to track their movement in the
environment. I will also be initiating a research program on emerging contaminants (e.g. hormones and over-the-counter drugs) in surface waters.

I am also interested in developing new and innovative strategies in teaching chemistry and environmental science.

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Dr. Erika Asano
Assistant Professor of Mathematics
I am interested in the mathematical modeling of invasive species, infectious diseases, populations and other biological and ecological models. One of my current projects is mathematical modeling of social insects, in particular - Solenopsis invicta. Another ongoing project is to develop a mathematical model for the spread of Eurasian collared-dove (Streptopelia decaocto), an exotic dove species, using an integrodifference model (discrete in time and continuous in space).

Other projects include optimal control problems involving ordinary differential equations (ODE’s) and partial differential equations (PDE’s).

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Dr. Armando Hoare
Assistant Professor of Mathematics
Mathematics and statistics are fundamental components in all facets of our daily lives, especially in the various branches of science and technology. Specific research interests and projects are: spatial and temporal statistical analysis of environmental data, including regression models for coral cover, the creation of system and probability models for nutrient data from Florida Lakes and wells, as well as a mathematical model for coral symbiosis.

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Dr. Kathy Carvalho-Knighton
Associate Professor of Chemistry
My research interests include water quality, phytoremediation of heavy metals by aquatic species, remediation of organic and chlorinated compounds, and chemical education.

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Dr. Deby Cassill
Associate Professor of Biology
Affiliated Faculty

The imported fire ant, Solenopsis invicta, is a serious, invasive pest in Florida. Historically, control efforts have relied on pesticides that, at best, provide only temporary relief. Moreover, there is speculation that pesticides are partly responsible for the infestation of coastal counties in south and central Florida by the cooperative social form of fire ant. This is bad news because cooperative fire ant queens produce colonies at higher densities than competitive fire ant queens. To make matters worse, many infected areas cannot be treated with pesticides due to environmental sensitivity. These untreated areas produce the next generation of queens
that re-colonize coastal counties. In this project, students will map south and central Florida—on an annual basis, coast to coast—to determine changes in the distribution of cooperative.

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Dr. Barnali Dixon
Associate Professor of Geography

I have extensive experience in the application and teaching of Geographic Information Systems (GIS), remote sensing, Global positioning Systems (GPS), geostatistics, fuzzy logic and neural networks for environmental modeling. My areas of research interests include advancement of environmental modeling through enhancement of remotely sensed data (image processing) and GIS using fuzzy logic, neural networks and neuro-fuzzy techniques. I have applied environmental models 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).

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Dr. Joseph Dorsey
Assistant Professor of Environmental Policy

My teaching focuses on environmental policy and its implications at local, regional, national and global levels. I have interdisciplinary training in the fields of human ecology, urban and regional planning, international studies, and environmental sociology. My research interests include 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. I have a public health and human nutrition background from a previous career and been an environmental consultant.

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Dr. Rebecca Johns
Associate Professor of Geography
Affiliated Faculty

Research interests include human perceptions of nature; nature-society relationships; and the commodification of nature through neoliberalism; social construction and interpretation of the landscape; qualitative research methods Current work focuses on the implementation of ecologically friendly landscaping practices in Florida, including perceptions of landscapes, barriers to implementation of "Florida Friendly Landscaping" principles and community efforts to transform the landscape

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Dr. Chris Meindl,  
Associate Professor of Geography

I am a geographer interested in human-environment interaction, particularly in people’s perceptions of environmental issues, especially wetlands, natural hazards, and sustainability. My regional focus is on Florida, my methods are usually qualitative and archival, and my approach is as often as not historical. Recently, I have grown interested in defining the relations between political/economic power and environmental problems.

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Dr. Melanie Riedinger-Whitmore  
Associate Professor of Biology  
Affiliated Faculty

My areas of specialization include: Aquatic ecology, wetland ecology, and paleolimnology of lakes in Florida, The Galapagos Islands, and mainland Ecuador. I use 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. Currently, I am using cyanobacterial and other algal pigments to monitor changes in algal productivity and community composition in eutrophic and hypereutrophic lakes in north and central Florida, to determine the timing of cyanobacterial proliferation in these systems and to document historical water quality. I also am reconstructing Holocene El Niño periodicities from hypersaline lake sediment records in the Galapagos Islands, using laminations and changes in fossil diatoms, mineralogy, and geochemistry to track changes in El Niño frequency and intensity.

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Dr. Donny Smoak  
Associate Professor of Geology

My research focuses on wetland carbon sequestration and the role wetlands play in climate change. Dr. Smoak examines freshwater wetlands and mangrove systems (coastal wetlands) to assess the wetlands current contribution to the global carbon budget, and how the contribution may change as the climate warms. These investigations are being conducted at several sites in Brazil and in the Florida Everglades. Specific research interests and projects are: Uranium and thorium series radionuclides as tracers of geological processes; organic carbon burial in wetlands; mangrove ecosystem response to sea-level change.

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Thesis Matters – M.S. Option

At some point, you will begin to write your thesis if you are pursuing the M.S. option. 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 format 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.

In terms of content, it is important to reiterate that a master’s thesis, while not expected to achieve the depth and disciplinary impact of a doctoral dissertation, is nonetheless a contribution to the body of knowledge in the field, and signifies the entrance of the student into a community of scholars whose work provides the foundational truths on which society operates. This expectation is universal in the academy and does not vary from one institution to the next.

The thesis should:
• demonstrate the student’s grasp of the standards of scientific research in her field;
• demonstrate the student’s mastery of the current state of knowledge in her field;
• demonstrate her ability to design and conduct original research using proven scientific methods;
• demonstrate her ability to analyze the data collected in a manner that contributes to the academic conversation about the topic;
• demonstrate original thought;
• be appropriate for the degree in Environmental Science and Policy;
• be of publishable quality.

Thesis Defense

Your Thesis Defense MUST be publicly announced 10 business days prior to the date you will be defending. You need to complete the Defense Announcement Form and submit to the Graduate Coordinator as early as possible but no later than 15 business days prior to your defense date. Defense is an exam with two parts: written and oral. You will be graded on both sections using department-approved rubrics. Each thesis committee member is required to complete a rubric with grades in different areas to provide evidence of how he/she graded your defense (oral and written). This completed rubric along with Thesis Certificate of approval should be turned in to the Graduate Coordinator. Graded rubrics should be turned in to the Graduate Coordinator by the thesis advisor ONLY.

The committee’s ranking will be based upon a five point scale (5 = Exemplary, 4 = Strong, 3 = Competent, 2 = Marginal, 1 = Unacceptable) for each component and the holistic assessment. The final grade will be based on the holistic assessment where no evaluation for any of the components can be less than 3 (competent). The minimum successful score will be “Competent” or better from all committee members.

Final Project – M.A. Option

If you are pursuing the M.A. option you will be required to complete a Final Project. You will do this by registering for 6 credit hours of EVR 6934 (Special Topics) or EVR 6908 (Directed Individual Study). While not expected to achieve the same depth and disciplinary impact of a master’s thesis, the project must nonetheless be a significant original work that demonstrates your understanding of, and ability to contribute to, your chosen field.

The faculty committee for your Final Project will consist of the instructor of the Final Project course (EVR 6908 or EVR 6934), and one additional faculty member whose expertise is relevant for the topic area. Designation of the second committee member should be formalized through the submission of the form "ESP Master of Arts Graduate Student Committee for Final Project."

Both committee members must approve the Final Project report and presentation in order for you to pass the course. In the event that one or more committee members deems the project unacceptable, you will be given an incomplete for the course and allowed one academic semester in which to revise and resubmit the project. If the Final Project is not approved by both committee members
after the second submission, you will be dismissed from the program.

Final projects may be completed in the form of Meta-Analysis Projects, Focused Fieldwork Projects culminating in a field report, or an original analysis of an existing environmental concern in the form of a Policy Case Study.

**Meta-analysis Projects** involve bringing together the seminal ideas, theories and concepts of a field in an original synthesis to produce new insights and observations that may move the community’s understanding forward. Such a project would likely involve primarily archival and document analysis, based on the relevant scientific literature of the chosen field.

A **Focused Field Project** utilizes accepted research methods to answer a specific question concerning anything from local ecosystem functions, services or health; spatial distribution of environmental phenomena; to public attitudes about ongoing environmental conflicts. Focused Field Projects may use a variety of research methods, including but not limited to, survey research, photographic techniques, water or soil sampling techniques, laboratory analysis, spatial analysis and mapping. Focused Field Projects are generally more narrowly defined than topics chosen for master’s theses, and may be very specific to particular places and times. While perhaps not answering questions or testing hypotheses with far-reaching intellectual implications, a Focused Field Project demonstrates your ability to collect appropriate data in order to answer a practical and applied question. Such skills are useful in many entry-level environmental positions.

**Policy Case Studies** use combined document, archival and possible field methods to analyze policy approaches to, or public attitudes toward, a specific environmental problem, usually at the local or state scale. A thorough comparison of the possible impacts of specific policies intended to resolve an environmental problem may be explored with the goal of suggesting ideal outcomes in the form of a policy analysis report. Case studies may also involve measuring the effectiveness of particular organizations such as non-profits or government agencies or the impact of specific entities such as local industries or corporations on well-defined ecosystems. Outcome assessments of specific regulatory laws regarding the environment may also be analyzed.

You may propose final project topics outside the three types outlined here and seek approval from the professor teaching the Final Project course.

The faculty committee will evaluate your final project report and presentation on a five point scale (5 = Exemplary, 4 = Strong, 3 = Competent, 2 = Marginal, 1 = Unacceptable). The minimum successful score will be “Competent” or better from both committee members. If you earn a score of Marginal or Unacceptable, you will be given a second chance to address the concerns (rewrite the report and present as needed); if you fail to achieve a score of “competent” or higher the second time you will be dismissed from the program.

Note that once you have chosen a Final Project you must complete the M.A. Final Project Approval Form.
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 nine (9) semester hours of relevant coursework with no grade lower than B may be transferred from another university. A grand total of 12 credit hours taken at USF Tampa may be incorporated into your graduate program at USFSP. Students should not assume that coursework taken in Tampa or elsewhere will automatically be counted toward their graduate program at USFSP. ALL credits earned away from USFSP must be approved by the Graduate Program before they can be incorporated as part of your program at USF St. Petersburg. 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 be enrolled for at least two (2) credit hours during the semester the thesis defense is completed.

You must be enrolled for a minimum of two (2) credit hours of THESIS during the semester you intend to graduate.

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

The maximum allowable course-load for a graduate student at USFSP is 13 semester hours. However, we strongly recommend that full-time graduate students take no more than 9 credit hours in any one term, and that part time students take no more than 6 credit hours a term. Graduate level classes often call for much more reading and effort than most undergraduate classes.

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/gradpr
ogram/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.
Figure 1. Schematics showing ideal steps to follow to be successful in the program

1. **Admission to the program** (Fall)
   - Register for Core classes: EVR 6536, GEO 6116, and one other core or elective

2. **Semester 1**
   - Select Advisor
   - Start with research concept and start working on the proposal

3. **Semester 2**
   - Complete Core Classes: STA 5145, EVR 6537
   - And other core course
   - Formulate Committee
     - Form 1a and/or Form 1b
   - Get your proposal approved
     - Form 2

4. **Summer**
   - Start with your research

5. **Semester 3**
   - Take elective courses as suggested by your advisor and/or committee
   - Complete compas

6. **Semester 4**
   - Take Thesis hours
   - Start writing your thesis
   - Work with your advisor to create near-complete draft
   - Apply for graduation
   - Submit thesis to entire committee
   - Advisor and the committee sets the defense date
   - Coordinator sends out announcement
   - Defend your thesis
   - Make corrections
   - Complete forms
     - Form 3

* needed if you have an external committee member.