

University of Puerto Rico
Río Piedras Campus
Faculty of Natural Sciences
Environmental Science Program
Graduate Program

REGULATIONS

These rules apply to studies directed toward the master's and doctoral degree in Environmental Science. These regulations have been approved by the Graduate Affairs Committee of the Environmental Science Program on November 9, 2010 and are based on Certification 72 (1991-92) of the Academic Senate of the University of Puerto Rico, Río Piedras Campus.

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I. **Contact Information**

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II. Mission and Profile of the Graduate Program in Environmental Science

A. Program Mission

The Graduate Program in Environmental Science at UPR – Río Piedras (UPRRP) is directed towards preparing scientists and researchers with a profound and integrated knowledge of the environment via a rigorous and comprehensive education with a strong emphasis in research. The Graduate Program strives to include diverse scientific disciplines combined in innovative ways to understand and manage the environment, encompassing various interactions among the physical, chemical, and biological components of the biosphere as well as social, economic, and biomedical sciences and planning and legal studies related to environmental science. Environmental science in the Graduate Program at UPRRP is designed to provide an integrated, quantitative, and interdisciplinary focus to the study of coupled human-natural systems, as opposed to studies of environmental issues *per se*. The Program will provide the student with a solid scientific basis related to natural and anthropogenic processes which affect the environment and will also prepare them to define and analyze environmental problems, apply advanced methods and techniques in environmental analyses, create new knowledge and make decisions directed towards achieving a sustainable society.

B. Profile of Graduates from the Program

Graduates from this Program will have a solid conceptual base pertaining to environmental processes and problems associated with islands and tropical regions, as well as theoretical and practical command of the most modern methodologies for scientific analyses and research on the environment. The Program enables students to define and identify complex environmental problems composed of multiple variables, apply and develop research methodologies, use analytical instruments to obtain data, analyze critically the obtained data with an integrated vision of the environment, construct models that recreate the behavior of environmental systems and provide intelligent solutions that will ultimately address present and future environmental needs. In addition, students need to learn effective communication and teaching skills to disseminate their research and learning. This can be achieved by presentations at scientific meetings as well as working closely with faculty in classes and teaching independently in different settings. Students will work closely with their faculty advisor throughout this learning process and also meet regularly with their thesis committee to encourage diverse perspectives on experimental questions and approaches.

C. Student Expectations and Responsibilities

1. Departmental Activities

Seminars

The seminar series is considered an integral part of the graduate program and graduate students are expected to attend program seminars as well as those offered by other programs that are relevant to their area of specialization.

Departmental Committees

Two graduate student representatives will attend all Departmental and Graduate Affairs Committee meetings. The student representatives will have a voice, but not a vote. They can request, with reasonable advanced notice, that topics of interest to the graduate students be included in the agenda for the graduate faculty's future meetings. The student representatives may be asked to leave the meeting when confidential matters pertaining to a graduate student are discussed. An open meeting of all graduate students from the Program will be announced by the Coordinator at the beginning of each academic year. The student representatives will be elected for that year at this meeting. The student representatives may call for graduate student meetings during the year to discuss problems or plan activities.

2. Honor Code

The institutional policy of the UPR Rio Piedras campus is to maintain the highest norms of intellectual and scientific integrity and to denounce all the violations of the same. Violations include plagiarism, falsification, false attribution and all the violations of the canons and practices of honesty accepted generally by the academic community, excepting those that result from involuntary errors or legitimate differences in the interpretation or handling of data or information. The norms, responsibilities and procedures for dealing with possible violations of the principles of intellectual and scientific honesty summarized above are detailed in Circular Letter no. 17 (21 May 1990), signed by the Chancellor of the Rio Piedras campus of the University of Puerto Rico. The disciplinary procedures are detailed in Chapter VI of the *Student Regulations of the Rio Piedras campus*.

III. Admission to the Graduate Program in Environmental Science

A. Eligibility and Admission Process

Students will only be admitted to begin the Graduate Program in August of each year. To be admitted to the Environmental Science Graduate Program, the applicant must fulfill the following requirements:

- A Bachelor's in Science degree (or its equivalent) with a major in Environmental Science, Biology, Computer Science, Physics, Mathematics, Chemistry, or Engineering from an accredited university. Students that do not have a Bachelor's degree in Environmental Science may be admitted conditionally until approval of the undergraduate Introduction to Environmental Science course with a minimum grade of B during their first semester. This does not apply to students who have taken the course as part of their Bachelor's degree.

Students with a Bachelor's from an accredited university but not majoring in any of the previously mentioned disciplines, can apply for admission to the graduate program once they have met the following requirements with a minimum 3.0 grade point average: one year of General Biology, one year of General Chemistry, Calculus I, one year of Physics with Calculus, one semester of statistics for science majors and the Introduction to Environmental Science course. **However, satisfactory approval of these courses does not guarantee admission to the program.**

- A minimum general grade point average of 3.00 (on a scale of 0-4) and a minimum grade point average in science of 3.0 at the undergraduate level.
- Two official copies of their most recent academic transcript.
- Three letters of recommendation from professors with whom they have conducted research or taken science courses.
- Results from the Graduate Record Examination (GRE) or the Examination for Admission to Postgraduate Studies (*Examen de Admisión a Estudios de Posgrado*; EXADEP) or evidence of having taken these exams.
- Basic knowledge of English and Spanish in both written and oral form.
- Results from the TOEFL exam (foreign students only).
- Attend an interview, if required by the Graduate Affairs Committee.

In special situations, the Program's Graduate Affairs Committee may award **conditional admission** to students with a Bachelor of Science (or its equivalent) from an accredited university, but who for some reason do not fulfill any of the admission requirements, including the required grade point average. Conditionally admitted students must fulfill all of the requirements of the Program's retention index (and any other imposed by the Committee depending on the case) and their continuation in the Program will be evaluated at the end of the second semester of their conditional admission.

All applicants that fulfill all the admission requirements to the Environmental Science Graduate Program will be admitted directly into the Master's Program. Admission of students into the Doctoral Program will not occur until the student has passed the Qualifying Exam Part A (see below).

B. Financial aid

The Graduate Program will make every effort to provide financial support (stipend and tuition) for full-time students accepted into the program who are making satisfactory progress toward degree completion. Master's students can receive institutional funds through DEGI for a maximum of two years and for doctoral students for a maximum of five years. Support is in the form of either a teaching or research assistantship. The assistantships are assigned by the Director of the Department in consultation with the Graduate Program Coordinator and are subject to availability of funds and supervisors. Information about these and other types of assistance can be obtained from the Graduate Program Coordinator and the Dean of Graduate Studies and Research (DEGI).

All students are strongly encouraged to apply for outside fellowships for which they are eligible such as NSF, DOD, Ford Foundation, etc. Deadlines for these fellowships are generally in November. Contact DEGI or the external funds specialist in the office of the Dean of Natural Sciences for information about specific fellowship opportunities.

C. Transfer of Credits

Only graduate courses (or their equivalents) approved with A or B, taken within nine years of the date of entrance to the ES Graduate Program can be considered for transfer credits. If a student requests validation of courses that are more than nine years old then they must submit a letter to the Graduate Program Coordinator indicating why an exception should be made. Upon approval by the Graduate Affairs Committee, a formal request will be sent to the Dean of Graduate Studies and Research (DEGI) in support of the course validation. To apply for the acceptance of transfer credits the student should submit to the Graduate Program Coordinator an official copy of their academic record (if it is not already on file) and a copy of the form "Request for Transfer of Credits" (**Form 1**), as well as a description of the courses according to the University catalog where the graduate courses were taken. As per Certification Num. 72, 1991-92 of the Academic Senate, a maximum of a third (1/3) of the course credits required for

the corresponding M.Sc. or Ph.D. (8 and 14 credits, respectively) that were earned at another institution (i.e., validation) or in the UPR system (i.e., substitution) can be accredited.

IV. Degree requirements

A. Courses

This section briefly describes general course requirements for the Master's and Doctoral Degrees. Beyond the first year of core courses, in consultation with their Graduate Advisor, students pursue individualized course selections depending on emphasis area (list) and additional requirements determined by the Graduate Advisor or externally-funded training programs. Consult Appendix A and the Graduate Program Coordinator for additional details on these offerings and requirements.

Master's Degree: Environmental Science Master's students must complete a total of 38 credits. Of this total, 18 credits (47%) will correspond to core courses. Typically, an additional 6 credits (16%) will correspond to emphasis areas, 2 credits (5%) to a graduate seminar, 6 credits (16%) to elective courses, and 6 credits (16%) to graduate research leading towards a Master's thesis.

Doctoral Degree: Environmental Science Doctoral students must complete a total of 60 credits. Of this total, 18 credits (30%) correspond to core courses. Typically, 9 credits (15%) will correspond to emphasis areas, 2 credits (3%) to a graduate seminar, 4 credits (7%) in an emphasis seminar, 9 credits (15%) to elective courses, and 18 credits (30%) to graduate research leading towards a Doctoral thesis.

B. Selection of the Graduate Advisor

During the first semester, the student should interview researchers from their area of interest. It is recommended that the student attend the group meetings or visit the research laboratories in order to make a well-informed selection of the Graduate Advisor. At the beginning of the second semester of the first year of studies, the student should select their Graduate Advisor. The student should select a Graduate Advisor that is a full-time member of the Faculty of the Environmental Science Graduate Program. The list of faculty currently in the Graduate Program is provided in Appendix B; an updated list will be maintained on the departmental website. A student that wishes to do their research with an advisor outside the Environmental Science Graduate Program must choose a member of the Faculty of the Environmental Science Graduate Program who will be designated to serve as the student's co-advisor. The choice of (co-)advisors will be approved by the Graduate Affairs Committee at the time the student forms a Student Advisory Committee (SAC; next section).

C. Selection of the Student Advisory Committee

The student's committee should be named before the end of the third semester of study in the Graduate Program. It will consist of three (Master's) or five (Ph. D) members including the student's Graduate Advisor. In the case of students that select the interdisciplinary option, at least one of these additional professors should be from a field outside Natural Sciences. All members should have the approval of the Graduate Affairs Committee using **Form 2**. Any change in the Student's Committee requires the approval of the Graduate Affairs Committee (see section D).

In the event that the student or the Graduate Advisor requires the participation of a SAC member who is not a member of the Environmental Science Graduate Program, the student should provide evidence that the proposed committee member is an "active researcher." Evidence for this is provided in the form of the researcher's curriculum vitae. Exceptions to the "active researcher rule," as approved by the Graduate Affairs Committee, may include committee members who are not scientists but yet who provide expertise critical to the student's research goals, or any other scientist who provides critical knowledge for the development of the student's research program. However, no more than one exception may be granted in the formation of any one student's SAC. Member of the student's SAC from outside the Environmental Science Graduate Program should understand the purpose of their participation is to evaluate the student's research proposal and thesis or dissertation. A copy of the Graduate Program's Regulations will be provided to this member.

D. Change of Advisor and/or Research Area

If a student decides to change research projects and at the same time change their research advisor, he or she should complete the appropriate form, which must be approved by the Graduate Affairs Committee (**Form 3**). If the change of graduate advisor involves a significant change in the research area, the change will not be approved until the Graduate Program Coordinator and the Graduate Affairs Committee complete an analysis of the student's academic file regarding qualifying exams and courses to guarantee that the student qualifies for the new area.

E. Qualifying Examinations

1. Qualifying Examination (Part A): After the first year as a graduate student, students will be required to take Part A of a qualifying exam integrating knowledge acquired in the CIAM 6115, 6117, 6118 and 6256 courses. The examination will be offered during the summer of the first year, upon completion of the first two semesters of graduate studies. The student will have two opportunities to pass the examination. The first opportunity will be a written examination based on the course content mentioned above in which the students are presented four questions written by the faculty teaching the courses. The students choose two questions to be answered

in a single eight-hour period. Questions are then graded by the faculty on a 0-100 scale, with an 80 or above signifying “Pass” and 90 or above signifying “Exceptional.” Any student which fails to achieve an average grade of 80 or above on the written portion of the examination will then go on to an oral examination. The oral examination, directed at the content of all four courses mentioned above, will be given by five faculty or members of the Graduate Affairs Committee chosen by the Graduate Program Coordinator. The examination committee will have up to three hours to examine the student, at which point they will vote “Pass” vs. “Fail” on the student’s performance. Failure to approve the oral examination by a supermajority vote (no more than one member voting “Fail”) will result in dismissal of the student from the Graduate Program.

2. Qualifying Examination (Part B): By the end of the second year, students who wish to continue in the doctoral program must successfully complete the qualifying exam (Part B) prepared by the student’s thesis committee consisting of both a written and oral portion directed at the students understanding of coursework and additional written material related to the student’s research topic. The written part consists of five questions (submitted by each member of the committee), of which the student must answer four. The student will have a maximum of ten calendar days to answer the questions. The exam is open book (students can use any books or other written or online resources), but students cannot consult with any person in answering the questions. The Committee expects the responses to be more than a mere review of the literature on the subject and should demonstrate critical thinking and original thought. Each Committee member then receives a copy of responses and has seven calendar days to evaluate them. The oral examination should emphasize the topics of the assigned literature but are not limited to these topics. The assessment of the review is: Approved, Approved with Conditions or Fail. If the student passes the exam they can continue with the preparation and defense of their dissertation proposal. If conditionally approved, the student must address the conditions, to the satisfaction of the committee, during a period of no more than one month. Failure to approve the examination by a supermajority vote (no more than one member voting “Fail”) will result in dismissal of the student from the Graduate Program. If the student fails, they cannot continue with the doctoral program but can, upon the recommendation of the Advisory Committee and with the approval of the Graduate Affairs Committee, complete the Master’s program. This request must take the form of a letter submitted to the Graduate Program Coordinator with the signature of all committee members. Upon successful completion of Qualifying Examination Part B, the student must submit a completed **Form 4**.

F. Teaching Requirements

For all master’s students a teaching experience of one semester is required, while for doctoral students a minimum of two semesters is required. Students who have a previous teaching experience may apply in writing to the Graduate Program Coordinator for an exemption from that requirement. The fulfillment of this teaching experience should be completed by the end of the third year and can be met in several ways:

1. Hold a TA position at the College of Natural Sciences or at another campus in the UPR system (with the approval of the Graduate Program Coordinator).
2. Hold a teaching assistant position in a NSF funded (e.g., "GK-12") or other K-12 program devoted to environmental education, subject to approval by the Graduate Program Coordinator
3. Effort equal to a TA in another position. The student must submit a letter requesting approval to the Graduate Affairs Committee.

Typical TA responsibilities include grading exams, holding regular office hours, preparation of course handouts and presentations, attending lectures, or for lab courses, setting up equipment and supervising cleanup. Students who wish to teach beyond the requirements may ask to be considered, however, first priority will be given to students who have not yet met their requirement.

G. Language Requirements

All students registered in the Program should have a working knowledge of both Spanish and English. This is recommended since most teaching is done in Spanish, while the textbooks, scientific articles, and references are in English. Moreover, most of the undergraduate teaching is done in Spanish. A student with a language deficiency can be admitted to the Program with the condition that he or she takes language courses that will help the student surmount this deficiency during their first year of studies. The Environmental Science Program can coordinate these courses with the Colleges of Humanities and/or General Studies.

H. Advancement to Candidacy

A student who wishes to obtain a graduate degree must first be admitted as a candidate for the degree by the Environmental Science Graduate Affairs Committee. Advancement to candidacy means that the student has demonstrated that he or she is capable of fulfilling the requirements for the degree and has sufficient training to pursue independent research.

Evaluation of Master's candidacy promotion will be carried out after the first year of graduate studies. In order to be promoted as a Master's degree candidate, academic performance, results of Qualifying Exam Part A and the Graduate Affairs Committee's decision are taken into consideration. In practice, once the Graduate Affairs Committee approves the first Annual Progress Report of the student, following successful completion of the Qualifying Examination Part A, the Graduate Program Coordinator will issue a letter promoting the student to Master's candidacy.

Evaluation of Ph.D. candidacy promotion will be carried out within three years of having been admitted to the Program. In order to be promoted as a Doctoral degree candidate, academic performance, Qualifying Examinations Part A and B, and the Graduate Affairs Committee's decision are taken into consideration. In practice, once the Graduate Affairs Committee

approves the second (or, if necessary, third) Annual Progress Report of the student, following successful completion of Qualifying Examination Part B, the Graduate Program Coordinator will issue a letter promoting the student to Ph.D. candidacy.

I. Research Proposal

After passing the qualifying exam (Part A for Master's and Part B for Doctorate), the student proceeds to prepare a written proposal explaining their plans for research. Preparation of the proposal is done with the aid of the student's Graduate Advisor with input from the student's committee. The proposal is then defended at a meeting with the student's committee. The written proposal must be presented to the committee members no less than one week before the proposal defense. At the defense, the assessment is: Approved, Approved with Clarifications, or Fail. Any clarifications must be resolved within no more than two months. How and when the clarifications are addressed is at the discretion of the committee, but they can require that the student meet with the full committee for a second time. The student must successfully defend their proposal before the end of their third semester (M.S) and sixth semester (Ph.D.). Students who have not defended their proposal at the end of their fourth semester (M.S) and sixth semester (Ph.D.) must submit to the Graduate Affairs Committee a request for an extension. This letter must have the approval of the student's thesis or dissertation committee. A student who has not successfully defended their proposal before the end of their fifth semester (M.S) and seventh semester (Ph.D.) will be dropped from the program. Upon successful defense of their proposal, students should submit a completed **Form 5** to the Graduate Program Coordinator.

J. Graduate Research

The student must prepare, present, and defend a Master's thesis or Ph.D. dissertation as a final requirement of the degree.

1. Thesis or Dissertation: Thesis or dissertation manuscript: Once the student has completed a written draft of their thesis or dissertation with the aid of their advisor(s), they will hand in a copy to each committee member no less than two weeks in advance of the oral defense (see below). The format of the thesis or dissertation should be written to conform to the format of a scientific publication or publications (i.e., Introduction, Methods, Results, Discussion, Literature Cited, etc.) with separate chapter's equivalent to each publication, but must also conform to the format required by DEGI and Certification #72, 1991-92 Academic Senate.

2. Oral defense: Immediately prior to the oral defense of the thesis or dissertation and after handing in the written draft of the thesis or dissertation to the committee, the student should present a public seminar in Natural Sciences based on their research. The date selected for the oral defense of the thesis or dissertation will be established by unanimous agreement between the student, the Graduate Advisor, and the remaining committee members. The seminar time and place should be publicly announced one week in advance of the presentation. Following

the seminar, the public in attendance will be allowed to ask questions of the student. Thereafter, the student will meet privately with the committee to address additional questions. At the conclusion of the questions, the committee will meet privately to determine if the student's thesis or dissertation is: Approved, Approved with Conditions, or Fail. If the student committee finds that the defense has not been done at the expected level for the master's or doctoral degree (Approved with Conditions), the student will be granted no more than three months to rectify the problems and defend it in front of the committee for the second and last time. Once the student has successfully defended the thesis or dissertation, they should submit a completed **Form 6** to the Graduate Program Coordinator.

3. Requirement for publications: All doctoral students must present evidence of at least one publication or manuscript submitted for publication in a peer reviewed journal in which they were the major contributor before conducting the oral presentation and defense of the dissertation. The publication must contain all or part of the results obtained by the students during their dissertation work. Evidence of publication(s) should be submitted with Form 6.

K. Program Timeline

The Environmental Science Graduate Program expects that the students complete all requirements for the Master's degree in a period of 3 years or less. However, the general UPR M.S degree has a term not exceeding 6 years from the date of admission to meet degree requirements including defense and submission of thesis (Certification Núm.72, 1991-92 Academic Senate). This period may be extended by one (1) additional year. This extension will be regarded as exceptional and as such must be justified to the Graduate Affairs Committee, which notifies the applicant of the final decision.

The Environmental Science Program expects that the students complete all requirements for the Ph.D. degree within a period of 6 years or less. For the doctoral degree, the student must complete all requirements for the degree including the successful defense and submission of the dissertation within a maximum of 8 years from the date of admission (Certification No. 72 of the Academic Senate). This term can be extended for a period of one year at a time for a total period not to exceed two additional years. This extension will be regarded as exceptional and as such must be justified to the Graduate Affairs Committee, which notifies the applicant of the final decision. All courses officially expire ten years after they have been taken.

V. General Procedures

A. Orientation for New Students

New students will attend the Graduate Program's orientations during the week before classes begin. During this period, the student will receive an academic program based on their interests and the requirements of the Program. All students must attend the training for teaching assistants offered annually during July. They also should attend safety training for the

chemistry laboratories that are offered annually by authorized personnel from the University of Puerto Rico. Students that will be working with human subjects (including conducting interviews) need to have a certificate of ethical conduct from NIH (<http://phrp.nihtraining.com/users/login.php>)

B. Registration

The registration of all environmental science graduate students (and other students who are taking environmental science graduate courses) will be done by the Graduate Program Coordinator. To avoid late registration problems, all entering graduate students will follow the procedure that will be described during the orientation period. Students continuing in the Program should do pre-registration. The Environmental Science Graduate Program will announce the courses that will be offered, place, and dates for pre-registration. Before pre-registration each student will:

1. Discuss their academic program with their Graduate Advisor. The Graduate Coordinator will serve as an advisor to students that have not selected their Graduate Advisor. All questions or problems related with their program should be discussed with the Graduate Advisor, the Graduate Environmental Science Program Coordinator, and/or the Graduate Affairs Committee.
2. Obtain from the Graduate Program Office the form for pre-registration and fill it out.
3. Each form must be signed by the student's Graduate Advisor.
4. On the day assigned for the pre-registration process each student will submit the requested forms containing the signatures of the Graduate Advisor and the student to the Graduate Coordinator.
5. During the period of registration at the beginning of each semester, the student should pick up their registration materials according to the schedule announced by the College of Natural Sciences and complete their registration with the Registrar and Treasurer.
6. Changes in registration: Changes in registration are discouraged. A graduate student should plan their program carefully so that changes will not be necessary. If a student finds that it is essential to make a change to their schedule, he or she should consult the University calendar for the dates assigned for adding or dropping courses. The Graduate Program Coordinator will make the registration changes with the authorization of the student's Graduate Advisor.

C. Annual Progress Report

Students must meet with their SAC each year to complete an Annual Progress Report, beginning in the 1st Semester of the second year. See **Form 7**. Each report should be a complete record of the student's progress at the date that the form is completed. This should be submitted to the Program Coordinator for approval by the Graduate Affairs Committee.

D. Research Thesis/ Dissertation

A graduate student, either master's or doctorate, who has fulfilled all the requirements of the degree and has completed the experimental part of their research work, will be able to enroll in the Thesis Continuation course, CIAM 6996 (master) or CIAM 8996 (doctoral), in order to be a student of the University of Puerto Rico when applying for graduation.

E. Graduate Affairs Committee

The Graduate Affairs Committee consists of at least three professors from the Graduate Faculty in Environmental Science and is appointed by the Director of the Environmental Science Program. The Graduate Program Coordinator will lead the Committee and The Director will serve as *ex-officio* member. This Committee evaluates the academic progress of all graduate students each academic semester together with the Coordinator of the Graduate Program, and decides on matters related to compliance with these regulations. Quorum for committee meetings will be 50% of the members plus one.

F. Academic Progress

To be considered as a fulltime student, a student must be registered in at least nine credit hours during a regular semester, unless registered in Continuation of Thesis or Dissertation (CIAM 6996 or 8996). It is expected that a first year student will take three graduate courses and a graduate seminar each semester.

The student's academic average is computed using course grades as a base, except those that the student has repeated, and in this case the best grade will be used to compute the average. A student is considered *bonafide* if their academic grade point average (GPA) is 3.00 or higher. If a student receives a grade less than a C (2.00) in any course, it cannot be used to satisfy the graduation requirements, even though the grade is included in their academic average. Any course with C, D or F grade can be repeated when the course is offered again. If the academic average is lower than 3.00 the student automatically goes on probation at the beginning of the next semester.

Any student receiving a C in two or more courses or a D or F in any single course during a particular semester may also be placed on probation during the next semester, at the discretion of the Graduate Program Coordinator and with the approval of the Graduate Affairs Committee. The student will be asked in writing to explain the reasons for their poor performance prior to any determination of their academic status.

By dropping a required course the student will automatically enter probationary status. The student will remain on probation until he or she repeats and passes the required course the next time it is offered.

Any other violation of the regulations contained in this document will be considered sufficient reason to place a student on probation.

A student with probationary status will not be eligible for financial support, taking the qualifying exams, or be able to fulfill other degree requirements. Nevertheless, the student will be able to continue taking graduate courses and working on research at the discretion of their advisor. A student is removed from this probationary status as soon as they raise their academic average above 3.00, or, if placed on probation for other reasons, their situation is resolved to the satisfaction of the Graduate Affairs Committee. Requests for removal from probationary status must be made in writing by the student to the Graduate Program Coordinator. If a student remains on probation for one year, he or she will be dropped from the Program.

Any student dropped from the Graduate Program may apply for readmission to the Graduate Program only after having satisfied the deficiencies. Therefore, the student can continue to take graduate courses with the approval of the Graduate Program Coordinator. The student should then follow the normal procedures to apply.

Readmission to the Graduate Program will not be considered if the student has been dropped from the Program as a result of:

1. Not passing the required qualifying exam.
2. Not fulfilling the admission requirements for candidacy in the time limit specified.
3. Not passing the proposal defense.
4. Not satisfying the thesis or dissertation requirements in the time limit specified.

If a student decides to leave the Graduate Program before completing the degree, he or she must advise the Graduate Program Coordinator in writing of this decision. Similarly, if the student resigns from a teaching or research assistantship, he or she must submit their resignation by letter to the Graduate Program Coordinator.

Any student who fails to register for a semester must request readmission to the Graduate Program and to the University. Students can request, in writing, a leave of absence from the graduate program by submitting a letter to the Graduate Program Coordinator, co-signed by the Graduate Advisor, at least one week prior to registration. A leave of absence can be approved for up to one year, renewable for a second year. Beyond two years, the student must request readmission to the Graduate Program and the University.

G. Appeals

Requests to appeal any decision made under these regulations should be sent to the Graduate Affairs Committee by the student in written form. The reasons for appeal should be substantive and documented with additional materials as necessary and sent to the Committee no later than six months after the decision was taken. Once the request has been received, the Committee will have one month to investigate the reasons for the appeal and respond to the student.

H. Graduation

The student will fill out the graduation application in the Registrar's Office during the first week of the semester in which he or she expects to complete all requirements of the degree. At the time of applying for graduation, the student is responsible to have already applied for reclassification, validated courses, or has an extension for the validation of these courses if necessary. It is recommended that the student requests an evaluation of their academic record and status in the Graduate Program from the Coordinator of the Program at least one year before graduation. The student is responsible for removing any deficiencies and holding a 3.00 GPA at the time of graduation. Three bound copies and one electronic copy in pdf format of the thesis or dissertation should be handed into the Environmental Graduate Program no later than four weeks before the semester ends. Two of these bound copies will be kept at the Library of Natural Sciences and the third one will be kept in the Environmental Science Graduate Program. An additional copy will be given to the Graduate Advisor. Additional electronic or bound copies can be distributed to the remaining committee members. It is the student's responsibility to be aware of and meet all the degree requirements. The Graduate Program Coordinator will advise the student on this. A Certification of Graduation will not be given until the student hands in the bound copies of the thesis or dissertation. It is a requirement of all doctoral students to register their dissertations in the international bibliography bank of University Microfilms Inc.

I. Review of this Document

This document must be reviewed by the Graduate Affairs Committee within three years of its approval. See cover sheet for date of last approval.

Appendix A. This section provides detailed information on course sequences based on emphasis area and program.

Core courses

The core courses will be taken both by Master's and Doctoral students in Environmental Science.

<u>Code</u>	<u>Title</u>	<u>Credits</u>	<u>Hours</u>
CIAM 6115	The terrestrial environment	3	45
CIAM 6116*	Tropical ecosystems	3	45
CIAM 6117	The coastal environment	3	45
CIAM 6118	The urban environment	3	45
CIAM 6235*	Remote sensing I	3	45
CIAM 6256	Methods for statistical analysis of environmental systems	3	45

* These courses (CIAM 6116: Tropical ecosystems and CIAM 6235: Remote Sensing I) are required for those students interested in completing a degree in Environmental Modeling and Spatial Analysis and in Sustainable Management of Islands and Tropical Regions. Students that wish to pursue an interdisciplinary option can take one or more emphasis courses (or none of them) of the other separate emphasis areas (for example, one course in each area) or other courses of content level 5000 or 6000 offered in any graduate programs of the College of Natural¹ Science, with prior authorization of the Program Director or Environmental Science Program Coordinator. Among these courses are:

BIOL 6115	Communities and ecosystems
BIOL 6125	Microbial ecology
BIOL 6126	Population ecology
BIOL 6145	Bioconservation
BIOL 6190	Advanced ecology
BIOL 6367	Ecological genetics
BIOL 6999	Special topics in modern biology
FISI 6441	Nuclear physics
MATE 6601	Probability and statistics I
MATE 6602	Probability and statistics II
MATE 6700	Projects in applied mathematics
QUIM 6215	Theory of analytical chemistry
QUIM 6225	Theory of instrumental analysis

¹ Many of the core courses offered by other graduate programs of the College of Natural Sciences require, as a prerequisite, undergraduate level courses. If a student is interested in taking a core course which has an undergraduate prerequisite, the prerequisite must be taken without these undergraduate credits counting towards the Master's or Doctoral degree.

Emphasis area courses: Option in Environmental Modeling and Spatial Analysis

Master's students with the option in Environmental Modeling and Spatial Analysis must take at least two of the following three emphasis courses, while Doctoral students in this emphasis must take all three emphasis courses.

<u>Code</u>	<u>Title</u>	<u>Credits</u>	<u>Hours</u>
CIAM 8225	Methods in spatial analysis	3	45
CIAM 8236	Remote sensing II	3	45
CIAM 8257	Techniques for construction of environmental models	3	45

Emphasis area courses: Option in Sustainable Management of Islands and Tropical Regions

Master's students with the option in Sustainable Management of Islands and Tropical Regions must take at least two of the following three emphasis courses, while Doctoral students in this specialization must take all three emphasis courses.

<u>Code</u>	<u>Title</u>	<u>Credits</u>	<u>Hours</u>
CIAM 8425	Environmental geology	3	45
CIAM 8435	Environmental hydrology	3	45
CIAM 8445	Environmental meteorology	3	45

Emphasis area courses: Interdisciplinary option

Master's students in the interdisciplinary option, with prior authorization from the thesis committee, may take any two courses in the Environmental Modeling and Spatial Analysis emphasis or Sustainable Management of Islands and Tropical Regions emphasis or substitute these for an equal amount of credits in level 8000 courses offered by other graduate programs in the College of Natural Sciences of the campus. Doctoral students in the interdisciplinary option, with prior authorization from the thesis committee, may take any three courses in the Environmental Modeling and Spatial Analysis or Sustainable Management of Islands and Tropical Regions emphasis or substitute these for an equal amount of credits in level 8000 courses offered by other graduate programs in the College of Natural Sciences on campus. Among these courses are:

MATE 8990	Topics in applied mathematics I
MATE 8995	Topics in applied mathematics II
QUIM 8211	Advanced analytical chemistry I
QUIM 8212	Advanced analytical chemistry II
QUIM 8992	Special topics in analytical chemistry
QUIM 8996	Special topics in physical chemistry

Seminars

<u>Code</u>	<u>Title</u>	<u>Credits</u>	<u>Hours</u>
CIAM 8901	Graduate seminar I	1	15
CIAM 8902	Graduate seminar II	1	15
CIAM 8205	Seminar in environmental modeling and spatial analysis I	2	30

CIAM 8206	Seminar in environmental modeling and spatial analysis II	2	30
CIAM 8405	Seminar in sustainable management of tropical islands I	2	30
CIAM 8406	Seminar in sustainable management of tropical islands I	2	30

All Master's or Doctoral students will take the Graduate Seminar courses I and II during their first year. Doctoral students with an option in Sustainable Management of Islands and Tropical Regions and in Environmental Modeling and Spatial Analysis will take the topical seminars corresponding to their emphasis option. Doctoral students in the interdisciplinary option, with prior authorization from the thesis committee, can take any of these two seminar courses or substitute them for an equal amount of credits in advanced seminars offered by other graduate programs in the College of Natural Sciences of the campus. Among these are found:

BIOL 8368	Seminar in population biology
QUIM 8205	Seminar in analytical chemistry I
QUIM 8206	Seminar in analytical chemistry II

IGERT Program

IGERT students follow the Interdisciplinary Option but are required to complete courses totaling 60 credit hours, including 12 hours of general requirements for the graduate program per se, 12 credit hours in the IGERT Integrative Core, 12 credit hours in specialty and elective courses, 2 credit hours in graduate seminars, 4 credit hours in specialty seminars, and 18 credit hours for a doctoral dissertation.

Appendix B. Current faculty members of the Environmental Science Graduate Program (October 28, 2010). Check the Environmental Science website for an up to date list.

NAME	Email address	DEGREE AND SPECIALTY	AFFILIATION	Research area	COURSES TAUGHT at UPRRP
James Ackerman	ackerman.upr@gmail.com	Ph.D. Taxonomy, plant ecology	UPR-RP Biology	Plant ecology and taxonomy	• Plant Reproduction Processes • Plant taxonomy • Plant Organismal Biology
T. Mitchell Aide	tmaide@yahoo.com	Ph.D. Community ecology	UPR-RP Biology	Tropical plant ecology, restoration ecology	• Communities and Ecosystems • Zoology Seminar • Advanced Ecology: Critical Thinking on the State of Conservation and the Environment
Rafael Arce	scoreupr@gmail.com	Ph.D. Physical chemistry	UPR-RP Chemistry	Photochemistry of atmospheric pollutants	• Physical chemistry
Nicholas Brokaw	nvbrowaw@ites.upr.edu	Ph.D. Tropical forest ecology	UPR-RP Institute of Tropical Ecosystems	Forest ecology	• Ecology • Advanced Ecology: Tropical Forest Ecology
Patricia Burrowes	paburrowes@uprrp.edu	Ph.D. Ecology, herpetology	UPR-RP Biology	Amphibian population dynamics	• Animal Organismal Biology
Tugrul Giray	tgiray2@yahoo.com	Ph.D. Animal behavior	UPR-RP Biology	Animal behavior (bees)	• Animal behavior • Evolution
Edwin Hernández	coral_giac@yahoo.com	Ph.D. Marine ecology	UPR-RP Biology	Reef and coral ecosystems	• Themes in Biology: Marine Biology
Ariel Lugo	alugo@fs.fed.us	Ph.D. Tropical ecology	International Institute of Tropical Forestry (USDA)	Tropical forest ecology	Natural History of Puerto Rico
Mariano Marcano	mmarcano@uprrp.edu	Ph.D. Applied mathematics and modeling	UPR-RP Mathematics	Numeric systems, linear and non-linear system optimization, mathematical modeling	• Computational Analysis
Olga Mayol-Bracero	omayol@ites.upr.edu	Ph.D. Analytical chemistry	UPR-RP Institute of Tropical Ecosystems	Chemistry of tropical atmospheric pollutants	Seminar in Analytical Chemistry • Special topics in Chemistry
Elvia Meléndez- Ackerman	elmelend@gmail.com	Ph.D. Plant ecology	UPR-RP Institute of Tropical Ecosystems	Population ecology and biodiversity	• Ecology • Plant Reproduction Ecology (grad) • Bioconservation (grad)
Jorge Ortiz	jorgeortiz.ites@gmail.com	Ph.D. Hydrology	UPR-RP Institute of Tropical Ecosystems	Hydrology	• Limnology • Seminar in Environmental Sciences • Aquatic Resources
Luis R. Pericchi	luispericchi@yahoo.com	Ph.D. Statistics and applied mathematics	UPR-RP Mathematics	Statistics and mathematical modeling	• Probability and Statistics
Alonso Ramírez	alonso.ites@gmail.com	Ph.D. Limnology	UPR-RP Institute of Tropical Ecosystems	Aquatic ecology	• Limnology • Aquatic Entomology
Carla Restrepo	crestre@hpcf.upr.edu	Ph.D. Landscape ecology	UPR-RP Biology	Landscape ecology, landslides	• Ecology • Large Scale Ecology • Seminar in Zoology: Complex Adaptive Systems • Themes in Biology: Darwinian Medicine
Rafael Ríos	rafaelrios00936@yahoo.com	Ph.D. Environmental health engineering	UPR-RP Environmental Sciences	Pollution control	• Water and Wastewater Treatment • Solid Waste Management
Loretta Roberson	loretta.roberson@gmail.com	Ph.D. Biological Sciences	UPR-RP Enviro Sci	Marine plant ecophysiology	• Coastal processes
Oswaldo Rosario	rosario_o@msn.com	Ph.D. Organic chemistry	UPR-RP Chemistry	Methods in analysis of environmental pollutants, air pollution analysis, bioaccumulation of pollutants	• Environmental Chemistry • Instrumental Analysis • Chromatographic Separations • Capillary Electrophoresis • Environmental Sampling • Analysis of Organic Pollutants in Air • Analysis of Organic Pollutants in Water
Vance Vicente	vance@prtc.net	Ph.D. Marine sciences	Consultant		• Tropical Island Marine Resources
Mei Yu	meiyupr@yahoo.com	Ph.D. Spatial analysis, modeling	UPR-RP Institute of Tropical Ecosystems	Environmental spatial analysis, GIS and remote sensing	Ecology, GIS, Remote Sensing
Jess K. Zimmerman	jesskz@ites.upr.edu	Ph.D. Plant ecology	UPR-RP Institute of Tropical Ecosystems	Plant communities and response to disturbances	• Biometry • Introduction to Ecology
Xiaoming Zou	xzou2000@yahoo.com	Ph.D. Forest ecology	UPR-RP Institute of Tropical Ecosystems	Soil nutrients and biogeochemical cycles	• Ecology • Ecology Laboratory • Biogeochemistry

FORM 1

**UNIVERSITY OF PUERTO RICO
ENVIRONMENTAL SCIENCES GRADUATE PROGRAM
REQUEST FOR TRANSFER OF CREDITS**

Student Name _____

Date _____

Student Number _____

MSc PhD

Official Transcripts: on file requested

INSTRUCTIONS: As per Certification Num. 72, 1991-92 of the Academic Senate, a maximum of a third (1/3) of the course credits required for the corresponding M.Sc. or Ph.D. (8 and 14 credits, respectively) that were earned at another institution or UPR can be accredited (check box above). Only graduate courses (or their equivalents) approved with a grade of A or B can be co-validated. Please submit an official copy of your academic record from each university you would like to co-validate credits, if we do not already have your official transcripts on file (check box above). Please attach to this form a description of each course from the course catalog where credits were received. The student must also present a letter from the UPR Registrar in which it is stated that such courses were not used to fulfill the requirements of the BSc at UPR.

Course Number	Course Title	University	Date Completed	Credits	Grade

Total Credits Requested _____

Student Signature

Approval of Graduate Program
Coordinator

Date

FORM 2

**UNIVERSITY OF PUERTO RICO
ENVIRONMENTAL SCIENCES GRADUATE PROGRAM**

Application for Student Advisory Committee (SAC)

Student Name _____

Student Number _____

_____ Masters _____ Doctorate

Date of Application _____

Area of interest / specialty : _____

Preliminary title of thesis / dissertation:

Proposed composition of Student Committee:

_____	_____	_____
Name of Advisor	Department	Signature

_____	_____	_____
Committee Member	Department	Signature

_____	_____	_____
Committee Member	Department	Signature

_____	_____	_____
Committee Member	Department	Signature

_____	_____	_____
Committee Member	Department	Signature

Signature of Student

Approval
Graduate Program Coordinator

FORM 3

**UNIVERSITY OF PUERTO RICO
ENVIRONMENTAL SCIENCES GRADUATE PROGRAM**

Change in the Constitution of Student Advisory Committee (SAC)

Student Name _____

Student Number _____

_____ Masters _____ Doctorate

Date of Application _____

Area of interest / specialty : _____

Preliminary title of thesis / dissertation:

Proposed composition of Student Committee:

_____ Name of Advisor	_____ Department	_____ Signature
_____ Committee Member	_____ Department	_____ Signature
_____ Committee Member	_____ Department	_____ Signature
_____ Committee Member	_____ Department	_____ Signature
_____ Committee Member	_____ Department	_____ Signature

Signature of Student

Approval
Graduate Program Coordinator

FORM 4

**UNIVERSITY OF PUERTO RICO
GRADUATE PROGRAM IN ENVIRONMENTAL SCIENCES**

APPROVAL OF QUALIFYING EXAMINATION PART B (PH.D)

Date: _____

Student: _____

Student Number: _____

Student Committee:

_____ Name of Advisor	_____ Department	_____ Signature
_____ Committee Member	_____ Department	_____ Signature
_____ Committee Member	_____ Department	_____ Signature
_____ Committee Member	_____ Department	_____ Signature
_____ Committee Member	_____ Department	_____ Signature

Approval
Graduate Program Coordinator

FORM 5

**UNIVERSITY OF PUERTO RICO
GRADUATE PROGRAM IN ENVIRONMENTAL SCIENCES**

APPROVAL OF PROJECT PROPOSAL

___ M.S. ___ PH.D

Date: _____

Student: _____

Student Number: _____

Student Committee:

_____ Name of Advisor	_____ Department	_____ Signature
_____ Committee Member	_____ Department	_____ Signature
_____ Committee Member	_____ Department	_____ Signature
_____ Committee Member	_____ Department	_____ Signature
_____ Committee Member	_____ Department	_____ Signature

Approval
Graduate Program Coordinator

NOTE: This certification is a commitment between the student and their Committee. Any alteration or substantial change in the scope of the proposal must be done with the approval of the student's Committee.

FORM 6

**UNIVERSITY OF PUERTO RICO
GRADUATE PROGRAM IN ENVIRONMENTAL SCIENCES**

APPROVAL OF THESIS OR DISSERTATION DEFENSE

___ Thesis ___ Dissertation

Date of Defense: _____

Student: _____

Student Number: _____

Title of Project:

Approved ___ Approved with conditions ___ Not Approved ___

Student Committee:

_____	_____	_____
Name of Advisor	Department	Signature
_____	_____	_____
Committee Member	Department	Signature
_____	_____	_____
Committee Member	Department	Signature
_____	_____	_____
Committee Member	Department	Signature
_____	_____	_____
Committee Member	Department	Signature

Approval
Graduate Program Coordinator

Conditions (continue on back as necessary):

FORM 7

**UNIVERSITY OF PUERTO RICO
ENVIRONMENTAL SCIENCES GRADUATE PROGRAM**

Annual Progress Report

Student Name:	
Student Number:	
Date entered into Graduate Program: Month _____ Year _____	
Date of meeting :	
Approval:	
Name of Advisor	Signature
Committee Member	Signature
Committee Member	Signature
Committee Member	Signature
Committee Member	Signature
Summary of Accomplishments (give date):	
Approval of Student Advisory Committee:	
Approval of Qualifying Examination (indicate Part A or B or both):	
Approval of Project Proposal:	
Teaching conducted (list by Semester and Year):	
Economic Aid Received (list by Semester and Year):	

Courses	Credit	Grade	Courses	Credit	Grade	Annual Evaluation
Thesis/dissertation Credits						
Publications (specify if in preparation, submitted, or in press):						
Presentations at Conferences						
Proposals submitted:						
Honors received:						
Comments from Committee:						

Notes: