

Environmental Science Ph.D. Student Handbook

**Department of Earth & Environmental
Sciences
Rutgers-Newark**

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Environmental science Ph.D. Student Handbook

Introduction

The Graduate Program Director typically holds a seminar for new students matriculating in the program within the first two weeks of the semester. Many of these details are covered then and attendance is mandatory for new students.

The doctoral program is typically arranged in two phases. In the preliminary phase, the student pursues formal courses of study whilst initiating their research (early stage research). This phase is completed when the qualifying examination is passed. In the second part, the student pursues an intensive research program and completes remaining formal courses (advanced stage research). It is concluded when the dissertation has been accepted and the defense of it approved.

The Ph.D. student must advance successfully through (1) a Qualifying Exam, (2) presentation of the Thesis Proposal, (3) a Public Dissertation Defense, and (4) a Technical Defense. It is critical that the student choose a Major Research Advisor (MRA) and tentative research project during the first semester in residence. This is a research-oriented degree intended for full-time students. Although courses may be taken on a part-time basis, a minimum of one year of full-time residency normally is required for completion of the doctoral dissertation.

Student progress will be monitored by several means, including the Progress Review Form (see pages 14-16) which is to be completed by student and MRA (major research advisor), discussed between student and MRA, and then submitted to the GPD by 15 January or 25 May.

Formation of Dissertation Committee

By the end of the second semester, the MRA, in consultation with the student, will appoint a Dissertation Committee (DC). The MRA serves as the Chair of the DC. The minimum and usual number of members of the DC is four. As a minimum, the committee must consist of the MRA, and three additional faculty members from the program or experts from outside institutions. At least one member must be a full-time assistant, associate or full professor from DEES. The additional program members are not required to be from DEES. At the discretion of the MRA, one postdoctoral scientist in DEES may also serve on the committee. The MRA can change the faculty representatives on the committee if it is in the best interests of the student's academic progress.

The MRA is responsible for helping the student define an appropriate program of study. As the program offers a diverse range of classes between the Rutgers-Newark, Rutgers-New Brunswick and NJIT offerings that vary by semester, the MRA will advise the student on appropriate courses to support their research on a per semester basis. The student may not deviate from the courses to be taken without first consulting with the MRA. If any difficulties with the program are encountered (e.g., failing a course and wishing to drop it, or feeling the course load is too heavy), the student must arrange a meeting of the MRA to consider the matter.

Ph.D. Program Progress Monitor Form (PMF)

During each semester the student must arrange a progress review meeting with the MRA. At this meeting the Ph.D. Progress Monitor Form (PMF) will be completed and signed by the student and MRA. This form provides a record of advisement, intended and completed coursework, proposal topics, thesis proposal defense, and the proposed dates of the technical and public defense of the thesis. The completed PMF is returned to the Graduate Program Director (GPD) to be filed in the student's folder as confirmation of the student's progress toward the degree objective and must be updated by the MRA every semester. Failure to follow the above requirement will result in a "hold" being placed on the student's university record preventing further course registration. The hold will not be removed until the PMF is completed and turned in to the office. The PMF must be returned to the office prior to January 15 for the prior Fall semester and May 25th for the prior Spring semester. Satisfactory progress toward the degree, as determined by the PMF, is required at all times.

The department has an assessment plan in place that is used to evaluate the progress of all students. This plan is included at the end of this handbook.

Formal Course Work

Formal course work is defined as 'actual classes' taken. This does not include seminars or courses numbered 26:375:701 and 26:375:790. A list of all courses the student takes each semester must be approved by their MRA and attached to their PMF. This list will define an evolving program of study. A minimum of 30 credits of formal course work is required for the Ph.D. degree. A maximum of 12 of these credits can be satisfied by previously earned graduate credits at the discretion of the GPD. This arrangement should be in writing prior to matriculation into the Ph.D. program. In all, a minimum of 18 formal course credits is required for the PhD degree for students who have entered the program with a Masters degree, and 30 credits for those students entering without a Masters degree.

A full-time normal academic load is defined as 9 or more credits per semester. A load of 18 credits or more requires the approval of the Dean of the Graduate School—Newark. For most purposes, a student who has registered for 9 or more credits has full-time status, and a student registered for 8 or fewer credits has part-time status. The following students must register for a full-time program of 9 or more credits: graduate fellows, research interns (some credits must be associated with degree related research), and graduate and teaching assistants. Fellows, interns, and assistants must register their appointments according to the appropriate designations in the *Schedule of Classes*. In addition to regular course work, the following also are included in the calculation of credits: research courses, regular courses taken not-for-credit, and graduate and teaching assistantships (usually 6 credits each). Graduate and teaching assistants must remain in good standing in their own programs. In addition to their half-time academic appointments, assistants are required to register for **a minimum of 9 credits of course work or research, which qualifies them for full-time status.**

Incoming students should be full time students in order to prepare for admission to candidacy for the degree as soon as possible and to allow for registration for thesis research during later semesters. Students are encouraged to become involved in the thesis research topic as soon as possible after enrollment.

Full and part time student status based on credit hours per semester

Student Type	Full - Time		Part – Time
	<i>Min. Credit Hrs</i>	<i>Max. Credit Hrs</i>	
Non Assisted Students	12	18	8 Hrs or Less
Teaching Assistants	9	12*	Not Allowed
Research Assistants	9	12*	Not Allowed

**more than 12 credit hours requires the approval of the Dean of the Graduate School*

Typically, students enroll for a combination of formal course credits and research credits during their preliminary phase (375:701 *Environmental Science Research; Graduate Research*) to achieve full time status. After completing the prior to the beginning of the fourth semester, students must sign up for research credits under 26:375:790 *Doctoral Dissertation (Thesis Guidance)*. Unsatisfactory progress of research credits (either :701 or :790) will result in a grade of “U” and may be grounds for dismissal from the degree program. If a student has completed his/her formal course and research credits (30 and 30 credits, respectively) or leaves the university before receiving the degree, he/she must maintain active enrollment by registering for at least one credit hour of Matriculation Continued (26:380:800) each semester until the degree is conferred.

International Students must consult with GPD to ensure that they are registered as full time students regardless of whether they have completed formal course and research credits, until they have graduated. This is to ensure they are not out of compliance with visa requirements.

Timeline Summary and Maximum Time Allowance

The expected timeline to meet programmatic requirements is summarized here, with details provided in the following sections. Before the beginning of the fourth semester, a full time student must pass the qualifying exam (typically concurrent with completion of 18 credits in formal course work while enrolled in DEES). By the end of the fourth semester, dissertation proposals must be submitted and approved prior to the start of the fifth semester. Part-time students must pass the qualifying exam at the end of

the semester when they complete 18 formal course credits. They must submit their dissertation proposal the following semester, which must be finalized (approved) before the start of the semester following that.

The Graduate School sets a maximum of seven (7) years and a minimum of three (3) years for full-time students to get a Ph.D. degree from the date of initial registration into the program and a maximum of eight (8) years and minimum of four (4) years for part-time students. Three years is the expected time for a student with a Master's degree to complete a Ph.D., four years if the student has not received a Master's prior to admission to the program. Students in the Ph.D. program who have not completed the requirements for the degree at the end of five years will be sent a warning letter from the GPD pointing out the University's seven year deadline for the degree, and noting that unless the student finishes at the end of ten semesters, he/she will have failed to maintain the expected rate of progress. At the end of six years essentially the same letter will be sent. During the 12th semester an *ad hoc* committee (the MRA is not a member of the committee but is the presenter of the case) will formally review the case. A schedule for completion of the remaining major requirements prior to the end of the 14th semester is communicated to the student. Near the end of the 14th semester the committee will hear reasons, if any, not to expel the student at the end of that semester. A decision is required. This procedure is to be repeated every semester thereafter.

Academic Grade Requirements

Candidates for the Ph.D. degree are expected to earn grades of B or better in their course work. No more than 6 credits or 2 courses with a grade of C or C⁺ can be counted towards satisfying formal course requirements. The Graduate School-Newark requires that all students maintain a minimum cumulative B average during each term of study to remain enrolled. If a student's academic performance falls below the expected standard, the program or school will review the record and make recommendations concerning that student's future registration in The Graduate School-Newark.

Satisfactory Progress

The lack of satisfactory progress in either coursework or research will be noted on the PMF. After two consecutive semesters of unsatisfactory progress in a combination of these categories, a hearing will be held to determine if the student should be terminated from the degree program. Likewise, after two consecutive semesters of unsatisfactory progress, the DC may make a unanimous written recommendation to the GPD, which would also initiate a hearing. The Department Chair would organize these hearings. If the MRA is either the Department Chair or the GPD, the second most senior member of the department will replace the MRA as DC or GPD in this process. The hearing will include comments made by the student and the student's MRA.

Earth & Environmental Sciences Seminar Series

In an effort to familiarize students and faculty with current research by specialists in the broad field of Earth & Environmental Sciences, the Department frequently schedules lectures presented by visiting scientists as well as members of this and other departments at Rutgers-Newark. Students are expected to actively participate in all department seminars when scheduled. The students who work as GTA can be exempt

from this requirement when the seminar conflicts with their teaching or normal experiments.

Annual Graduate Student Retreat

The department holds an annual 1-day retreat for graduate students towards the end of each spring semester. The purpose of this retreat is to foster interdisciplinary interaction among graduate students in Earth and Environmental Sciences on the Rutgers Newark campus. It is also meant to be an opportunity to meet in an informal setting to discuss some of the challenges and opportunities of being a graduate research student. Note that this retreat is mandatory for all students receiving financial support (of any kind) from the department. Other students are strongly encouraged to attend this retreat, but not required.

Degree Requirements

The Doctor of Philosophy degree is a research degree and is awarded as a result of the successful completion of a scientifically significant and unique research project, presented in the form of a Ph.D. dissertation. It is the student's responsibility to ensure that all degree requirements are met in a timely fashion. Regular updating of the PMF is implemented to assist the student towards this goal. The Graduate School has several stringent requirements regarding time. These deadlines are strictly enforced and failure to meet them will result in a delay of graduation by one whole semester with the cost of continued registration. The requirements involve the following:

- Continuous registration (“matriculation continued” counts) including the semester in which all degree requirements are completed, whether the student is on campus or not (continuous registration in every fall and spring term thereafter until completing the program and earning the degree)
- Maintain a minimum overall GPA of 3.0; and no more than 6 credits with a grade of C or C+
- Take a minimum of 30 formal course credits during enrollment at Rutgers-Newark (up to 12 credits from previous M.S. or other graduate work can be counted towards this). Up to six credits of Independent Study (26:375:725, 726) can be counted towards this requirement.
- Take a minimum of 30 credits of research credits under 26:375:701, 26:375:702 or 26:375:790.
- Maintain active enrollment status during each semester until graduation, including Matriculation Continued credits.
- Submission of Application to Candidacy to the Graduate School prior to deadlines listed below:

<i>Diploma Date</i>	<i>Diploma Application Deadline[#]</i>	<i>Candidacy Application Deadline*</i>
October	August 1	October 1
January	November 1	January 4
May	March 1	May 1

The candidacy application form is available at:

<https://www.gsn.newark.rutgers.edu/phd>

* Part 1 of the application is to be completed as per instructions and filed with the Graduate Dean's office. The application is then collected before the final examination, the necessary signatures obtained and the application returned to the Graduate Dean's office. *ALSO SEE THE GRADUATE SCHOOL REQUIREMENTS FOR MASTERS CANDIDATES AT THE END OF THIS DOCUMENT*

The Qualifying Exam

Doctoral students must pass the qualifying examination prior to the start of their fourth semester. A student is allowed only two attempts to pass this examination. The examination is organized by the MRA in collaboration with the other members of the DC. It is designed as a comprehensive measure of a student's knowledge, and the examination is both written and oral.

There are two options for the qualifying or comprehensive examination as determined by the MRA, DC and student.

- 1) Four (4) questions, one from each member of the DC, requiring a written response and designed to take approximately 2 hours each. Two weeks after the written examination, an oral examination of approximately two hours will be conducted by the DC.
- 2) Preparation of a written research document that includes primary data tied to professional literature may be submitted to the DC. Two weeks after submission, an oral examination of approximately two hours will be conducted by the DC.

The decision of the DC will be PASS (with any conditions being specified and summarized in writing, including a timetable for completion of the conditions if deemed appropriate) or FAIL/RE-TAKE (with advice given to inform the student as to what the major deficiencies were and a clear timetable for re-examination).

Students must obtain an Application for Admission to Candidacy for the Degree of Doctor of Philosophy form from the graduate school or online prior to the qualifying exam and complete all of the requested information. This form is downloadable from:

<https://www.gsn.newark.rutgers.edu/phd>

Once the exam is completed, the DC must render a decision in writing and the form must be endorsed by the GPD. **The form is then submitted to the graduate school by the student.** The student is also responsible for ensuring that a digital copy of the DC decision is provided to the GPD. Upon satisfactory completion of the qualifying examination and acceptance by the Graduate School, the candidate will be formally accepted into the research phase of the graduate program. Unless accepted into this standing, the candidate is ineligible to proceed with the research part of the degree program.

Dissertation Proposal

Within four terms of their admission to the program, each doctoral student must make a formal oral presentation on the scope of his or her proposed research to members of the DC and to any other interested persons. Within one month of this presentation, the DC members must approve formally a dissertation proposal.

A well thought out, concise dissertation proposal should NOT exceed twelve (12) double line-spaced pages of text. Figures, extensive sets of equations, and literature references (where necessary) are not included within the page limit but should only be included as needed to support the proposed program of research. Background/context of the research, techniques of data collection to be used, methods of analysis of the data collected, nature of results to be expected, and the significance of the research should be included. The purpose of the proposal is to determine whether the student is prepared to undertake the remainder of the thesis research (beyond what has already been conducted under supervision of adviser) required to complete a Ph.D. degree. The proposal represents a roadmap for the remaining research required to meet the minimum thesis requirements (in terms of papers) described below.

The decision of the DC will be PASS (with any conditions being specified and summarized in writing, including a timetable for completion of the conditions if deemed appropriate) or FAIL/RE-TAKE (with advice given to inform the student as to what the major deficiencies were and a clear timetable for re-examination). In accordance with the Ph.D. PMF, a proposal must be approved by the end of the fourth semester of the program. When approved, the MRA will place a copy of the proposal (marked with the date of approval and his/her signature) in the student's file. Students should be sure their files have a copy on record.

The Dissertation

The dissertation serves several related educational functions:

- It is beneficial for acquiring competence in certain of the analytical techniques of the earth & environmental sciences;
- It provides practice in application of the scientific method;
- It gives practice in making accurate descriptions of observations, and in giving clear, concise expression of ideas in writing

The final draft of the dissertation for submission to the university should be prepared in strict accordance with the electronic filing instructions provided at:

<https://www.gsn.newark.rutgers.edu/phd>

After the committee has accepted the dissertation, the student must file the thesis with the Office of the Dean of the Graduate School no later than the announced deadlines for completion of degree requirements.

Note: Doctoral dissertations will no longer be accepted in hard copy by the Graduate School. All doctoral dissertations must now be submitted in electronic form as per instructions above. Note: Two hard copy title pages with the original signatures of all your doctoral dissertation committee members must be submitted to the Graduate School Dean's Office. Both title pages must be printed on 8 ½" x 11" white, 16 or 20lb weight and 100% rag content paper.

With the dissertation, the candidate is required to submit an abstract, *not exceeding 350 words*, which describes the principal finding of his or her research. As with the dissertation, the professor in charge of the work for the dissertation also must approve the abstract, and other members of the student's committee must accept it.

Dissertations must contain a minimum of three (3) chapters (based on research), and often include additional introductory and summary chapters. One of two publication criteria must be satisfied regarding the three research chapters prior to the dissertation defense. Publication refers to those in professional peer-reviewed international journals. Option one: One manuscript must be accepted or in press, and two must be submitted for review (the 1-2-0- model). Option two: two manuscripts must be accepted or in press, and the data for a third publication must be of publishable quality, as judged by the dissertation committee (the 2-0-1 model). *Nota bene*: While these are minimum requirements for the department, each faculty member reserves the right to hold his/her students to higher publication standards (up to three accepted peer reviewed publications) so long as those standards are made clear to the student at the time the major advisor is chosen, or within the first semester (whichever is later).

The department encourages students to take the initiative in selecting a dissertation subject and in designing their research methods. The suitability and practicality of the selected subject is to be discussed with, and approved by, the MRA before the dissertation proposal is submitted to the department for consideration.

External members of the committee (outside readers)

External members of the committee provide an independent evaluation of the student's research. Outside readers are qualified individuals appointed outside the student's department who normally hold the highest degree in his or her respective field. The outside reader should be carefully chosen to avoid potential conflicts of interest and to include professionals of the highest prominence possible within the particular field. At least one outside reader is recommended to serve on the thesis committee.

The Technical Defense

The Technical Defense Examining Committee will comprise the DC and, whenever possible, include the outside reader. If the research incorporates significant subject matter that is outside the expertise of the DC, the examination committee should include other faculty from the Earth & Environmental Science Department, or if necessary another department, who can evaluate this component of the candidate's project.

The Technical Defense, as defined here, is a special meeting of the candidate's Ph.D. committee at which the student presents the research results for detailed scrutiny. The principal goal of the technical examination is to evaluate whether the candidate has conducted research and obtained results that are likely to be reliable, of substantial scientific importance, and will satisfy the requirements for the degree. The active involvement of the entire DC in the evaluation of the candidate's research at this stage accomplishes two important goals: (1) it enables the DC to provide guidance about the scope of the project; (2) it enables the candidate to make substantial changes, if needed, to the thesis. The student must provide, as preparation for the technical examination, copies of the dissertation to all DC members and the department office for public inspection **at least two weeks prior to the defense.**

The timing & qualifications for the technical defense include:

A. Written Documentation - Two weeks prior to the technical examination, the candidate must circulate to the department and the DC a copy of the dissertation and an abstract of the major contents and conclusions. At the examination this thesis, supplemented by visual aids the candidate believes are appropriate, will form the basis for the presentation and discussion. The examination may also incorporate written questions about these documents from faculty not on the examining committee.

B. Presentation - The candidate should be prepared to present the following at the technical defense:

- 1. Background and goals of the project.*
- 2. Methods of data collection and some representative data.*
- 3. Methods of analysis and major results for work completed and projected.*
- 4. Discussion of outstanding tasks and problems for future research in the field.*
- 5. Summarize the conclusions.*

C. Duration - This presentation should take 45 to 60 minutes. The examining committee will question the candidate about all aspects of the research, as they see fit. In total, the technical defense should occupy no more than two hours.

The examining committee, by consensus, will grade the examination as a pass, conditional pass, or fail. These outcomes and their consequences are defined as follows:

Pass: The technical examination of the thesis indicates that the candidate possesses a mastery of the subject. The research is of high merit and the candidate is approved for the Ph.D. degree. **To receive final approval, students must obtain signatures from all members of the dissertation committee.**

Conditional Pass: The degree of technical mastery is as for Pass but significant portions of the thesis need modest revision or reconsideration. The current thesis does not assure a successful completion prior to the candidate's intended date for submission of the dissertation, but this outcome is likely if the candidate carries out the needed revisions. The committee will suggest remedies for the deficiencies (if possible), and set a specific timetable for their completion. This work may cause a delay in graduation. A repeat of the technical examination is unnecessary.

Fail: The student did not display a sufficient mastery of the field; major problems exist with the research that require extensive revision and reconsideration. These deficiencies indicate that it is almost certain the work will not be or could not be successfully completed before the intended date of graduation. The DC may permit a repeat of the technical examination or may recommend to the department that the student is dismissed from the doctoral program. If permitted to repeat the examination, the DC will fully advise of the needed changes and will set a specific timetable for execution of the work. The student must repeat the technical examination within one year of the failed attempt. If they do not receive a pass or conditional pass on the second attempt, the DC again may give directions for revision or may recommend dismissal from the program. Any student who is unable to complete the requirements for the Ph.D. degree may become a candidate for the master of science in environmental science once he or she meets the requirements for that degree.

The Public Defense

A final public examination is held under the auspices of the committee in charge of the candidate's course of study. At this examination, the candidate must defend the dissertation and otherwise satisfy the committee and other faculty members in attendance that he or she is qualified to receive the degree of doctor of philosophy.

The MRA, in consultation with the student and other DC members, is to arrange a place, date, and time for a public defense. The date and time of the defense must be at least two weeks prior to the Graduate School's deadline for all materials to be submitted. A memo prepared by the department office staff detailing this information is to be posted and circulated to all faculty members a minimum of ten (10) working days before the defense is to be held. A copy of the thesis must be placed in the department office at least ten (10) working days before the defense for faculty perusal.

Public defenses may be undertaken at any time of the year providing the DC and the student can agree on a time. Students should be aware that difficulties may arise during exam times and during the summer months. Graduate School requirements with regard to continuous registration and time limits for degree completion are of particular importance to students leaving the university before all requirements have been completed.

At the time of the final examination, the student is responsible for obtaining from the Office of the Dean the candidacy application upon which the result of the qualifying examination is recorded. The committee members complete this application at the final examination and sign the title page of the dissertation to signify their acceptance of it.

Once the GPD certifies that all program requirements have been completed for the degree of doctor of philosophy, the candidate must return the candidacy application to the Office of the Dean. Additional materials to be submitted include one original and one photocopy of the dissertation on 100 percent cotton-content bond paper, two copies of the title page and abstract, the receipted payment form for microfilming, the microfilming agreement form, and additional survey forms as required. All of the above materials must be submitted to the Office of the Dean no later than the announced deadlines for completing degree requirements. The names of those failing to meet these deadlines are removed automatically from the commencement list for that degree date. One copy of the dissertation on regular paper must be provided to the department as well.

Publication of Dissertation and Academic Data

After it grants the doctorate, the Graduate School–Newark has the dissertation microfilmed. The dissertation must therefore be prepared for this purpose with the same care as if it were to appear in printed form. The abstract that must accompany the dissertation also must be ready for publication when it is submitted to the Dean, as it will be published in *Dissertation Abstracts*. University Microfilms of Ann Arbor, Michigan, microfilms the dissertation and publishes the abstract. Information on how to prepare the dissertation and abstract and the agreement with University Microfilms, which the candidate must sign, are available in the Office of the Dean. The fee for microfilming the dissertation and publishing the abstract is \$71.50. Registration of copyright also is available for a fee of \$45.00.

You are responsible for obtaining up-to-date information on the accepted form and organization of the dissertation, including headings, references, and scientific writing in general. Major Thesis Advisors will require a well-organized format before examining the thesis for content.

GRADUATION

When entering their final term, candidates who anticipate faculty recommendation for conferral of the degree are required to follow the procedures listed below.

1. Ensure that all academic requirements have been or will be completed.
2. Make certain that related fees and any outstanding debts to the university are paid.
3. Submit an application for admission to candidacy.
4. Submit a diploma application. The degree cannot be conferred as scheduled and graduation will be delayed if this form is filed after the deadline. If the deadline passes, students will have to refile this form.

The deadlines and documentation required for these steps are available at:

<https://www.gsn.newark.rutgers.edu/phd>

It is the responsibility of the student to complete all requirements for graduation by the scheduled dates. Each student should consult with the GPD of his or her program

and with the Office of the Dean of the Graduate School–Newark with respect to the completion of the requirements for graduation. Conferral of degrees and diplomas occurs once a year at the annual spring commencement. Students who file the applications and complete all other requirements for the degree by the announced October or January dates will have a diploma dated for the respective month, although they will not receive it until the following spring. To provide proof that they have earned a degree before commencement, students may file a written request for a temporary certificate of completion with the Office of the Dean of the Graduate School–Newark. The school withholds diplomas from any student who is under financial obligation to the university.

(2) During the semester just ended did you do any of the following: Submit an article(s) for publication, have an article(s) accepted or published, present a poster(s) or give a talk(s) at a conference or other research setting?

Yes __ No ____

If Yes”, please provide the details below.

(3) During the semester, did you submit any student research proposals? Were you the direct recipient of any research awards or fellowships? Please provide details.

Yes ____ No ____

If Yes”, please provide the details below.

(4) Please describe the major research activities in which you were involved during the semester just ended (two paragraphs maximum).

(5) What do you feel were your most significant strengths or accomplishments this semester?

(6) Are there areas or activities you need to work to improve?

Yes__ No____ Not sure ____

If “Yes” or “Not sure”, please explain briefly.

(7) Do you have any incompletes in your course work, including the semester just ended? Yes ___ No ___

If 'Yes', please indicate for each incomplete: The name and # of the course; the instructor; the semester you took the course, why you did not complete the course, and what you have done or are planning to do to resolve the incomplete.

(8) Please list the courses you took this past semester (name & #), the instructor, and the grade you received in each course. (Include research and independent study). Also, please briefly describe if you feel that they benefitted your research.

(9) During the semester just ended were you engaged in any paid outside employment or self-employment of any kind? Yes ___ No ___

If "Yes", please indicate below: The name of the employer, the nature of your work, approximately how many hours per week you devoted to this work during the semester, and whether or not your advisor gave approval for this work.

(10) Please describe any major concerns that you have with the graduate program, or things that could be done to improve the student experience

If “Yes”, please describe.

3. Have you met with this student to discuss and review your respective answers to this Report? Yes ___ **No** _____

Comments?

First Semester: <input type="checkbox"/> GPA Greater than 3.0 <input type="checkbox"/> Advisor Meeting <input type="checkbox"/> Dissertation committee formed <input type="checkbox"/> Qualifying Exam <input type="checkbox"/> Dissertation Proposal Approval	Second Semester: <input type="checkbox"/> GPA Greater than 3.0 <input type="checkbox"/> Advisor/Committee Meeting <input type="checkbox"/> Dissertation committee formed <input type="checkbox"/> Qualifying Exam <input type="checkbox"/> Dissertation Proposal Approval
Third Semester: <input type="checkbox"/> GPA Greater than 3.0 <input type="checkbox"/> Committee Meeting <input type="checkbox"/> Qualifying Exam <input type="checkbox"/> Dissertation Proposal Approval	Fourth Semester: <input type="checkbox"/> GPA Greater than 3.0 <input type="checkbox"/> Committee Meeting <input type="checkbox"/> Dissertation Proposal Approval
Fifth Semester: <input type="checkbox"/> GPA Greater than 3.0 <input type="checkbox"/> Committee Meeting	Sixth Semester: <input type="checkbox"/> GPA Greater than 3.0 <input type="checkbox"/> Committee Meeting <input type="checkbox"/> Application to candidacy <input type="checkbox"/> Technical Defense <input type="checkbox"/> Public Defense
Seventh Semester: <input type="checkbox"/> GPA Greater than 3.0 <input type="checkbox"/> Committee Meeting <input type="checkbox"/> Application to candidacy <input type="checkbox"/> Technical Defense <input type="checkbox"/> Public Defense	Eighth Semester: <input type="checkbox"/> GPA Greater than 3.0 <input type="checkbox"/> Application to candidacy <input type="checkbox"/> Technical Defense <input type="checkbox"/> Public Defense

GRADUATION CHECK LIST (IN ORDER TO GRADUATE)

Environmental Science Ph.D.

An approved Application to Candidacy (with all necessary attachments, including original transcripts)
Electronic submission of the dissertation to the Graduate School
Compliance with the Graduate School regulations regarding degree conferral
One hardbound <i>and</i> CD copy of thesis to the department.
One hardbound or CD (at the discretion of the advisor) copy of thesis to your thesis advisor.
One softbound or CD (at the discretion of the faculty member) of the copy to each faculty member serving on your committee
One unbound copy of the dissertation
One extra copy of title page and abstract (less than 350 words)
Graduate School Billing Form

Department of Earth and Environmental Sciences Graduate Program in Environmental Science Ph.D. Degree: Learning Goals and Assessment

The Department of Earth and Environmental Sciences (DEES) Graduate Program in Environmental Science strives to have students complete degrees that allow them to become leaders in their areas of expertise in research institutions, governmental agencies, non-governmental organizations and industry.

Learning Goal 1 for Students: Distinguished research, scholarship, teaching, and leadership skills in environmental science

Assessment of student achievement of Goal 1:

- Grades in graduate courses.
- Successful completion of the PhD qualifying exam by the end of the third semester showing clear command of the selected subject area and ability to perform independent research.
- Advising by student's committee members and the graduate program director.
- Teaching evaluations for those students engaged in teaching and pedagogy.
- Attainment of employment in positions requiring the expertise obtained with the degree.

Role of the program in helping the students to achieve Goal 1:

- Graduate director ensures that all students locate a faculty dissertation advisor within the first semester of enrollment.
- A graduate handbook, available on the department website, provides a comprehensive guide for students navigating the program; the handbook is reviewed by the faculty yearly to ensure it is up to date.
- Graduate director ensures that all students have formed an advisory committee consisting of the primary advisor and three committee members by the end of the first semester of study; at least one committee member from an external institution is strongly encouraged.
- Course learning goals are explicitly stated on all course syllabi and on course webpages; all graduate courses are listed on the department website.
- Primary advisor guides students to select appropriate classes within the many areas of environmental science that ensure they have the required skill sets and knowledge to succeed as a researcher.
- Students are required to complete the Annual Progress Review Form (PRF) at the end of each academic year. Copies are given to and reviewed by the primary advisor, their committee members and the graduate director who are responsible for ensuring that students are reaching all major degree milestones (e.g. qualifying exams) and are on track to complete their degree in a timely manner. In addition to helping the department track student progress, the PRF serves to keep the students aware of and focused on upcoming milestones.
- Departmental/program newsletter highlighting publications, presentations, grants, awards and achievements of both faculty and students in the DEES program; the newsletter also serves to illustrate the importance of communicating research and scholarship to the scientific community and the general public.

- Dedicated student webpages highlight publications, presentations, grants, awards and achievements of the students in the DEES program.
- Students are encouraged to teach during their graduate training to become familiar with the classroom setting and learn teaching skills.
- Faculty reviews the graduate curriculum yearly to ensure that course offerings are sufficient and current in content.

Learning Goal 2 for Students: Engage in and conduct original, publishable research

Assessment of student achievement of Goal 2:

- Thesis proposal completed and defended by the end of the fourth semester.
- Dissertation prepared and defended successfully.
- Attendance and presentations (posters or talks) at local and national venues during the graduate study.
- Publication of scholarly articles in peer-reviewed journals on research in the dissertation project; the thesis must include at least three peer-reviewed publications (one published, one accepted and one submitted to review is the minimum requirement before a student may defend).
- Attainment of internal and external grants/fellowships for research.
- Attainment of awards for research achievements.

Role of graduate program in helping students achieve Goal 2:

- Annual 1.5 day graduate student retreat held off-campus at the end of the each academic year to foster interdisciplinary interaction among graduate students in DEES and provides an informal setting in which to discuss the challenges and opportunities of being a graduate research student. All information presented at the website is provided as a reference for graduate students on the department website.
- Graduate director (and advisor) introduces students to research possibilities in the first semester.
- Graduate director advises students to meet with their advisor and committee frequently to act as mentors throughout the student's graduate career.
- Graduate director and department website highlight opportunities to write and submit grants to obtain external funding.
- DEES Graduate Program Seminar Series provides the opportunity for students to interact with local and visiting scientists, and showcases the most current research in environmental sciences on a weekly basis.
- Provide public opportunities for the students to present their research and gather feedback from peers and colleagues e.g. through the graduate seminar series and student chapters established on campus.
- Provide courses that require a research and writing component with critical feedback.
- Graduate director and primary advisor track student publications and presentations, and nominate eligible student candidates for awards.

Learning Goal 3 for Students: Professional career preparation

Assessment of graduate student achievement of Goal 3:

- Graduate student teaching evaluations.
- Track number of publications, presentations, and outreach activities.
- Placement of students upon completion of degree.
- Feedback from employers of graduate students.

Role of graduate program in helping students to achieve Goal 3:

- Promote an academic atmosphere that fosters professionalism by treating students as junior colleagues and expecting them to act in that manner.
- Primary advisors provide networking opportunities via access to seminar speakers and visiting scholars through one-on-one meetings, funding to local and national meetings and professional organizations.
- Professional development opportunities (both academic and non-academic) are posted on the department bulletin board and opportunities are emailed to the department mailing list as they become available through the university.
- Regular joint research group meetings in the department to widen student research perspectives in the interdisciplinary sciences.
- Summer internship opportunities (e.g. at government labs) and summer professional development programs are posted on the department bulletin board and opportunities are emailed to student via the department mailing list as they become available.
- Industry recruiters (e.g. from exploration companies) are invited to the department to provide opportunities for students to network with representatives from the professional sector.