

# PHD IN ENVIRONMENTAL SCIENCE

This program must include 24 hours of formal courses (excluding EEES 8960 and EEES 8990) with a minimum of 19 hours in DES that must include:

Code	Title	Hours
EEES 5160	Advanced Environmental Data Management	3
EEES 8250	Graduate Launch	1
EEES 8300	Integrated Environmental & Earth Systems	3
EEES 8400 or EEES 8500	Biostatistics	4
EEES 8930	Seminar In Ecology	1

The remaining courses are to be selected with approval of the student's thesis committee taken at the 7000 level or above; all but EEES 8930 (seminars) must be taken for a letter grade (A–F). Additional credit hours will include EEES 8960 and/or EEES 8990, a maximum of 6 hours of which may be taken for a letter grade and may also include other DES or non-DES courses that need not be taken for a letter grade. Within the first two years of study students must pass a written qualifying examination and an oral comprehensive examination and a defense of their research proposal.

All graduate students in the Ph.D. program are required to complete at least one semester of formal teaching-assistant experience before graduation. In addition, each student must:

- submit a manuscript on their research to a scholarly, peer-reviewed journal;
- give a presentation of their research at a professional conference; and
- make an oral presentation on their research at a scholarly forum (an oral presentation at a professional conference would satisfy both latter requirements, but a poster presentation would not).

Finally, each student must prepare a dissertation consisting of a written report on original independent research conducted by the student under the supervision of their dissertation advisor (or co-advisors) and defend this dissertation before their advisory committee.

## 1. Committee makeup:

The committee will consist of at least five members including:

- a. The dissertation adviser (must be a member of DES) who has primary responsibility for academic advising and directing the student's research and dissertation preparation.
- b. At least two other full-time faculty members from DES.
- c. At least one member from outside DES.

All members of the dissertation committee should hold a Ph.D. degree or the equivalent. The dissertation adviser must be a full member of

UT's Graduate Faculty and the other UT committee members must have membership in the Graduate Faculty. Non-UT committee members must also apply for membership in the Graduate Faculty. Departures from the departmental committee membership requirements require prior approval by the department Graduate Affairs Committee.

2. Prepare a doctoral program Plan of Study form (POS) and secure departmental approval thereof prior to the first attempt at the written qualifying examination. The POS must be signed by the student, dissertation adviser, Department Graduate Advisor, College Dean, and Dean of the College of Graduate Studies.

3. Complete an individualized program of study in environmental sciences that is approved by the student's advisory committee. This program must include 24 hours of formal courses (excluding EEES 8960 and EEES 8990) with a minimum of 19 hours in DES that must include EEES 5160, EEES 8300, EEES 8400 or EEES 8500, EEES8250, 8930-009 Departmental Seminar (1 hr. per semester), and the remaining courses selected with approval of the student's thesis committee taken at the 7000 level or above; all but EEES 8930 (seminars) must be taken for a letter grade (A–F). Additional credit hours will include EEES 8960 and/or EEES 8990, a maximum of 6 hours of which may be taken for a letter grade, and may also include other DES or non-DES courses that need not be taken for a letter grade. Within the first two years of study students must pass a written qualifying examination and an oral comprehensive examination and a defense of their research proposal.

4. Pass a written qualifying examination designed to evaluate the student's capacity to complete his or her doctoral research. This examination may be administered at a time mutually agreed upon by the student and his or her dissertation committee, but should be successfully completed by the end of the student's second year in the program. Questions for the examination will be written by members of the student's dissertation committee who may solicit questions from other qualified scholars as deemed appropriate. Student performance will be judged satisfactory or unsatisfactory by a majority vote of this committee. Each committee member's vote can take into account any section of the exam, not only the set of questions posed by that committee member. The results of the evaluation process will be transmitted in writing to the student within ten working days from the time the exam is completed. Failed examinations may be retaken only once and the repeat is to be administered no later than the end of the fall semester during the academic year following the failure. Deviations from this protocol must be approved by the DES Graduate Affairs Committee at least six weeks prior to the examination.

5. Apply for admission to candidacy by the end of the student's second year in the program and prior to attempting the oral defense of the dissertation research proposal. For admission to candidacy the student must have a cumulative GPA of at least 3.0 (on a 0-4.0 scale) for all graduate courses and have successfully completed the written qualifying examination. It is the student's responsibility to initiate the application for candidacy. Any subsequent coursework must not drop the overall GPA below 3.0.

6. Write a dissertation proposal and pass an oral defense thereof by the end of the student's second year in the program. The dissertation proposal should focus on the student's research area and clearly present the hypothesis being tested, along with an appropriate discussion of background, significance and a detailed description of experimental

design. It should be no more than 15 pages long, including figures and tables but not references. The defense of the proposal will include, but not be restricted to, questions about the proposal and the student's area of specialization and will be administered by the student's dissertation committee. The defense may be attempted twice and must be passed by the end of student's third year in the program.

7. File an approved Graduate Research Advisory (GRAD) Committee Approval and Assurances form with the College of Graduate Studies before dissertation research commences.

8. Complete the residency requirement of at least 18 hours of coursework taken over three consecutive semesters of graduate study at UT.

9. Complete at least one semester of teaching as an instructor in one or more of the laboratory courses in DES.

10. Meet with their dissertation committee at least once every academic year until graduation. The final committee meeting for the dissertation defense does not count as one of these meetings. It is the student's responsibility to initiate these meetings.

11. Prior to graduation, (1) submit a manuscript on their research to a scholarly, peer-reviewed journal (this manuscript cannot be a product of previous MS work); (2) give either an oral or poster presentation on their research at a professional conference; and (3) make an oral presentation on their research at a scholarly forum [note that the same oral presentation may satisfy both items 2 and 3]. If the student is not the sole author of the journal manuscript or grant proposal, then he/she should be the first author and responsible for a majority of the writing. For the conference presentation, the student should be the presenter and not just a co-author on an abstract. It is not necessary for the manuscript to be accepted for publication or the grant to be funded at the time of graduation.

12. Apply for graduation before the deadline specified by the College of Graduate Studies.

13. Prepare a dissertation consisting of a written report on original independent research conducted by the student under the supervision of his or her advisory committee. The dissertation should be prepared in accordance with the format determined by the committee and consistent with the guidelines issued by the College of Graduate Studies. Each dissertation should contain a title page listing the student's advisory committee with the signatures of all committee members to certify the acceptability of the dissertation as partial fulfillment of the degree requirements.

14. Successfully pass an oral dissertation defense. In order for a defense to be scheduled, the student must complete the 'MS Thesis & PhD Dissertation Defense Request Form' at least one week prior to the defense date. This form requires the signed approval of all members of the dissertation committee as well as the departmental graduate adviser. Off-campus members may indicate their approval by email. By signing the form, committee members affirm that they have had an opportunity to read and comment upon the dissertation, and were provided with a copy of the dissertation draft that will be defended. Notice of the defense must be posted at least one week prior to its scheduled time. The student must present and successfully defend the dissertation before the dissertation committee. Faculty members and students are encouraged to attend, and

the proceedings are open to the university community. The dissertation committee by majority vote must approve the student's dissertation and defense.

15. Submit one unbound copy of the dissertation signed by all committee members and a pdf file to DES by the last day of the semester in which the student wishes to graduate. The student must also submit an electronic copy via Ohio Link (see the College of Graduate Studies for instructions).

### First Year

First Term		Hours
EEES 5160	Advanced Environmental Data Management	3
EEES 8250	Graduate Launch	1
EEES 8300	Integrated Environmental & Earth Systems	3
EEES 8930	Seminar In Ecology	1
EEES 8960	Doctoral Dissertation Research	1-15
<b>Hours</b>		<b>9-23</b>

### Second Term

EEES 8400 or EEES 8500	Biostatistics or	4
Elective		3
EEES 8960	Doctoral Dissertation Research	1-15
EEES 8930	Seminar In Ecology	1
<b>Hours</b>		<b>9-23</b>

### Second Year

First Term		
Elective		3
EEES 8960	Doctoral Dissertation Research	1-15
EEES 8930	Seminar In Ecology	1
<b>Hours</b>		<b>5-19</b>

### Second Term

Elective		3
EEES 8960	Doctoral Dissertation Research	1-15
EEES 8930	Seminar In Ecology	1
<b>Hours</b>		<b>5-19</b>

### Third Year

First Term		
EEES 8960	Doctoral Dissertation Research	1-15
EEES 8930	Seminar In Ecology	1
<b>Hours</b>		<b>2-16</b>

### Second Term

EEES 8960	Doctoral Dissertation Research	1-15
EEES 8930	Seminar In Ecology	1
<b>Hours</b>		<b>2-16</b>

### Fourth Year

First Term		
EEES 8960	Doctoral Dissertation Research	1-15
EEES 8930	Seminar In Ecology	1
<b>Hours</b>		<b>2-16</b>

**Second Term**

EEES 8960	Doctoral Dissertation Research	1-15
EEES 8930	Seminar In Ecology	1
<b>Hours</b>		<b>2-16</b>
<b>Total Hours</b>		<b>36-148</b>

- Students will demonstrate an in-depth understanding and the ability to communicate scientific information within an area of specialized study within the environmental sciences.
- Students will develop a proposal for their dissertation that evaluates the current state of science in their discipline and formulate novel questions for their research program.
- Students will implement a research program that will involve collecting and analyzing data, and interpreting results.
- Students will author and present their research in written and verbal modalities at a level suitable for publication or presentation in their discipline.
- Students will demonstrate ethical responsibility when conducting research in terms of proper scientific conduct and the rights of human subjects.