



**Department of
Civil and Environmental
Engineering**

Environmental Engineering Graduate Student Handbook 2017-2018

Professor Russell Detwiler
EnE Program Graduate Advisor
844C Engineering Tower
detwiler@uci.edu
(949) 824-7152

Welcome to the Graduate Program in Environmental Engineering at UC Irvine

This handbook is designed to help you navigate your graduate career and provide useful resources. The first year of graduate school can seem very difficult at times, but we have a good track record of graduating highly successful students. Many students have found additional resources on campus that have helped them throughout their graduate studies. I will remind you that if you feel stressed, there are free campus resources available to you at the Counseling Center (949) 824-6457.

You can access an electronic copy of the Environmental Engineering Student Handbook here: <http://engineering.uci.edu/dept/cee/graduate/programs/environmental>, and the HSSoE Graduate Student Handbook here: <http://engineering.uci.edu/files/student-handbook.pdf>

Russell Detwiler

Associate Professor of Civil & Environmental Engineering
EnE Program Graduate Advisor

Department of Civil & Environmental Engineering (CEE) Key Personnel (E4130 Engineering Gateway)

Professor Sunny Jiang:

Department Chair

Lorrie Aguirre:

Department Manager

April Heath:

Graduate Coordinator: Advises graduate students regarding enrollment and registration procedures; degree process; and general Department, School and University policy and procedures.

James Beam:

Department Operations Analyst: Assists with key requests, Seminars, CEE Affiliates and Department Administration

Nancy Carter:

Payroll & Personnel Coordinator: Assists with TA, Grader, and GSR appointments

Sergio Carnalla:

Laboratories Manager: Assist with all lab related issues

Mailboxes for graduate students are located in E4128 Engineering Gateway. Desks are provided by research advisors for full time students conducting research. Computer access is provided in various computer labs across the campus, including Engineering Hall, Engineering Tower, and the Engineering trailer: <http://laptops.eng.uci.edu/computer-labs>. The CEE Department Study Lounge is located in AIRB 1010.

MS Degree General Requirements:

Areas of Emphasis

Water, Energy, Air Quality and Climate are areas of emphasis in the Environmental Engineering Concentration. To achieve the interdisciplinary objectives of the Concentration, students entering the program without an MS degree are required to complete six core courses consisting of: a course from each of the two primary areas of emphasis (Water and Energy Air Quality & Climate), an advanced math course and three quarters of the Environmental Engineering Seminar. Students can take additional elective courses in both areas or only one area. A limited number of courses (less than 4) outside of The Henry Samueli School of Engineering (i.e., Schools of Physical Sciences, Biological Sciences, Social Ecology, and the Program in Public Health) can be used toward elective credits with the approval of the faculty advisor and the graduate director. Please see the Plan of Study at:

<http://engineering.uci.edu/files/ene-plan-of-study-17-18.pdf>

1. The Plan of Study for both the Thesis and Course Work options must be developed in consultation with the student's Faculty Advisor and approved by the EnE Program Graduate Advisor by the end of the first quarter. Timely submission of the Plan of Study is necessary in order to receive email alerts regarding the graduation process and deadlines.
2. Discuss with your advisor early on whether the Thesis or Course Work option best suits your interests. Students in the MS/Ph.D. track may select either option. Students interested in the Thesis option are required to first identify a Faculty Advisor.
3. Advance to Candidacy **one quarter prior to graduating** (submit form to CEE Graduate Coordinator): <https://www.grad.uci.edu/forms/index.php>. Filing Deadlines can be found here: <https://www.grad.uci.edu/academics/filing-deadlines.php>
4. Complete the course requirements (see below under Options 1 & 2).
5. Submit the MS Exit Survey during your last quarter: <https://apps.grad.uci.edu/exitsurvey/>

Department Policy on Reduced Fee Part-Time Study or Filing Fee Petitions: As part of the approval process, your committee must review a draft of your thesis **prior** to the Program Graduate Advisor making a decision on your Part-Time or Filing Fee request. You will need to submit the petition and an electronic draft of your thesis to the Graduate Coordinator at least two weeks prior to the Campus deadline.

Option 1: MS Degree with Thesis (original research with an advisor and a written MS thesis)

- The Thesis option requires completion of 48 units of study
- Of the 48 units, a minimum of 28 units must be in nonresearch, graduate-level approved engineering or related courses, including 6 core courses.
- A maximum of 16 MS research units [CEE 296] can be taken for study in conjunction with the Thesis research topic.
- A maximum of 10 units of upper-division undergraduate elective courses may be applied with the prior approval of the Program Graduate Advisor.
- The remaining units may be earned as graduate-level course work or individual research.
- The committee must include 3 members (including your advisor) with at least 2 faculty that hold a primary or joint appointment in the CEE Department. It is a requirement that all

three committee members sign both the Plan of Study & MS Advancement to Candidacy forms. Please keep this in mind when preparing to submit the forms, as it may take additional time to get the original signatures.

- For final degree paperwork and instructions on submitting the Thesis please visit: <https://www.grad.uci.edu/academics/degree-completion/electronic-submission.php>

Option 2: MS Degree with Course Work

- The course work option requires completion of 48 units of study. At least 36 units must be in nonresearch, graduate-level approved courses, including 6 core courses.
- A maximum of 8 research units can be counted toward the course work option.
- The remaining units may be earned as graduate-level course work or upper-division undergraduate units (maximum ten units).
- The Department and SoE will resubmit your MS Advancement/Conferral form to the Graduate Division at the end of your final quarter.

Ph.D. Degree General Requirements:

Ph.D. students must maintain full time status each quarter throughout the duration of their program. A minimum of 12 units per quarter (Fall, Winter and Spring) is considered as full time. The following bullet points describe the basic information pertaining to our Ph.D. program.

- The detailed program of study for each Ph.D. student is formulated in consultation with a faculty advisor (a.k.a. the research advisor) who takes into consideration the objectives and preparation of the candidate.
- There are no specific course requirements. The School maintains specific guidelines that outline the milestones of a typical doctoral program:
 1. The Ph.D. Preliminary Exam is the first general exam on your path to a Ph.D. degree (see below).
 2. The Ph.D. Qualifying Exam (advancement to candidacy) is the second general exam on your path to a Ph.D. degree (see below).
 3. A written dissertation with an Oral Defense is the final exam on your path to a Ph.D. degree (see below).

Preliminary Exam

The Preliminary Exam is an important milestone for the PhD program and will be administered in the final weeks of Fall and Spring quarter each academic year. Students must register for the Preliminary Exam by completing and submitting the [Environmental Engineering Preliminary Exam Form](#) to the graduate coordinator (April Heath) at least 5 weeks prior to the examination date.

Purpose: The Preliminary Exam establishes whether the Ph.D. Candidate understands sufficiently well important fundamental material and concepts necessary to conduct scholarly research in Environmental Engineering. In addition, the candidate must show the ability to synthesize different elements of knowledge to solve open-ended problems and exhibit a capability for sound scientific reasoning. The Preliminary Exam cannot be taken before the student has

established a documented mutual agreement with a research advisor for the candidate's doctoral work and has demonstrated proficiency in oral English (required for students who are not native English speakers): <http://www.humanities.uci.edu/esl/graduate/gradflyer1718.pdf>

Exam Committee: The Exam Committee includes three [Environmental Engineering program faculty members](#). The Director appoints the Exam Committee Chair, and the student selects two additional committee members. None of the committee members may be the student's primary research advisor. In the event the student's advisor is serving as the Exam Committee Chair, the Director will appoint a temporary Chair for the student's exam.

Exam Format: The Preliminary Exam is a 75-minute oral exam in which the candidate presents a critical review of a peer-reviewed research paper (15 minutes) and answers questions from the exam committee (60 minutes).

The candidate, in consultation with their research advisor, selects a list of three research papers and includes them on the Environmental Engineering Preliminary Exam Form. These papers should each present a focused scientific study in the general area of the student's likely PhD research. They should be full-length, peer-reviewed papers in respected (high-impact) journals in the field. The list of papers should avoid short 'letter'-type articles and review papers. In addition, none of the authors of the publication should be current or former members of the candidate's research group. The Preliminary Exam Committee then selects one of these papers and notifies the candidate of the selected paper at least 4 weeks prior to the start of the exam period.

The student begins the exam with a 15-minute presentation that provides a critical review of the research paper. The presentation should describe the scientific objectives of the study, the approach used to meet the objectives and the important conclusions of the study. In addition, the candidate should address why the study is important and novel with respect to previous supporting research, suggest possible improvements of the work, and identify important outstanding scientific questions raised by the study.

The remainder of the exam involves a 60-minute interactive discussion with the exam committee. Questions from the committee will be aimed at assessing the candidate's:

- (1) understanding of the specific ideas presented in the publication and their implications in the broader context of previous related studies;
- (2) grasp of related fundamental concepts, particularly those related to the expertise of the committee members; and
- (3) ability to think critically "on the spot" and communicate effectively.

The candidate is expected to understand the derivations and assumptions of all the fundamental science and engineering underpinning the publication and to have some familiarity with the key references associated with the publication.

Students may choose to prepare for the exam by giving a mock presentation to their peers; this is encouraged but these practice sessions may not include the student's research advisor. Students are also encouraged to meet with committee members prior to the exam to understand the range of potential fundamental topics

Grading: To pass the preliminary exam, the student must have the unanimous passing vote of the Exam Committee. If the student receives a no-pass decision from the Exam Committee, the student may petition to take the exam a second time. A successful petition requires the support of the student's advisor and all members of the Exam Committee.

Registration: The student, together with their research advisor, must petition to the Director of the Environmental Engineering program for the Preliminary Exam (through submission of the Nomination form and an e-mail including pdfs of the proposed research papers to the graduate coordinator) at least five weeks prior to the start of the Exam period. Students who are not native English speakers must meet the requirements for "Demonstration of Oral English Proficiency for Teaching Assistant Employment" as described in the UCI catalogue before petitioning for the Preliminary Exam.

- **Scheduling:** The Preliminary Exam is offered at the end of Fall and Spring quarter each year. For those who do not pass and successfully petition to retake the exam, the exam must be taken the second time within 6 months of the initial exam. All registration requirements are the same for the second exam. Scheduling the exam is the candidate's responsibility. The candidate should contact members of their exam committee once they have submitted the registration form to schedule the exam, and contact CEE staff to make a room reservation. The exam must be scheduled during the exam period as provided by the graduate coordinator at the start of the quarter.

Qualifying Exam

- The Qualifying Exam covers your proposed dissertation ideas and results of preliminary research.
- Your Qualifying Exam Committee must have 5 members. At least 3 members must be Core faculty in the [Environmental Engineering program](#). One member must be a UCI faculty member from outside the EnE program and CEE department. Your primary research advisor serves as the Chair of your Qualifying Exam Committee.
- The Qualifying Exam is taken after passing the Preliminary Exam and typically by the end of the second year in the Ph.D. program. A written Research Proposal must be submitted to the committee members at least one week prior to the exam.
- The exam will take 2-3 hours. The exam begins with a presentation of your Research Proposal followed by questions from the committee aimed at assessing the quality of your proposed research. You should prepare a 30-minute presentation, which must be reviewed by your advisor before your exam.
- Students must register for the Qualifying Exam at least 2 weeks prior to the examination date. You may obtain the Registration form from the Graduate Coordinator or online at: <http://engineering.uci.edu/current/graduate/forms>
- Students are responsible for coordinating the Exam date and time with their committee members, and making a room reservation with CEE Staff.
- Submit approved Ph.D. Form I to Graduate Coordinator after successful completion of the exam: <https://www.grad.uci.edu/forms/index.php>
- Pay a \$90 Advancement to Candidacy fee at the UCI's Cashier's Office.

Research Proposal Guidelines

The Research Proposal must be reviewed and signed off by your research advisor before it is distributed to the other committee members. The Research Proposal must be distributed to the committee members at least one week prior to the scheduled Oral Presentation. The Proposal should use Times New Roman 11 or 12 point font or equivalent, and be 1.5 line or double-spaced. A suggested outline follows.

- 1) Title Page: Title, Name of Student, Degree Program, Date, Advisor's Name and Advisor's Signature.
- 2) Abstract Page: Approximately 200 word Summary – include the new information/new understanding that the dissertation will provide.
- 3) Introduction: Rationale for this research, engineering context, why important, what key questions will be answered.
- 4) Research Hypotheses and Objectives: List of the major research accomplishments to be completed during the course of the dissertation research. Typically, 3-5 in number.
- 5) Background: Summaries of prior published research key and relevant papers should be discussed to demonstrate a knowledge of the current state of the field.
- 6) Preliminary Results: Summary work to date, including interpretation of data obtained by the Ph.D. candidate. Include figures, graphs, and tables and the development of any models.
- 7) Proposed Research: Thorough exposition of the experiments/modeling/theory/computation the student plans to complete and how these will provide critical information for the dissertation and be an original, significant contribution to the research field.
- 8) Timeline: Provide an estimated timeline of when different research tasks will be completed.
- 9) Summary: of fundamental contributions expected from this research.
- 10) References: Authors name, full title of articles, journal name, volume, page, year.

The typical Research Proposal is 15-pages, including Figures and Tables. Document length does not necessarily correlate with quality. While it is likely that the research plan will evolve as the research progresses, the proposed research plan presented in the Qualifying Examination should be comprehensive and commensurate with the general expectations for the Ph.D. This document will serve as the basis for your Ph.D. dissertation.

Ph.D. Oral Defense

- A 45-60 minute oral presentation that summarizes your major research findings is required at the completion of your Ph.D. dissertation.
- The committee must be comprised of 3 members with at least 2 faculty that hold a primary or joint appointment in the EnE program. Your research advisor will serve as the Chair on your exam committee.
- The oral exam will involve questions from the committee. The committee may request a closed session for their questions.
- It will be best if the written dissertation has been approved by the committee prior to the exam.
- Please confirm the composition of your committee with the Graduate Coordinator at least two weeks prior to your exam.
- Students are responsible for coordinating the Exam date and time with their committee members, and making a room reservation with CEE Staff. Note: CEE Department faculty members, graduate students and visitors are invited to attend. Please contact the Graduate Coordinator at least two weeks prior to your exam to finalize the announcement.
- Submit Dissertation to Library Archives: <https://www.grad.uci.edu/academics/degree-completion/electronic-submission.php>
- Submit Ph.D. Form II to the Graduate Coordinator after successful completion of your exam: <https://www.grad.uci.edu/forms/index.php>

Dissertation

- Copies of dissertations are available in the UCI library. Formatting guidelines are available at: <https://etd.lib.uci.edu/electronic/tdmanuale>
- Students must submit an electronic copy to the Department.

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Advisors

MS students taking the Course Work option do not need an advisor other than the Program Graduate Advisor. MS students selecting the Thesis option should select an advisor as soon as possible. Ph.D. and MS/Ph.D. students should match with a research advisor during the first quarter of study to remain in good standing in the program. A list of EnE faculty can be found at: <http://engineering.uci.edu/dept/cee/graduate/programs/environmental>

Means of Support

- All support is given competitively, and based on continuous good standing
- Department Fellowships (usually awarded to new students for recruitment)
- GSR – Research Assistantships, funded from faculty research grants
- Hours worked are in ADDITION to units earned for research credit

- All U.S. citizens & Permanent Residents must fill out the FAFSA each year in order to be eligible for funding, due March 2nd: <http://www.fafsa.ed.gov>
- Additional funding information can be found at: <http://www.grad.uci.edu/funding/index.html>

What do Teaching Assistants and Graders Do?

- TAs grade homework and tests, run demonstrations, hold office hours, lead discussions, maintain class websites, maintain records of grades, and run labs.
- Graders grade homework and tests and can also hold office hours.
- Students are selected based on faculty nominations, match with course material, past experience, etc.
- All students must complete the TA Professional Development Program in order to be eligible to TA (training session once per year in early September).
- Additional information on TA Academic Qualifications can be found at: <http://www.ap.uci.edu/ase/definitions.html#TA>

What are the Language requirements for international students who want to serve as a TA?

- International and U.S. Permanent Resident graduate students who are not citizens of countries where English is either the primary or dominant language, as approved by the UCI Graduate Council, must pass one of the following English Proficiency exams in order to qualify to serve as a TA:
 - A TOEFL iBT score of 26 or higher on the speaking component, **or** a score of 8 in the speaking component of the IELTS.
 - UCI SPEAK Exam: Minimum score of 50 for passing: <http://www.humanities.uci.edu/hirc/speak/>
 - UCI TOEP Exam: Minimum score of 5 for passing: <http://www.humanities.uci.edu/esl/toep/>
- Classes offered through ESL can help prepare graduate students for these exams and improve communication skills. Please visit the following link for more information: <http://www.humanities.uci.edu/esl/graduate/index.php>

What grades do I need to have to maintain good standing?

- Students must have a 3.0 GPA minimum with no grades below a B to remain in good standing. MS/Ph.D. and Ph.D. students are generally expected to achieve GPAs greater than 3.5. Students must receive a B or higher in a course in order for it to count toward their degree requirements. You need to have a GPA higher than 3.2 for certain types of fellowships, and a GPA higher than 3.1 for any TA position.
- **P/NP Grade Option** – no courses graded “Pass” are to be included as part of the advanced degree program, nor are they to be considered as satisfying academic criteria for fellowships and academic appointments/employment.

- **Satisfactory/Unsatisfactory (S/U)** - A grade of Satisfactory (S) is equivalent to a grade of B (3.0) or better. No credit is given for a course in which a grade of Unsatisfactory (U) was assigned. You cannot self-elect S/U grading. The S/U grading is assigned by the instructor and may be assigned to all participants in a graduate course. Similarly, with the consent of the academic unit involved, individual study and research or other individual graduate work may be evaluated by means of the grades Satisfactory or Unsatisfactory.
- **Course Repetition** - Courses in which a grade below a B, or a grade of U, was received may be repeated only once. Only the most recently earned grades will be used in computing the student's grade point average for the first eight (8) units of repeated graduate course work. Thereafter, both the earlier and later grades are averaged.

NOTE: When registering, your options listed include "grade" or "P/NP" only. Students taking graduate courses that offer an S/U option, and who wish to elect the S/U option, should select the "grade" option, and then make the necessary arrangements with the instructor. It is at the discretion of each individual faculty member to choose whether to utilize the letter scale (A, B, etc.) or the Satisfactory/Unsatisfactory (S, U) system when assigning grades for research classes.

It is very important that you discuss this option with your instructor. Do not assume the instructor will remember this option at the end of the quarter. Please make arrangements for S/U grading well before grades are to be assigned. Moreover, grading is at the discretion of the adviser, including whether or not to approve your request for S/U grading.

How to Reach the Graduate Advisor?

- If your question involves paperwork or other administrative issues, please consult the CEE Graduate Coordinator, April Heath (or Connie Cheng in the HSSoE's Graduate Student Affairs office: connie.cheng@uci.edu).
- The Program Graduate Advisor handles academic and research matters.
- If you have an academic issue to discuss, contact your Graduate Advisor first via email to describe the issue and arrange for an appointment.

What should I do if I want to change my research advisor?

- Inform the Program Graduate Advisor and Graduate Coordinator.
- Meet with your research advisor – if unable to do so, ask the Program Graduate Advisor to speak with your advisor.
- Discuss with other faculty in the department about research projects.
- If you have been fully supported financially by your research advisor on a GSR, you can be required to finish up a project component (requiring no more than one extra quarter), before you can switch advisors.
- Ph.D. and MS/Ph.D. students who want to change their research advisor must find and successfully match with a new advisor at the latest one quarter (Summer quarter not included) after they stop working with their previous advisor, or will no longer remain in good standing in the program.

- Once matched with a new advisor, students must submit a new [Ph.D. Faculty Research Advisor Verification form](#) to the Graduate Coordinator.

Can I switch to another degree program at UCI if I find my interests are better matched by another degree program?

Yes, you can apply to other degree programs at UCI. However, if you are accepted and decide to change your degree program, you cannot apply for readmission to the EnE program after the start of the next academic quarter in your new degree program. All financial support from the department will be terminated if you change degree programs in midyear.

Questions?

Graduate Coordinator

Ms. April Heath
a.heath@uci.edu
(949) 824-0584
E4130 Engineering Gateway

EnE Graduate Advisor

Prof. Russell Detwiler
detwiler@uci.edu
(949) 824-7152
844C Engineering Tower

SoE Assistant Director, Graduate Student Affairs

Ms. Connie Cheng
connie.cheng@uci.edu
(949) 824-3562
204 Rockwell Engineering

UCI International Center

internationalcenter@uci.edu
<http://ic.uci.edu/index.php>
(949) 824-7249
G302 UCI Student Center