

***UC Davis Department of Civil and
Environmental Engineering***

PhD Program Overview

September 24, 2019





The PhD consists of:

1. Coursework (Years 1 & 2)
2. The Qualifying Exam (2nd or 3rd year)
3. Your Dissertation & Exit Seminar
4. Hard work



PhD Coursework Requirements

- A minimum of 46 units of coursework beyond the baccalaureate degree are required. A minimum of 24 units must be taken at the UC Davis campus. Research units are also required and are not counted toward the course work requirements
- Coursework used to fulfill degree requirements may not be taken S/U unless the course is normally graded S/U; seminars, such as ECI 296, and research units cannot be counted towards the unit requirement
- Core class requirements (specific to each area) must be fulfilled
- All students must demonstrate proficiency in public speaking and technical presentation (usually through presenting in an appropriate seminar series)



PhD Coursework

46 units total ~ 11.5 courses

- Generally take 2 or 3 courses per quarter
- 2 per quarter → 6 quarters
 - Allows more time to get started on research
- 3 per quarter → 4 quarters

Acceptable Programs of Study must satisfy the following qualitative criteria:

- **Depth:** knowledge of theoretical and practical aspects of the field usually, but not always;
- **Breadth:** should expand foundational knowledge;
- **Coherence:** courses taken should be complementary and intentionally chosen. The requirement of coherence expressly precludes taking a large number of single courses in unrelated areas.



PhD Program of Study

- Your coursework roadmap. Create a draft as soon as possible in consultation with your major professor
- Must be signed by your PoS committee (3 CEE faculty) and submitted to the Graduate Staff Advisor
 - Talk with your MP about who should be on your PoS committee
- Must submit preliminary PoS for approval by the second quarter of entering the Ph.D. program at the latest
- Submit final PoS for approval after completing all coursework, or in last quarter when you are taking courses.
 - Must be done prior to applying for and taking the Qualifying Exam.
- Ph.D. Program of Study forms available on the CEE website:

<http://cee.engr.ucdavis.edu/graduate-resources>



PhD Qualifying Exam

- You are expected to take your QE by the end of 2nd year or early in 3rd year
 - If you already have an MS, you should plan on Y2
 - If you do not have an MS, you should plan on Y3 (or earlier)
 - Talk to your MP about exact timing
- Must have completed all coursework first (up to two courses taken concurrent)
- May require a written research prospectus and oral presentation and oral exam
- See the degree requirements (updated soon!) and talk to your faculty



PhD Qualifying Exam

- Oral Exam
 - 3 hours
 - Includes oral presentation
 - Coursework-related questions
 - *Schedule well in advance (2-3 months)...hard to schedule in summer*
 - Study
 - Consider asking friends/older grad students to conduct a mock exam
- Oral Presentation
 - Part of the oral exam
 - Typically 15-20 minutes straight through
 - Prepare to be interrupted
 - Builds off your written prospectus
 - Practice



PhD Qualifying Exam

- The QE Committee
 - 4 members (soon to be approved!)
 - Determine with your major professor
 - Chair
 - must be from CEE Grad Group
 - Cannot be your major professor
 - Probably includes your PoS Committee members
 - At least 3 members from CEE Grad Group
 - At least 1 external member
 - Can include your major professor
- Must submit form to Graduate Staff Advisor for approval by Grad Studies
 - Submit at same time that you schedule your exam (one month or earlier)

<https://gradstudies.ucdavis.edu/current-students/forms-information>



Dissertation

- Constitute a Dissertation committee after passing your QE
 - 3 members (at minimum)
 - Major professor (chair)
 - At least one other CEE member
 - If non-faculty, requires exception (aka forms!)
 - *Engage your committee early and often* (not only your MP)
- Dissertation = a written documentation of the academic research you have done as a Ph.D. student
- Talk with your major professor early on about expectations
- Everyone's dissertation is different
 - Some are very focused and build on one constant theme
 - Others cover multiple topics



Dissertation

- *Typical* length?
 - Introduction, linking everything together
 - Approximately 3 publishable units (i.e. main chapters)
 - No specific page requirement
- Strict formatting requirements (see Grad Studies website)
- Provide to committee at least 1.5 months prior to expected graduation
 - Typically, first reach consensus with your MP, then you can send to other members...but okay to talk with them about your work early!
 - they have 1 month to return it to you and you have to respond to comments, questions, etc.



Exit Seminar

- Presented in the quarter you submit the dissertation to the committee or in your last quarter
- Talk with your MP about structure
 - Everything? The most exciting aspect? Hard to pack it all into one presentation
- Must provide a seminar announcement at least 1 week before the seminar (send to Lauren for distribution)
 - Title
 - Date
 - Time and Location



Prerequisites – Students without Engr. Degree

Select four courses from the following six categories:

ECI 100*	Fluid Mechanics	4 units
ENG 104	Mechanics of Materials	4 units
ENG 105**	Thermodynamics	4 units
ECI 140B	Aquatic Chemistry	4 units
ECI 141	Engineering Hydraulics	4 units
ECI 115	Computer Methods	4 units
ECI 114	Probabilistic Systems Analysis	4 units

***ENG 103 may be alternatively taken, with permission**

**** Or Chem 110C or Chem 107A or Chem 107B**

These do not count towards the degree requirements

Including at least two of the following three classes:

- ECI 100
- ENG 104
- ENG 105
- ECI 140B

And 6 additional upper division engineering course units (minimum of 2 courses) approved by the student's major professor or GPC Rep

PhD Timeline



Year 1:

- Coursework + initial research
- Preliminary program of study by winter

Year 2:

- Coursework + research
- Identify and ask QE committee
- Final program of study (when courses are done)
- If you have an MS already:
 - Write prospectus (if needed) in Winter
 - Take QE in Spring

Year 3:

- If no MS, write prospectus (if needed) and take QE
- Research

Year 4:

- Research + begin dissertation

Year 5:

- Research + final dissertation + Exit Seminar

Path to the PhD



- You will find that there are many challenges along the way
- Be proactive in finding/asking for help when you need it
- Build a cohort you can talk with
- Don't isolate yourself
- You must be your best advocate

