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 (2\textsuperscript{nd} or 3\textsuperscript{rd} 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 coursework 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](http://cee. engr. ucdavis.edu/graduate-resources)
PhD Qualifying Exam

• You are expected to take your QE by the end of 2\textsuperscript{nd} year or early in 3\textsuperscript{rd} 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

https://gradstudies.ucdavis.edu/current-students/forms-information
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
• 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
Select four courses from the following six categories:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECI 100*</td>
<td>Fluid Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>ENG 104</td>
<td>Mechanics of Materials</td>
<td>4</td>
</tr>
<tr>
<td>ENG 105**</td>
<td>Thermodynamics</td>
<td>4</td>
</tr>
<tr>
<td>ECI 140B</td>
<td>Aquatic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>ECI 141</td>
<td>Engineering Hydraulics</td>
<td>4</td>
</tr>
<tr>
<td>ECI 115</td>
<td>Computer Methods</td>
<td>4</td>
</tr>
<tr>
<td>ECI 114</td>
<td>Probabilistic Systems Analysis</td>
<td>4</td>
</tr>
</tbody>
</table>

*ENG 103 may be alternatively taken, with permission
** Or Chem 110C or Chem 107A or Chem 107B

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