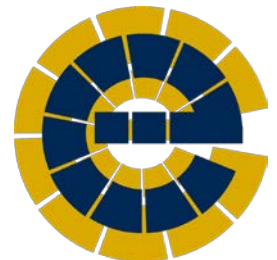


***UC Davis Department of Civil and  
Environmental Engineering***

***PhD Program Overview***

**September 29, 2020**





## The PhD consists of:

1. Coursework (Years 1 & 2)
2. The Qualifying Exam (2<sup>nd</sup> or 3<sup>rd</sup> 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, or a course)



# 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 Program Coordinator
  - 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>



- You are expected to take your QE by the end of 2<sup>nd</sup> year or early in 3<sup>rd</sup> 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 and talk to your faculty
- Must apply for the QE at least 1 month in advance to QE date



# 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
    - Determine with your major professor
  - QE Committee 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 Program 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 4 weeks 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:

<b>ECI 100*</b>	Fluid Mechanics	4 units
<b>ENG 104</b>	Mechanics of Materials	4 units
<b>ENG 105**</b>	Thermodynamics	4 units
<b>ECI 140B</b>	Aquatic Chemistry	4 units
<b>ECI 141</b>	Engineering Hydraulics	4 units
<b>ECI 115</b>	Computer Methods	4 units
<b>ECI 114</b>	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 2 additional upper division engineering 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

