

# Environmental Engineering Program

## Preliminary Examination for Ph.D. Candidates

Updated August 8, 2022

This document describes the procedure to be followed by Ph.D. candidates to take the Preliminary Examination, the first step in advancing to the Ph.D. degree in Environmental Engineering (EVEN). Here is a quick summary of the procedure:

- request to take the Preliminary Examination by notifying the EVEN Graduate Committee chair
  - identify the two core areas for examination in this request
- schedule the Preliminary Examination with the faculty assigned to the exam committee
- prepare a prospectus and deliver it to the exam committee faculty two weeks before the exam
- present and defend the prospectus at the scheduled exam
- depending on the Preliminary Examination result, progress toward the Comprehensive Examination or fulfill requirements specified by the exam committee

*Objective of the Preliminary Examination.* The objective of the Preliminary Examination is to assess a prospective Ph.D. candidate's understanding of the core areas in environmental engineering relevant to a proposed dissertation topic. The goal is to have the students advance to their Comprehensive Examination (i.e., the Ph.D. thesis proposal) with an appropriate level of knowledge regarding their topic of research.

*When to Take the Preliminary Examination.* The Preliminary Examination must be taken no later than the end of the student's third semester in the Ph.D. program and after completion of the relevant courses in the core areas. The student and their advisor will decide on the timing of the Preliminary Examination. The Preliminary Exam will be offered during the fall and spring semester of the academic year.

*How to Request to Take the Preliminary Examination.* With the advisor's approval, the student must submit a request to take the Preliminary Examination to the EVEN Graduate Committee chair with the following items:

- choice of two core areas of emphasis in environmental engineering to be tested (see the box below)
- a brief description of the research planned for the Ph.D. degree (100-200 words); and
- a transcript showing graduate coursework at UC Boulder.

The Graduate Committee chair will assign faculty to the Preliminary Examination committee consisting of the student's advisor and two faculty responsible for testing the core areas identified by the student. One faculty member on the committee may be from outside the Environmental Engineering program and affiliated faculty; the student and advisor may include in the request for examination a request for an outside faculty member.

*How to schedule the Preliminary Examination.* Once the exam committee is formed, the Graduate Committee chair will notify the student and advisor to schedule the exam with the faculty on the committee. The student and advisor are responsible for

- scheduling a two-hour exam time
- reserving a room for the exam
- delivering the prospectus to the faculty on the exam committee at least two weeks before the exam
- bringing the attached Preliminary Examination form to the exam for signatures.

The core areas of environmental engineering that can be tested in the Preliminary Examination are

- air quality engineering
- aquatic ecology
- contaminant fate and transport
- environmental chemistry
- environmental microbiology
- global engineering and sustainability
- water resources
- water, wastewater, and hazardous waste treatment

*What is Tested in the Preliminary Examination.* The preliminary examination consists of two elements:

1. a *dissertation prospectus* that includes the following elements:
  - a. problem statement (~0.5 page)
  - b. background information (~3 pages)

- c. identification of unanswered questions about the problem (~0.5 pages)
- d. research goals and objectives (~1 page)
- e. references

The prospectus is limited to five pages of text (double-spaced, 12-point font, 1-inch margins) not including tables, figures, and references. The prospectus should be planned with and reviewed by the student's advisor before submission to the exam committee at least two weeks before the scheduled exam.

2. an *oral presentation and defense* to the faculty of the exam committee that includes a 15-minute oral presentation of the prospectus material followed by a defense including questions from the committee on the prospectus, the two core areas identified by the student, and potentially, any other topics related to the research. The Preliminary Examination should be scheduled for two hours to allow time for questions and committee deliberation.

*What is the Result of the Preliminary Examination.* At the conclusion of the Preliminary Examination, the exam committee will evaluate the prospectus, the oral presentation, and the responses to the examination questions. There are three possible outcomes for the exam:

- **Pass.** A "Pass" result accepts the prospectus and oral examination and the student moves on to the next step of the Ph.D. program, the Comprehensive Examination. This result may be accompanied by recommendations from the committee (review specific topics, take a course). These recommendations must be addressed by the student, in collaboration with their advisor, before progressing to the Comprehensive Examination. Once the recommendations have been addressed, the student must submit a summary to the Examination Committee summarizing the steps taken to address them.
- **Conditional Pass.** A "Conditional Pass" result finds some faults with the prospectus or oral examination that are correctable with revisions to the prospectus, additional course work, or some other conditions. Once these conditions are satisfied, the student may re-take the Preliminary Exam within six months of the first attempt. Additional time may be requested by petition to the Examination Committee if the request is made within the six-month period for re-examination. Following a Conditional Pass result, the preliminary examination may be re-taken only once. The second examination will result in a Pass or Fail result.
- **Fail.** A "Fail" result finds major faults with the prospectus and oral presentation that are not considered correctable by revision or additional coursework and the student will not continue in the Ph.D. program.

After the exam, the examination committee will complete the preliminary examination form and the advisor will return the signed form to the EVEN Graduate Committee chair.

# Environmental Engineering Program Preliminary Examination Report Form

<b>student name</b>			
<b>advisor name</b>			
<b>exam date</b>			
<b>outcome (check one)</b>	<input type="checkbox"/> <b>Pass</b> (see recommendations below)	<input type="checkbox"/> Conditional Pass (see conditions below)	<input type="checkbox"/> Fail
<b>committee faculty name</b>	<b>signature</b>		
<b>1.</b>			
<b>2.</b>			
<b>3.</b>			
<b>Recommendations</b> (for Pass)			
<b>Conditions</b> (for Conditional Pass)			
<b>Due date for second exam</b> (if required)			