



# Environmental Engineering

UNIVERSITY OF COLORADO **BOULDER**

## **Environmental Engineering Program Preliminary Examination for Ph.D. Candidates**

*Updated: August 2020*

This form, which describes the procedure to be followed in order to take the preliminary examination, is for use by students enrolled in the Environmental Engineering Program (EVEN) and by students in the environmental engineering sub-plan (CVEN) within the Civil, Environmental, and Architectural Engineering (CEAE) Department at the University of Colorado Boulder.

The objective of the preliminary exam is to evaluate a prospective Ph.D. candidate's understanding of aspects of the core areas in environmental engineering and the need for additional courses or other actions that may bolster this understanding. This exam is conducted before the student is allowed to move on to the comprehensive exam. The preliminary examination emphasizes the core areas that pertain to the student's planned research topic. The goal is to have the students advance to their Ph.D. comprehensive exam with an appropriate level of knowledge regarding their topic of research.

The **core areas** in the environmental engineering programs (i.e, EVEN and CVEN) are (1) environmental chemistry, (2) environmental microbiology, (3) water, wastewater and hazardous waste treatment, (4) contaminant fate and transport processes, (5) sustainability, and (6) air quality engineering.

The preliminary examination consists of two parts: (1) a written Ph.D. dissertation prospectus, and (2) an oral presentation. For the Ph.D. dissertation prospectus, the student will write a 5-page (double-spaced, 12-point Times Roman font, 1" margins) document that focuses on a potential dissertation topic and addresses research questions in at least **two of the core areas listed above**.

The following elements should be included in the prospectus:

- Problem statement and background (~3 pages)
- Research goals and objectives (<1 page)
- General approach (focusing on a brief description of the steps that will be considered in order to conduct the research) (<1 page)
- Significance and environmental relevance of the research to be pursued (<1 page)

- References (not counted in the 5-page limit)

The Ph.D. dissertation prospectus should be planned with and reviewed by the student's Ph.D. advisor. The student should also identify and include in the prospectus the **two core areas** that are relevant to their research. The student should expect questions from the committee in these, but not limited to, core areas.

For the oral presentation, the student will deliver a presentation of no more than 15 minutes based on the prospectus. This will be followed by an oral examination by a faculty committee. The combination of the presentation and oral examination will take approximately two hours.

The exam should be taken no later than **the end of the student's third semester** in the Ph.D. program and after completion of the relevant core courses in the core areas. The student will collaborate with his or her Ph.D. advisor to schedule the exam with the Environmental Engineering Faculty. The preliminary exam may be scheduled during the fall and spring semester of the academic year.

The Environmental Engineering graduate faculty committee will form an examination committee for each student planning to take the preliminary exam. The examination committee will consist of three faculty members – the student's Ph.D. advisor and at least one other Environmental Engineering program faculty familiar with the core areas to be examined. If appropriate, the third member of the committee may be from outside the EVEN or CEAE Environmental Engineering program.

After the student and Ph.D. advisor have requested that the student take the preliminary examination and the examination committee has been formed, the student is responsible for:

- Scheduling a 2-hour time with the examination committee,
- Reserving a room for the examination,
- Delivering the prospectus with two research relevant core areas listed and a list of their graduate course work (with grades) to the committee at least **two** weeks before the exam,
- Bringing this form to the exam for signatures.

At the conclusion of the preliminary examination, the examination committee will evaluate the prospectus and the oral presentation. There are three possible outcomes for the preliminary examination: Pass, Conditional Pass, and Fail.

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 (i.e., the Ph.D. comprehensive proposal). This result may be accompanied by recommendations from the committee. These recommendations are usually in the form of requests to review specific topics or even auditing a class. If there are recommendations, the student will work with his or her advisor to address these. Once the recommendations have been addressed, the student must submit a brief summary to the examination committee summarizing the steps that were taken to address them. The recommendations should be addressed within six months of the exam date and ideally before the comprehensive proposal is submitted.

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.

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.

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 and needs to be taken **within six months** of the original exam date. If additional time is needed before the second examination (i.e., more than six months), the student must submit a written request to the examination committee detailing the reasons why additional time is required. This written request must be submitted before the deadline to re-take the exam has passed. The exam needs to be re-taken before the comprehensive exam is scheduled.

After the preliminary examination, the examination committee will complete the preliminary examination form and return it to the Graduate Committee Chair and it will be filed in the CEAE Department for official recording of the student’s progress in the Ph.D. program.

After successful completion of this exam, the student must take the comprehensive exam within six months.

**Preliminary Examination Form**  
Civil, Environmental and Architectural Engineering Department

Student name \_\_\_\_\_

Program \_\_\_\_\_

Advisor name \_\_\_\_\_

Exam Date \_\_\_\_\_

**Outcome (check one)**

Pass (see recommendations below) \_\_\_\_\_ Conditional Pass (see conditions below) \_\_\_\_\_ Fail \_\_\_\_\_

Faculty Name

Signature

1) \_\_\_\_\_

\_\_\_\_\_

2) \_\_\_\_\_

\_\_\_\_\_

3) \_\_\_\_\_

\_\_\_\_\_

Recommendations:

Conditions:

Due date for second exam (if required):