

Recommended Protocols for PhD Degree Program Examinations

Department of Civil & Environmental Engineering (CEE)

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The ***Qualifying Exam*** must be administered under the leadership of the Major Professor (MP). In the case of a dissertation committee (referred to as Committee in this document) that has a Co-Major Professor, the Co-Major Professor should equally share responsibility in the administration of the examinations. Communication amongst the MP and the Committee and between the MP and the student should be documented for future reference. These protocols have been approved by the Department of Civil & Environmental Engineering (CEE) Graduate Program Advisory Committee (GPAC) and are strongly recommended for implementation by all CEE full-time regular faculty members in their role as Major Professors or Graduate Faculty serving on dissertation committees. The protocols supplement all applicable University Graduate School (UGS) policies and procedures; they focus on operational aspects of the qualifying exam.

1. Timing

The Qualifying Exam must be taken as soon as possible and no later than the semester the student completes the minimum applicable course requirements. Students must have passed the qualifying exam before filing for the PhD candidacy milestone.

2. Exam Planning

Each semester, the MP should report the list of students who are scheduled to take the examination in that semester and the examination date to the CEE Graduate Program Director (GPD) and Graduate Program Coordinator no later than 2 weeks before the exam date. The time and place of the examination is per the choosing of the MP.

The MP and the Committee select the topic(s) or core subjects from which the student will be examined. The MP and the Committee should inform the student of the topic(s) to be used in the examination at least 4 weeks before the exam date to allow sufficient time for the student to prepare for the exam.

The student should prepare a 30-minute presentation according to the topic(s) and requirements specified by the MP and the Committee. The student should send the presentation file, CV, and transcripts to the committee at least three business days prior to the exam date.

3. Exam Format

The exam consists of a 2-hr oral examination by the Committee. The MP shall keep a complete record of the exams and process for future reference.

3.1 Oral Examination

The Ph.D. Qualifying Oral Examination is a critical milestone in the doctoral program designed to assess a student's preparedness to undertake independent doctoral-level research. The purpose of the examination is to evaluate the student's mastery of fundamental knowledge in the field, including the depth and breadth of understanding of key concepts, theories, analytical methods,

and relevant literature. The examination also assesses the student's ability to think critically, synthesize information, and communicate scholarly ideas effectively.

The examination typically consists of a brief presentation by the student describing their research interests or ongoing research activities, followed by an extended question-and-answer session conducted by the examination committee. The presentation is intended to provide context for the student's academic and research direction; however, the primary focus of the examination is the student's understanding of fundamental principles and their readiness to conduct doctoral-level research.

Committee members should use the question-and-answer session to evaluate the student's grasp of foundational knowledge, methodological reasoning, and ability to integrate concepts across relevant subject areas. Questions may address topics from the student's coursework, theoretical frameworks within the discipline, analytical approaches, and the broader context of the student's research area.

The qualifying examination is not intended to function as **a research proposal defense or dissertation prospectus review**. While discussion of the student's research topic may occur, the examination should not focus primarily on the detailed evaluation of a proposed research plan, project feasibility, or dissertation methodology. Such evaluations are more appropriately conducted during the dissertation proposal or candidacy defense stage.

Faculty members are encouraged to ensure that the examination remains centered on assessing the student's intellectual foundation, analytical abilities, and preparedness to pursue independent doctoral research.

3.2 Grading Rubric

The Ph.D. Qualifying Oral Examination evaluates a student's readiness to undertake doctoral-level research. The examination assesses mastery of fundamental concepts, breadth of knowledge across related fields, research capability, critical thinking and creativity, oral communication skills, presentation effectiveness, and the ability to respond thoughtfully to scholarly questions. The evaluation rubric includes:

- a. Fundamental Knowledge (40 points):** Assesses mastery of core theories, concepts, and technical foundations relevant to the student's research area.
 - Demonstrates mastery of key concepts and theoretical foundations
 - Integrates knowledge across related areas
 - Applies concepts accurately in discussion
- b. Research Readiness (30 points):** Evaluates the student's ability to integrate knowledge from related subject areas and coursework and conduct independent doctoral-level research.
 - Understands research methods and approaches
 - Can synthesize ideas across topics
 - Can formulate research questions and justify approaches
 - Demonstrates awareness of relevant literature and research context

- Analyzes problems logically and rigorously
- c. Communication & Engagement (30 points):** Evaluates clarity, articulation, and effectiveness of verbal communication and the ability to engage in scholarly discussion and respond effectively.
- Presents ideas clearly and in an organized manner
 - Responds accurately and thoughtfully to questions
 - Demonstrates originality and intellectual flexibility
 - Communicates with clarity, confidence, and professionalism

Each committee member shall evaluate the student's performance during the exam using the provided evaluation form and rubric. Committee members should consider the student's overall performance during both the presentation and the question-and-answer session when assigning scores. Committee members can also provide detailed feedback to the student, such as strengths and areas of improvement, etc.

4. Final Grading

Following the completion of the Ph.D. Qualifying Oral Examination, each committee member shall complete and sign the evaluation form. The MP is responsible for collecting all completed evaluation forms from the committee members.

After collecting the forms, the MP shall review the individual evaluations and determine the final outcome of the qualifying examination based on the established grading criteria. The final determination of Pass (total score of 70 or above) or Fail (total score below 70) shall reflect the overall evaluation of the committee.

Upon general consent of the Committee on the final grade, the Major Professor will record the final result and report to the GPD and Graduate Program Coordinator.

In the event that a student fails the exam, he or she can retake it only once in the subsequent semester.