

# Utah State University Civil and Environmental Engineering Department

## Comprehensive Exam Policy for PhD students

One of the requirements for completing a PhD degree in Civil and Environmental Engineering is that students must take a Comprehensive Exam by the end of their third semester, not including summer semesters. The purpose of the Comprehensive Exam is to ensure that a PhD candidate can demonstrate breadth and depth of knowledge and essential research skills, including the ability to think critically about information, in his/her area of specialization.

Because each PhD student has a different background, experience, and area of specialization, a student's PhD advisory committee will tailor the Comprehensive Exam individually for the student. The exam is an opportunity for the student to demonstrate to his/her five-member advisory committee that they have the skills necessary to successfully complete the PhD degree. The exam is also an opportunity for the advisory committee to modify a student's educational experience to ensure the student will be successful as he/she moves forward with their research and career.

The student's PhD advisory committee will administer the comprehensive exam. The advisory committee will elect a chair to lead the administration of the exam. The committee will formulate the specific written and oral activities that comprise the exam to evaluate the student's work and determine whether the student has demonstrated:

- breadth and depth of knowledge in their study area,
- the ability to synthesize and critically evaluate information obtained from a variety of sources (e.g., course work, the literature, the student's own research results, etc.), and
- the ability to apply such gained knowledge to solving new problems.

The exam will require students to show that they can synthesize course work, interpret data, compare research methods, constructively critique prior published work, formulate and defend conclusions, develop novel research methods, or otherwise demonstrate similar, high-level analysis, evaluation, or creativity skills as set forth by the student's examination committee.

A student can retake the comprehensive exam only once. The retake is to occur one semester after the exam is first taken. Students who do not successfully demonstrate breadth and depth of knowledge in two exam attempts cannot continue in the PhD

program. For students who do not pass, the committee is available to advise and provide guidance to the student about options and other opportunities.

The exam will include written and oral exercises developed by the student's advisory committee, based on the committee's assessment of what is most appropriate for the student given the degree the student is pursuing and the student's prior experience.

Some options for the format of the comprehensive exam include:

1. Completing a written exam comprising questions tailored to the student's dissertation topic and research focus, and an oral examination that uses the written questions and answers as a starting point to assess the student's ability to synthesize material across the dissertation topic and related topics.
2. Answering written and oral committee questions concerning methods, results, and/or conclusions of one or more recent peer-reviewed journal articles, or other relevant material in fields related to the candidate's research.
3. Preparing a research paper adequate for submission to a peer-reviewed journal, delivering a presentation on that paper, and answering written and oral committee questions about the paper and how the paper relates to other work. Preparing the paper by itself is not sufficient. The paper serves as a starting point for written and oral questions.

Note that the comprehensive exam is not simply an additional test on completed coursework already completed. The exam is more rigorous and profound than typical course tests, and is designed to require the student to demonstrate the ability to synthesize knowledge and think critically.

Note also that the department recognizes that there might be individual student circumstances that require deviations from or exceptions to this policy. For example, students on a non-traditional schedule might not be able to take the exam by the third semester. The student's advisory committee may exercise judgment in these cases as to what is best for a particular student and must document any exceptions in a memo to the department head and student.