

**Utah State University
Civil and Environmental Engineering Department**

Comprehensive Exam Policy for PhD students

August 2024

One of the requirements for completing a PhD degree in Civil and Environmental Engineering is that students must take a comprehensive exam. 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 their area of specialization. The exam is an opportunity for the student to demonstrate to their supervisory committee that they have the skills necessary to successfully complete the PhD degree. The exam is also an opportunity for the supervisory committee to modify a student's educational experience to ensure the student will be successful as they move forward with their research and career.

The exam will require students to show advanced knowledge in areas such as synthesizing course work, interpreting data, comparing research methods, constructively critiquing prior published work, formulating and defending conclusions, or otherwise demonstrating similar, high-level analysis, evaluation, or creativity skills as set forth by the student's supervisory committee. The comprehensive exam is not simply an additional test on coursework already completed.

Timing: Students must take a Comprehensive Exam after their supervisory committee has been formed, and after their program of study has been approved, but no later than the end of their third semester (not including summer semesters). The timing of the exam will be set by the committee in consultation with the student.

Exam Format: Because each PhD student has a different background, experience, and area of specialization, a student's supervisory committee will tailor the Comprehensive Exam individually for the student. The exam will include written and oral exercises developed by the student's supervisory committee, based on the committee's assessment of what is most appropriate for the student given the program and emphasis the student is pursuing and the student's prior experience.

The exam will be comprised of written questions tailored to the student's research focus area and/or program of study, and an oral examination that uses the written questions and answers as a starting point to assess the student's ability to synthesize related material. Written and oral committee questions may focus on 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. Questions may also be open-ended, requiring students to assimilate, analyze, and/or synthesize information from a variety of sources. The written portion of the exam will allow students to demonstrate ability to compile, analyze, and synthesize information, present ideas, and defend points of view related to committee questions. The oral portion of the exam will enable the

student to elaborate on or explain their written responses and to respond to related questions posed by the committee. During the oral portion of the exam, the committee will also explore the breadth and depth of a student's knowledge.

Exam Logistics: The student's PhD supervisory committee will administer the comprehensive exam. The supervisory committee will elect a chair that is not the student's advisor to lead the administration of the exam. The exam chair will compile exam questions from the committee, communicate the questions to the student during the exam, compile the student's responses, and facilitate the questioning and discussion during the oral portion of the exam.

The written portion of the exam will be administered over a time period of approximately one week with flexibility in scheduling subject to the timing requirements above. Questions will be provided to students on a schedule determined by the supervisory committee along with specific requirements that specify the timing of when responses must be submitted by the student. The oral portion of the exam will be scheduled as soon as possible (preferably within 2 weeks) after the written exam is complete and will be no more than two hours in duration.

Exam Assessment and Outcomes: Assessment of the exam is at the sole discretion of the supervisory committee and will be by majority vote with the major professor deciding in case of a tie vote. Committee members' assessment will be based on 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 possible outcomes for the comprehensive exam are pass or fail. The student's committee will provide documentation of the outcome of the exam along with justification in the event of failure. In some cases, a student may conditionally pass with specific conditions/requirements imposed by the committee to address deficiencies found within the exam within a time period specified by the committee.

If a student fails the comprehensive exam, a student may (at the discretion of the supervisory committee) be allowed to retake the comprehensive exam only once. The retake must occur no later than 6 months after the exam is first taken. Students who do not pass the retake exam cannot continue in the PhD program or be admitted to the program again. For students who do not pass, the supervisory committee is available to advise and provide guidance to the student about options and other opportunities.

Acceptable Resources for Use by Students: Use of Generative Artificial Intelligence (AI) to formulate exam responses is not consistent with the purpose of the exam. Thus, use of Generative AI is prohibited for formulating responses to exam questions. Writing tools that help only with sentence structure and grammar are acceptable for use. Students' committees may further restrict or expand acceptable resources for use on the exam.

Exceptions: The department recognizes that there may 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 supervisory 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, program head, and student.