

MIE Qualifying Exam

Effective for all students entering after 5/31/2016

Exam Timing

Currently, the MIE Department has three different pathways available for pursuing a PhD degree: direct entry into a PhD program with a bachelor degree, entry into a PhD program with a UMASS MS degree, entry into the PhD program with a non-UMASS MS degree. The timing of the qualifying exam for each of those cases is described in detail below.

1. **Direct Entry into the PhD Program** - Every full-time student in the Department's PhD direct admission pathway is required to take the qualifying exam within two calendar years after his or her entry into the program.
2. **Entry into the PhD Program with a UMASS MS Degree** - Every full-time student in this pathway is required to take the exam within one and a half calendar years after his or her entry into the Ph.D. program.
3. **Entry into the PhD Program with a non-UMASS MS degree** Every full-time student in this pathway is required to take the exam within one and a half calendar years after his or her entry into the Ph.D. program.
4. **Part-Time Students** Part-time students are advised to take the exam when 18 credits of course work have been completed or within two years after their entry into the PhD program, whichever occurs first.
5. **Transferred Students** Occasionally, students who have passed a qualifying exam at a PhD granting institution transfer into the UMASS PhD program. In this case, the students may file a petition to the Graduate Program Director to waive or to defer the qualifying exam. Please note that the petition may or may not be granted.

Exam Format

The exam is typically given twice yearly, normally during months of January and May. Any student who intends to take the exam is required to notify their research advisor. It is the responsibility of student and his or her research advisor to coordinate the administration of the exam. The examination committee will consist of a minimum of three faculty members; with at least two MIE faculty members. No outside member is required on the examination committee; however, faculty members outside of MIE can serve as additional members of the examination committee.

The exam has a written component and an oral component. Details of these components will be decided by the student's research advisor in consultation with the examination committee. Although, no standard format is required across all research groups, the following formats have been deemed acceptable. Note that choosing the written component of one qualifying exam format and the oral component of another will also be deemed acceptable.

Qualifying Exam Format A

- o **Written Component** - The written component will last three hours and consist of two or more questions in the student's declared major interest area. Questions will be designed to be similar in content and difficulty to an exam question given in a 600-level course within the student's major interest area. The written component may be open or closed book. The examining committee will notify the student as to the written exam format prior to administration of the written exam.
- o **Oral Component** - The oral component consists of one or more open-ended questions related to the student's chosen major interest area. The oral exam will be given to each student individually and will be taken within the two weeks following the written exam.

The student will be granted anywhere from one hour to one week to prepare their response to the exam questions. The oral component of the qualifying exam will be administered by the examining committee and will normally last one hour. The examining committee will notify the student as to the oral exam format prior to administration of the oral exam.

Qualifying Exam Format B

- **Written Component** - The written component will last three hours and consist of two or more questions in the student's declared major interest area. Questions will be designed to be similar in content and difficulty to an exam question given in 600-level course within the student's major interest area. The written component may be open or closed book. The examining committee will notify the student as to the written exam format prior to administration of the written exam.
- **Oral Component** - The oral component will consist of a research presentation of the student's research work to the examining committee. The research presentation will last thirty minutes to an hour and include a detailed literature review of previous work, a description of the methodology used in the research, and an overview of the work performed by the student to date. Questions on the student's research work as well as related areas such as the engineering relevance of the work can be asked by the examination committee. The research presentation will be given within two weeks following the written exam.

Qualifying Exam Format C

- **Written Component** – The student will be given one or more peer-reviewed journal articles in their declared major interest area to read and review. The student will have one to two weeks to read the articles and write a critical review of the articles which analyzes the authors' methods, results, conclusions, and writing style/clarity. The student will be expected to go beyond the assigned articles to other sources including textbooks and other journal articles to support his or her review. The papers to be supplied will be determined by examining committee in consultation with the student's research advisor.
- **Oral Component** - The oral component will consist of an oral presentation of the paper review to the student's examination committee. The paper review presentation will last thirty minutes to an hour. Questions on the student's written review and oral presentation as well as other areas related to the assigned paper can be asked by the examination committee. The research presentation will be given a week following the submission of the written component.

Qualifying Exam Format D

- **Written Component** – The student will be given three or more questions from the student's declared major interest area. The student will have one to two calendar weeks to complete the questions and provide a detailed written response to his or her examination committee. The questions can range from a hard homework question with a well-defined answer to an open-ended research question.
- **Oral Component** – In collaboration with the examination committee, the student will prepare a set of approximately twenty questions to be researched and answered by the student in preparation for the oral exam. The questions are intended to be factually based and not additional exam problems to solve. The oral component of the qualifying exam will consist of one or more rounds of questions from the examining committee based either directly on the twenty questions or on an extension of the written exam questions. The oral component of the qualifying exam will normally last one hour.