

## **Qualifying Exam Policy for BME Ph.D. Students (updated Spring 2023)**

The students will pass the qualifying exam and dissertation proposal defense in order to advance to Ph.D. candidacy. The qualifying exam is offered in each fall semester in the format of a research proposal targeting a federal agency or the equivalent as approved by the exam committee chair, who typically would be the student's major advisor. The student will write the proposal and orally defend it. This document describes the process and expectations of the qualifying exam.

### **Eligibility**

To take the qualifying exam, the student must have finished at least 12 Credits of didactic course work. It is recommended that the qualifying exam is to be taken during the second or third year of the study. The qualifying exam must be taken prior to the dissertation proposal defense.

### **Exam Committee**

The student's PhD dissertation committee will also be the exam committee. The student's major advisor also chairs the exam committee.

### **Exam Process**

- The student will email the BME Program Director by May 10 if he/she plans to take the qualifying exam in the fall semester and which federal agency and program the proposal will be prepared toward.
- The student will choose a topic in Biomedical Engineering and submit a 300-word abstract on the chosen topic along with a copy of the target RFP to his/her examination committee chair by June 1.
- The committee will provide feedback on the suitability of the topic (one revision is allowed). Approval of the abstract should be no later than June 30.
- The student will have until August 15 to develop a six-page grant proposal with all necessary documents required by the RFP, excluding the budget and budget justification. Preliminary data are not required. However, the student may take data from current literature to support his/per proposed idea and method. The originality of the proposal should be checked and an originality report should be submitted together with the proposal.
- After submitting the written proposal to the exam committee, the student will have at least two weeks to prepare for an oral defense of the proposal. The oral defense time depends on scheduling and should be completed by September 30.

### **Objectives**

- The student has a well-rounded scientific knowledge relevant to Biomedical Engineering.
- The student is able to develop and plan a scientific experiment, instrument or mathematical model.

- The student is able to develop a strategy (experimental/analytical/numerical) to test a scientific hypothesis.
- The student is able to write a scientific abstract.
- The student is able to write a research grant proposal.
- The student is able to prepare and deliver an oral research presentation.

### **Calendar of Events**

The examination will be given once in the fall semester. The student may decide with his/her major advisor when the appropriate time is to take the exam.

- Intention to take the exam due May 10.
- Abstract due June 1.
- Full Proposal due August 15.
- Oral Defense to be scheduled: August 30-September 30.

### **Evaluation Procedure**

Overall Impact: The faculty exam committee will provide an overall assessment of the candidate's ability to develop and communicate (both written and oral) their ideas of high scientific quality, in consideration of the following proposal elements:

- Experimental and/or Mathematical Model Design
- Hypothesis and Aims Development
- Scientific Logic (including the scientific premise)
- Alternative Approaches

The exam committee will evaluate all the above elements and give recommendations for pass or fail for both the written and oral presentation components of the examination. The oral presentation must be within 30-40 minutes. If the student does not pass either the written or oral portion of the exam and is given a conditional pass, they will be provided feedback and allowed to revise and resubmit their work twice prior to failing the exam and having to repeat the entire process in a subsequent examination period. The revised proposal and/or repeated oral defense schedule shall be determined by the exam committee, and all should be completed by December 1. If a student fails the qualifying exam twice, he/she will be dismissed from the BME Ph.D. graduate program.