

PhD Qualifying Examination Procedures

Department of Mathematics and Statistics

Preamble

These procedures are supplemental to the Graduate Calendar. These procedures are effective from September 16, 2009. Edits take effect upon qualifying examinations formally set following their approval by the departmental Graduate Studies Committee – the most recent such edits were made on March 5th, 2013.

The qualifying examination should be held as early as possible and no later than the sixth week of the final semester of the minimum duration requirement that is specified in the Graduate Calendar. Failing to meet this timeline without prior permission of the departmental Graduate Studies Committee or failing the qualifying exam itself will result in an automatic unsatisfactory evaluation.

1. Written Proposal

The student shall write a research proposal, outlining the research that would be carried out should the student continue within the PhD program. When preparing this report, the student must aim to demonstrate points a.–d. of Section 2.1. This proposal will normally be between fifteen and twenty pages in length, and may not exceed twenty pages. Twelve point, times new roman font, or similar, must be used with no less than 1.5 line spacing and margins of at least one inch all around.

2. Duration & Structure

The total duration of the examination should normally be between two hours and three hours. The examination shall consist of two parts: Part I and Part II.

2.1 Part I

In Part I of the examination, the student will make an oral presentation in which s)he will outline the proposed research that would be carried out should the student continue within the PhD program. This presentation should normally last between twenty and thirty minutes, and may not exceed thirty minutes.

The presentation will be followed by a discussion with the examination committee. During this discussion, members of the examination committee shall pose questions based on the contents of the presentation and the written proposal.

During Part I of the examination, the student must demonstrate each of the following:

- a. That the proposed research is of sufficient depth and level to potentially justify the award of a PhD degree should it be completed successfully.
- b. That the background knowledge of the student is sufficient to conduct the proposed research successfully and within an appropriate time frame.
- c. That the student has a clear understanding of the techniques and methods that may be used to complete the proposed research project.
- d. That the student has the communication skills required to discuss the proposed research with peers.

2.2 Part II

Part II will consist of an oral examination in an area related to the topic of the proposed research. The area shall be agreed upon by the advisory committee, at an advisory committee meeting no less than eight weeks prior to the exam, after consultation with the student. At the same meeting, the advisory committee will establish a syllabus for this part of the examination. This syllabus will be based on some or all of the following media, which must be easily accessible to the student:

- a. Published research articles.
- b. Selected chapters of research monographs.
- c. Selected chapters of graduate-level textbooks.
- d. Published conference proceedings.
- e. Published technical reports.

Considering one instance of one of a. to e. directly above as a unit – e.g. one published research article is one unit – the syllabus for Part II of the exam will consist of no less than two and no more than five units in total. At least one-half of the total number of the units (rounded down to the nearest integer) must cover broader fundamental topics in the student's research area outside of the specific problems the student is working on for the Ph.D thesis. During Part II of the examination, the student must demonstrate an ability to independently read and understand the relevant research literature.

3. Assessment

The examination committee will base its overall assessment on all of the following:

- I. The student's performance in Part I of the examination.
- II. The student's performance in Part II of the examination.
- III. The written research proposal.

IV. The advisory committee's research evaluation report.

4. Provision & Circulation of Examination Materials

The following documentation must be provided to the chair of the examination committee no less than four weeks prior to the date of the examination.

- a. The advisor will provide an electronic copy of each of the following items, on behalf of the advisory committee:
 - i. A written report on the progress of the student, including an assessment of the student's ability to successfully conduct research at the PhD level; and
 - ii. The syllabus for Part II.
- b. The student will provide one electronic copy of each of the following items:
 - i. The written research proposal.
 - ii. A short vita that must include: details of academic training; a list of publications; details of any oral or poster presentations at conferences or meetings; and a list of any awards or scholarships received at the undergraduate or graduate level.
 - iii. The material to be examined, as listed in the syllabus, in Part II of the examination. A durable link to online content should be sent in lieu of the electronic copy when feasible.

A copy of all documents mentioned above with the exception of b.iii will be retained, by the Graduate Secretary, as part of the student's file. The chair of the examination committee will distribute a copy of all material to the members of the examination committee at least three weeks prior to the date of the examination. Anyone who receives a copy of the material mentioned in b.iii must delete or destroy any copies after the qualifying exam takes place.

5. Coverage of the Examination Material

Approximately one week after the distribution of the examination material to the examination committee, and no less than one week before the date of the examination, the chair of the examination committee shall contact each member of the examination committee to ensure that, between all of the examiners, the whole syllabus of Part II of the examination will be covered. The chair of the examination committee may decide to do this at a meeting of the examiners, by e-mail, or via a series of one-to-one meetings. All examiners are expected to participate in Part I of the examination.