Division of Applied Mathematics
Brown University

Request to Take Preliminary Examination for the Ph.D. Degree.

Name: _____Today's date: _____

Permission is herewith requested to take my Preliminary Examination on or about:

Date of Major exam: _____Time: _____

Date of Minor exam: _____Time: _____

The proposed topics and examiners are:

Major:_____Examiner:_____

_____Examiner: _____

Minor:_____Examiner:_____

_____Examiner: _____

Of the above four topics, the designated applied topic is: _____

Of the above four topics, the designated theoretical topic is: _____

The topics are based on the following courses: (note: if any of the topics relate to courses not taken at Brown, a detailed syllabus should be attached to this form):

Major:_____
_____

Minor:_____
_____

Chair of the preliminary examination committee: _____

Anticipated thesis advisor: _____

Approved by: _____Date: _____

Chair, Prelim Exam Committee: _____Date:_____

Department Chair: _____ Date: _____

Director of Graduate Studies: _____ Date: _____

Guidelines regarding the preliminary examination

- Content: The prelim exam covers a major area with two topics and two minor topics. Each topic covers the equivalent of at least two semester courses. Further requirements for the major and minor topics are discussed below.
- Format: The preliminary exam is an oral exam that is administered by an examination committee of four distinct faculty members, one for each topic. The preliminary examination committee is chaired by a faculty member, usually the student's anticipated thesis advisor, who may, but does not need to, be one of the four examiners. The two major topics are examined during a 2-hour session, and the two minor areas in another 2-hour session. Each topic is examined for one hour. The two parts of the examination must take place within a two-week period. Rare exceptions to this timing can only be made by the Director of Graduate Studies and then only for reasons of scheduling difficulties or unusual circumstances.
- Timelines: Graduate students generally take the preliminary examination after the end of their first year and should take it before the end of their second year of graduate studies unless exceptional circumstances prevent this. In most cases, the Chair of the preliminary exam committee continues to serve as the Thesis Advisor after the student passes the exam. If this is not the case, the student must find a Thesis Advisor within one month after passing the preliminary exam in order to be considered for support for the following academic year.
- Prelim proposals: The proposed topics and examiners for the preliminary examination are prepared in consultation with and approved by the anticipated Thesis Advisor or another faculty member who agrees to be the Chair of the examination committee. The student should contact the four proposed examiners to get their approval and submit the prelim proposal to the Director of Graduate Studies for approval. The proposal must be submitted at least 2 months in advance before the expected date of examination. The proposed program should include the dates and times for the two exams, the names of potential examiners, the designated applied and theoretical topics, and detailed syllabi for any topics that relate to courses not taken at Brown.
- Eligible topics:
  - One of the four topics must be designated as an applied topic: most of the questioning for the applied topic will concern the scientific or engineering aspects of the subject.
  - One of the four topics must be designated as a theoretical topic, in which the examination will concentrate on the mathematics of that topic.
  - At least one of the minor topics must not be closely related to the major area.
  - The two major topics may be based on two different aspects of the same subject area, such as theoretical and applied fluids or theoretical and computational numerical methods. The major area should present a unified body of material that is viewed by the Director of Graduate Studies and the examiners as the main area needed for the student to conduct research in her/his chosen field.
  - The topics should be chosen from the following:
    - Analysis (Real and Functional)
    - PDEs or ODEs/Dynamical Systems
    - Probability, Statistics, Information Theory, and Stochastic Processes
    - Control Theory (stochastic or deterministic) and Operations Research
    - Numerical Analysis and Scientific Computation
    - Fluid and Solid Mechanics

    - Mathematical Methods (minor only)
    - Outside minor from a department such as Biology, Computer Science, Economics, Engineering, Mathematics or Physics
    - Additional topics not listed here can also be proposed, subject to the approval of the Director of Graduate Studies.
- Note: In some cases, examiners may give the candidates written questions in addition to the oral examination. While the material covered in the examination is normally taken from course work, the examiners might ask new questions on the basic material or questions that integrate topics from several course areas.