DOCTOR OF PHILOSOPHY (Ph.D) PROGRAMS

THE DOCTORAL PROGRAM

Candidates have eight calendar years from the time of enrollment in The Graduate School to complete the Ph.D. degree. For the Ph.D. program in Mathematics, the student must meet the following five requirements in addition to those of the Graduate School:

1. Demonstrate competency in undergraduate-level Analysis (Advanced Calculus) and Linear Algebra by satisfactory performance on a Diagnostic Examination, by August of the student's second year in the graduate program. For GTAs this is a condition for continuation of financial support beyond the second year. The exams will be offered twice a year, in May (after finals) and in August (during orientation). More information regarding the Diagnostic Exam (list of topics, bibliography and old exams) is available at www.math.utk.edu/diagnostic/.

2. Satisfy either the standard program or the interdisciplinary mathematical ecology/biology concentration. A student intending to work in mathematical ecology/biology may complete either, but is encouraged to complete the interdisciplinary mathematical ecology/biology concentration.

3. Pass an examination in the field of specialization after requirements 1 - 2 have been met. This examination will be given by a committee appointed by the department head. A student may take this specialty examination at most twice.

4. Pass a one-year, 600-level sequence in mathematics outside the student's area of specialization. The sequence selected to fulfill this requirement must be approved by the Director of Graduate Studies and the student's doctoral committee.

5. Take at least two different one-semester research seminars and Math 599.

6. To maintain satisfactory academic progress toward their degrees, graduate students who have completed their written examinations are expected to register for and regularly attend one or more departmental research seminars each fall and spring semester until graduation. Exceptions due to scheduling or other conflicts may be requested through the Director of Graduate Studies.

Requirements 1 - 5 must be completed no later than the start of the student's seventh year (as a mathematics graduate student at UT).

Standard Program

1. A student must pass written examinations on two of the following year-long sequences: algebra (551-52), analysis (545-46), computational and applied mathematics (571-72), differential equations (535-36), stochastics (523-24), and topology-geometry (561-62).

A student must pass one examination by the middle of his/her third year and both examinations by the middle of his/her fourth year. A student may not take any examinations after four failures.

2. In addition to the two year-long sequences chosen for the written examinations, a student must take six other one-semester 500-level courses. At least five of these courses must be chosen from the following list grouped by examination area: algebra (551-52, 555-56), analysis (545-46, 545-47), computational and applied mathematics (571-72, 574, 577, 578), differential equations (513-14, 515-16, 531-32, 535-36, 537-38, 581-82, 585), stochastics (521-22, 523-24, 525-26), and topology-geometry (561-62, 567-68). The sixth course may be either a 500-level course listed above or a 600-level mathematics course not used to satisfy bullet #4. These six courses must contain a year-long sequence in an area different from the two written examinations and at least two courses in areas different from the two written examinations. A grade of B or better is required in each of the six courses.

Mathematical Ecology/Biology Concentration

1. A student must pass written examinations on mathematical ecology (581-82) and one of the following year-long sequences: analysis (545-46), computational and applied mathematics (571-72), differential equations (535-36), and stochastics (523-24). A student must pass one examination by the middle of his/her third year and both examinations by the middle of his/her fourth year. A student cannot take any examinations after four failures.

2. In addition to the two year-long sequences chosen for the written examinations, a student must take six other one-semester 500-600-level courses. At least five of these courses must be chosen from the following list grouped by examination area: analysis (545-46, 545-47), computational and applied mathematics (571-72, 574, 577, 578), differential equations (513-14, 515-16, 531-32, 535-36, 537-38, 585), stochastics (521-22, 523-24, 525-26, 527), and mathematical ecology/evolution (583, EEB 509, 511). The sixth course may be either a 500-level course listed above or a 600-level mathematics course not used to satisfy bullet #5.

These six courses must contain a year-long sequence in an area different from the two written examinations and at least two courses in areas different from the two written examinations. A grade of B or better is required in each of the six courses.

Policy on Outside Supervisor

Any mathematics student wishing to write a dissertation under the direction of someone who is not a regular member of the Department of Mathematics at the rank of assistant professor or above must first obtain approval from the Graduate Committee and Graduate School. The student must have successfully completed the written preliminary examination requirements before requesting approval. To support the request for approval, the student must provide to the Graduate Committee a written statement describing the proposed dissertation area and the reason(s) for (i) working with someone from outside the department and (ii) not working with a member of the department. The proposed dissertation director's curriculum vitae must also be provided. The Graduate Committee may request additional information or actions to assist its consideration of the matter. If the request is approved, then to assure appropriate and substantial mathematical content in the student's dissertation, the student's Ph.D. committee must include at least two Department of Mathematics faculty, at least one of whom is approved to direct doctoral dissertations.

The Graduate School policy on direction of student's dissertation research and chairs of the dissertation committee may be found in the Graduate Catalog under the heading "Academic Policies and Requirements for Graduate Students".

General Comments

1. The written examinations are scheduled in early January and immediately before the fall semester every year. To help the student prepare for the written examinations, the faculty has compiled lists of topics and references which the student may obtain from the departmental office. Copies of previous examinations may also be obtained in the departmental office.

2. Each written examination is created, administered, and scored by an Examination Committee of faculty appropriate to the topic. At the end of the examination cycle, the various Examination Committees present their recommendations at the departmental Preliminary Examination Meeting where the final decisions are reached. Only then are results communicated to the student.

3. Each written examination results in a "pass" or "fail". Students are strongly encouraged to discuss his/her performance on each examination with members of the appropriate Examination Committee.

4. Upon passing the written examinations, the student selects a field of specialization (i.e., a field in which to do his/her doctoral research) and must then pass an intensive examination in that field of specialization. This examination will be given by a committee appointed by the Department Head. The specialty examination may be taken at most twice.

5. If a graduate student changes the major area of study after completing his/her comprehensive examination, that student must satisfy the new doctoral committee as to level of competency in the new area.

6. The dissertation is a written presentation of original and significant research completed by the student. The student's dissertation director, a faculty member who works closely with the student in this project, also serves as chair of the student's Doctoral Committee. The student's Doctoral Committee, consisting of at least four faculty members (including one from outside the math department), reads the dissertation and administers the defense of dissertation.

In this oral examination, the student usually describes the work in the dissertation and answers any questions the committee may ask.

7. The department requires that a student take a one-year 600-level graduate sequence in mathematics outside his/her area of concentration. The course selected must be approved by the student's Doctoral Committee and by the Director of Graduate Studies. Such approval may occur after completion of the course.

Procedures for Fulfilling Requirements

1. Begin course work.

2. Pass two preliminary examinations.

3. Establish a doctoral committee.

4. Pass intensive examination in field of specialization.

5. Pass a one-year 600-level course outside the area of specialization.

6.   Take at least 2 different one-semester research seminars and 599.

7.   Write dissertation (while registered continuously for Math 600- dissertation hours).

8. Submit Doctoral Committee Form (this form must be submitted prior to or along with the Admission to Candidacy form).

9. Apply for admission to candidacy (at least one semester prior to graduation--consult Graduate Schools web site at http://gradschool.utk.edu/forms-central/ for all forms and deadlines). Forms should be completed online, printed, and require original signatures of at least 4 committee members, then submit to the Graduate School, 111 Student Services Bldg.

10.   Place name on graduation list through MyUTK.

11. Apply for diploma.

12. Schedule defense of dissertation with us and Graduate School (111 Student Services Building), at least 2 weeks prior to defense.

13. Submit dissertation to doctoral committee (at least 2 weeks prior to defense).

14. Defend dissertation.

15. Obtain approval from the Graduate School of final copy of dissertation (after dissertation defense and at least 2 weeks prior to commencement).
Dates for fulfilling these requirements are posted outside 225A Ayres Hall as well as on the Graduate School web site.