Ph.D. Program

Introduction

These guidelines are intended to help familiarize graduate students with the policies governing the graduate program leading to the degrees of Doctor of Philosophy (Ph.D.) in Applied Mathematics. This material supplements the graduate school requirements found on the Graduate Student Resources page and the Doctoral Degree Policies of the graduate school. Students are expected to be familiar with these procedures and regulations.

The Doctor of Philosophy program

The Doctor of Philosophy (Ph.D.) Degree in Applied Mathematics is primarily a research degree, and is not conferred as a result of course work. The granting of the degree is based on proficiency in Applied Mathematics, and the ability to carry out an independent investigation as demonstrated by the completion of a doctoral dissertation. This dissertation must exhibit original mathematical contributions that are relevant to a significant area of application.

Faculty mentoring

Upon arrival, incoming students will be assigned two faculty mentors. Until a student settles on a thesis advisor, the faculty mentors aid the student in selecting courses, and they each guide the student through a 2-credit independent reading course on material related to the student’s research interest. The faculty mentors are not necessarily faculty in the Department of Applied Mathematics.

Course requirements for the Ph.D. program

- Two of the following three sequences are required to be taken within the first year in the PhD program:
  - AMATH 561, 562, 563;
  - AMATH 567, 568, 569;
  - AMATH 581 or 584, and 585, 586;
- AMATH 600 (Reading during the first five quarters, including the first summer) (2×2 credits, each with a different faculty member).
- At least 9 courses from the amath curriculum

Students have to take a minimum of 13 numerically graded courses. At most two of these can be at the 400 level or be cross listed with courses at the 400 level. The entire course of study of a student and all exceptions to this list must be approved by the Graduate Program Coordinator and the student’s advisor or faculty mentors.

(For students who entered the doctoral program prior to autumn 2017, please see here for degree requirements.)

Supervisory committee

As soon as possible, and no later than the end of the Spring quarter of the first year, a student must form a supervisory committee. Initially, the supervisory committee may consist of only an advisor. At this stage, the Supervisory Committee plays an advisory role in
designing a course of study appropriate for the student's research interests, and in formulating a dissertation topic. A full Supervisory Committee should be formed four months prior to the student's General Exam.

The full Supervisory Committee should have a minimum of three regular members plus the Graduate School Representative, and will consist of at least two faculty members from Applied Mathematics, one of whom is to be the Chair of the Committee. At least one of the Committee members must be a member of the core amath faculty. If the proposed dissertation advisor is a member of the Applied Mathematics faculty, then the advisor will be the Chair. The dissertation advisor may be from another department, and is then also a member of the Supervisory Committee. The Dissertation Reading Committee, consisting of three members, is usually formed from the Supervisory Committee. Two members of the Dissertation Reading Committee must be from the Applied Mathematics faculty.

While the principal source of guidance during the process of choosing specialization areas and a research topic is the thesis advisor, it is strongly advised that the student maintain contact with all members of the Supervisory Committee. It is suggested that the student meet with the Supervisory Committee at least once a year to discuss their progress until the doctoral thesis is completed.

Examination requirements for the Ph.D. program

Students in the Ph.D. program need to pass the following exams:

- The qualifying exam
- The general exam
- The final exam (defense)

Satisfactory performance and progress

At all times, students need to make satisfactory progress towards finishing their degree. Satisfactory progress in course work is based on grades. Students are expected to maintain a grade point average of 3.4/4.0 or better. Satisfactory progress on the examination requirements consists of passing the different exams in a timely manner. Departmental funding is contingent on satisfactory progress.

The Graduate School rules regarding satisfactory progress are outlined in Graduate School Memorandum No. 16.

Expected academic workload

A first-year, full-time student is expected to register for a full course load, typically 3 numerically graded courses totaling 10 or more credits. All other full-time students are expected to consult with their advisor and register for at least 10 credits per quarter.

Annual Progress Report

Students are required to submit an Annual Progress Report to the Graduate Program Coordinator by the second week of Spring Quarter each year. The annual progress report should contain the professional information related to the student's progress since the previous annual report. It should contain information on courses taken, presentations given, publications, thesis progress, etc., and be signed by the student's advisor. Students should regard the Annual Progress Report as an opportunity to self-evaluate their progress towards completing the PhD. The content of the Annual Progress Report is used to ensure the student is making satisfactory progress towards the PhD degree.

Financial assistance
Financial support for Doctoral studies is limited to five years after admission to the Ph.D. program in the Department of Applied Mathematics. Support for an additional period may be granted upon approval of a petition, endorsed by the student’s thesis supervisor, to the Graduate Program Coordinator.

Master of Science program

Students in the Ph.D. program obtain an M.Sc. Degree while working towards their Ph.D. degree by satisfying the requirements for the M.Sc. degree.

Additional Ph.D. Degree Options and Certificates

Students in the Ph.D. program in the Department of Applied Mathematics are eligible to pursue additional degree options or certificates.

- Advanced Data Science Option
- Computational Molecular Biology Certificate

Option or certificate requirements are in addition to the Applied Mathematics degree requirements. Successful completion of the requirements for the option or the certificate leads to official recognition of this fact on the UW transcript.

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