

GRADUATE DEGREE PROGRAMS IN BIOLOGY

DOCTOR OF PHILOSOPHY

A. ORIENTATION AND GUIDANCE FOR NEW STUDENTS

Each new student must meet with his or her advisor prior to registration for his/her first semester of study. If a student does not have an advisor, then the student will meet with the Committee on Graduate Affairs (CGA) or their designate. The advisor or CGA (or their designate) will help the student to identify weaknesses in his/her background and will suggest courses for the student to take. The CGA or their designate also will inform the student of his/her responsibility to identify an area of research and to select a research advisor, and introduce the student to the biology faculty members.

B. THE FIRST YEAR

1. Area of Study, Research Advisor

By the end of the first semester of study, each student is expected to have identified a major area of study and to have selected a research advisor. However, these selections are revocable. The student may change his/her area of interest, advisor, or both without embarrassment to him/her or to his/her advisor. The research advisor is responsible for guiding the student in the selection of the courses and seminars appropriate for their training. The student, however, is free to, and is urged to, consult with other faculty members for aid in course selection or with his research project if he/she thinks it will be helpful.

It is expected that each student will be involved in a research project during the first year in graduate school. It is the responsibility of the advisor to help their student with the project.

2. Program of Study

Within the first year of study, the student and advisor must complete a Program of Study form (available on SIS) for the entire Ph.D. program. The anticipated program of study may be modified at any time in the program, but must conform to Graduate School requirements. Students entering with a Bachelor's Degree must complete 36 credit hours of study before the Qualifying Examination (see below). No more than 6 credit hours of BIOL 601 can be used for this requirement, but students may repeat BIOL 599 if other formal course work is not appropriate for the student's degree program. Registration for BIOL 599 is by permit only (available in the Biology Office or on the Biology website). Students entering with a Masters Degree must complete only 18 hours of formal course work before advancing to the Candidacy Examination, but are limited to 3 hours of BIOL 601.

3. Teaching Requirement

Teaching experience is a required part of the Ph.D. program. Teaching duties are assigned by the Department Chair, taking into account both the specialized areas of interest of the student and his or her broader professional development. The normal teaching requirement consists of four semesters.

C. SUMMER

Graduate students will be involved in full time research and graduate study during the summers throughout their graduate years.

D. SECOND YEAR— EVALUATION OF CANDIDATE

Evaluation is made on the basis of the student's course performance, seminar, qualifying examination, and the advisor's recommendation.

1. Coursework Requirements

Any student whose course performance is not satisfactory may be terminated. A student's scholastic performance will be considered unsatisfactory if he/she does not maintain at least a "B" average (3.0 on a 4.0 scale). In addition, any grade of "F" will result in automatic termination, as will the receipt of 6 or more credits of "C".

The student may appeal decisions made on the basis of these regulations. Such appeals shall be heard by the CGA and the student's advisor. Decisions are made by a majority vote of the CGA and the advisor.

Students are strongly encouraged to make an oral presentation beyond the qualifying exam proposal seminar (e.g. in colloquium, a journal club, a class) and are encouraged to do so more than once.

2. Qualifying Examinations

Formal admission to the Ph.D. program is contingent upon the student passing a qualifying examination. This examination must be completed by the end of his/her fourth semester of graduate study. Subject to the approval of the student's advisor and the CGA, the student will be examined in his/her knowledge of biology and ability to articulate and defend a research project.

The Examination Committee consists of the student's advisor and three additional faculty members. An additional non-voting faculty member, typically a member of the CGA, will enforce the rules of the examination and serve as chair of the Committee.

The qualifying examination consists of a paper describing a specific research proposal and an oral examination, described below.

a. Research Proposal

At least two months prior to the qualifying examination, the student emails 3 brief abstracts on topics suitable for the research proposal for the qualifying examination, as well as the names of the members of the Examination Committee, with brief descriptions of their relevant expertise, to the CGA. The abstract topics may not be directly related to the student's current thesis topic. Abstracts must be submitted on the Ph.D. Candidacy Research Proposal form, which is available on the Biology department website, and must conform to its style. Following approval of the proposed members of the examination committee and the abstracts by the CGA, the student then chooses one of the approved abstracts for further development into a proposal.

The student develops a detailed proposal consisting of the rationale, technique, specific experiments, potential conclusion, and significance of the proposed work. It is suggested that the application instructions for the body of an NTH grant proposal be used as a guide for the organization of this proposal. The major emphasis of the paper

is to be on the proposal itself, and not on a review of the literature or other background material.

The detailed proposal must be approved by the advisor and then presented to the examining committee at least 10 days before the examination. It is strongly recommended that a student register for 3 credits of BIOL 601 to allow sufficient time for preparation of the research proposal.

b. Comprehensive Oral Examination

The comprehensive oral examination will cover one area of biology directly related to the student's planned area of research, and two other related areas of biology, to establish the student's depth and breadth of understanding. The Examination Committee (as soon after its formation as is convenient) has an informal meeting with the student to discuss the examination. A member of the CGA must be present at this meeting to ensure that the student and the faculty are aware of the guidelines for the examination. During the informal meeting, the committee members will define the content of the questions that they will ask the student in the comprehensive examination, and, if possible schedule the time and date of the examination.

c. Seminar

Each student is required to present a seminar to the Department some time during the second semester (normally spring) of the second year. The seminar should focus on the topic to be covered in the student's research proposal for the qualifying examination. The seminar requirement must be fulfilled before taking the qualifying examination.

A timetable for the events relating to the qualifying examination might be as follows:

1. Feb 15: The student submits the names of the examination committee members and the three abstracts for approval by the CGA.
2. Feb 28: Student meets with his/her examining committee and a CGA representative to discuss the scope of the qualifying examination and to present his/her proposal outline to the examining committee for approval.
3. April 1: The student presents a seminar to the Department on his/her proposal topic.
4. April 15: Completed proposal is submitted to the examining committee.
5. April 25: Oral examination.

Examination Format: The examination is conducted in two sections (the comprehensive examination is held on one day and the defense of the proposal is held on another day), and approximately equal time is given to each portion of the examination. Normally, the comprehensive examination is given first, so that problems that may be encountered in the review of the research proposal may not influence the student's performance on the comprehensive examination. However, the sequence may be reversed if the student or the Examining Committee wishes to do so.

d. Examination Results

The Examining Committee recommends one of the following courses of action:

1. Proceed toward the Ph.D. degree (with or without conditions necessary to correct deficiencies identified during the examination).
2. Re-examination on one or both portions of the examination.
3. Permission, with or without conditions, to complete a Master's degree
4. Failure

E. THIRD YEAR-ADVISORY COMMITTEE

Immediately after passing the Ph.D. qualifying examination, each student should, with the help of his/her advisor, name a thesis advisory committee. This committee should consist of 4 members including the research advisor. It should have at least 2 members from the Biology Department and 1 member from outside the Biology Department. The committee must be approved by the CGA. Each student should hold a meeting with his/her committee annually (prior to June 1) to discuss progress on his/her research. It is not required that the CGA representative be present at the annual meetings. However, the CGA must be apprised of the date and progress discussed at the meeting by the student's advisor. The CGA will review the progress of each student once a year.

F. FINAL YEAR-DEADLINES

Each semester the University publishes, in calendar form, its deadlines for application for degrees approval of thesis/dissertation form, and defense of the thesis/dissertation. **IT IS THE STUDENT'S RESPONSIBILITY TO BE AWARE OF AND TO MEET THE UNIVERSITY DEADLINES AS WELL AS THE FOLLOWING DEADLINES:**

- Prior to defense: Present a seminar on thesis research to the University community.
- No later than 10 days prior to defense: Submit a final copy of the thesis to the examining committee and to the Department Chair.

G. THESIS PREPARATION

Before preparing a draft of the thesis, the student should obtain all necessary style information from the Graduate Dean's Office. Ultimately, the thesis must be approved for defense by the student's research advisor, but the student should seek review by other qualified readers.

H. THESIS DEFENSE

1. Paper

Each student is required to submit at least one manuscript to a respected refereed scientific journal. The paper must be on part of his/her thesis work and the student should be first author. The paper must be submitted at least 3 months prior to the thesis defense. Any reviewer's comments should be made available to committee members at the defense.

2. Examining Committee

The Examining Committee, which must be approved by the CGA, shall consist of no more than 4 voting members, including the research advisor and at least one examiner from outside the Department. At least 2 members of the Committee must be faculty members in the Biology Department. If desired, the fourth examiner may come from another comparable institution (subject to Graduate School approval).

An additional non voting faculty member, typically a member of the CGA, will enforce the rules of the examination and serve as chair of the Committee.

3. Thesis Seminar

Before the thesis defense, each Ph.D. candidate is required to present a seminar based on his/her thesis research. The seminar is to be scheduled by the student and will be open to the entire University community.

4. Results of Defense

The thesis will be accepted if, at the examination, at least three of the four committee members vote to accept it. In the event that the student's thesis is not accepted (fewer than three members approve), the committee shall recommend a course of action to be followed. The alternatives are: failure with no repeat of the examination or failure with re-submission and re-defense of the thesis, with changes suggested by the committee. Failure to pass a second time shall be final.