DEPARTMENT OF BIOLOGICAL SCIENCES

Ph. D. Degree Requirements

Revised September 2009

Introduction

Listed below are the requirements that must be fulfilled for the Ph.D. Degree in Biology, Cell and Molecular Biology Concentration, at the University of Toledo. Failure to successfully complete these requirements according to the timeline established in this document may result in the student’s dismissal from the program. The Biological Sciences faculty will evaluate graduate student progress each year during the spring semester. At that time each graduate student will be required to submit a progress report with a written statement concerning research status and projected date of program completion. The student’s major professor must endorse all progress reports.

Specific Requirements

To earn a Ph.D. degree in the Department of Biological Sciences, a student must:

1. Choose a major professor prior to the completion of the first year in the program.
   a. Students in the Ph.D. program have the option of conducting rotations in 2-3 laboratories during his/her first year of graduate school to gain exposure to the studies and approaches carried out in different research groups. After the rotations, the student will select a laboratory in which to conduct his/her dissertation research.
   b. Rotations are not required. A student may join a laboratory directly if a suitable laboratory is identified.
   c. Under either track, students must discuss their decision with their potential major professor and understand the specific expectations of students in that laboratory. Both parties must be in agreement before a final decision is made. Students should be aware that not every laboratory will have openings in any given year.

2. Choose a Dissertation Committee prior to the completion of the second year in the program. This committee will consist of at least five members:
   a. The major professor must be a faculty member in Biological Sciences holding full graduate faculty status.
   b. At least two other full-time faculty members from the Biological Sciences Department. These members must also have graduate faculty status.
c. Two members from outside the Biological Sciences Department.

All members of the Dissertation Committee must hold a Ph.D. degree or the equivalent. The primary advisor will serve as the chairperson for this committee. The Dissertation Committee may be composed of members from the Exam Committee described below (see #3). Approval of committee composition is required from the Departmental Chair and Chair of the Graduate Affairs Committee.

The student is required to meet annually with and provide a progress report to the Dissertation Committee, with the first meeting taking place no later than the last day of the Fall semester of the student’s third year.

3. Prepare independently a written Qualifying Research Grant Proposal, in the format of a NIH/NSF/USDA proposal. The guidelines for the Qualifying Research Grant Proposal are described in the last page of this document. An Exam Committee for this proposal will be composed of at least three members of the Biological Sciences Department. The primary advisor is a member of the Exam Committee, but cannot serve as the chairperson. The student will identify a topic for the proposal after consulting with the advisor for the proposal. The exam will also have an oral component and the student must pass both phases of the exam in order to become eligible for “Candidate Status” and to remain in the PhD program. The topic is to be selected before November 1 of the student’s second year and the written proposal turned in by March 15 of the following spring. The oral component will follow within two weeks. Students that fail the written portion have until April 30 to submit a revised proposal. Those failing the second attempt are no longer eligible to remain in the PhD program. If a student fails to meet any of these deadlines, that student must receive approval from the Graduate Affairs committee to remain in the PhD program.

4. Apply for admission to candidacy. For admission to candidacy the student must have a cumulative GPA of at least 3.0 for all required graduate courses (see #5 below) and may not have earned a grade less than a C in any of these courses. Students must also have successfully passed both the written and oral parts of the Qualifying Research Grant Proposal (see #3 above). It is the student’s responsibility to initiate the application for candidacy. Forms are available from the Graduate School office.

5. In accordance with Graduate School regulations, if a student’s overall grade point average (GPA) falls below 3.0 at any point in the degree program, he/she will have a probationary period of one semester to raise his/her GPA to 3.0 or higher. If after that semester the student’s GPA is still below 3.0, then one of two courses of action will be followed:
a. If the student’s GPA is between 2.75 and 3.0, then a sub-committee of the
Graduate Affairs Committee may administer an oral exam to the student. This
is a separate evaluative oral exam not required of doctoral students who have
maintained a 3.0 or better GPA. Based on the student’s performance during that
exam, the committee may recommend one of three options:

i. If the student’s performance is clearly below expected graduate student
standards, then the student will be dismissed from the program.

ii. If the student performs well in the oral exam, he/she may be given an
additional probationary semester to bring his/her GPA up to 3.0. If the
student fails to raise his/her GPA during that additional semester, then
he/she will be dismissed from the program.

iii. The committee may recommend switching from the Ph.D. to the M.S.
program, with a corresponding change in stipend and teaching
expectations.

b. If the student’s cumulative GPA is below 2.75 after the first two semesters, then
the student will automatically be dismissed from the program. Students
removed from the program under this mechanism may appeal to the Biological
Sciences Graduate Affairs Committee for special consideration, but retention in
the program will require compelling and documented reasons for the poor
academic performance (serious illness, family emergency, etc.).

6. Complete the residency requirement of at least two consecutive semesters of full
time graduate study at the University of Toledo.

7. Complete at least one semester of teaching.

8. Complete a program of study in Biology that is approved by the student’s
Dissertation Committee and the Department. The Graduate School requires a
minimum of 90 semester hours of approved graduate course work. Doctoral
Program Plans (DPP) may include 30 semester hours from a Master’s degree. Each
program of study must include the following courses: BIOL 8000 (Introduction to
Scientific Thought and Expression), BIOL 8010 (Advanced Molecular Biology),
BIOL 8090 (Advanced Cell Biology), BIOL 8100 (Research Methodologies), 3
semester hours of BIOL 8930 (Seminar in Biology), and additional courses and
research credits to meet minimum required number of semester hours. The student
and the major professor must sign the DPP. The DPP is then submitted to the
department for faculty approval, after which the Department Chair will sign the DPP
and forward to the Dean of Arts and Sciences and Dean of the Graduate School for
approval

9. Apply for graduation by the published deadline.
10. Complete a dissertation and successfully pass the dissertation defense. The student must present the dissertation as an exit seminar prior to departure from the Department. If possible, this seminar should be part of one of the Departmental seminar series and attended by the entire department (students and faculty) and open to the University community. The seminar will be followed by a closed session with only the Dissertation committee members in attendance, during which time the student will defend his/her dissertation. The Dissertation Committee must approve the student’s dissertation and defense by majority vote. Committee members will signify approval by signing a signature page that will be included in the student’s final dissertation.

11. Have first-authorship on at least one manuscript accepted to a peer-reviewed scientific journal.

12. Submit an original and two copies of the approved dissertation to the Graduate School and one copy to the Department prior to graduation. The Graduate School requires an electronic submission of the dissertation no later than one (1) day prior to the commencement date. The dissertation should be prepared in accordance with the format determined by the advisory committee and consistent with the guidelines presented in the “Thesis Manual” issued by the Graduate School at the University of Toledo. Approved “Notice of Thesis” and “Assurances of Compliance With Applicable Federal and State Regulations Governing Research” forms must be filed with the Graduate school at the time the student determines the nature of the research project.
General Notes:

In general, work for the Doctoral Degree will require a minimum of four years of full-time study beyond the bachelor’s degree, but no more than six years of full-time study.

There is no formal mechanism in place to allow students to change labs (e.g. major professors) once dissertation research has started, and so students should take seriously the task of identifying a laboratory in which to conduct their dissertation research. In the event that a conflict arises between a student and his/her major advisor, an effort should be made to work out the conflict in private or with moderation by the Departmental Chair and/or Graduate Affairs Chair. Only in extreme situations where all parties involved, including a neutral third party, agree that a change is necessary will students be permitted to switch from one lab to another to complete their dissertation research.

Students that elect to switch from the Ph.D. to the M.S. program must submit a written request to the Department Chair and the Graduate School stating their reasons for making this change. They must also provide a letter in support of this decision from their major professor. Final approval will require a majority vote of the Graduate Affairs Committee members. Stipends will be adjusted to reflect the degree program change beginning with the semester that the change goes into effect.

Students in the M.S. program that wish to change to the Ph.D. program must submit a formal application prior to the deadline for outside applications. In addition to the information required of all applicants, the student must state clearly his/her reasons for requesting the degree program change, and must provide a supporting statement from their major professor.

Any changes in the above requirements must be approved by a majority vote of the Biological Sciences faculty.
Qualifying Research Grant Proposal Guidelines

1. Specific Aims (1-2 pages)

Provide a clear, concise summary of the aims of the work proposed and their relationship to the project’s long-term goals. State the hypothesis to be tested.

2. Significance (5-6 pages)

Sketch the background leading to this application by highlighting published studies that form the basis of your specific aims. Summarize important results outlined by others in the same field, critically evaluating existing knowledge. Identify gaps that this project is intended to fill.

3. Experimental Design (10-16 pages)

Clearly describe overall design of the study, with careful consideration to statistical analysis, the adequacy of controls, and number of observations, as well as how results will be analyzed.

Briefly describe proposed tests, methods, and/or procedures to allow adequate evaluation of your proposed work.

This is not intended to be a detailed description of methods, but be prepared to fully explain at your oral defense any experimental methods that are part of your written proposal.

Discuss the potential difficulties and limitations of the proposed procedures and alternative approaches to achieve the aims.

Divide this section into individual specific aims.

You should end the proposal by summarizing the potential importance of this work and what types of future goals you might have beyond those studies (1/2 page)

Formatting: 0.8 inch margins (all around), Arial 12 point, pages numbered and double-spaced.