

Graduate Student Handbook

2017-2018

**Department of
Biological Sciences**

The University of Toledo

Approved by Graduate Affairs Committee February 08, 2017
Approved by Department of Biological Sciences - pending

First Version

1999: Kelly Driscoll, Christian Lauber and Kerry McKenna

Updates

2001: Sushant Khandekar and Katherine Smith

2002: Rhea Busick and Shaun Rosebeck

2003: Alexandra MacRae and Stella Mayo

2004: Lacey Strickler

2005: Linda Hegedus and Lacey Strickler

2006: Linda Hegedus and Eric Cole

2007: Linda Hegedus and Charlie Furrey

2008: Linda Hegedus and Lindsay Maves

2009: Linda Hegedus and Anish Purohit

2010: Linda Hegedus and Michael Bekier II

2011: Douglas Leaman and M. Adnan Siddiqui

2012: Carol Hepner and Alan Hammer

2013: Carol Hepner and Paul Williams

2014: Carol Hepner and Paul Williams

2015: Douglas Leaman and Kyoung Jo

2016: Malathi Krishnamurthy, Tomer Avidor-Reiss and Kyoung Jo

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INTRODUCTION

This is an effort to present useful information to all new graduate students. This handbook covers issues that students may experience on a daily basis and policies that govern their academic maturation. Most information a graduate student needs is not contained in a single document or university department website. By combining information from these various sources, we hope to answer questions that may arise during your time at the University of Toledo.

ACADEMIC POLICIES

Please see the graduate catalog and Biological Sciences degree requirements for complete information and current policies. Call the Graduate School (x4723) or the Biological Sciences Office (x2065) for specific questions.

Plan of Study

This should be one of the first things that you and your major professor discuss. A Plan of Study lists all the courses that you intend to take, the number of credit hours, and when the course is to be taken. It should contain all the required courses as well as any courses that would aid in your own research. Plans should be submitted early so your schedule can be set, as some courses may not be offered every semester or every year (see attached document at the end). The Plan needs to be approved by your major professor, committee, the department, and the Graduate School. The form should be updated when any significant changes occur (i.e., M.S. to Ph.D. switch). Blank forms are available in the Department Office. Ph.D and M.S. students must submit their Plan of Study by the end of their first year.

One suggestion: only list courses on the form that you actually intend to take. Any courses not taken by graduation have to be explained. If you think you might like to take a course, but are not sure, leave it off. It is easier to explain that you have taken more than expected than it is to explain why you did not complete the submitted and approved Plan. Courses not offered by the department may not be subject to tuition waiver. Students may take courses outside of the department following approval by PI and department chair after amending the plan of study. Students in the final semester of Ph.D program may register for reduced course load using the form attached to the link provided. According to the Ph.D requirement checklist, only students who have a first author original research manuscript accepted, which is a Ph.D degree requirement, are allowed to register for reduced course load.

<http://www.utoledo.edu/cisp/international/InternationalStudents/pdfs/RCL.pdf>

Grades

As a graduate student, you must maintain a GPA of 3.0 or higher at all times. Should you fall below this standard, you will be placed on academic probation. Failure to be removed from academic probation within one semester can result in loss of your teaching assistantship and removal from the graduate program. All classes reported on your Plan of Study form must have a grade of "C" or better. The Graduate School considers grades of "C-" or less unacceptable. There is no academic forgiveness policy for retaking or deleting lower grades.

Comprehensive Examination

As of October, 2016, the requirements for the M.S. and Ph.D. were revised.

Please see the Ph.D. and M.S requirement document at the end of this document.

Teaching and Help Center

As a teaching assistant you will be expected to teach each semester. M.S and Ph.D student teaching assignments typically include one introduction or upper division lab course each term. TA's are expected to attend their TA meetings and hold five hours of office hours, at least one of which is held in the Biological Sciences Help Center (WO 1261). Graduate students must be present and available in the Help Center during their assigned times. Arriving late, leaving early or sitting in any other place than the Help Center is not acceptable. Students missing or not conforming to help center assignment will be given a warning and in extreme cases a portion of the department summer stipend at the discretion of the department chair will be withheld. Everyone has different teaching styles; however, if you are teaching a lab for the first time, seek out a graduate student who has taught the lab before. They can give ideas, notes, past quizzes, exams, and general advice on what did and did not work in the past. In most cases, lab formats are very similar from one year to the next, even if changes in content do occur. Most graduate students will be more than willing to talk to you about their past teaching experiences. Make use of this valuable resource!

Grading and Proctoring

Graduate students who receive financial assistance from the Department are required to serve as proctors or graders, as well as teaching assistants, each semester. During the first week of classes, a form for times when one is available will be distributed. Turn this form in by the required deadline to the Department (WO 1235). Students who are required to proctor or grade and fail to complete the form will be scheduled at the Department Chair's discretion.

Policy on Off-campus Work

Graduate students who receive a stipend are not allowed to work outside of the University during the semesters of the award. This includes any weekend and after-hours jobs. The Department, as well as the Graduate School, maintains that students who are TA's or RA's, taking full time credit, and keeping up their GPA, are working full-time. The Department can take away stipends from students. Outside employment takes the most valuable asset a graduate student has ...TIME!

Immigration regulations do not permit international students to be employed outside of the school at any time For specific questions, please talk to the Graduate School (UH 3240, x4723), on the web at <http://www.utoledo.edu/grad-school/>) or someone in the Department Office.

Registration

Registering for classes can be done by one of two methods. The first option is to register at myut.utoledo.edu. That method is convenient and requires no paperwork, but some seminar classes may require the signature of the instructor. Registration after the first week of classes or when a signature is required must be done at Rocket Hall. Add/Drop forms can be found in the Biological Sciences Office WO 1235. The second method is to register in person at Rocket Hall. Students who choose this option will need to fill out the registration form and have an advisor's signature. One can opt out of parking and legal service fees by either registration method.

Change from M.S. to Ph.D. or Ph.D to M.S program in Biological Sciences

Students in the M.S. program that wish to change to the Ph.D. program or vice versa must submit a formal application online prior to the deadline for outside applications (see link at the end of the paragraph). 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 and get approval from committee of graduate affairs. See the M.S. and Ph.D requirements at the end of the document for additional information.

(<http://www.utoledo.edu/graduate/changeofgraduateprogram.html>)

Laboratory safety, biosafety, radiation safety (if applicable to individual labs) (<http://www.utoledo.edu/depts/safety/biosafety.html>) and training in handling animals (if applicable) (http://www.utoledo.edu/depts/safety/Animal_Research.html) must be completed by all students. Any students supported by faculty grants should also complete Conflict of Interest forms (<http://www.utoledo.edu/research/RC/COI.html>).

Department INFORMATION

Teaching Assistant Duties

As a new teaching assistant there are many new things for you to learn. Although we will be unable to tell you how to teach or deal with difficult students, we can lend some advice on the daily issues like supplies, photocopying, and finding help.

Teaching Supplies

John Arnold is the lab coordinator (x4588) and is responsible for coordinating all of the department's teaching labs. He is the primary resource for all teaching labs and will provide you with all of your supplies. If you have any comments/concerns, please see John first. Please note that John can also help you find equipment that is shared among several labs (gloves, reagents, glassware). Do not remove any supplies from WO 1217 without asking John Arnold or Brianne Sturt-Gillespie.

For any problems that arise with lab instruction after hours you may contact John Arnold on his cell phone (734.735.8324).

Photocopies

If you need to make photocopies for your students, you may use the photocopier in the department office. Should you require more than 25 copies, fill out a copy request form in the office and give Carol 24 hours notice. If you have an “emergency”, ASK. Carol or a student worker may be able to run copies on the Lanier copier. NOTE: Only office staff may operate the Lanier. Please do not use the photocopier to make individual copies.

Secretarial Duties

Currently, the departmental secretary is Carol Hepner. Carol will be your primary contact person for most day-to-day issues. Our departmental business services officer will handle budget and personnel issues. Below is a guide for you to use to obtain answers to questions and solutions to problems that will occur. Remember, it is only a guide. Feel free to ask either Carol or business officer a question, should the other be unavailable. But please remember to give them the respect they deserve - they make the department run!

Carol:

Facility problems (overflowing toilets, flooding ceilings, broken doors, etc.); she can help you with work orders.

- Keys (for when you need to order your own, or you need to borrow one)
- Office equipment dilemmas (how to work the fax, photocopier in need of toner, copy machine malfunctions, etc.)
- Graduate School forms (Plan of Study, Registration, etc.)
- Mail

Business Services Officer:

- Personnel paper work (including department appointment forms, tuition waivers)
- Financial reimbursement (seminars, travel expenses) from the department
- Ordering

If you are in a research lab with grant support, you may need to interact with the business services officer on grant purchases or travel reimbursements. Typically the business officer interacts with the Principal Investigator(s) on the grant, or their designees (i.e., technician/postdoc).

Keys

Be sure to contact Carol as soon after arrival as possible to complete a key request form for each key you will need. Only request keys for the rooms to which you will need access; i.e. your lab, office, teaching lab, and front entrance to BO. It may take several weeks before you will receive your new keys. Please safeguard their security, as you are responsible for the replacement cost of any lost keys (a charge of \$25 per lost key). When you graduate you must return all your keys to the Transportation Center, Key Control; any unreturned keys will cost you (not the department) \$25. Students may request Carol to add weekend access to the building and lab on their ID cards.

Seminar Duties

During the course of fall and spring semesters, the department invites researchers for seminar presentations on Friday afternoons at 3:30 p.m. (day and time is subject to change). Forty-five minutes before seminar, time is made available for all Biosciences graduate students to meet with the speaker. In addition, there is a small reception with snacks that is to be prepared by one of our graduate students prior to the seminar.

Each Biosciences graduate student is assigned at least one day per year to prepare the snacks. The BGSA president is responsible for assigning these duties. If you are unable to fulfill your assigned task, it is your responsibility to make certain someone else will take over your place and inform the BGSA president and the professor in charge of seminar (not the speaker) who will be taking over your responsibility.

If you are assigned for snacks you must purchase, set-up, and clean up the food and beverages. You will pick up a \$30 Kroger gift card from Carol to purchase the food items. The receipt from this MUST be turned in to Carol after the food is purchased.

All food and beverages should be ready by 3:15 p.m. Plates and napkins are kept in WO 3246. Carol Hepner has the key to the cabinet in her desk; please remember to return it. Ice can be obtained from the ice machine on the fourth floor. Responsible students should check the supply in advance. You can be as creative as your \$30 maximum and time allow. **Please be mindful of the dietary needs of others (diabetics, vegetarians, Kosher, etc.).** Provide enough food for about 40 people. A bottle of water for the speaker should be picked up from the office. Some suggested items are vegetables and dip, chips and dip, cookies, cheese and crackers, fruit.

COMPUTER CLUSTERS

Departmental Computers

Currently, there is a computer in the Graduate Student Lounge in WO 1261A and one printer. The lounge also has a large flat screen TV display for practicing talks and presentations. The office copier has scanning and faxing functions.

Public Computer Clusters

There are several public computer clusters that serve the entire campus. The closest cluster to the BO-WO complex is in BO 2051 and in the basement of Carlson Library. There are also computers in BO 1099 that are available to Biological Sciences students. You will need your Rocket Card and a UTAD account in order to use these facilities. An individual UTAD account can be created at no cost at myUTaccount.utoledo.edu.

BGSA/ GSA

Biology Graduate Student Association (BGSA)

All graduate students in the Department of Biological Sciences are expected to participate with the BGSA by attending at least one meeting/semester and helping in the following areas.

1) Picnics/Parties

Each year the BGSA hosts three major functions: welcome barbeque in September, holiday party in December and the end of the academic year party in late April or early May. Every graduate student is expected to participate in one of the following capacities for at least one departmental picnic or party: cooking, clean-up, set-up, shopping, and entertainment.

2) Organization

BGSA administration: taking attendance at meetings, proctoring and snack/slide assignment scheduling, or taking care of the graduate student lounge.

Graduate Student Association (GSA) – located in Student Union Room 3514

All graduate students are members of the GSA, and as members are eligible for travel grants. Students presenting papers or posters at a conference are eligible for \$175, while those who attend a conference are eligible for \$75. Deadlines for submission are near the middle of the semester; the BGSA will notify graduate students of the deadlines as soon as the dates become available. It is important to remember that the monies will not be released until the semester after the application has been submitted. More information can be obtained by contacting the GSA at ext. 2373 or visiting the GSA web site <http://utoledogsa.com>.

Other Funds

The Biosciences department awards up to \$250/year for students who give paper/poster presentations at conferences. Grants can also be used to pay for travel expenses. Talk to your advisor about applying for grants and obtaining other sources of funding. Travel grants from the host society can often be awarded to graduate students presenting at national/international meetings; be sure to apply early for these. Students are eligible for no more than **one** travel award from the department per year.

STUDENT PERKS AND OTHER INFORMATION

Biology Graduate Student Lounge/Tutoring Center

WO 1261 serves as a dual function: a Graduate Student Lounge and as the Biological Sciences Help Center. The cleanliness of this area is dependent on everyone. The custodians will empty the trash and occasionally mop the floors, but graduate students are all responsible for keeping the area clean.

E-Mail

E-mail is available free of charge to all registered UT students. To access accounts, you must first go to email.utoledo.edu. Check on Secure Access and enter your utad login ID or name and your password. You must maintain a UT e-mail account and check it regularly for university or departmental messages.

Student ID Cards and Account

For many different services (library, athletic events, computer clusters, registration, etc.) you are required to present your student ID card and/or account. You will be issued one free card at Parking Services, Rocket Hall 1917, ext. 5843. If you lose or have your card stolen, you will need to purchase a new one. Similarly, an individual fee account can be created at Rocket Hall.

Student Recreation Center

All UT Students are entitled to use the Student Recreation Center free of charge once you have your ID. The facilities include a half Olympic-sized pool, a diving well, swirly slides, sauna, hot tub, nautilus machines, indoor soccer, basketball, volleyball, squash and racquetball courts, running track, climbing wall, foosball, pool and table tennis, as well as many other activities. Memberships are available at reduced rates for family members, spouses, and significant others. You can call x3700 for information on these memberships and to find out times of operation that vary through the year.

Library Services

The Carlson Library (CL) offers several different services to students. In order to check out books and use facilities you will need your student ID card. The library has a web page with an electronic card catalog serving books, journals, and audio-visual materials. One feature that is free is the Interlibrary Loan services. To obtain a book that our library does not have, you can order it over the Internet on the library home page <http://www.cl.utoledo.edu/>. To obtain a journal article that our library does not have from the Northwest Ohio Depository you must file a request through the CL website.

For further questions regarding Carlson Library call ext. 2324, or visit the information desk.

The University of Toledo's Health Science Campus also houses many resources that may be of particular interest to our graduate students. These include updated textbooks, online journals and other resources, which can be found at the Mulford Library. Mulford Library's phone number is 419-383-4225 and it is located at 3045 Arlington Ave.

Payroll Deductions

Any graduate student receiving a paycheck from the University is entitled to only one type of payroll deduction: 1) University of Toledo Student Health Care Insurance. You may have to re-register for the deduction every semester, just before summer only, or not until the following school year. Proper forms can be obtained from the Graduate School at UH 3240 or contact Mary Main (Business Services Officer 1) at Ext. 2283, or go to the web site <http://utoledo.edu/graduate/>.

Health Insurance

Health insurance is available for purchase by enrolled students. Health insurance is mandatory only for certain groups of students university-wide and while you are enrolled in the graduate program in Biological Sciences, unless you are on a J-1 visa, health insurance will not be automatically added to your student account. Please see the human resources website for further information (http://www.utoledo.edu/healthservices/student/health_insurance/). To enroll, visit the MyUT portal and follow the links under “Student Self Service”. The website address for the Student Medical Center is <http://www.utoledo.edu/healthservices/student/index.html>. If you have any other questions or concerns, contact Tonya Tressler, Insurance Management Representative, at the Student Medical Center, at Ext. 3474. Even with insurance, additional medical charges may be incurred that will be the responsibility of the student and not the department. Please note that purchasing the plan through the University of Toledo does not ensure that all doctors at UTHSC will accept that insurance. Always ask before scheduling a visit with any doctor, since any medical charges incurred that will be the responsibility of the student and not the department. More details on insurance policies can be obtained from the human resources website listed under benefits (<http://www.utoledo.edu/depts/hr/>).

Parking

Parking on campus can be challenging, especially if you come to school in the middle of the day. The best times to find a spot are early in the morning, late in the afternoon, 10 minutes before the hour and 5 minutes after any hour.

Student parking permits for all incoming and returning students, with the exception of Health Science Campus students is available for each semester and details are available under <http://www.utoledo.edu/parkingservices/studentparking.html>. The website for parking services is <http://www.utoledo.edu/parkingservices/index.html>. Go to **CLICK HERE FOR A TUTORIAL** for information on how to obtain your permit. Parking Services can be contacted at Ext. 5846, RH 1917.

There is a shuttle service available on campus as well. For schedules and fare information call the Transit Services Office at Ext. 1026, or visit their website at <http://www.utoledo.edu/facilities/transit/>.

Housing

The Office of Residence Life now offers housing for graduate students, but there may be a waiting list. Payroll deduction is also available for housing. For more information on this living option, contact the Office of Residence Life (ext. 2941) or refer to the website at <http://www.utoledo.edu/studentaffairs/reslife/index/>.

Textbooks

There are various places to buy and resell your textbooks. The UT Bookstore, located on the second floor of Barnes & Noble at Gateway, Secor/Dorr, carries supplies and has reasonable prices. Your second choice is the off-campus Bancroft Student Bookstore. A third option may be found on the Internet at any of the bookstore sites. You will need to have the correct title and it is helpful to have the authors and edition or ISBN numbers. You can easily get these by asking the professor who is teaching the class. Books ship within 1-5 days after the order is placed and usually cost less than or the same as the UT Bookstore (Barnes & Noble) on campus.

Website

Additional information about the Department, BGSA, graduate programs, and faculty research can be found on our website <http://www.utoledo.edu/nsm/bio/>.

Courses for M.S and Ph.D. degrees

Biology Degree (MS) – Department of Biological Sciences

First Year

Fall Semester

BIOL 6100 Research Methodology	3
BIOL 6010 Advanced Molecular Biology	3
BIOL 6930 Seminar in Biology	1
BIOL 6960 MS Thesis Research	4

Spring Semester

BIOL 6200 Advanced Signal Transduction	3
BIOL 6090 Advanced Cell Biology	4
BIOL 6930 Seminar in Biology	1
BIOL 6960 MS Thesis Research	4

Second Year

Fall Semester

BIOL 6000 Intro to Scientific Thought and Expression	3
BIOL 6960 MS Thesis Research	9

Spring Semester

BIOL 6960 MS Thesis Research	12
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Biology Degree (Ph.D.) – Department of Biological Sciences

First Year

Fall Semester

BIOL 8100 Research Methodology	3
BIOL 8010 Advanced Molecular Biology	3
BIOL 8930 Seminar in Biology	1
BIOL 8960 PhD Thesis Research	4

Spring Semester

BIOL 8200 Advanced Signal Transduction	3
BIOL 8090 Advanced Cell Biology	4
BIOL 8930 Seminar in Biology	1
BIOL 8960 PhD Thesis Research	4

Second Year

Fall Semester

BIOL 8000 Intro to Scientific Thought and Expression	3
BIOL 8960 PhD Thesis Research	9

Spring Semester

BIOL 8960 PhD Thesis Research	12
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GRADUATE STUDENT THESIS DEFENSE SCHEDULING FORM

Student Name: _____

Thesis Title: _____

Thesis Defense Seminar Location: _____

Thesis Defense Seminar Day: _____

Thesis Defense Seminar Time: _____

Research Adviser Signature: _____

Please note: this form is to be turned in to the Department of Biological Sciences Secretary **TWO WEEKS** prior to the defense date. Students will **NOT** be permitted to defend their thesis unless this form is turned in at the appropriate time.
To add M.S requirement document after revision

DEPARTMENT OF BIOLOGICAL SCIENCES

M.S. degree Requirements

Revised July 2008

Students accepted into the Master of Science (M.S.) Degree Program in the Department of Biological Sciences are expected to complete the Option A sequence as shown below. In special circumstances, an M.S. student may complete the degree requirements as outlined under Option B.

Option A – Thesis M.S. Degree

The majority of students entering the M.S. program, including all students accepted with financial support, will be admitted to the thesis degree track. Students admitted into the thesis degree track must:

1. Choose a major professor and Graduate Advisory Committee prior to the completion of the first semester in the program. The major professor must be a full member of the Graduate Faculty at the University of Toledo. The major professor chairs the student's advisory committee and has primary responsibility for advising the student and directing the student's research. The advisory committee will consist of at least four members, including the major professor. At least three of the members of the advisory committee must be full members of the Graduate Faculty at the University of Toledo. The Graduate Affairs Chair and Departmental Chair must approve M.S. committee compositions.
2. Complete an individualized plan of study set forth by the student's Advisory Committee. The Graduate School requires a minimum of 30 semester hours of approved graduate course work. The College further mandates that 18 hours of this requirement be earned in the major subject area and that at least 6 hours exclusive of those completed for thesis credit be in courses numbered 6000 or above. In addition, each plan of study must include BIOL 6000 (Introduction to Scientific Thought and Expression), BIOL 6010 (Advanced Molecular Biology), BIOL 6090 (Advanced Cell Biology), BIOL 6100 (Research Methodologies), 2 semester hours of BIOL 6930 (Seminar in Biological Sciences) and BIOL 6200 (Advanced Signal Transduction). A copy of the student's Plan of Study must be approved by the Department Chair, College Dean, and submitted to the Graduate School as soon as possible (typically prior to the end of the first year).
3. Maintain a 3.0 Grade Point Average (GPA). Students may not have earned a grade less than C in any of the required courses (#2 above). In accordance with Graduate School regulations, if a student's overall GPA falls below 3.0 at any point during 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:

- 1). If the student's GPA is between 2.75 and 3.0, then a sub-committee of the Graduate Affairs Committee will administer an oral exam to the student within one month from the end of the semester. Based on the student's performance during that exam, the committee may recommend one of two options:
 - A). If the student's performance is clearly below expected graduate student standards, then the student may be dismissed from the program.
 - B). 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.
- 2). If the student's cumulative GPA is below 2.75 after two semesters, then the student automatically will 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.).
4. Write and defend a Master's Thesis that consists of a written report of original independent research conducted by the student under the supervision of his/her major professor and advisory committee. The thesis 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.
5. Pass an oral examination defending the thesis. A component of this oral exam is 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). A closed meeting follows the exit seminar with committee members, during which time the student will answer specific questions posed by committee members. Committee members will signify approval by signing a signature page that will be included in the student's final thesis.
6. Apply for graduation by the published deadline.
7. Submit an original and two copies of the approved thesis to the Graduate School. The Graduate School requires an electronic submission of the dissertation no later than one (1) day prior to the commencement date.

Option B – Non-Thesis M.S. Degree

Students will be accepted to the non-thesis track only in conjunction with joint degree programs, such as the joint J.D./M.S. degree program. Students already in the M.S. program who wish to switch from the thesis to non-thesis track will require formal approval from the departmental Graduate Affairs Committee, which will only be granted in exceptional circumstances. Students in the non-thesis M.S. degree track are ineligible for departmental assistantships.

Students completing the non-thesis degree track must complete steps 1-3 as outlined for Option A above. He/she must then:

1. Write a research paper based on library research that meets with the approval of the student's major professor and advisory committee. The advisory committee will determine the format of the research paper.
2. Pass an oral examination defending the hypothesis presented in the research paper. The student's thesis committee will administer the oral examination, which will be open to the public. An official announcement of the time and place of the examination must be posted in the Biological Sciences office at least one week prior to the examination.
3. Apply for graduation by the published deadline.
4. Submit an original and two copies of the approved research paper to the Graduate School. The Graduate School requires an electronic submission of the dissertation no later than one (1) day prior to the commencement date.

General Notes:

All students pursuing either M.S. option in the Department of Biological Sciences are encouraged to obtain at least one semester of formal teaching experience, even if supported by grant funds.

In general, work for the M.S. will require a minimum of two years of full-time study beyond the bachelor's degree, but no more than three years of full-time study. The Biological Sciences faculty will evaluate progress toward graduation each year during the Spring Semester, at which time each student will be required to submit a detailed progress report.

There is no formal mechanism in place to allow students to change labs (e.g. major professors) once the degree program is started, and so it is strongly recommended that students take seriously the task of identifying a laboratory to conduct his/her thesis research.

Dissatisfaction with the degree program or thesis project are not considered sufficient grounds for switching from a thesis to non-thesis track.

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.

Revised by the Graduate Affairs Committee, 2008
Approved by the Department, 2008

Ph. D. Degree Requirements

Approved by Graduate Affairs Committee – February 08, 2017
Approved by Department of Biological Sciences – April 12, 2017
Corrected – May 16, 2017

Introduction

Listed below are the requirements that must be fulfilled for the Ph.D. Degree in the Biology, Cell, and Molecular Biology Concentration in the Department of Biological Sciences, 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 fall and spring semester. At that time, each graduate student will be required to complete the Progress Checklist attached to the end of this document. The student's major professor must endorse the Progress Checklist.

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. The student will perform their dissertation research in the major professor's laboratory, and the major professor will serve as chairperson of the dissertation committee (see also section 2c below).
 - a. Students in the Ph.D. program have the option of conducting rotations in 2-3 laboratories, based on availability, during their 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 major professor with whom to conduct their dissertation research.
 - b. Rotations are not required. A student may choose a major professor with no rotations.
 - 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 the Department of 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 Departmental Chair will appoint the chairperson for this committee, and retains the authority to replace the committee chair at his/her discretion. The Dissertation Committee may be composed of members from the Exam Committee described below (see #4). 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 Checklist 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. The Committee will evaluate the student's progress and provide comments on the Annual Dissertation Committee Meeting Report (attached to this document).

- 3. An approved "Graduate Research Advisory Committee Approval & Assurances" form must be filed with the College of Graduate Studies at the time the student determines the nature of the research project.
- 4. 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 attached to the end of this document. An Exam Committee for this proposal will be composed of at least three members of the Biological Sciences Department. The major professor is a member of the Exam Committee, but cannot serve as the chairperson (the qualifying exam chairperson will be selected by the department chair from the exam committee). The student will identify a topic for the proposal after consulting with their major professor. 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 Ph.D. program. The topic is to be selected before November 1 of the student's second year and the written proposal turned in by April 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 Ph.D. program.
- 5. 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 #6 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 #4 above). It is the student's responsibility to initiate the application for candidacy. Forms are available from the College of Graduate Studies website.
- 6. In accordance with the College of Graduate Studies 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 their 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 their GPA up to 3.0. If the student fails to raise their 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.).
7. Complete the residency requirement of at least two consecutive semesters of full time graduate study at the University of Toledo.
 8. Complete at least one semester of teaching.
 9. Complete a program of study in the Department of Biological Sciences that is approved by the student's Dissertation Committee and the Department. The College of Graduate Studies 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), BIOL 8200 (Advanced Signal Transduction), 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 the College of Natural Sciences and Mathematics and the Dean of the College of Graduate Studies for approval.
 10. Apply for graduation by the published College of Graduate Studies deadline.

11. 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 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 their 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.
12. Have first-authorship on at least one manuscript of original research accepted to a peer-reviewed scientific journal. The manuscript must be accepted before the dissertation defense. Note that one first-author publication is a minimum degree requirement. Successful Ph.D. students typically generate multiple first-author manuscripts.
13. Submit an original and two copies of the approved dissertation to the College of Graduate Studies and one copy to the Department of Biological Sciences prior to graduation. The College of Graduate Studies requires an electronic submission of the approved 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 "Manual for the Formatting of Graduate Dissertations and Theses" issued by the College of Graduate Studies
14. A Progress Checklist that all PhD students must fill in and submit to the department every year is attached to this document. All requirements on the checklist must be completed before scheduling the dissertation defense.

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 major professor. In the event that a conflict arises between a student and their major professor, 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 to another major professor to complete their dissertation research, following approval of the Graduate Affairs Committee.

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 School of Graduate Studies 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 clearly state their reasons for requesting the degree program change, and must provide a supporting statement from their major professor.

A student who does not meet the program requirements will be placed on academic probation. If this student does not correct these requirement deficiencies within two semesters, the student will be dismissed from the program.

Any changes in the above requirements must be approved by a majority vote of the Biological Sciences faculty.

Qualifying Research Grant Proposal Guidelines

The suggested guidelines for Ph.D. qualifying proposals, given below, follow the format required by NIH for RO1 research grants. However, the exact qualifying proposal format will be at the discretion of the student's qualifying proposal committee.

Start with a cover page containing the proposal title and student name.

In total, there is a 20-page limit for the following four sections.

1) Specific Aims (2 pages)

“List succinctly the specific objectives of the research proposed, e.g., to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or clinical practice, address a critical barrier to progress in the field, or develop new technology”.

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 (1-2 pages)

“Explain the importance of the problem or critical barrier to progress in the field that the proposed project addresses. Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields. Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved”.

3) Innovation (1 page)

“Explain how the application challenges and seeks to shift current research or clinical practice paradigms. Describe any novel theoretical concepts, approaches or methodologies, instrumentation or interventions to be developed or used, and any advantage over existing methodologies, instrumentation, or interventions. Explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, instrumentation, or interventions”.

4) Approach (~16 pages)

Divide this section into individual specific aims. For Each Specific Aim have the following sections:

- Introductory paragraph
- Justification and Feasibility, which has two subsections: Review of Literature, and Preliminary Results
- Research Design
- Expected Outcomes
- Potential Problems and Alt. Strategies
- Timeline (optional for qualifying)
- Future Directions

“Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Include how the data will be collected, analyzed, and interpreted as well as any resource sharing plans as appropriate. Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims. If the project is in the early stages of development, describe any strategy to establish feasibility, and address the management of any high risk aspects of the proposed work.”

Formatting: 0.5-inch margins (all around), Arial 12 point, pages numbered and double-spaced.

Graduate Student Check Lists:

These forms are used to inform the College of Graduate Studies of your progress through the degree program. They also serve as a kind of work contract between you and your advisor/committee, confirming that you are on the right track. All forms should be filed in a timely manner per the instructions on each form and/or according to the timeline appropriate to your degree program.

Progress Checklist For PhD Students

Students must file this form after the 1st year of graduate study.

*Obtain this form from Ms. Carol in the Biology department

Student name: _____

Year admitted into PhD program: _____

YEAR 1

Course Work Completed in Year 1, with grades:

_____	_____
_____	_____
_____	_____

Total Credit Hrs _____

Overall GPA after Year 1: _____ Met GPA requirement: _____

Student has given a Monday noon seminar: _____

Seminar abstract on file: _____

Student has had all necessary laboratory safety training: _____

By end of Year 1, student has chosen a major professor: _____

By end of Year 1, student has completed a Doctoral Program Plan (DPP): _____

YEAR 2

Course Work Completed in Year 2, with grades:

_____	_____
_____	_____
_____	_____
Total Credit Hrs _____	

Overall GPA after Year 2: _____ Met GPA requirement: _____

Student has given a Monday noon seminar: _____

Seminar abstract on file: _____

Student has presented a poster at the Departmental Graduate Symposium: _____

Student has had all necessary laboratory safety training: _____

In Year 2, student has formed an Exam Committee, consisting of:

By end of Year 2, student has successfully defended the Qualifying Research Grant Proposal:

Passed written _____

Passed oral _____

Student has applied for PhD candidacy and has met requirements: _____

By end of Year 2, student has selected a Dissertation Committee, consisting of:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

YEAR 3

Course Work Completed in Year 3, with grades:

Student has given a Monday noon seminar: _____

Seminar abstract on file: _____

Student has presented a poster at the Departmental Graduate Symposium: _____

Student has had all necessary laboratory safety training: _____

Student has held Year 3 Annual Meeting with Dissertation Committee: _____

YEAR 4

Course Work Completed in Year 4, with grades:

Student has given a Monday noon seminar: _____

Seminar abstract on file: _____

Student has presented a poster at the Departmental Graduate Symposium: _____

Student has had all necessary laboratory safety training: _____

Student has held Year 4 Annual Meeting with Dissertation Committee: _____

YEAR 5

Course Work Completed in Year 5, with grades:

Student has given a Monday noon seminar: _____

Seminar abstract on file: _____

Student has presented a poster at the Departmental Graduate Symposium: _____

Student has had all necessary laboratory safety training: _____

Student has fulfilled all course and credit hour requirements for PhD: _____

Student has held Year 5 Annual Meeting with Dissertation Committee and approved for Dissertation defense: _____

Student has completed one semester of teaching: _____

Student has one first-author publication in a peer-reviewed journal: _____

Student has successfully defended Dissertation:

Passed written _____

Passed oral _____

Student has completed all the requirements and is awarded the PhD Degree: _____

Annual Dissertation Committee Meeting Report

Student name:

Year in the PhD program:

Meeting date:

Was the Progress Checklist submitted (Yes/No)?

Research title:

Can the student submit a thesis and defend it in within the next 6 months (Yes/No)?

Comments to the student:

Committee chair (name, signature, and date): _____

Committee member (name, signature, and date): _____

Committee member (name, signature, and date): _____

Student (name, signature, and date): _____

Plan of Study for the Doctoral Degree

Each student working for a degree is required to file a Plan of Study with the College of Graduate Studies prior to the completion of 12 credit hours

Graduate Research ADvisory (GRAD) Committee Approval & Assurances Form

Students must complete this form and receive the required approvals prior to beginning any research for a project, thesis, or dissertation involving humans, animals, radiation, or biohazardous substances. Federal regulations do not allow retroactive approval

*Website address to obtain these forms:

<http://www.utoledo.edu/graduate/currentstudents/academicprogramforms>