
LOYOLA
UNIVERSITY
CHICAGO



GRADUATE PROGRAM HANDBOOK

DEPARTMENT OF BIOLOGY

2007 -2008

Welcome to the Graduate Program in Biology. Our faculty are dedicated to your success, and will provide you with personal attention, superb resources, and room to explore and excel. Research is the primary focus of our Master's program. We hope that you will not only gain essential information about the field you are studying, but that you will make a significant contribution to that field and develop a deep-rooted appreciation for scientific thinking and experimental design. We look forward to your discoveries, your continuing educational growth, and your company.

This handbook contains information, policies, insights, and anecdotes. It lists important departmental target dates and Graduate School deadlines that you will need to keep in mind. Sample copies of numerous departmental and Graduate School forms that you will be endlessly filling out are also included.

revised August, 2007

REGISTRATION

During your first semester, your temporary advisor/director will be the Graduate Program Director. He/she will plan your course schedule with you and sign the Graduate Course Approval Form. Then bring the form to the Biology Department office. After the Biology Department staff removes a block from your registration you will be able to register by touch tone telephone or Quick Check online as described in the Course Schedule booklet.

By the time you register for second semester, however, you will have a permanent thesis director. Before registering for each semester you will need to complete a Graduate Course Approval Form. Plan your course schedule with your director, have him or her sign the form, and bring it to the Biology Graduate Program Director for his or her signature. Then take the form to the Biology Department office, where you will be entered into the computer. Then you may register as usual.

Our full-time graduate students generally register for seven to nine credit hours each semester. The maximum course load permitted is 12 credits per semester. Remember, those students on tuition fellowships are receiving only 15 credit hours of tuition scholarship per year; you will pay out of your own pocket for more hours. **International students must register for eight credit hours each semester except for their last to be in compliance with a student visa.** Tuition scholarship may not be used for course work that is not applicable toward the M.S. Degree. Non-applicable courses include all English as a Second Language courses

Directed Readings (493), Research (422), Thesis Supervision (595) and a limited selection of 300 level undergraduate courses are the only classes offered for graduate credit during the two summer sessions. Registration during the summer for any of the above offerings is optional. Non registration during the summer will have no impact on your status as a graduate student or graduate assistant, or on your student visa status.

ID CARDS

Student ID cards are available at the Sullivan Center.

CAMPUS COMPUTERS

Your universal login ID and temporary password will be available at orientation. You will be able to use any computer on campus. Your Loyola server is SHARED1. You will be prompted to change password upon your first log-in. If you have trouble log in, first click on "Advanced" on the log-in screen, and be sure your "Context" is set for "HIGHERED.LS.LOYOLA." For bigger problems, dial 4-4444 from any Loyola phone to reach the Computer Help Desk.

It is against Department regulations to make any additions, subtraction, or change to any Biology shared computers.

ADMISSION ON PROBATION

Students admitted on probation must register for at least eight credit hours in their first semester. Removal from probationary status entails attaining a GPA of 3.0 in the first semester (Department rule) AND attaining a grade of B or better in the first three graduate courses taken (Graduate School rule). Failure to meet either of these requirements will result in dismissal from the program.

A WORD ABOUT DEADLINES

You'll see deadlines for completion of specific requirements for the degree scattered about this handbook. Please be aware that the dates mentioned are dates that keep you off probation, not dates that will get you finished in two years. The program usually takes longer than two years to complete. If your personal goal is to complete the program in two years, set your own accelerated deadlines.

COURSE REQUIREMENTS AND SCHEDULING

You are required to complete a minimum of 15 hours of formal (didactic) courses. Research (422), Graduate Seminar (501), and Teaching Practicum (511) are not considered formal courses. You may want to avoid enrolling in these courses beyond the minimum requirements until an accurate assessment of the number of non-didactic credits you need to reach 30 hours can be made. Directed Readings (493) may or may not be considered a formal course. Designation of a specific Directed Readings as a formal course depends on the nature of the offering, which should be clearly reflected in the course outline submitted (check with the Graduate Program Director). **Only 400 level courses will be counted towards your degree.**

Your thesis director should help you devise an individualized curriculum with an appropriate mix of didactic and non-didactic courses that yields 30 credit hours. Premature repetition of non-didactic courses can cost you several hundred dollars in tuition. How many and which didactic elective courses you take will be determined by you and your director, based on your background and the specific area of research in which you are engaged. You must take at least 3 credit hours of Research (422), but should take additional 422 credits only to bring your total hours to 30. You need not register for research credits in proportion to the time spent on your research.

Graduate courses in related departments (Chemistry, Psychology, Microbiology, Anatomy, Physiology, etc.) may be taken for degree credit, but you must obtain written permission from the Chairpersons of both Biology and the other department. Enrolling in Directed Readings (Biol 493) requires that you complete the appropriate form available in the Biology Office.

Students who have fulfilled all course requirements and have completed 30 hours of graduate

credit must register for Thesis Supervision (595). Possible exceptions may occur if you wish to register for a didactic offering after you have completed 30 credit hours. Students must continue to register for Biol 595 every semester until they complete all degree requirements. You are not authorized to use university facilities, like your director's laboratory and the library, if you are not registered. Spring registration also covers the summer. The Graduate School will also require payment for all semesters in which you failed to register at the time you graduate. The M.S. in Biology must be completed within five years of matriculation. If you have not finished all requirements within five years, you must apply to the Graduate School for an extension in order to be allowed to continue working on your degree. The Graduate Program Director can provide further information on filing the application.

ALL REQUIRED COURSES MUST BE PASSED WITH A GRADE OF C OR BETTER.

Example: Course Sequence

First Year

Fall		Spring	
Scientific Logic	495 (3 hrs)	Electives/ Research	(0-6 hrs)
Teaching	510 (1 hr)	Teaching Bio	511 (2 hrs)
Elective/Research	(0-5 hrs)	Total hours	(6-7 hrs)
Total hours	(8-9 hrs)		

Second Year

Fall		Spring	
Dept. Seminar	502 (1 hr)	Electives/Research	(6-7 hrs)
Grad Seminar	501 (1 hr)	Teaching Bio	511 (2 hrs)
Biostatistics	470 (4 hrs)	Total hours	(7-8 hrs)
Teaching Bio	511 (2 hrs)		
Electives/Research	(0- 3 hrs)		
Total Hours	(8-9 hrs)		

First Year: 15 hrs

Second Year: 15 hrs

Total Program Hours = 30 hrs

- Biostatistics 470 is offered every other year. Scheduled to be taught fall 2007.
- Students on University Scholarships must take Teaching Bio (511) two times. Unsupported students, students supported through and advisors grant, and students supported by their own grants take BIOL 511 one time.

TEACHING IN BIOLOGY

Student Requirement

The teaching requirement for the M.S. in Biology will be one semester of Biology 510 (one credit hour) followed by two semesters of Biology 511 (Teaching Practicum, two credit hours each). Unsupported students, students supported through and advisors external grant, and students supported by their own grants take BIOL 511 once.

Biology 511 (Teaching Practicum) is a single semester's experience as a teaching assistant in a (usually) 200 level course taught by a member of the Biology Graduate Faculty. Assignment of a student to a particular course will be made jointly by the Chairperson of the Department, and the GPD. A student's academic background will be taken into consideration. Every effort will be made to place a student in a course taught by her/his thesis director or, failing that, in a course taught by another member of the student's thesis committee.

Students will attend lectures, assist with writing and grading of homework and tests, and prepare and present two lectures in the course. If the course has a laboratory, participation in laboratory preparation, presentation, and monitoring might be expected.

A student's total time commitment in Biology 511 (Teaching Practicum) will be no more than **10 hours per week**, of which about half might be attending lectures, and no more than one-third will be in any one category or duty. Categories may include: 1) leading discussion, 2) grading homework, 3) preparing and grading tests, 4) preparing and presenting lectures, 5) preparing lab exercises and/or materials, and 6) presenting and monitoring lab exercises.

Students will be required to keep a log of time spent in different categories of work. The log will be reviewed by the course instructor and by the GPD to ensure that workloads are equitable and appropriate.

FULL-TIME VS. PART-TIME STATUSFULL-TIME VS. PART-TIME STATUS

The schedule for completing course requirements, and the target dates for progress through the program, are based on full-time participation in the program. Full-time students have an average time-to-completion for our graduate program of 2 to 3 years. In order to complete the program in a timely fashion, students normally need to spend at least 40 hours a week working on their thesis research. If you are not able to put in this time commitment (e.g. because of an outside job), you can expect to take longer to complete the program.

For students in the degree program (as opposed to non-degree) who are supported, are considered full time by the University. However, for insurance purposes, the student must carry 8 hrs during the fall semester to be considered full time. Unsupported students must register for at least 8 credit hours or Thesis Supervision (595) or Master's Study (605) to be considered full-time students.

If you need to be officially certified as a full-time student for any reason, please contact the Graduate Program Director. After reviewing your case, he or she will make a recommendation to the Graduate School Dean. However, only the Dean of the Graduate School is empowered to certify students as full time.

STIPENDS AND TUITION FELLOWSHIPSSTIPENDS AND TUITION FELLOWSHIPS

The Graduate School provides our program with limited funds for stipends and tuition scholarships. Because successful completion of the program in two to three years requires a full time commitment on your part, we strive to support as many students as possible. The Biology Department offers competitive scholarships of \$16,000/year with 15 tuition credits/year. This scholarship is renewable for a second year pending academic progress.

Awards are made with the understanding that students will keep their respective awards for a second year, assuming they meet the standards for continuation. In order to continue receiving full awards students must have a 3.5 GPA for their courses during the first two semesters. Students must have the recommendation of their research advisors for award renewals. Other requirements for renewal of stipends and tuition scholarships for a second year include regular attendance of departmental events (seminars and defenses), and final committee approval of the thesis outline. Rare extenuating circumstances that might preclude a student's meeting these requirements will be handled on a case-by-case basis. Even though students frequently take longer than 2 years to complete the program, please remember that there is no Graduate School support for students after their first two years. This does not preclude a student's being supported longer on an individual faculty member's grant.

Students who enter the program in January are not eligible for Graduate School support their first semester, but will be considered for fellowship awards along with students entering the following August. The same merit criteria described above apply for students admitted at mid-year. Students who do not receive funding during this competition will not be eligible for Graduate School support in subsequent years.

Students entering the program in August without funding (or mid-year admissions receiving no funding after their first semester) understand that they will not be eligible for any Graduate School

support throughout their stay at Loyola. This does not preclude their being supported on individual faculty members' grants. Faculty members with outside grants sometimes have funding available to support their own students. Other sources of support (e.g., loans) are available to Graduate Students. Check with the Graduate School Office or the Financial Aid Office.

All continuing students seeking to renew their support for a second year must submit an application in February. In addition, a Financial Aid Form must be filed. The latter may qualify students for additional sources of support, including Federal Work/Study assistance. Activation of assistantship for students entering their second year may be delayed until student's Thesis Proposals are submitted to the Graduate School.

These are full calendar year awards, and assistants are expected to devote full time to their programs during the summer months. While some students may take on outside employment during their studies, satisfactory progress in your program must remain your highest priority. Students are strongly discouraged from engaging in activities that compromise their progress in any way. In the case of fully supported students, the Biology Department and the Graduate School consider outside employment in excess of twenty hours per week as grounds for termination of support.

Students receiving any financial support administered through the university are required to complete and submit a few standard employment forms. Forms are available at the Graduate School office in the Granada Center.

CHOOSING A THESIS DIRECTOR CHOOSING A THESIS DIRECTOR

Choosing a thesis director will be the most important decision you will make in the course of your studies. Not only must your research interests parallel those of your director, but some measure of personal rapport will also be essential. Remember, you will be spending the better part of two years in his or her laboratory. The pamphlet on faculty research interests is an excellent source of information. It not only outlines the various research programs, it also lists recent publications. During orientation week you will be hearing presentations by each faculty member describing the research that goes on in their laboratories. Right after the semester begins you should begin setting up appointments with those faculty whose research programs stimulate your interest. We recommend that you interview at least three faculty members. Feel free to peruse their publications or ask for copies of soon to be published work. You may even request spending time in a particular laboratory, although such requests are sometimes difficult to grant. "Veteran" graduate students can also provide valuable insights and information.

During your interviews, you should be sure that you make your prospective thesis director aware of you anticipated time commitment to your graduate studies. You should obtain explicit information from them regarding their expectations of time commitment on your part, and the level of independence expected in designing and executing a thesis project. These expectations vary among labs, and you should endeavor to find a good fit for your learning style

We try our best to ensure good matches between students and faculty. Please be aware that some faculty may not be able to accommodate new students in a particular year or may have to choose among interested students. Faculty members are asked not to make commitments until all

interested students have interviewed them. Generally, at the end of the interviewing process, individual faculty and students mutually agree on Thesis Director assignments. However, assignments must be approved by the Biology Chairperson and subsequently by the Dean of the Graduate School.

The department has Thesis Director Appointment forms in the Biology Office. The target date for filing this form is October 15 of your first year. For mid-year admissions the target date is March 1. If you have any questions or are having any trouble connecting with a suitable Director, don't hesitate to see the Graduate Program Director or the Biology Chairperson.

CHOOSING A THESIS COMMITTEE CHOOSING A THESIS COMMITTEE

By the end of your first semester, you should have a general research goal in mind. In consultation with your director, you should write a brief one page statement summarizing your research project by December 15. (Mid-year admission deadline is May 1). You should then approach potential committee members, give them a copy of your project summary, and solicit their participation in your endeavors. We encourage students to choose not only committee members that are well-versed in the area of their proposed research, but to consider faculty who can also provide a novel perspective. Along with your director, the committee must include two other Biology Graduate Faculty members. If you wish, additional members may be drawn from the Biology faculty, graduate or non-graduate faculty from other departments, or even faculty members from neighboring institutions. For non-Loyola committee members, the Graduate School will request a copy of the proposed member's vita before approving the committee. These additional members may be voting or non-voting members. All voting members of your committee must be present at your final oral defense.

To formalize your committee, complete the departmental Thesis Committee in Formation form and give it, along with a copy of your one-page summary, to the GPD. The Graduate Committee must review all committee formulation. The GPD will contact you regarding approval or any changes that need to be made. Once you have received approval, complete the Graduate School Thesis Committee form and turn it in to the Graduate School.

The Thesis Committee in Formation form must be submitted by January 15 of your first year. (Mid-year admission deadline is June 1). The first meeting of the thesis committee to discuss and approve the project summary must take place by March 1. (Mid-year admission deadline is July 15).

THESIS PROPOSAL THESIS PROPOSAL

During your second semester, it's time to start planning your Thesis Proposal. Necessary forms are in the Graduate School forms packet. This proposal will enable your thesis committee to effectively provide you with constructive comments, and to help you plan and implement your experiments before you have made a major commitment of both time and resources. Your Thesis Director has the primary responsibility for supervising your research, but the contributions of your other committee members are extremely important, and their counsel should be sought early and often.

The following resources are available to you for guidance on writing your thesis proposal: your thesis director and thesis committee; the GPD; sessions on writing held during Graduate Seminar (Biology 501) and possibly on a weekend during your second semester; and copies of proposals written by previous graduate students. Once you and your thesis director are satisfied with your thesis proposal, distribute it to your thesis committee. Schedule a committee meeting at which you will defend your proposal and your committee will vote on its approval. You must allow your committee at least one week to read and comment upon the thesis. All committee members must sign the "Ballot for the Approval of a Thesis/Dissertation Proposal" for it to be approved. Once you have secured all committee signatures, file a copy of the approved proposal, along with the "Ballot" and the "Thesis/Dissertation Proposal" form with the Graduate School. Also give a copy of the thesis proposal to the GPD for your file.

If your proposal involves vertebrate animals or human subjects, it must be approved by the Institutional Animal Care and Use Committee or the Institutional Review Board for the Use of Human Subjects.

The sooner you accomplish this, the sooner you can proceed with the confidence that you have full committee approval and support. The Proposal is an agreement between you and your Committee as to what research you need to accomplish for your degree. Remember that you are developing a proposal for your thesis research, not generating a thesis. You and your director will have to agree on how many preliminary experiments need to be done before preparing the proposal and how extensive its literature review needs to be. Your committee members can also be helpful in guiding your proposal preparation. The proposal must be completed in a timely fashion to meet departmental goals for satisfactory progress. Note that the departmental deadline for obtaining official approval of your Thesis Proposal is August 31, and that the Graduate School will collect a \$30 fee at the time of its submission. (Mid-year admission deadline is January 15).

It is the policy of the Biology Department that full - time graduate students who have not had their thesis proposal approved by their committee within one calendar of their matriculation will be put on probation for one semester. Any student failing to obtain committee approval of the thesis proposal by the end of the probationary semester will be subject to dismissal from the program. Dismissal and/or non-renewal of stipends must be approved by the Graduate Committee. Input from the student, the thesis director, and the thesis committee will be taken into consideration.

THESIS COMMITTEE MEETINGSTHESIS COMMITTEE MEETINGS

In order to keep your thesis committee members abreast of your progress, you must schedule regular committee meetings. After initially meeting with your committee in the second semester of your first year to discuss the project summary, and again before August 31 to discuss the Thesis Outline, you must continue to meet with your committee at least twice a year until you have distributed a draft of your thesis to your committee members. These meetings are best scheduled in January/February and in August/September. Meetings should be scheduled even if your progress is primarily thesis preparation. In conjunction with these meetings, written progress reports may also be submitted at the discretion of your Thesis Director or committee members. Additional meetings may also be requested by you, your director, or committee members. At each meeting, you and all

committee members must sign and date a Thesis Committee Meeting Form, which you should give to the GPD for placement in your file.

RESEARCH SUPPORT

Biological research can be very expensive. Supplies, including chemicals, biological materials, and plastics ware, can easily cost over a thousand dollars per year per student. And these costs may be dwarfed by the expense of the equipment necessary to maintain a vigorous research program. Travel to national and even international conferences is also an essential and costly part of maintaining a strong research program.

The research carried out by members of the Department of Biology is funded by a number of different sources. Some faculty members are funded by federal or other external funding agencies or philanthropic foundations. Others are funded by awards granted by Loyola's Research Services. The Biology Department also makes a very significant financial contribution to research. However, financial considerations often influence experimental design and research direction.

While most funding agencies direct their grants to faculty and post-doctoral students, there are a few opportunities for M.S. students to submit extramural grant proposals. The Graduate School periodically distributes a list of granting agencies that solicit applications from students, along with deadlines for submission. *Sigma Xi*, the National Science Honor Society, sponsors a Grants-in-Aid program specifically for graduate students. The application is not lengthy, and a number of biology graduate students have been able to augment their thesis director's budget with *Sigma Xi* support. The *Illinois State Academy of Science* also offers small grants to graduate students. Authoring a successful grant proposal, no matter how small, will greatly enhance your academic record.

Finally, the Graduate School can subsidize your travel to professional meetings in which you make a research presentation, either a poster or a talk. In recent years the subsidy has been \$200-\$250. You should submit your request for funding as soon as you receive written confirmation of acceptance of your presentation. The GPD has application forms.

THESIS PREPARATION

After you have completed most of your experimental work and your director and committee members are satisfied with your progress, you should begin working on your thesis. Your Thesis Proposal should serve as a good launching vehicle. Most theses consist of: 1) abstract --a brief description of the project's goals and outcomes; 2) literature review; 3) experimental procedures and data evaluation (materials and methods); 4) results; and 5) discussion and conclusions. This list of headings is included only for illustrative purposes. Your Thesis Director may suggest an alternative outline, but your thesis should include all of the above elements.

The Graduate School booklet, "A Guide to the Preparation of Thesis and Dissertations" is included in this handbook. All students preparing thesis must refer to this booklet. The format of the Thesis must conform to the regulations set forth in this booklet. Note that the Graduate School requires you to follow a recognized style manual. They recommend *A Manual for Writers of Term Papers, Theses, and Dissertations* by Kate L. Turabian, but will accept other styles WITH PRIOR WRITTEN APPROVAL. The title page of your Thesis must adhere to the Turabian model, as should preface (if present), table of contents, and lists of figures and tables. The Department keeps a copy of Turabian for your convenience.

The Department provides training in the use of the Microsoft Power Point since you will be responsible for producing the figures for your Thesis and the slides for your oral defense.

THESIS DEFENSE AND GRADUATION

You must notify the Graduate School by filing an "Application for Graduation" at least four months in advance of the graduation date (May, August, or December). The form is available online. If you are unable to graduate at the end of the semester in which you file, your application fee will be refunded and you must complete the form again for the semester you anticipate graduating.

A student does not generally submit his/her thesis draft to the Thesis Committee members until the Thesis Director is satisfied with the product. You can expect to work closely with your Director in preparing the Thesis and will probably go through several drafts with her/him. When you are ready to distribute your Thesis to your committee members, deliver their copies to them along with the departmental Thesis text approval form. You must allow at least two weeks for your committee members to review the thesis.

PROCEDURE FOR SCHEDULING A DEFENSE

The format of the final defense is as follows: 1) There is usually a 15 -minute social before the seminar. Seminar announcements should indicate both the time of the social and the time at which the seminar will begin. 2) The GPD will convene the defense, and introduce the thesis director. In the event that the GPD cannot moderate the defense, the Chair of the Graduate Committee or a tenured member of the Graduate Committee will moderate. 3) The thesis director will introduce the candidate. 4) The candidate will give a 30-45 minute seminar of her/his work. 5) The moderator will conduct a question-and-answer period of 15-30 minutes. 6) The moderator will dismiss the audience. 7) The thesis director will chair a closed oral defense attended only by the candidate and the thesis committee. During this time, committee members will raise any questions or concerns they have about the thesis, the seminar, or other aspects of the project. 8) The thesis director will dismiss the candidate and chair a closed discussion with the thesis committee of the merits of the defense. 9) The thesis director will adjourn the meeting and announce the vote of the committee to the candidate.

Even if your written Thesis is approved by your committee without revision and you successfully defend it at your oral, note that at least three weeks will elapse between the day you distribute your Thesis to your committee and the day you pass your final defense. In addition, the final approved copy of your Thesis must be filed with the Graduate School before graduation (see Graduate Dean's

Notes in current Class Schedule booklet for exact date), we recommend an additional four week cushion.

Three copies of your Thesis with original figures are required by the Graduate School. These are bound, and one copy is retained in our departmental library. You may submit extra personal copies for binding. The Library will also bind your personal copies. It is traditional to give a bound copy to your Thesis Director.

EXIT INTERVIEWEXIT INTERVIEW

All graduating students, and students terminating their program for any reason, should make an appointment with the Chairperson and Graduate Program Director for an exit interview. These interviews are extremely helpful to us and to you.

All students admitted to the program are expected to complete all degree requirements before entering post Master's studies. Students that leave the program prematurely unfairly tax both faculty time and program resources, and have nothing to show for their substantial efforts. If you do contemplate leaving the program before completing your degree, please let your Director know of your new plans and contact the Graduate Program Director and the Biology Chairperson.

IMPORTANT ACADEMIC DATES TO REMEMBER IMPORTANT ACADEMIC DATES TO REMEMBER

FIRST YEAR

- Sept 1: Begin interviewing prospective Thesis Directors
- Oct 15: Departmental deadline for filing Thesis Director Form
- Dec 15: Departmental deadline for writing one page summary of proposed research project
- Jan 15: Departmental deadline for filing Thesis Committee in Formation Form
- Feb 20*: Graduate School deadline for applying for Assistantship renewals
- Mar 1: Departmental deadline for first meeting with Thesis Committee
- Aug 31: Departmental deadline for obtaining approval for the Thesis Proposal by the Thesis Committee

SECOND/THIRD YEAR

- Jan 22*: Graduate School deadline for filing for May graduation
- Mar 12*: Last day to submit thesis for format check for May graduation
- Apr 1*: Approximate last day for obtaining committee approval to Thesis for May Graduation
- Apr 7* Approximate last day to defend Thesis for May graduation (leaves one week for completing corrections)
- Apr 11* Graduate School for deadline for filing approved Thesis (and oral voting sheets) with Graduate School for May graduation

*Dates approximate; see Graduate Dean's Notes in the current Class Schedule booklet for exact dates.