

# PH.D. IN BIOLOGY

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## Overview

The Department of Biology aims to train graduate students in integrative research, with a curriculum that exposes students to the major sub-disciplines of biology and a program that allows enough flexibility to develop interdisciplinary work. Our major strengths include developmental biology, global change biology, neuroscience, and species interactions.

## Application for Admission

Applications are due December 1.

In applying for admission, applicants must select either the *Master's* or the *Ph.D.* track.

Students with an appropriate B.S. degree may seek direct entry to either the M.S. track or the Ph.D. track.

Applicants who were admitted on the Master's track, but wish to change to a Ph.D. track without completing the Master's may apply for admission to the Ph.D. program before the end of their second semester. Letters of support from three UM Biology faculty, including a major advisor, should be added to the applicant's file. The file must be current. Such applicants will be judged by the same criteria that are applied to other Ph.D. applicants.

Applicants to the Ph.D. track who were admitted on the Master's track and wish to complete the M.S. degree, should follow the same procedures as all other applicants, but they must include letters of support from three UM Biology faculty. Such applicants will be judged by the same criteria that are applied to other Ph.D. applicants.

Applicants must:

1. Apply online (<https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.applyweb.com%2Fmiamigrd%2Findex.html&data=05%7C01%7Cjvargas%40miami.edu%7Cafe85fd883044efcb51308db83e0de32%7C2a144b72f23942d48c0e6f0f17c48e33%7C0%7C638248774047266885%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTiI6Ikl1haWwiLCJXVCi6Mn0%3D%7C3000%7C%7C%7C&sdata=03f2it2IAM2PH6uohDNpNdppEKBKbyVxUsMdEJyTsqc%3D&reserved=0>) at the UM Graduate School. Application fee of \$85.
2. Send digital copies of the following to the Coordinator of Graduate Studies in Biology (bio.gradcoord@miami.edu)
  - a. A cover letter that identifies interests, suggests possible research projects, states career goals and identifies a UM Biology faculty sponsor
  - b. Copies of any research papers (e.g., publications, manuscripts, senior reports, etc.)
  - c. All undergraduate and graduate transcripts
  - d. International applicants whose native language is not English must additionally submit the TOEFL (Test of English as a Foreign Language) official scores
3. Letters of recommendation from **three** science instructors/ supervisors that address: nature and duration of relationship to applicant; motivation; ability to conceptualize and deal quantitatively with biological problems, and research potential should be sent by email to the Coordinator of Graduate Studies in Biology at bio.gradcoord@miami.edu
4. Request UM Biology faculty sponsor submit a memo of support by email to the Coordinator of Graduate Studies in Biology (bio.gradcoord@miami.edu). Applicants **MUST** secure the sponsorship of a faculty member as a condition for admission; the research interests of the applicant and the faculty sponsor should be well-matched; the sponsor will be the major advisor

A limited number of applicants to the Ph.D. program may be invited to interview at departmental expense in early January of the year of admission.

*Materials submitted in support of an application cannot be released for other purposes or returned to the applicant.*

## Degree Requirements

All students are required to satisfy **the general requirements** for the appropriate degree that are listed in the **Graduate Studies Bulletin**, whether or not they are listed among the Biology requirements.

## Implementation

All Graduate students will be reviewed each spring semester by GAAC.

1. The advisor will review the student's progress to date.
2. The student will provide updates for a student progress database every February.
3. The student will provide written evidence that the advisor and committee have reviewed her/his progress and plans.
4. Each student will receive a letter summarizing the results of the discussion concerning his/her progress.
5. All graduate students shall have the right to respond to GAAC, and, if necessary, the graduate faculty in matters pertaining to the review.
6. Possible outcomes of the review:

- a. Student making satisfactory progress
- b. Student not making satisfactory progress; recommendations for improvement
- c. Student not making satisfactory progress; his/her tenure terminated.

## Financial Support

1. The Department intends to support all doctoral students in good standing for up to 10 semesters. Support beyond 10 semesters is contingent upon GAAC approval.
2. Master's degree students usually are not eligible for departmental stipends or tuition remission.
3. Students who do not provide annual updates for the student progress database will not be eligible for continued funding. Students who will be off-campus are still responsible for making sure that GAAC receives the data. Students who choose not to present at the annual departmental graduate student symposium may be considered as not in good standing.
4. Students holding full fellowships or research assistantships will not normally be given teaching assignments, nor will students be permitted to hold fellowships and research assistantships simultaneously. Exceptions require GAAC approval.

## Curriculum Requirements

Code	Title	Credit Hours
BIL 612	Graduate Core I	3
BIL 613	Graduate Core II	3
BIL 618	Advanced Biostatistics	4
<b>BIL Courses</b>		<b>38</b>
BIL 830 or BIL 840	Doctoral Dissertation Post-Candidacy Doctoral Dissertation	12
<b>Total Credit Hours</b>		<b>60</b>

1. Credit hours: a total of 60 credit hours (including both course and research credit hours) beyond the Bachelor's degree are required:
  - At least 18 course credit hours that are not from the independent study series, including the two semester departmental core courses for graduate students and at least one graduate course in statistics (BIL 618). The independent study series is:

Code	Title	Credit Hours
BIL 675	Advanced Study in Plant or Animal Sciences	1-6
BIL 678	Current Topics in Biological Research - DVP	1

At times these course numbers are used by professors to teach a new course or a special topics course, however, in which case the corresponding credit hours can be counted as a non-independent study credit hour. Course selection requires committee approval.

- At least 12 research credit hours (BIL 830 and/or BIL 840). Once the overall number of required credit hours (see below #8) has been reached, there is no need to take additional research credit hours.
  - An additional 30 credit hours from any combination of graduate courses (600 level regular courses and independent study courses) and research credit hours (800 level) to bring the total number of credit hours beyond the Bachelor's Degree to 60 credit hours. (One example: 18 required course credit hours + 12 required research credit hours + 15 **additional** course credit hours + 15 **additional** research credit hours = 60 total; another example would be 18 **additional** course credit hours and only 12 **additional** dissertation credit hours, etc.)
  - Students who already have a Master's Degree in the same field may not need as many course credit hours (consult Graduate School rules on transfer credit hours), but at least 24 credit hours must be taken in residence at UM.
  - The committee may decide that students with previous graduate level courses may be exempt from some of the course requirements.
  - The minimum acceptable grade average in all coursework towards the degree is a "B (3.0)" and no grade may be below a "C."
  - **CONCEPTUAL AREAS:** Students are encouraged to take courses and independent studies from at least 3 main conceptual areas, and are urged to take courses and independent studies that will prepare them for research and for the comprehensive qualifying exam. Students also are encouraged to participate in seminars and study groups and to take special courses in other departments of UM, at our Coalition for Excellence in Tropical Biology partner institutions, from the Organization for Tropical Studies, or other special interdisciplinary courses. Such courses should be appropriate to their course of study and research area as determined by their committee. Conceptual areas offered in our department include: EVOLUTION (graduate level evolution courses are in the 620's series); ECOLOGY (graduate level ecology courses are in the 630's series), BEHAVIOR (graduate level behavior courses are in the 640's series); GENETICS AND MOLECULAR BIOLOGY (graduate level genetics and molecular biology courses are in the 650's series); and PHYSIOLOGY AND CELL BIOLOGY (graduate level physiology courses are in the 660's series). Special concentrations in our department and/or in collaboration with other departments include: Tropical Biology, Mathematical Ecology, Neuroscience, and Behavior.
2. Comprehensive qualifying exam should be passed by the end of the third semester.

The qualifying examination has two components:

*(I) Comprehensive Component**(II) Specialty Component*

The Graduate Core will serve as the comprehensive component of the qualifying exam. The minimum acceptable grade in each of Graduate Core I and Graduate Core II is a "B" (3.0). Students who fail to achieve a B average across the two Graduate Core classes will be considered to have failed the comprehensive component of the qualifying exam. Students who earn As (4.0) in both Graduate Core I and Graduate Core II will pass with distinction, students whose grade average across the two classes is  $<4$  but  $\geq 3$  will earn a passing grade, while students with a grade average across the two classes of  $<3$  will fail the comprehensive component of the qualifying exam. In addition to assigning letter grades, faculty will complete the graduate school rubric for evaluating student performance on qualifying exams for each student.

Final letter grades will use the University of Miami standard quality points:

Grade	Quality Points
A+	4.0
A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
C-	1.7
D+	1.3
D	1.0
F	0.0

In the event that a student fails the comprehensive component of the qualifying exam, the student will be given the opportunity in the following academic year to retake any Graduate Core class in which they failed to achieve the minimum grade of a B. It is only necessary to retake a class if a student earned less than a B in that class (*i.e.* if students earn less than a B in only one of the two classes, it is not necessary for them to retake both classes in the sequence). All students retaking classes must have completed their retakes by the end of their fourth semester. Each retake grade will replace a student's original grade for that part of the Graduate Core. Following the retakes, students who earn As (4.0) in both Graduate Core I and Graduate Core II will pass with distinction, students whose grade average across the two classes is  $<4$  but  $\geq 3$  will earn a passing grade, while students with a grade average across the two classes of  $<3$  will fail the comprehensive component of the qualifying exam. A student who earns less than a B in a retake, will fail the comprehensive component of the qualifying exam for a second time and be terminated from the program. In addition to assigning letter grades, faculty will complete the graduate school rubric for evaluating student performance on qualifying exams for each student.

*(II) Specialty Component*

The specialty component of the qualifying exam will be administered by the initial committee (see § "The committee") who will test the student in subject areas related to the student's field of study. As early as the middle of the first semester and before the end of the second semester the student should meet with their initial committee to define the scope of their specialty exam. The specialty component should focus two specific areas of biology that the student intends to incorporate into their dissertation research. These areas can be discussed with the committee, and may be defined by a specific group of reviews, papers, books and book chapters, and even mathematical or computational skill sets to master. The student should be actively engaging their committee to explore and define these areas over their first year of study. The student is responsible for working with their committee to develop a clear understanding of what individual faculty expect of them with respect to preparing for the specialty component of the qualifying exam.

**Traditional Specialty Component:** The specialty component of the qualifying exam will be administered in the third semester. The committee will designate a chair other than the student's advisor to administer the examination. The written part of the exam will be closed-book and will be administered on campus in a single four-hour period by the examination chair. Two committee members will provide questions for the four-hour specialty exam. Each of the two committee members will provide questions expected to occupy the student for half of the four-hour exam. Exams can be hand-written or completed on a wireless disabled laptop with autocorrect and prompts disabled. All members of the committee will read the exam, the committee members who provided the questions will grade the exam questions they provided. One week after the committee has read the written answers (about one week after the written exam), an oral exam will be administered by the **whole committee** for the purpose of further exploring the student's grasp of **both the specialty component subject matter and any material covered by Graduate Core I and II.**

**Alternative Specialty Component:** With committee approval, an alternative to the traditional specialty component of the qualifying exam is to present to the committee a first-authored, publishable, full-length article manuscript concerning research conducted since matriculation at UM. The purpose of the alternate exam is to immediately focus students and their graduate advisors on developing the research, analysis and writing

skills that are necessary for a successful career. Before the end of the third semester, the manuscript must be submitted to a journal approved by the committee. One week after the committee has read the manuscript, there will be an oral exam for the purpose of further exploring the student's grasp of both the specialty component subject matter and any material covered by Graduate Core I and II.

*The specific requirements for the alternative specialty component are:*

1. The research *must have been conducted since matriculation at UM*, under the guidance of the Ph.D. advisor. Research conducted prior to matriculation at UM cannot be the basis for the article. However, a student's supervisory committee may at its discretion approve work that considerably extends previous research (e.g. a M.S. project) and that contains substantial new data generated since matriculation.
  2. The student *must be the first author* of the article, and *must play the principal role* in data analysis, writing, submission, and seeing the manuscript through to publication.
  3. The target journal should have an impact factor above the median (i.e., top 50%) for journals in its subject area.
  4. The publication *must be a full article*: No form of short note (e.g., primer, technical or natural history note), short communication or brief commentary is acceptable. Substance rather than paper length will be the major consideration: e.g., articles in *Science* and *Nature* would be short but perfectly acceptable! The exam committee will assess the paper's acceptability.
  5. Prior to submission for publication, all members of the supervisory committee must have agreed upon journal selection, served as collegial reviewers of the manuscript, and agreed that the manuscript is suitable for submission. The student is also expected to orally present and defend the research described in the manuscript.
  6. Satisfactory completion of this alternate qualifying exam will require *submission* of the manuscript *before the end of the third semester* of graduate study. As is the case for a standard written qualifying exam, satisfactory completion will also require a vote of the supervisory/ examination committee.
  7. A memorandum to GAAC by the supervisory/examination committee chair reporting passing the alternate qualifying exam should be accompanied by a copy of the journal's acknowledgment of submission.
  8. If the approved manuscript has not been submitted before the end of the third semester, the graduate student must prepare to sit the regular specialty component of the qualifying exam before the end of the fourth semester. Students have up to the Monday of the second last week of classes in the fourth semester to submit their manuscript. If the manuscript is not submitted by the end of the second last week of classes in the fourth semester, the student must sit the regular specialty component of the qualifying exam before the end of the fourth semester.
  9. The student is encouraged to present the work on which the manuscript is based at the department's annual graduate student symposium.
  10. Each committee member will decide on a pass/fail grade based on the total performance (written plus oral). Conditional passes may not be awarded. For the student to pass the examination, 3 of the 4 examiners must vote a grade of pass. An oral and written summary of the committee's evaluation must be prepared by the chair of the examination committee and given to the student and to GAAC. If the student does not pass the examination, there will be a chance to retake it the following semester. In the case of failure a second time, the student will be terminated from the program.
  11. At time of completion of the oral examination the examination committee must provide the Graduate Director with a completed SACSCOC evaluation form, the student is responsible for ensuring the Graduate Director receives this form.
3. Research proposal: public presentation of a research proposal and defense of a written research proposal to the **complete research committee** (see below) should be completed by the middle of the fourth semester. Students are encouraged to follow the format of a grant proposal to a major funding agency. At the proposal defense, the student will receive either a pass or a fail. A grade of pass will be recorded if no more than one member of the **complete research committee** (see below) votes to fail the student. If the student fails the proposal defense, she/he will be given a **second chance** to defend no later than the **sixth week of the fifth semester**. If the defense is failed a second time, the student will be terminated from the program. At time of completion of the proposal defense the complete research committee must provide the Graduate Director with a completed SACSCOC evaluation form, the student is responsible for ensuring the Graduate Director receives this form.
  4. Admission to candidacy: (application is made on a form available in the grad school and in the department). This normally will occur at the end of the fourth semester. Requirements are to pass the comprehensive examination and to successfully defend a written research proposal and to have complete SACSCOC evaluation forms from both the qualifying exam and the proposal defense on file.
  5. Teaching: All students on the Ph.D. track in Biology are required to serve satisfactorily at least one semester as a teaching assistant in one of the courses offered as part of the Department's training program.
  6. Grants: Submission of a grant proposal to a major funding agency (e.g., NSF, NIH, National Geographic, World Wildlife Fund, etc.) is required. All students are required to seek outside funding for their research. This must be a research project proposal. Application for an NSF pre-doctoral fellowship does not meet this requirement, but application for an NSF dissertation improvement grant does qualify.
  7. Ph.D. Dissertation: A well-written and successfully defended dissertation containing an original contribution to the field and of quality appropriate for publication in a scientific journal; a defense is successful if all members of the committee sign the graduate school form and the signature page of the dissertation. A final, acceptable typescript of the dissertation *must* be in the hands of the committee a minimum of two weeks prior to the defense. If this deadline is not met, the defense must be rescheduled. A public dissertation seminar also is presented at the time of the defense. Following the defense the committee is required to provide the Graduate Director with a completed SACSCOC evaluation form.

8. Other requirements described under "Doctor of Philosophy," including but not limited to:

- a total of at least 60 credit hours (course credit hours plus research credit hours).
- once a student has completed all required credit hours, she/he must enroll in "Research in Residence" (BIL 850) status until the degree is granted. This course carries 1 credit hour, but is considered full-time enrollment. Even though no credit is earned, a tuition charge equivalent to 1 course credit hours normally applies to this course.

9. Committee: A single committee will advise the student on both comprehensive and research training. The committee will be responsible for ensuring breadth, significant background and depth in at least 3 conceptual areas (examples include but are not limited to the areas listed above). The research function of the committee is to advise the student on research, including preparation, training, project choice, project design, implementation and evaluation of the research. The committee will go through several phases and its membership will be determined by the advisor and student together, contingent upon approval of GAAC and/or the Graduate School, as appropriate at each phase:

- The **initial committee** will consist of at least **4 faculty**, 2 appointed to ensure breadth of training (from two areas outside the research area) and 2 from the research area. It will be formed to help the student choose courses during the first few weeks of the first semester. This committee will decide whether students having a M.S. in biology (botany, zoology, etc.) from another institution can substitute a graduate level course taken elsewhere for a departmental course requirement; it also will decide which additional courses should be taken for both research and breadth. The choice of areas briefly will be outlined in a memo to GAAC.
- The **initial committee of at least 4 faculty** will be responsible for preparing and administering the comprehensive examination.
- The **complete committee of at least 4 faculty** including one from outside the department, should be formed by the end of the third semester; all four members should participate in the proposal evaluation which will take place in the fourth semester. The committee will consist of a minimum of four faculty, which includes the committee chair, who must be a member of the Graduate Faculty. Of the remaining members, it is also required that two shall be from the Graduate Faculty.
- The **dissertation committee (of four)** is formed officially when the student is admitted to candidacy. It usually will comprise the same individuals as the complete research committee, or it may be formed anew. The student and advisor consult on the membership of the committee, and the department nominates the committee to the graduate school. The committee will consist of a minimum of four faculty, which includes the committee chair who is the advisor, who must be a member of the Graduate Faculty. Of the remaining members, it also is required that two shall be from the Graduate Faculty and one from outside the department of concentration. The dissertation committee is nominated by the department, but it must be approved and appointed by the Dean of the Graduate School. There is a special form that must be filed with the graduate school.
- Committee meetings are **required at least once a year** (recommended at least once a semester in the early phases). The student is responsible for arranging meetings; the student should consult with the committee about any major changes in research goals and any problems; memos summarizing each meeting should be in the student's file.

10. About the time table:

- The written **comprehensive qualifying examination** must be passed by the **end of the third semester**.
- A **polished, written dissertation proposal** must be **defended to the committee in the fourth semester** together with a **public presentation of the proposal**. This must take place by mid-April of the spring semester or mid-November of the fall semester.
- **Admission to candidacy** normally occurs **after the comprehensive qualifying exam and proposal defense are passed upon the recommendation of the committee and the approval of the Graduate School**. Application for admission to candidacy is made to the graduate school on a special form.
- Analysis of data and a **polished draft of the dissertation** should be completed and in the hands of the dissertation committee **no later than the middle of the tenth semester**.
- **Defense of the dissertation and its submission to the Graduate School** must meet or precede the deadline for graduation immediately following the **tenth semester** unless an extension has been approved by GAAC upon recommendation of the dissertation committee. Notice of the defense and of the public seminar must be submitted on a special form to the graduate school in advance of the defense and must be posted publicly in the department.
- The oral **defense of the dissertation** must be given during **regular sessions** of the Fall or Spring semesters, **not during** summer sessions, intersessions, reading days or finals weeks.
- **No student may receive the degree in the same semester in which she/he is admitted to candidacy**.
- The indicated dates form **firm deadlines**. A student's committee, however, may submit a written petition to GAAC for an extension of time detailing reasons for the request. **An extension will be granted only under extraordinary circumstances and will be effective upon written approval by GAAC**.
- Proposals to change the schedule for any reason should be preceded by a study of the **graduate bulletin** sections on **leaves of absence, full time student status and recency of credit hour**, and explicitly should address how the proposed change of schedule relates to these matters. The memo requesting the change also should address the **proposed financial support** of the student beyond the 10 semesters of normal departmental support.

11. **Public presentations must be during regular semesters**. The public presentation associated with the defense of the proposal and the public seminar associated with the defense of the dissertation must be given during regular sessions of Fall or Spring semesters, not during summer sessions, inter-sessions, reading days, or finals weeks.

12. Completed SACSCOC evaluation forms are required at three points during the course of study. One following the qualifying exam, one following the proposal defense and the final following defense of the dissertation. The student is responsible for providing blank forms to the committee at each milestone. The graduate advisor is responsible for forwarding completed forms to the Graduate Director. The student is responsible for ensuring the Graduate Director receives these forms.

## **Suggested Plan of Study**

### **Ph.D. Program Timeline - Including Program Requirements and Suggested Goals**

Disclaimer: This Ph.D. Program Timeline does not replace the "Procedures for Graduate Students in Biology".

#### **Semester 1:**

Requirements\* (Suggested credits 9):

- **Graduate Core I (3 credits)**
- **Take 6 additional credits**
- **Form Initial Committee**
- Meet with Committee to plan first year of study.

Suggested Goals: (1) Sometime in your 1st year start contributing to a project in your group that will yield co-authorship on a publication in Year 1 or 2. (2) Start your personal Endnote (or equivalent) library and start delving into primary literature to inform development of your dissertation research.

#### **Semester 2:**

Requirements\* (Suggested credits 9):

- **Graduate Core II (3 credits)**
- **Take 6 additional credits**
- **By the end of the first year you must have met your Committee.**

Suggested Goals: (1) By the end of your 1st year have completed 12 of the 18 required course work credits.

#### **Semester 3:**

Requirements\* (Suggested credits 6):

- **Research in Progress (1 credit)**
- **Take 5 additional credits**
- **Qualifying Exam**
- **Qualifying Exams SACS forms submitted to GAAC Director**

Suggested Goals: (1) Attend a local conference during 2nd year. (2) Submit Research Fellowship Application(s) in Year 2.

#### **Semester 4:**

Requirements\* (Suggested credits 5):

- **Research in Progress (1 credit)**
- **Take 4 additional credits**
- **Proposal Defense**
- **Proposal Defense SACS forms submitted to GAAC Director**
- **Advance to Candidacy**

Suggested Goals: (1) By the end of the 2nd year have completed ALL 18 required course work credits (including the statistics requirement).

#### **Semester 5:**

Requirements\* (Suggested credits 5):

- **Research in Progress (1 credit)**
- **Take 4 additional credits**
- **Meet with Committee at least once in Year 3**

Suggested Goals: (1) Preparation and submission of 1st, 1st authored manuscript in Year 3. (2) Present research at professional meeting in Year 3. (3) Start planning and submitting Grant Applications(s).

**Semester 6:**

Requirements\* (Suggested credits 5):

- **Research in Progress (1 credit)**
- **Take 4 additional credits**

Suggested Goals: Submit Grant Applications(s)

**Semester 7:**

Requirements\* (Suggested credits 5):

- **Research in Progress (1 credit)**
- **Take 4 additional credits**
- Meet with Committee at least once in Year 4

Suggested Goals: (1) Preparation and submission of 2nd, 1st authored manuscript in Year 4. (2) Present research at professional meeting in Year 4.

**Semester 8:**

Requirements\* (Suggested credits 5):

- **Research in Progress (1 credit)**
- **Take 4 additional credits**

Suggested Goals: Start researching applying for postdocs fellowships/jobs

**Semester 9:**

Requirements\* (Suggested credits 5):

- **Research in Progress (1 credit)**
- **Take 4 additional credits**
- Meet with committee in 9th semester to demonstrate sufficiency and plan presentation and completion of the dissertation.

Suggested Goals: (1) Complete experimental work and data analysis in 9th semester (2) Present research at professional meeting in Year 5 (if funds are available consider attending more than one professional meeting). (3) Start applying for postdocs/jobs.

**Semester 10:**

Requirements\* (Suggested credits 5):

- **Research in Progress (1 credit)**
- **Take 4 additional credits**
- **Dissertation Defense**
- Dissertation Defense SACS forms submitted to GAAC Director

Suggested Goals: (1) Focus on writing dissertation and final 1st authored publications. (2) Continue applying for postdoc/jobs.

**Ph.D. Program Timeline Notes:**

1. The timeline for the suggested goals will vary some across labs and disciplines. The important things to capture from the list of suggested goals are (1) the importance of publishing, (2) the value of publishing early and steadily, and (3) the importance of building your professional network by attending and presenting your work at meetings. Use the suggested timeline to facilitate setting your professional goals and discussing your goals with your advisor and members of your committee.



2. Contributing to research projects outside your main research project can be a valuable way to gain lab/field skills and skills in data analysis, presentation and writing. Thus, it is suggested that sometime in your 1st year you should start contributing to a project in your group that will yield co-authorship on a publication in Year 1 or 2.

3. Meeting with your committee once each semester is strongly encouraged. Meeting with your committee once each year is a program requirement.

4. TOTAL CREDITS must equal 60 at time of graduation and must not exceed 60. This means that if your time in the program goes beyond the 10 semesters of guaranteed support, you will need to plan and budget your remaining credits accordingly.

5. One credit of an 800-level course qualifies as full-time enrollment. Thus, in your final years, enrolling in one credit of BIL840 is sufficient.

6. Proposal and dissertation defenses must be advertised and scheduled at a time that does not conflict with departmental events including seminars, workshops and faculty meetings.

Absolutely no defense should be scheduled to conflict with Monday Seminars (12:20-1:30), Wednesday Faculty Meetings (12:20-1:30), or to conflict with Friday Seminars (12:20-1:30; please note that scheduling defenses for presentation as part of the Friday Seminar Series is encouraged). Defenses must be scheduled during regular term times, consult your program requirements for details.

## **Mission**

The purpose of the Biology Doctoral Program is to engender the research, teaching and presentation skills that are central to professional biological careers in academia, government and private organizations.

## **Student Learning Outcomes**

- Students will demonstrate a deep knowledge of a Biological area, and the research skills required to make an original scientific contribution.
- Students will demonstrate the ability to teach Biology to University of Miami undergraduates.
- Students will demonstrate appropriate level of writing skills for communicating their research in professional settings.