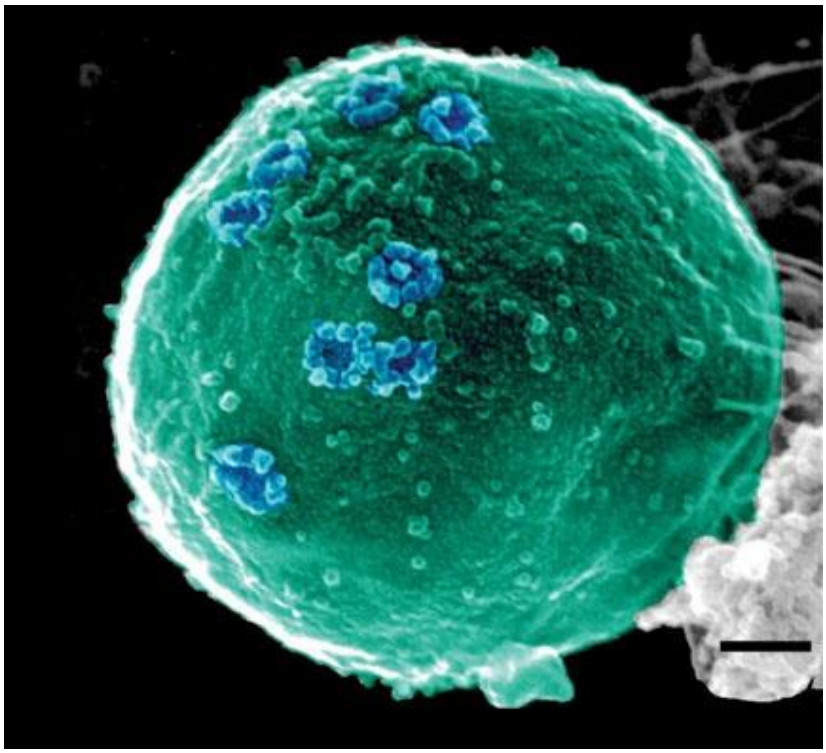
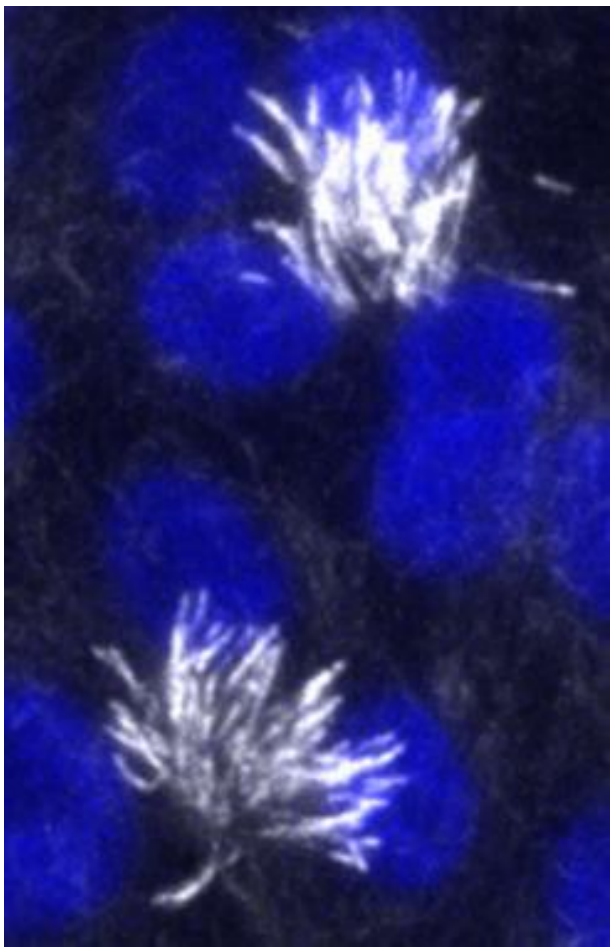
Molecular Cell and Developmental Biology Program

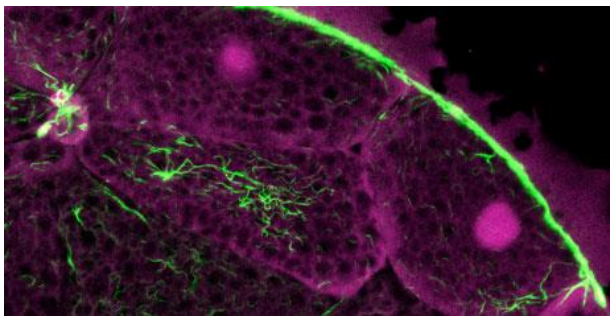
UNIVERSITY OF MIAMI
MILLER SCHOOL of MEDICINE

GRADUATE STUDENT HANDBOOK

June 2016 – May 2017







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MCDB Graduate Program Administration

This handbook contains the guidelines for current students as well as those entering the Graduate Program in Molecular Cell and Developmental Biology (MCDB). Both program-specific and University degree requirements and expectations are outlined here. Students in ongoing programs (i.e., M.D./Ph.D.) may have additional requirements. The information in this handbook is subject to change; if you have any questions regarding requirements, please contact the MCDB Graduate Program Coordinator.

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MCDB Steering Committee

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- Richard Rotundo, Ph.D.
- Barry Hudson, Ph.D.
- Nori Kasahara, M.D., Ph.D.
- Glen Barber, Ph.D.

INTRODUCTION

The cell is the basic unit of life. The human body has 10^{14} cells consisting of more than 200 different cell types. Each of the cell types is derived from a single, fertilized egg cell by the process of embryogenesis. Despite having a common genome, each cell type has unique structures and functions that are necessary for human life. Even though we know the entire nucleotide sequence of the genome, we still do not completely understand the molecular signaling processes that so exquisitely control the decoding of the genetic information to produce each of the different cell types. Furthermore, disruption of cellular function, structure or signaling is responsible for many diseases. Therefore, a superior understanding of basic cell and developmental molecular biology is very fundamental to most aspects of medical research.

The graduate program in Molecular Cell and Developmental Biology provides a unique, multidisciplinary approach to the study of cell, molecular and developmental biology. It is our goal to give our graduate students a strong basic science background, and to provide them with the necessary tools to do ground breaking research in a variety of aspects of modern Molecular Medicine.

Overview

The graduate program in Molecular Cell and Developmental Biology is an interdepartmental program that offers graduate training towards the Ph.D. degree in the fields of molecular cell biology, cell biology, developmental biology and cancer biology. In order to provide a wide range of current research opportunities, this program is interdepartmental, comprised primarily of the faculty of the Department of Cell Biology and includes additional faculty from several other Departments and Centers at The Miller School of Medicine. These include the Departments of Microbiology & Immunology, Molecular & Cellular Pharmacology, Medicine, Ophthalmology, Urology, Surgery, Neurosurgery and Neurology, the Sylvester Comprehensive Cancer Center, and the Miami Project to Cure Paralysis.

Students have the opportunity to do research in the many areas of modern cell, molecular and developmental biology. Research topics include the cytoskeleton, cell surface molecular biology, stem cells, lens, corneal and retinal biology, protein processing and sorting, signal transduction, airway biology, regulation of gene expression in development, podocyte biology, cancer biology, neuromuscular development, malignant transformation, growth factors, epithelial cell biology, organogenesis and tissue repair, pattern formation in early development, RNA localization, mitochondrial molecular biology and cancer therapeutics.

The primary objective of this interdisciplinary graduate program is to prepare students for careers as independent, Ph.D. level researchers and educators, in both academic institutions and in the biotechnology industry and other venues.

Admission

The University of Miami Miller School of Medicine has a centralized admissions point that allows student to explore multiple research areas of interest before deciding on a specific program to complete their dissertation work. All students are admitted through the Program in Biomedical Sciences (PIBS) for the Ph.D. programs in Biochemistry & Molecular Biology, Cancer Biology, Microbiology & Immunology, Molecular Cell & Developmental Biology, Molecular & Cellular Pharmacology, Neuroscience, Physiology & Biophysics, and Human Genetics & Genomics. The PIBS Admissions Committee will review applications as they are received. We encourage all applicants to submit their application by December 15th. After successful completion of all required courses and laboratory rotations of PIBS's program, students will select the MCDB graduate program and laboratory of choice. This transition has to be formalized by signing documents by mentor, student and the MCDB graduate program director.

Course of Study

The program's Graduate Studies Committee assists each entering student in tailoring a program to match his or her interests. First year students take courses in a core

curriculum taught by the faculties from the medical basic science departments. Courses are taught not only by formal lectures but also as seminars and informal discussions. The curriculum is designed to provide broad knowledge in the various aspects of modern cell biology, developmental biology, molecular biology and biochemistry in addition to intensive training in certain specialized areas of research according to the student's interests. In the remaining years of study, nearly all of the student's time is spent on original laboratory research. Students are usually admitted in the Fall semester.

Minimum credit requirements for the Ph.D. degree are set by the University at 36 course credits (including specific required courses) and 24 credit hours of research. The course credits must be earned in graduate level (600 and above) courses. Students may elect to take any of the other graduate courses offered by this program, or choose from a large variety of advanced courses offered by other basic science departments at the University of Miami Miller School of Medicine.

Mandatory courses for the program include Advanced Cell Biology Approaches to Molecular Medicine (MDB 751), Current Topics in Mammalian Development (MDB 752), Histology (MDB 753), Biostatistics (EPH 601), and Tumor Cell Biology (MDB 765). The latter can be replaced by any graduate course in human disease or neuronal Cell Biology. These courses are electives but not mandatory for M.D./ Ph.D. students.

Throughout the Program the students are expected to attend Department seminars (Tuesdays at noon), Journal Club (once a month Wednesday at noon) and Student's presentations (once a month Wednesday at noon).

The student should be working in the laboratory where he/she intends to do his/her thesis research by the summer, 1st year. At the end of the Fall semester of the 2nd year, students are required to take the qualifier exam (QE). The goals of the QE are (1) to assess the scientific proficiency of the student, especially his/her ability to design experiments and to write a competitive grant application; and (2) to aid the student and mentor in the process of obtaining extramural funds to support the student's stipend.

The Thesis proposal is expected to be passed during the second year, Summer semester. It is important to note that in our program this is not the qualifier exam. Rather, it is a collegial meeting with the Thesis committee where the student discusses his/her preliminary data and plans for the Thesis. Students normally meet with the committee for progress meetings every 6-9 months.

The Thesis is defended in front of the entire program and also in a meeting with the committee. The average for Thesis completion is 5.5 years.

MDB Time to Completion - Timeline

Enter PIBS Program (1st year):	Typically, students enter the PIBS program in the Fall (mid-August) of the new academic year
Join MDB (2nd year):	June 1st the student officially joins the Molecular Cell & Developmental Biology (MDB) graduate program – The following Fall (mid-August) is the beginning of the student's second [2nd] year of graduate school.
Qualifying Exam completed by:	The student will begin preparing for his/her Qualifying Exam (QE) immediately after joining the MDB program • By October 1 the title of the qualifying exam proposal must be sent to Program Director and Program Coordinator. The Program Director will form the QE committee and notify the student. • Once committee has been formed, the student will schedule a QE date. The goal is to schedule a meeting for mid-November. • In the event the student does not pass the first QE, a second exam may be scheduled for December or early January of the next calendar year. All QEs must be completed by January of the student's second year. Failure to pass this exam in a timely fashion may result in dismissal from the program.
Thesis Proposal completed by:	The thesis proposal is to be presented to the Dissertation Committee within 6 months (June 30th) of completion of the Qualifying Exam. • The student will suggest to the Program Director members for his/her Dissertation Committee. Upon approval by the Program Director and Steering Committee, the student will proceed with scheduling a meeting of the Dissertation Committee to present his/her thesis proposal
Progress Meetings:	The student will meet with his/her committee every 6 months to provide written and oral progress reports
Sufficiency granted by:	Sufficiency is required prior to the student's thesis defense and graduation. – It is expected that the student's progress has been such that sufficiency may be granted by year 5 / 5.5 Sufficiency may be granted only when: • All required course work has been completed • Satisfactory completion of specific aims (to be determined by the Dissertation Committee) • Publication of first author paper/manuscript
Time from Sufficiency to Defense:	Once sufficiency has been granted, the student will have 4 months (from the date sufficiency was granted) in which to write and defend his/her dissertation.
Student Status Post-Defense:	After the student has successfully defended, he/she may remain in the lab as a student and receive a stipend for a period no longer than 6 weeks. After 6 weeks, the stipend and student status ends and other arrangements must be made for support.

Student Responsibility

It is the students' responsibility to be informed of all regulations and procedures required to obtain his/her doctoral degree and ensure that they are completed. In no case will a regulation be waived or an exception be granted because a student asserts that he/she was not informed by the Molecular Cell and Developmental Biology Graduate Program

or other authority. The student should become especially familiar with the ACADEMIC BULLETIN (http://www.miami.edu/index.php/academicbulletin/), including the section discussing the requirements for the PhD degree within the Molecular Cell & Developmental Biology Program.

Plagiarism

Plagiarism is "the appropriation or imitation of the language, ideas and thoughts of another author, and representation of them as one's original work."[1] It is explicitly outlawed at the University of Miami Miller School of Medicine (UMMSM).

[1] *Random House Dictionary of the English Language, 1967*

The MCDB program has a zero tolerance policy for plagiarism. Classes, journal clubs, the qualifying exam and thesis proposal require students to write documents based on published work of other researchers. The students must be able to recite the main points of such work in their own words, with addition of critical analysis. A "copy-paste" approach to writing such documents is plagiarism and the student might be subject to **immediate dismissal from the Program**. If a student chooses to use an excerpt from a research article or book, the excerpt must be clearly denoted with the quotation marks and appropriately referenced.

MCDB Required Courses

Year 1

FALL SEMESTER

Journal Club/Seminar	PIBS 700	0 CR
Introduction to Biomedical Sciences	PIBS 701	5CR
Scientific Reasoning	PIBS 702	3 CR
Laboratory Research (lab rotations)	PIBS 731	1 CR
Research Ethics	PIBS 780	0 CR
Survival Skills I	PIBS 782	0 CR

SPRING SEMESTER

Journal Club/Seminar	PIBS 700	0 CR
Laboratory Research (lab rotations)	PIBS 731	2 CR
Survival Skills II	PIBS 783	0 CR
Medical Biostatistics	EPH 601	3 CR
Current Topics in Mammalian Development	MDB 752 * Spring A	3 CR
Advanced Cell Biology Approaches to Molecular Medicine	MDB 751 * Spring B	3 CR
Histology	MDB 753 * Spring B	1 CR

***May be taken out of sequence (e.g. in Year 2)**

SUMMER SEMESTER

Doctoral Dissertation	PIBS 830	1-12 CR

Year 2

FALL SEMESTER

Seminar	MDB 701	1 CR
Readings in Cell Biology	MDB 710	1 CR
Any 700 level course relating to Cell/Developmental Biology with human health	Example: MDB 765 – Tumor Cell Biology, NEU 763 – Developmental Neuroscience	
Doctoral Dissertation	MDB 830	1-12 CR

SPRING SEMESTER

Seminar	MDB 701	1 CR
Readings in Cell Biology	MDB 710	1 CR
Doctoral Dissertation	MDB 830	1-12 CR

SUMMER SEMESTER

Doctoral Dissertation	MDB 830	1-12 CR

Year 3 - 5

FALL SEMESTER

Seminar	MDB 701	1 CR
Readings in Cell Biology	MDB 710	1 CR
Doctoral Dissertation	MDB 830, 840 or 850	1-12 CR

SPRING SEMESTER

Seminar	MDB 701	1 CR
Readings in Cell Biology	MDB 710	1 CR
Doctoral Dissertation	MDB 830	1-12 CR

SUMMER SEMESTER

Doctoral Dissertation	MDB 830	1-12 CR

MD/PhD student ONLY: *MD/PhD students must take EITHER MDB 751 Advanced Molecular Cell Biology OR MDB 752 Current Topics in Mammalian Development.*

MDB 753 Histology will be waived.

Any 700 level course relating to Cell/Developmental Biology with human health (for example: MDB 765 - Tumor Cell Biology or NEU 763 – Developmental Neuroscience) is an elective.

Students are encouraged to take pertinent elective courses under guidance of their research mentor and Dissertation Committee.

Required course credits	36 CR [600/700 level courses (required or elective)]
Dissertation Research	24 CR
Total All Years:	**60 credits**

Course Description

MDB 701 – Seminar (1 CR)
All registered MDB graduate students must participate in seminar/research journal club. The students are required to present their research findings as well as critically review published paper(s) of their choice and describe in detail the findings described therein. Attendance of Department Faculty seminars is requirement.

MDB 710 – Readings in Cell Biology (1 CR)
Current and classical research papers in cell, developmental, and molecular biology. Critical evaluation of papers and the methodologies used is included.

MDB 751 – Advanced Cell Biology Approaches to Molecular Medicine (3 CR)
Structure, function, and biogenesis of cellular organelles and the cytoskeleton, including their regulation and dynamic interactions. The course is taught in seminars, followed by student-led discussion of recent relevant papers in the literature. The goal of the course is to lead the students to in-depth conceptual and methodological analysis of selected topics up the understanding of current leading-edge research in specific topics in Cell Biology. The course is designed to cover knowledge beyond the text books and to enable the students to design and criticize experimental approaches in Cell Biology acceptable for current peer-review criteria.
Class Schedule: Spring B, Tuesdays and Thursdays, 1:00pm – 3:00pm
Instructors: Dr. Pedro Salas

MDB 752 – Current Topics in Mammalian Development (3 CR)
The course will cover central emerging topics in mammalian development today including embryonic stem cells, micro RNA gene regulation, and organogenesis. The class will have an interactive format, starting with a basic lecture in mammalian development, subsequent sessions will include an overview of the selected topic by Faculty, followed by round table discussions of current paper(s) in the field.
Class Schedule: Spring A, Tuesdays and Thursdays, 1:30pm – 3:30pm
Instructor: Dr. Mary Lou King

MDB 753 – Histology (1 CR)
This course will offer the student a virtual slide collection of histology with interactive lectures to support image-based learning. The course covers basic tissues, organs, and systems (vascular, digestive, respiratory, urinary, lymphatic, endocrine, nervous, and reproductive). The goal of the course is to enable the students to understand what they can see in normal (H&E) microscopy sections, to identify microscopic structures and cells, and to understand the function(s) of the same.
Class Schedule: Spring B, Mondays, 3:00pm – 5:00pm
Instructor: Dr. Thomas Champney

MDB 765 – Tumor Biology (3 CR)
This course, Comprised of lectures and student-led literature discussion, is intended to provide broad-based instruction on the modern molecular and cellular aspects of cancer biology, basic and translational research. The course highlights multiple areas including cell cycle, apoptosis, epidemiology, and angiogenesis.
Class Schedule: Fall, Tuesdays and Thursdays, 4:00pm – 5:15pm
Instructor: Dr. Ted Lampidis

MDB 830 – Dissertation Research-Pre-Candidacy (1-12 CR)
Required for all PhD candidates. The student will enroll for credits as determined by the Office of Graduate and Postdoctoral Studies but not less than a total of 24. No more

than 12 hours of research may be taken in a regular semester, and no more than six in a summer session. Grade will remain "In Progress" (IP) until the student dissertation is accepted by the Graduate school.

MDB 840 – Doctoral Dissertation-Post Candidacy (1-12 CR)
Required for all PhD candidates. The student will enroll for credits as determined by the Office of Graduate and Postdoctoral Studies. Grade will remain "In Progress" (IP) until the student dissertation is accepted by the Graduate School.

MDB 850 – Research in Residence (1 CR)
Student must be registered in the semester they plan to defend. Used to establish research in residence for the PhD after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Credit is not granted. Student may be regarded as full-time residence as determined by the Dean of the Graduate School.

MD/PhD students ONLY: MD/PhD students must take EITHER MDB 751 Advanced Molecular Cell Biology OR MDB 752 Current Topics in Mammalian Development.
MDB 753 Histology will be waived.
Any 700 level course relating to Cell/Developmental Biology with human health (for example: MDB 765 - Tumor Cell Biology or NEU 763 – Developmental Neuroscience) is an elective.

Qualifying Exams

Prior to admission to the PhD candidacy, MCDB students pass their Qualifying Exam (QE). This rigorous exam tests the student's overall aptitude for biomedical research and focuses on the ability of the student to design a viable independent research project.

The format of the QE: This rigorous exam is a pass/fail, with two attempts allowed. It consists of a written proposal and its oral defense, both of which are presented to a special committee (QE committee). The written document adheres to the standard NIH/NSF grant proposal format. The oral defense includes a short oral presentation of the proposal by the student followed by questions from the QE committee. The oral defense typically lasts for 2-3 hours.

The QE committee evaluates the student in four major aspects:

1. Understanding of the chosen field of study, familiarity with the relevant literature and ability to identify knowledge gaps in the area.

2. Broad appreciation of biomedical science, including a good grasp of the principles of the methodologies applied in the proposed research.

3. Quality of the submitted document, which must be well thought out, clearly written to convey the student's ideas and strictly adherent to the required format.

4. Ability of the student to think as an independent investigator and to conduct a well-reasoned scientific discussion during the oral defense.

Composition of the QE Committee: The MCDB Program makes a clear distinction between the QE Committee and the Dissertation Committee.

The QE Committee is appointed by the Program Director and consists of three voting faculty members of the Program. The QE committee does not include the Mentor, and its only task is to judge the candidate, much like a grant review panel.

The Dissertation Committee includes the Mentor, has an advisory role, follows the student's progress in a series of regular meetings, and helps the student to achieve his/her research goals. Ultimately, this committee makes the decision about granting the PhD degree. – Members of the QE Committee can later serve on the Dissertation Committee.

The subject of the QE proposal: The subject of the QE proposal is on student's dissertation research, and can represent a part of the overall research in the Mentor's laboratory.

The QE is an important part of the graduate training. The Mentor should facilitate the student's understanding of the chosen field and the goals of the proposal, explain the structure of the document, criticize writing and practice oral presentations. When challenged by the QE committee during the exam, the student should be able to defend the Mentor's research program using scientific reasoning and logic. A reference to the Mentor's authority (e.g., the Mentor's NIH funding) will not be a valid argument.

Specific Aims must be designed and written independently by the student and must not be represented in any funded or pending grants. The Mentor signs off the QE proposal to certify the originality of the Specific Aims.

The student is encouraged to use papers and grants from the laboratory as a source of information for the QE proposal. However, students must write their applications in their own words to demonstrate real understanding of the subject matter. Lack of such understanding is very apparent during the oral part of the exam. "Copy-paste" is considered to be plagiarism, and will result in dismissal from the Program.

Students are encouraged to discuss their QE proposal with other students and researchers in their lab. The student can also solicit criticism and seek advice from faculty members, particularly in the matters of format and structure of grant applications. However, neither MCDB faculty nor other researchers are allowed to provide core ideas for the student's research design.

The Program Director and Program Coordinator will help students with any issues associated with the QE.

The QE and predoctoral grant application: The QE document serves as a blueprint for submission of a real predoctoral application. The rigorous feedback

provided by the QE committee enhances quality of the application and its chance to be funded. Students are also expected to use the material produced for their QE (text, figures, references) in their dissertations and publications (original research and/or review articles).

Admission to Candidacy:
To be admitted to candidacy students must have completed all of the following:

1. Maintain a grade point average of 3.0 or better in course work.
2. Be accepted by a program faculty member as a dissertation student.
3. Complete required course work (see pages 5-8)
4. Pass the qualifying exam

It is the student's responsibility to file the form requesting admission to candidacy. It is recommended that students file for admission to candidacy within 3 months of a successful defense of the thesis proposal. – Students must be admitted to candidacy for the PhD in a semester prior to the one in which the degree will be awarded.

Dissertation Research

The doctoral research proposal is to be presented to the Dissertation Committee within 6 months of completion of the Qualifying Exam. The specific project for doctoral research is developed on the basis of both advisor's and student's interests and is normally chosen by the student in consultation with the dissertation advisor.

While the proposal may originate from the ideas of the mentor, and criticisms may be freely obtained from any faculty member, the writing of the proposal is done entirely by the student. The format of the proposal may vary, but should include: 1) A precise statement of the proposal, 2) A summary and critical evaluation of previous work in the area, with literature citations, 3) Rationale for the proposed experiments and assessment of their significance, 4) Experimental approach, including a brief outline of the principle methods to be used (with rationale), 5) Predicted outcomes and their interpretations, including other possible outcomes, and potential problems with the proposed approach (with possible solutions), 6) Bibliography, using full citations. This includes all publications referred to, and therefore, the major publications in the field covered by the proposal.

When the student and the mentor decide that the written proposal is adequate, they suggest the Dissertation Committee, which must be approved by the Program Director. (Prior to approaching the faculty members, student and/or mentor should consult with the program office for any potential conflicts and faculty eligibility.) The committee consists (at the time of the dissertation proposal) of at least 4 faculty members: the mentor, at least two other faculty members from within the MCDB program and 1 member from outside the program. At least two members of the committee must be Graduate Faculty. The chair of the Dissertation Committee may not be the mentor, must

be a member of the Program and must be a member of the Graduate Faculty. Note that an investigator collaborating with the student or PI on this project cannot be a member of the Dissertation Committee.

The purpose of the proposal and its oral defense is to present the project to the Committee so that the Committee can provide the student with best advice and facilitate the student's progress most effectively. The student must understand the subject matter, know the relevant literature and understand the capabilities and limitations of the experimental methods to be used to a degree that he/she is able to make the best use of the Committee's advice. The student must be prepared to work with the Committee: listen to the critique, follow the advice and amend the proposal if necessary to make use the best ideas and/or express his/her opinions about the project and justify the strategy and approach. Students whose proposal defense is judged inadequate may submit and defend a revised proposal within 3 months.

Progress to the dissertation defense: Students will meet with their committee every six (6) months to provide written and oral progress reports. It is their responsibility to ensure this schedule is followed. In addition, meetings must be held on the following occasions, as determined by the Committee Chair in consultation with the Mentor: 1) if there is any major redefinition of the research problem, 2) when the student is ready to begin drafting the dissertation (sufficiency; see below), or 3) if a major change in the research findings occurs after permission to draft the proposal is given.

WRITTEN PROGRESS REPORTS (10-15 pages text, with most relevant figures that are clearly labeled) ARE DUE 1 WEEK PRIOR TO MEETING. The purpose of the written progress report is to make the subsequent meeting most efficient by bringing out the best of the Committee's critique and advice. The progress report should be a clear and concise presentation of the accomplishments in the dissertation research project since the last meeting. This summary should include key points of the student's progress since their last committee meeting. The student must appreciate that Committee members are not experts in his/her specific area of research and/or that they remember the details of the proposal. Therefore, the progress report must contain not only the most relevant results obtained since the last meeting, but also to help the Committee members re-focus on the subject by providing a brief introduction/ background. The progress report must also contain a section on the future plans of the student, so that the Committee is prepared to critically discuss those during the meeting, and the student can take advantage of the Committee's advice in the most effective manner.

Additional guidelines for the written progress report include:

- Summarize findings and progress since the last committee meeting.
- Describe any changes or modifications of the planned experiments and the reasons for the changes.
- Present proposed plans for the next group of experiments.

- The document need not contain ALL of the experimental work since the last progress meeting, but should be a selection of the work you consider most important/relevant.
- At the progress meeting itself, it is acceptable to present some experimental results not included in the written progress report.
- The total length of the report is not to exceed 15 pages including figures.

Following the oral presentation by the student, the committee members will privately discuss their views regarding the student's progress; the designated Chair will verbally relate the overall sense of the committee to the student. The Chair will draft a brief letter/memo for review by the Dissertation Committee members for their approval. The letter should reflect the student's experimental progress, and if deemed necessary, identify any corrective measures for unsatisfactory progress. Once the letter is approved by all members of the Dissertation Committee, the Chair will send it to the student and the MCDB program director and coordinator within two weeks of the meeting. The progress report and memo will be included in the student's file.

Lack of Progress: If the Dissertation Committee determines that the student is not making satisfactory progress or that there is a consistent lack of progress, the Dissertation Committee will take appropriate action. If the student's progress remains unsatisfactory for more than one semester, the Dissertation Committee must decide whether the student should:

1. Change his/her research project
2. Change mentors
3. Be dismissed from the graduate program

If the Dissertation Committee recommends actions 2 or 3 from the above list, the Chair must inform the MCDB Program Director immediately. A meeting will be scheduled to advise the student.

Unless there are exceptional circumstances (determined by the Graduate Program Director in consultation with the Steering committee), a student who has been in the Program longer than 5 years, or more than 3.5 years after the qualifying examination, the Dissertation Committee will meet every 4 months to make a determination of progress and to consider continuation of the stipend, tuition scholarship, and/or student health insurance departmental coverage.

Attaining Sufficiency: Sufficiency is required prior to the student's thesis defense and graduation. Permission to write the dissertation is obtained at a meeting of the Dissertation Committee. The Sufficiency Meeting document consists of:

1) Copy of manuscript that has been accepted for publication for which the student is first author

2) A 1-2 text consisting of a background section (1-2 paragraphs), hypothesis and specific aims (1-2 paragraphs) and the major conclusions (1-2 paragraphs).
3) An outline of the dissertation showing the components of each chapter (a draft table of contents).
4) All data figures and legends (some of these may be draft versions).

Each committee member must receive the Sufficiency Meeting Document at least 2 weeks before the meeting, at which the Committee hears and discusses the student's presentation of the work. Permission to write the dissertation requires a consensus of the Committee (1 member may dissent) and will only be granted when the committee finds that all experimentation is complete. Once permission to write has been received, the student will have a period of 4 months in which to write and defend the dissertation.

The stipend is discontinued after 4 months following the Sufficiency Meeting and students may be subject to termination from the program if they fail to complete their dissertation requirements within 6 months of sufficiency. The student must justify a delay (i.e., health or family issues) and have it formally approved by the Dissertation Committee and the Program Director.

First Author Publication Requirement: Students are required to publish their dissertation work in high quality peer-reviewed journals. A minimum of one first author peer-reviewed research (not review) article **is required to be accepted or published prior to the request for sufficiency.** The student must have actively participated in generation of the data and writing the manuscript (including any revisions).

Additional requirements for graduation include completion of the requisite number of credits of course work with a 3.0 average.

Dissertation and Final Examination: When the dissertation is complete, the mentor must review the dissertation and approve it for distribution to all committee members. The committee members will then have two weeks in which to review the dissertation. The committee will then meet in the absence of the student to make a determination as to the acceptability of the dissertation.

If the dissertation is deemed acceptable, the student will then be allowed to schedule the dissertation defense. The committee will provide the student with specific suggestions to improve the dissertation. To be "acceptable", the dissertation must be fully formatted and include all text sections, figures and figure legends. "Acceptable" means that only minor revisions are required to improve the text of the dissertation (90% complete).

If the dissertation is deemed unacceptable, the committee will make specific recommendations to the student regarding rewriting and/or further

experimentation. Unless extensive experimentation is required, the student will resubmit the dissertation within 2 months. If further experimentation is required, the committee will set a time limit.

Students must present a public seminar where they formally defend their written document in front of the Mentor, Dissertation Committee and the research community. The Graduate School requires that all members of the Dissertation Committee attend the seminar, defense, and sign off on the final document. In the case of extreme, last minute emergencies the Mentor may consult with the Graduate Program Director to allow a single individual to be absent from the defense particularly if this individual is able to hear the public seminar and participate in the defense via Skype or teleconference.

At the dissertation defense, the Committee expects the candidate to display: the significance of the obtained results; adequate knowledge of the relevant literature; familiarity with the theory and limitations of methods employed, and a demonstrated ability to independently design, execute and interpret original experiments. The Committee functions as a final examining committee immediately after the public presentation. The student must complete all revisions required by the committee prior to the defense and provide committee members with revised copies of the dissertation at least 5 days prior to the defense. After the defense, the student should mainly be making any additional revisions required by the committee members. Once all revisions to the dissertation have been made, the student may request the signatures of the committee members. The signature of a Committee member on the dissertation is a statement that the dissertation is complete to his/her satisfaction and requires no further work or writing.

The student may remain (at the discretion of the mentor) in the lab and receive a stipend for a period no longer than 6 weeks after defense. After 6 weeks, the stipend and student status ends.

Submitting the Dissertation to the Graduate School:
In order for the student to graduate, the Graduate School must accept the dissertation. The Office of the Graduate School has a set of extremely detailed rules regarding the format of dissertations. The student should obtain these rules when beginning to write the dissertation. The student should adhere strictly to these rules, which are obtainable at: http://www.miami.edu/grad/ .

Master of Science Degree
The MCDB Graduate program is a PhD-granting program. If a student must leave the program due to exceptional circumstances, the program will consider granting him/her a Master of Science in Cell Biology degree. To become a candidate for this degree, the student must bring this request to his/her Dissertation Committee and inform the Program Coordinator (stipend support from the Program will stop at this point). The Committee must hold a meeting to evaluate the student's progress and the reason for leaving the program. On the basis of the student's research

accomplishments, the Dissertation Committee decides whether or not to support the request for Masters and informs the Program of the decision. The Program Director (PD), in consultation with the Graduate Committee, decides whether to allow the student to write the Master's Thesis and defend it. The Master's Committee, appointed by the PD, includes members of the dissertation committee and one Graduate committee member. All Master degree requirements (thesis document, defense to committee, and University paperwork) must be completed within six weeks after permission to write the thesis is granted. Upon the oral defense of the thesis, the Masters' Degree Committee can make the recommendation to grant the Degree, with the final approval made by the Program Director.

The Academic Bulletin

The official rules of the University regarding the Doctor of Philosophy degree are published each year in the Academic Bulletin, http://www.miami.edu/index.php/academicbulletin/ . Students should read and adhere to these rules.

Dismissal and Appeals

Students can be dismissed by the Program for academic or professional reasons. Decisions on dismissal are made by majority vote of the Steering Committee. To appeal a major programmatic decision (e.g., dismissal, denial of degree, termination of stipend), students should first present their reasons for appealing to the Program Director and Steering Committee. This appeal will be given a fair and impartial hearing followed by a decision made by majority vote. If the student remains dissatisfied with the result of this appeal, s/he may appeal the Program's decision, in writing, to the Senior Associate Dean for Graduate Studies, within 30 days of the Program's final decision. Decisions by the Senior Associate Dean are appealable to the Dean of the Graduate School through the filing of a formal Graduate School Grievance. Graduate School Grievance Guidelines: https://umshare.miami.edu/web/wda/grad/download_docs/GRADUATE_COUNCIL_GRIEVANCE_GUIDELINES_4-2009.pdf

Readmission Policy to PhD Programs

Programs may readmit former students under the following conditions. 1) The student must have left the Program in "Good Academic Standing." 2) The student must identify a mentor willing to take him/her into the lab and provide full financial support. All Graduate School policies and Program policies apply. Additionally, the Graduate School readmission policy states: *Unless a leave of absence has been requested and approved, students who have not been continuously enrolled for sessions must request readmission. Contact the appropriate program office well in advance of registration. If additional college work has been completed elsewhere since the last enrollment at the University of Miami, an official transcript of this will be required. Recency of credit rules will apply.*

Stipend

All graduate students in good academic standing will receive an annual stipend of $28,500 for 2016-2017 and **may not be employed elsewhere**. Typically, student stipends end 4-6 weeks following the dissertation defense to allow students time to finalize and submit their dissertations to the Graduate School. Payroll assignments and details will be managed by the Office of Graduate and Postdoctoral Studies. Students are paid on the last day of each month and are required to have direct deposit.

Fellowship Supplements

It is the policy of the Office of Graduate Studies that a student who successfully competes for external fellowships will receive a $2,000 yearly supplement to his/her stipend for the length of the fellowship award, as long as the fellowship covers at least 75% of the stipend. The faculty mentor will be responsible for providing this supplement while the student is the mentor's laboratory.

Tuition Scholarships

All graduate students in good academic standing will also receive a tuition scholarship for the duration of their studies.

E-mail

UM provides free e-mail accounts to all students; please be sure to read your e-mail daily. If you do not have e-mail, please contact the Program Coordinator to get University access. E-mail is an important avenue of communication between the Cell Biology Program and the graduate students.

Health Insurance

Graduate Student Health Insurance (GSHI) Rates for 2016-17		
Semester	**Coverage Period**	**Rate**
Annual	August 15, 2016 – August 14, 2017	$2513.00

Students are required to show proof of adequate health insurance. All students are automatically enrolled in the University sponsored Student Health Insurance plan. For those individuals covered under an outside policy, and who wish to waive the UM plan must do so through CaneLink, under the "Other Important Links" option. - Insurance cancellation requests must be renewed each academic year via CaneLink.

Please note that International Students are required to maintain the University of Miami health insurance.

Health Insurance Information for Domestic Students

Domestic students enrolled in six or more credit hours per semester (or considered full time, including graduate students enrolled in a 700/800 level class) are required to obtain adequate health insurance (see exceptions). The annual premium for the health insurance plan offered through the Student Health Service is added to each student's fees. Domestic students with adequate alternative coverage may request cancellation of the insurance fee by submitting a Domestic Insurance Cancellation Form, or via CaneLink. Students with limited out of area coverage or otherwise inadequate coverage are urged to carefully review their options before waiving the Student Health Service sponsored insurance plan. Deadlines to waive the insurance are available on the Student Health Center website (https://www6.miami.edu/student-health).

Insurance cancellation requests must be renewed each academic year via CaneLink.

Health Insurance Information for International Students

All international students are required to enroll in the University sponsored health insurance program. The annual premium for this coverage is added to each student's fees. Optional coverage for dependents can be requested at the time the student is first able to enroll in the plan (within 14 days of the start of the semester) or within 30 days of termination of other similar coverage, or because of any of the following events; birth, legal adoption, placement for adoption, marriage, legal guardianship, or court or administrative order. Renewal of dependent coverage is the responsibility of the student / dependent and must be requested prior to the termination of the current policy in order to prevent a lapse in coverage. For more information, contact the Student Health Service at www.miami.edu/student-health or (305) 284-1652.

International Student and Scholar Services

The Department of International Student and Scholar Services (ISSS) provides support services for international students and scholars. ISSS offers the following support services: immigration advising, orientation, employment information and authorization, federal income tax filing, personal and adjustment problems, advocacy and liaison (sponsors). A special orientation program is held in the Fall for all new international students to facilitate the educational and cultural adjustment of new and transfer international students.

For more information contact ISSS: Phone: (305) 284-2928
Email: Isss@miami.edu Web: www.miami.edu/internationalservices/
Address: 560 Merrick Drive, Building 21-F, Coral Gables, FL 33124-5550

Leave of Absence Policy and Procedures

This statement applies to full time PhD students in good academic standing at the University of Miami Miller School of Medicine (UMMSM). In general, trainees may receive stipends during the normal holiday periods observed by UMMSM (New Year's Day, MLK, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day). PhD students may also receive stipend support for up to **15 calendar days (including weekends)** of sick leave per year.

PhD students are permitted to receive stipend support during a reasonable number of vacation days. The exact number and timing of vacation days is negotiated between the student and mentor, but vacation days are normally expected to be no more than **2 weeks per year (10 business days)**.

The graduate school recognizes that doctoral students receiving a stipend from a fellowship, teaching or research assistantship may require a paid leave of absence due to pregnancy or the need to care for a new child. The process to secure the leave should follow the steps described below:

1) Graduate students must apply for a leave using the leave of absence form. This form, available on the graduate school website, should be submitted one semester before the intended start of the leave, if at all possible.

2) The length of the paid leave of absence should not exceed a total of *three months*. Any student requesting a longer period of leave may be granted an unpaid leave of absence.

3) Any accommodations and funding required during the leave must be provided by the academic home school/college, department or program. This is particularly important if the student is the recipient of a research assistantship from a federal grant (NSF, NIH, DOE, DoD, etc…) or an external fellowship without maternity/paternity leave stipulations, since a student cannot keep receiving stipend payments from these sources during the leave of absence.

4) Requests to extend the leave of absence beyond three months can be made only due to medical reasons during the leave period and require the submission of proper documentation. Any leave extensions may be granted as unpaid leaves of absence.

5) The time spent on leave of absence due to childcare accommodation will not count against the student's academic time-to-completion in the corresponding graduate program.

6) During the graduate tenure a given student can only benefit once from this policy.

7) On a case by case basis, the Graduate School may consider two doctoral students for co-parenting the same child and the conditions of the accommodation will vary. Requests can be directed to the Dean of the Graduate School.

8) Any other cases not contemplated in this document should be directed for consultation by the Dean of the Graduate School.

Once a student returns from an approved leave, he/she will need to submit an application for readmission form. If the student returns within the approved leave time frame, the Graduate School will simply approve. If the student returns outside of the approved length of time, the readmission form will be reviewed.

Individuals requiring periods of time away from their research training experience longer than specified here must seek approval from their Program Director for an **unpaid** leave of absence. At the beginning of a leave of absence, the trainee must submit a written request which includes the reason for the request as well as the date the leave will begin and end. This request, once approved by the Program Director, should be submitted to the Office of Graduate and Postdoctoral Studies which will seek the necessary approval from the Senior Associate Dean.

Student Counseling Center

The University Student Counseling Center has personal counselors who can help students effectively cope with the challenges of college life and facilitate learning, growing, and socializing. The Counseling Center offers a wide ranges of services, including short-term individual counseling, career and educational counseling, outreach programs, and various groups aimed at enhancing personal growth and development. The center is staffed by an experienced team of professionals from the fields of psychology, psychiatry, mental health counseling and social work. Students can contact the center Monday-Friday between the hours of 9 a.m. – 5 p.m. by calling (305) 284-5511. The center is located in Building 21-R of the Center for Student Services on Gables Campus. If a crisis occurs after hours counselors can be reached by calling the University of Miami Police Department st (305) 284-6666.

Security (305) 243-6000

The UM Medical Campus provides security to monitor building entrances and patrol the campus 24 hours a day. If you are working late or on the weekends, security officers will provide escorts upon request to any point on the Medical Campus including Metrorail. Call Medical Campus Security at (305) 243-6000 or 6-6000 or *711 on in-house phones.

Metrorail Passes

The Miami-Dade Metrorail is an elevated rapid transit system that runs through Miami and provides convenient access to the medical school at Civic Center Station exit. Discounted monthly Metrorail passes are available to UM students and must be ordered a month in advance. To order a pass contact the Security Office at (305) 243-6280 or UMParking@med.miami.edu.

Parking

The UM Security Office is responsible for issuing parking lot access for faculty, staff, and students. However, since parking space is limited there is usually a waiting list. To place your name on a waiting list for a particular parking garage contact Daysi Fleitas at (305) 243-6280 ext. 2 or email: UMParking@med.miami.edu. The Dominion Parking Garage is privately owned and usually has available parking. Call (305) 324-0900 or walk over to the office at Dominion Towers (1400 NW 10th Avenue, Suite 101).