



Herbert Wertheim College of Medicine
FLORIDA INTERNATIONAL UNIVERSITY

PhD in Biomedical Sciences Handbook

2022 – 2023

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Preamble

This Student Handbook has been compiled as an aid and resource for the students enrolled in the PhD Program in Biomedical Sciences at the Herbert Wertheim College of Medicine (HWCOM) – Florida International University (FIU). It contains current information and degree requirements for the Program. This handbook does not supersede any of the policies and procedures established by the University Graduate School. It is the student's responsibility to understand and follow university policies and procedures. The student must ensure that all requirements have been met within the established deadlines. The general policies and procedures for graduate study at FIU can be found at the University Graduate School site.

Message from the Dean

This is an exciting time to be a Ph.D. candidate in biomedical sciences at the FIU Herbert Wertheim College of Medicine! On behalf of the College of Medicine, I warmly welcome you to FIU. And I congratulate you for choosing to pursue your research education with our R1, the "highest research activity," ranked university. You are joining an esteemed legacy of renowned researchers who have earned FIU the distinction of being ranked among the world's top 50 U.S. patent producers.

As Dean of the College of Medicine, I have the pleasure of experiencing first-hand the remarkable talent of our faculty and students. They create the foundation for the rich and unique experiences that inspire novel research and launch the next generation of innovative scientific researchers. Our program is abundant with opportunities for all.

FIU's Ph.D. Program in Biomedical Sciences redefines excellence in health care by applying basic sciences to medicine and translating discoveries in the lab into new treatments and cures. Students may choose from a wide range of training opportunities, including drug discovery and nanotherapeutics, genetics and cancer biology, microbiology, infectious diseases, translational glycobiology, environmental science and toxicology, pulmonary vascular disease, viral cancer biology, and therapeutics, as well as the immune response to viral infections. As a Ph.D. candidate in biomedical sciences, you represent our future. You are the "why" driving what we do each and every day, and most importantly, I know you can and will change the world.

I welcome you to the Herbert Wertheim College of Medicine family. And I look forward to celebrating your research contributions as you develop your expertise in the groundbreaking world of biomedical sciences.

Juan C. Cendan, M.D.

Dean and Senior Vice President for Health Affairs FIU Herbert Wertheim College of Medicine

Message from the Associate Dean for Research

Welcome! I am pleased to welcome incoming and returning graduate students to the Biomedical Sciences Program at the Herbert Wertheim College of Medicine (HWCOM). Above all, we are committed to your success. Your achievements and your experiences energize the culture of our one-of-a-kind program bridging biomedical research with clinical medicine.

I am exceptionally proud, and you can be as well, of our outstanding faculty and internationally recognized programs. As a Ph.D. candidate, what does this mean to you? This programmatic excellence translates into exciting research and training opportunities in cancer biology, drug discovery, drug delivery, immunology, lung biology, molecular genetics, neuroscience, regenerative medicine, structural biology, translational glycobiology, and viral biology therapeutics. Our research strengths and opportunities extend beyond these areas, and I invite you to explore each department, research institute, and center webpage to learn more.

It is my honor to lead the College's research programs. My mission is to connect you with talented Ph.D. faculty advisors and state-of-the-art resources that will develop your scientific expertise and prepare you to contribute to improving our nation's health. When asked what drives a scientist's life-long pursuit of biomedical research? My answer is simple - it is creativity! The ability to understand complex interactions, unravel what appears to be a mystery, and discover something new, something ground-breaking that can change the quality of life for individuals facing challenging medical conditions.

To this end, it is my pleasure to help you meet your experimental goals and foster the research environment that will maximize your scientific potential as you prepare for future opportunities in academia and industry. I look forward to meeting you in the days and months ahead!

Stephen M. Black, Ph.D.

Associate Dean for Research and Graduate Program

Introduction

The Ph.D. Program in Biomedical Sciences at the Herbert Wertheim College of Medicine (HWCUM) provides a curriculum that is different from other Florida International University (FIU) colleges. A distinctive feature of this program is that both graduate students and medical students sit side-by-side in the introductory basic sciences portion of the medical curriculum, providing the graduate students with an appreciation of the medical aspects of modern biosciences.

The participating faculty members come from the four basic science departments in the Herbert Wertheim College of Medicine - Cellular Biology and Pharmacology, Translational Medicine, Human and Molecular Genetics, and Immunology. These faculty members will train students to be the next generation of scientists in the fields of biochemistry, cancer biology, genetics, immunology, microbiology and infectious diseases, molecular biology, glycobiology, pharmacology, nanomedicine and nanodevices.

The program will develop graduate students with an exceptional ability to apply their research skills from bench to bedside, and to translate fundamental discoveries into new treatments for human diseases.

The advantages of a PhD degree in Biomedical Sciences from FIU include:

- Cutting edge research in biomedical sciences
- Close interaction with clinical and basic science faculty
- Preparation for careers in academia, medical research, biomedical and biotechnology industries

Administrative Personnel

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Ph.D. Curriculum Overview

Students admitted to the PhD Program in Biomedical Sciences must be enrolled for a minimum of 9 credits for each Fall and Spring term, and 6 credits for the Summer term. Our program requires a minimum of 81 post-baccalaureate credits of which at least a minimum of 24 credit hours are dissertation research.

Year 1: Courses and Laboratory Rotations

Students are expected to take the following required courses in the indicated terms unless advised otherwise.

Course No.	Course Name	Credits
<i>Fall</i>		
GMS6220	Molecular Genetics and Cellular Biology	6
GMS6605	Basic Structure of the Human Body	3
TOTAL		9 credits
<i>Spring</i>		
GMS6103	Molecular Microbiology and Infectious Diseases	3
GMS6939	Graduate Seminar	1
GMS6942	Laboratory Rotations	1
GMS6979	Research Credits	2
GMS6864	Principles of Clinical Epi & Bios	2
TOTAL		9 credits
<i>Summer</i>		
GMS6962	Formation of Committee: Preliminary Proposal	1
GS6979	Research Credits	5
TOTAL		6 credits

In the *first year*, a student shall meet the following benchmarks:

- Complete the required course work as indicated above. A student is required to maintain a cumulative GPA of 3.0 or higher, with no grade of less than “B” in all mandatory courses. In the event that a student receives a “C” in any required course, the student must remediate that course, and such remediation must be completed within the same term as the original course.
- Actively participate in laboratory rotations (three required)
- Attend graduate seminars regularly as well as specialty seminar series offered by the basic science departments
- Select a Dissertation Advisor and the Dissertation Advisory Committee
- Decide on the elective courses in consultation with the Dissertation Advisory Committee
- Begin research and explore dissertation project opportunities
- Students are expected to take the [Responsible Conduct of Research Training](#).

FIU Safety Training:

Prior to a laboratory rotation, students must satisfy safety training requirements associated with that particular lab.

Laboratory Hazard Awareness, HazCom: In Sync with GHS, and Fire Safety trainings are required for anyone working in a lab area. Additional trainings may be required depending upon the type of research carried out in a particular lab. For example, students using biosafety cabinets or fume hoods need to complete *Safe Use of Biosafety Cabinets or Safe Use of Fume Hoods* training, respectively. *Environmental Awareness Part 2* is required for those handling hazardous waste. Students working with human cell lines need to take *Bloodborne Pathogens* training. For all online safety trainings, please visit the [Department of Environmental Health & Safety and Risk Management Services website](#).

Students participating in projects that involve human or animal research must participate in required training and obtain relevant committee approvals prior to commencing any activities, i.e., approval from the Institutional Review Board for the use of human subjects (<http://research.fiu.edu/irb/>) or the Institutional Animal Care and Use Committee for animals (<http://research.fiu.edu/iacuc/>). Research with recombinant DNA requires an approval from the Institutional Biosafety Committee (<http://research.fiu.edu/ibc/>).

Year 2: Courses

Students are expected to register for the following courses.

Course No.	Course Name	Credits
GMS 6481	Physiology and Immunology (Fall)	4
GMS 6939	Graduate Seminar (Spring)	1
GMS 6940	Supervised Teaching in Biomedical Science (Fall)	1
GMS 6940	Supervised Teaching in Biomedical Science (Spring)	1
GMS 6940	Supervised Teaching in Biomedical Science (Summer)	1
GMS 6979	Research Credits (Fall)	Adjustable
GMS 6979	Research Credits (Spring)	Adjustable
GMS 6979	Research Credits (Summer)	Adjustable

Students also must complete a minimum of 5 credits of Elective Courses in addition to the required courses indicated above. Examples of courses that qualify as electives are listed below. At their discretion, either the Dissertation Advisor or the Dissertation Advisory Committee may suggest potential electives that are described in the [FIU Catalog](#).

Course No.	Course Name	Credits
BME 6545	Biosensors & Nanobioelectronics	3
BSC 5459	Advanced Bioinformatics for Biologists	3
CGS 5166	Introduction to Bioinformatics Tools	2
CHM 5305	Graduate Biological Chemistry	3
CHM 6088	Environmental Chemistry of Trace Elements	3
CHM 6382	Advanced Biological Chemistry	3
GMS 6300	General Pathology	4
GMS 6500	Basic Pharmacology	4
GMS 6904	Introduction to Scientific Writing	3

In their *second year*, students are expected to meet a majority of the following requirements:

- Complete all required and elective courses. It is possible that they may have to extend the time to completion into the third year as some of the electives are taught every other year.
- Regularly attend seminars as in Year 1
- Make progress in their research and define a dissertation project
- Perform teaching assistantship activities
- Take the Qualifying Examination (GMS 6961)

Year 3: Dissertation Proposal

Students are expected to successfully complete their Qualifying Examination (GMS 6961), submit their Doctoral Dissertation Proposal (GMS 6963), and present a Dissertation Proposal Seminar (GMS 6964). Upon successful completion of the above courses, they will be allowed to register for Dissertation Research Credits (GMS 7980). Students should also register for Graduate Seminar (GMS 6939) during the spring term.

In the *third year*, students are expected to meet the following objectives:

- Pass the Qualifying Examination
- Prepare a Doctoral Dissertation Proposal and successfully defend the content of the dissertation proposal as required for admission to PhD candidacy
- Participate in the Responsible Conduct of Research training
- Attend Graduate Seminar (GMS 6939) as in Years 1 & 2 and present their own research
- Make substantial progress in research to achieve the aims in their dissertation project
- Give research presentation at a national scientific meeting

Years 4 and 5: Dissertation Research

Students will engage primarily in Dissertation Research and work towards the completion of their PhD degree. They must register for the Graduate Seminar (GMS 6939) during the spring term each year.

During this phase, students are expected to achieve expert knowledge and skills in their specialty area, attain a broad knowledge in different aspects of biomedical sciences, focus on developing research and communication skills, and present/publish their major research findings. The average time to get a PhD degree is about 5 years. However, if significant progress is made, students may be able to graduate in their **4th year**.

Students are expected to:

- Attend Graduate Seminar as in previous years and present their own research
- Give research presentations at national conferences/symposiums
- Publish at least 3 manuscripts including one first or last author manuscript
- Complete their dissertation research
- Write and successfully defend their dissertation
- Secure job positions in academia, government, medical research, biomedical and biotechnology industries

Academic Policies

Registration for Classes

The Administrative Services Coordinator will assist students in registering for their first year courses. In subsequent years, the students are responsible for selecting the appropriate courses. Students must register for a minimum of 9-credits during the fall and spring term, and 6-credits during the summer term.

As a pre-requisite to registration, FIU requires all students to comply with the following immunization policy regulations from the Florida Board of Governors regarding immunity of:

- Measles, Mumps, Rubella
- Hepatitis B and Meningitis

Please fill out the [Immunization Documentation Form](#) and return it to University Health Services. If you fail to provide this information, a hold will be placed on your record preventing you from registering for classes. For more details, you may contact the Student Health Services via phone: (305) 348-2401; email: immune@fiu.edu (please include “immunization” in the subject line) or visit <https://studentaffairs.fiu.edu/health-and-fitness/student-health/>

International Students

All F-1/J-1 students admitted to FIU must report to the [International Student and Scholar Services \(ISSS\)](#) Office at Graham Center (GC) 355 upon arrival on campus, and before registering for classes. Additionally, international students must complete the following requirements:

- Attend the mandatory International Student Orientation
- Register as a full-time student (9 credits) for fall and spring term and 6 credits for summer term
- Obtain medical insurance (students without proof of medical insurance will not be able to register)
- Present an FIUI-20 or DS-2019, an I-94 card, and a valid passport to the ISSS office

Course Syllabus and Teaching Learning Format

The syllabus for each course contains the learning objectives, schedule of activities, topics to be presented, faculty involved, listing of course materials, evaluation system and grading policies, and all other course policies including attendance expectations. A variety of learning formats may be used, including lectures, discussion groups, individual and group projects, and lab work.

Graduate students may access information about the course syllabi, content, announcements, documents, recordings of all lectures at [CanvasMed](#). Students are expected to check the websites regularly for updates and changes.

Conduct of Examinations

A variety of assessment formats are used, including objective multiple-choice questions (MCQ), oral and written reports, exams and essays. Course directors will review results with the class following an examination.

Exam Grades

Students have the opportunity to raise concerns about exam questions during the exam using a “challenge card.” Students will receive their exam results individually. General class performance on individual exams will be provided to students in the results report. High score, low score, mean, median and the standard deviation will ordinarily be in the reports for objective exams.

Course Grades

Performance in courses will be graded either numerically, letter grade, or pass/fail. Since the University Graduate School employs a letter grading system, all numerical grades will be converted to letter grades. The grading system for a given course will be clearly described in the course syllabus. Unless otherwise indicated, the following conversion between numerical and letter grades will be implemented.

% Marks	Grade conversion	Points per credit hour
≥90 - 100	A	4.00
≥80 - <90	A-	3.67
≥70 - <80	B+	3.33
≥60 - <70	B	3.00
≥50 - <59	C	2.00
<50	F	0

Forgiveness Policy

Graduate courses are not authorized for grade forgiveness.

Final Grades

Final grades are available through the PantherSoft web-based system (<http://my.fiu.edu>).

Academic Warning

A graduate student whose cumulative graduate GPA falls below a 3.0 will be placed on warning, indicating academic difficulty.

Probation

A graduate student on warning whose cumulative graduate GPA remains below 3.0 in the following term will be placed on probation, indicating serious academic difficulty.

Dismissal

A graduate student on probation who does not raise their term GPA to at least 3.0 by the following term will be dismissed from the PhD program. A graduate student will not be dismissed prior to attempting a minimum of 12 hours of coursework. The student has ten working days to appeal the dismissal decision. This appeal must be made in writing to the Dean of the University Graduate School. To appeal, a Petition for Exception to Graduate Requirements form (<http://gradschool.fiu.edu/student-forms.shtml>), which

can be found at the University Graduate School (UGS) website, must be completed. The dismissal from the University is for a minimum of one year prohibits students from registering for any courses. After one year, the student may apply for readmission to the University in the same or a different program.

Laboratory Rotations

The purpose of the laboratory rotations is to get experience in specific laboratories of the HWCOM graduate program faculty member that will eventually lead to the choice of a dissertation laboratory. Such an experience provides an opportunity for the student to determine whether s/he is compatible with the lab and the mentor. Rotations also provide the student with the opportunity to explore areas in which s/he may have interest but no direct research experience. It is recommended that at least one rotation be utilized to explore a field of research that the student may not have previously considered as a future research direction.

Goals of Lab Rotation

- To help first-year students make informed decisions regarding advisor selection
- To give students a first-hand experience in the research culture and mentoring styles of different laboratories
- To expose the student to a variety of methodologies and concepts
- To encourage upper-level graduate students and postdoctoral researchers in the various laboratories to discuss their research with new graduate students
- To provide the faculty member with an opportunity to evaluate the student
- To encourage development of collaborations between two or more laboratories, with the possibility of students working with two dissertation advisors

Structure of lab rotation

- To assist students in selecting research rotations, each student will receive a list of HWCOM basic science faculty members who are likely to mentor a student, together with a short description of their research interest. In addition, the HWCOM website has a listing of all research faculty members with links to their research areas. Students are encouraged to consult this information in planning rotations.
- Students will meet one-on-one with graduate faculty who hold Dissertation Advisor Status and choose three faculty laboratories with the consent of those faculty members. Students will submit their rotation choices to the Assistant Dean for Graduate Programs by the end of September. The rotation schedule is as shown below:

Rotation	Timeline
First	Nov. 07, 2022 - Jan. 06, 2023
Second	Jan. 09, 2023 - Feb. 23, 2023
Third	Feb. 27, 2023 - Apr. 10, 2023

- Students are expected to devote a minimum of 20 hours/week during their laboratory rotations when classes are in session. At other times, students should spend a minimum of 40-hours/week in the lab.

- A student may change their choice of the second or subsequent rotation advisor during an earlier rotation period. The order of the rotations is arranged by the Graduate Program Director. Priority is given to scheduling students as evenly as possible across all of the rotation periods, except if a faculty member arranges in advance not to schedule rotations during one of the periods due to teaching, travel, etc.
- Before beginning a rotation, students should discuss with the faculty member the expectations of the rotation and evaluation procedures. A rotation in a particular laboratory does not constitute a commitment on the part of the student or research advisor regarding the ultimate choice of dissertation laboratory.
- Research rotations consist of mini-projects carried out in the laboratory of and under the supervision of a faculty member. The rotations involve individual projects related to the general research interests of the students and the faculty mentors chosen.
- At the end of each rotation, the student will give an oral presentation about their rotation experience. Presentations are approximately 15 minutes in length and should include – (i) the background of the project; (ii) the objective(s) of the experiments that were conducted; (iii) the experimental design that was followed; (iv) the actual results that were obtained; and (v) a discussion of the results. Each oral presentation will be evaluated by the rotation mentors.
- At the end of each rotation, the student and the faculty member will complete a lab rotation evaluation form (see Annexure). They should have a forthright and frank discussion about the prospect of the student joining the lab. If the faculty member is not willing to have a student join his or her lab, this must be communicated explicitly to the student.
- The rotation experience is an approved course with credit, and students will receive a pass or fail grade based on an average of the evaluations of the three participating faculty members. The form will be given to the Graduate Program Director and kept in the student's file for reference in assessing the student's progress as well as monitoring the rotation program in general. Students receiving three (3) "fail" grades during their rotations will be automatically dismissed from the program.
- After completing three rotations, the student chooses his or her dissertation advisor (see below) based upon agreement between the student and the faculty member.
- In the event that the student cannot make a decision on a dissertation advisor after three rotations, or if a faculty member will not agree to be the student's supervisor, a fourth rotation will be allowed.
- After the fourth rotation, if the student still cannot choose his/her dissertation advisor, or if none of the faculty members agree to be the student's supervisor, the student will be dismissed from the program.

Choosing a Dissertation Advisor

The choice of a Dissertation Advisor is the most important decision for a student. The Dissertation Advisor is the principal advisor and mentor of a graduate student. A student's choice of Dissertation Advisor has a considerable influence on his/her graduate training, research expertise and ultimate employment. In choosing an advisor, a student must consider the quality of the research projects, the influence of senior students and postdocs in the lab, research funding and lab resources, and the level of advisor's involvement. All of these, combined with the student's own initiative, intelligence, creativity, and determination, will determine the success of the student's graduate education. Students must select their Dissertation Advisor by the end of spring term (First Year). Selection

of the Dissertation Advisor follows primarily after a discussion between the student and faculty member. Final approval and acceptance in the prescribed Dissertation Advisor Selection Form (see Annexure) must be obtained before beginning formal work with the agreed upon advisor.

Students have the right to change their Dissertation Advisor in the event they believe there is irreconcilable disagreement or incompatibility. Students are advised to arrive at a decision promptly as any changes at a later stage may delay the completion of their PhD degree.

Selection of Dissertation Advisory Committee

The Dissertation Advisory Committee (DAC) is initiated by mutual agreement between the student and the Dissertation Advisor. The committee appointments are made by the Dean of the University Graduate School on the recommendation of the Graduate Program Director and the Dean of HWCOM. The Dean of the University Graduate School shall have the authority to appoint an additional Graduate Faculty member to any dissertation committee.

The DAC consists of five members, three from HWCOM (one chairperson), and two outside HWCOM. It is advised that one committee member be from outside FIU. The chairperson must have a specialized academic competence in the student's major field of research, be tenured or tenure-earning and hold Dissertation Advisor Status (DAS). Graduate faculty members with Dissertation Advisor Status who are not tenured or tenure-earning faculty at FIU may serve as co-chair of a dissertation committee but not sole chair. The committee must be selected so that the relevant emphases of the dissertation are adequately represented.

The HWCOM graduate committee may weigh in on the suitability of all the members. Although, FIU faculty members of the DAC must have Graduate Faculty (GF) status, members from outside FIU need not have GF status. Outside FIU faculty members should sign a commitment form, provide a current curriculum vitae and be approved by the Associate Dean for Basic Research and Graduate Programs.

The DAC will oversee all aspects of dissertation research. They will meet with the student at least once a year to help plan research, review the student's progress, and provide written reports to the Graduate Program Director. The responsibility of the chairperson will be to oversee the qualifying examination meeting and progress report meetings. The chairperson should also meet with the student after every meeting to discuss the outcome of the report..

Annual Performance Evaluation

The performance of graduate students will be reviewed annually for continuation in the graduate program. The primary goal of the annual evaluation process is to facilitate the engagement of the student, dissertation advisor and committee in the evaluation and mentoring processes. Evaluation of each student is performed per University Graduate School policies. The Annual Student Evaluation and Mentoring Plan form is submitted to the University Graduate School by May 30th. Evaluation of a student's performance in the first year is performed by the Graduate Program Director in consultation with the Dissertation Advisor. Subsequent annual evaluations are performed by the student's Dissertation Advisor and DAC.

Teaching Requirements

As part of their graduate training, PhD students (as Graduate Teaching Assistants) are expected to assist either a basic science and/or clinical medicine faculty in their teaching responsibilities during their second year.

Responsibilities of Graduate Teaching Assistants include:

- Assist teaching faculty with technical aspects of PowerPoint and other presentations for lectures and seminars
- Assist clinical faculty in running advanced patient scenarios
- Assist basic science faculty in guiding the research activities of high-school students and undergraduates
- Assist faculty with literature search and summarize the specific research topics
- Assist faculty with other logistical and organizational matters

Seminar Attendance and Presentations

Students are required throughout their graduate training to register for the Graduate Seminar (GMS 6939) course during the spring term. Each student will present a seminar in this course on an annual basis. Students may also be required to give seminars in their departmental seminar series. They are also required to attend presentations given by invited speakers in the HWCOR Distinguished Seminar Series as well as any other seminars recommended by their Dissertation Advisor.

Student Effort

Students are expected to devote themselves to the full-time pursuit of the PhD degree. These include completing their coursework promptly, regular participation in seminars, and research. Students should be working in the laboratory and attend seminars even when classes are not in session. They should devote a minimum of 20-25 hours/week in the lab when classes are in session. At other times, students should spend a minimum of 40-hours/week in the lab. Students must receive permission from their rotation advisor (first year) or Dissertation Advisor (subsequent years) if they are required to be away from the laboratories for any reason.

Doctoral Degree

The graduation requirements for the program will be:

Completion of Mandatory and Elective Courses

Students must maintain a cumulative graduate GPA ≥ 3.0

Laboratory Rotations (GMS 6942) and Choosing a Dissertation Advisor

Students will spend approximately 6-weeks in the laboratories of three HWCOR basic science faculty members. At the end of each rotation, the student and the faculty member will complete an evaluation form (see Annexure). The form will be given to the Assistant Dean for Graduate Programs and kept in the student's file for reference in assessing the student's progress as well as to monitor the rotation program in general. After completing three (or in exceptional cases, four) rotations, students must select their Dissertation Advisor. Selection of Dissertation Advisor follows primarily after a discussion between the student and faculty member. Final approval and acceptance in the prescribed Dissertation Advisor Selection Form must be obtained before beginning formal work with the agreed upon Dissertation Advisor.

Qualifying Examination

After successful completion of mandatory courses, students will be allowed to proceed with the Qualifying Examination (GMS 6961). This generally would occur after the students have accumulated a minimum of 30 credit hours in academic courses, but no later than the end of the 5th term of study (excluding the summer terms). The Qualifying Examination determines, in part, the student's eligibility for admission to candidacy for the PhD degree. The exam is designed to test the student's knowledge of biomedical sciences, as well as assess creativity and rationality of research design. The exam is composed of two parts: (i) a written exam. The student will submit a comprehensive review on a topic chosen by the Dissertation Advisory Committee. The review article will consist of an Abstract, Introduction, Scope (covered topics), Conclusions and References. Total word count (not including references) - 4,000 words (max); Abstract - limited to 250 words (included in the total word count); Tables and Figures - 6 (max); References - unlimited; (ii) oral defense of the review article before the DAC.

Doctoral Dissertation Proposal

After successfully passing the Qualifying Examination, the student will prepare a Doctoral Dissertation Proposal (GMS 6963). A dissertation is a formal and systematic discourse or treatise advancing an original point of view as a result of research. The dissertation proposal describes the student's progress in research, and proposes the future direction of the student's doctoral research. It is understood that the dissertation may evolve in directions quite different from the dissertation proposal, and that the proposal is not intended to restrict the normal development of a research project. The dissertation proposal is in no way a contract between the University and the student. Depending on the outcome of the research, the dissertation may require substantially more work than anticipated at the stage of the dissertation proposal.

The dissertation proposal is to be written in the style of an AHA, NIH or NSF predoctoral fellowship application and is limited to a maximum of 8-pages. Use standard paper size (8½" x 11"). Use at least one-half inch margins (top, bottom, left, and right) for all pages. Use an Arial, Helvetica, Palatino Linotype, or Georgia typeface, a black font color, and a font size of 11 points or larger. A Symbol font may be used to insert Greek letters or special characters; the font size requirement still applies. Type density, including characters and spaces, must be no more than 15 characters per inch. Type may be no more than six lines per inch. Figures, charts, tables, graphics and legends may be smaller in size but must be clear and legible. All relevant literature should be cited in a separate section (Bibliography & References Cited) and is not part of the 8- page limit.

The dissertation proposal should be typed following the outline given below and in the same sequence. The suggested lengths (in parenthesis) are guidelines only; the entire dissertation proposal must not exceed the 8-page limit.

1. Specific Aims (limited to 1 page)

- State concisely the goals of the proposed research and summarize the expected outcome(s), including the impact that the results of the proposed research first involved.
- List succinctly the specific objectives of the research proposed, e.g., to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or clinical practice, address a critical barrier to progress in the field, or develop a new technology.

2. Research Strategy (limited to 7 pages)

Organize the Research Strategy in the specified order using the instructions provided below. Start each section with the appropriate section heading – Background and Significance, Innovation, Approach.

Cite published experimental details in the Research Strategy section and provide the full reference in the Bibliography and References Cited section.

(a) Background and Significance

- Sketch the background leading to this proposal. Summarize important results outlined by others in the same field, critically evaluating existing knowledge.
- Identify gaps that this project is intended to fill. Explain the importance of the problem or critical barrier to progress in the field that the proposed project addresses.
- Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields.

(b) Innovation

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

(c) Approach

- Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the proposal. Include how the data will be collected, analyzed, and interpreted as well as any resource sharing plans as appropriate.
- Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims.
- Point out any procedures, situations, or materials that may be hazardous to personnel and precautions to be exercised.

3. Bibliography & References Cited

List all literature cited. Each reference must include the title, names of all authors, book or journal, volume number, page numbers, and year of publication. While there are no page limitations in this section, it is important to be concise and to select only those literature references pertinent to the proposed research.

Briefly, the research plan should address the following questions: What do you intend to do? Why is the work important? What has already been done? How are you going to do the work? The Dissertation Proposal must be submitted to the DAC two weeks prior to the presentation. Before approval of the dissertation proposal, the student must complete a Responsible Conduct of Research Certification. As discussed earlier (pages 8 and 9), all graduate students must stay current with appropriate laboratory specific online safety trainings. Students participating in projects that involve research with recombinant DNA or human or animal research must participate in required trainings and have relevant committee approvals.

Dissertation Proposal Seminar

The student will present the research proposal in a public seminar. This is done in the context of a one-credit course (Dissertation Proposal Seminar (GMS 6964)). The student will give a PowerPoint presentation of the

proposed research. The DAC will specifically evaluate the following:

- a) Has the student demonstrated the ability to design a feasible project?
- b) Has the student shown a reasonable knowledge of the literature regarding the project?
- c) Has the student presented the proposal (both written and oral) in a scholarly fashion?
- d) Has the student demonstrated competent scientific knowledge with respect to overall fundamental principles and applications in biomedical science?
- e) Does the proposed research constitute an acceptable and feasible dissertation project?

This will be achieved through an oral question and answer component within the scheduled time of the dissertation proposal seminar. The DAC chairperson will (i) ensure that the proposal exam is held to a reasonable length of time; (ii) ensure that the student is evaluated fairly and rigorously; and (iii) see that a written evaluation is promptly prepared and sent to the student and to the Graduate Program Director. The oral presentation and examination will occur consecutively in a single session.

Admission to Candidacy

The formal admission to PhD candidacy occurs when the student successfully completes:

- The required courses with a GPA ≥ 3.0
- Passes the Qualifying Examination
- Prepares a Doctoral Dissertation Proposal
- Successfully defends the content of the dissertation proposal before his/her DAC

Immediately following the proposal defense, the student's DAC will vote to admit the student to candidacy. Admission to candidacy requires unanimous agreement of the committee members that the student has passed the examination. A candidacy examination may not be passed conditionally. A "Pass" on the examination cannot be made contingent upon other factors such as the completion of additional coursework or the preparation of extra research projects. Students will be informed in writing of the results of their performance on the examinations within 30 days of the examination date.

If the student fails the candidacy examination, the DAC, at its discretion, may provide for reexamination at a mutually satisfactory time, but no more than one year from the original date of the examination.

Passing the candidacy examination is requisite to continuing in the doctoral program. Students who fail the candidacy examination twice will be dismissed from the graduate program.

After a doctoral student is admitted to candidacy, continuous registration for at least 3 dissertation credit hours each term (including the summer term) is required until the dissertation requirements are fulfilled. During the academic year, international students must maintain full-time enrollment. Failure of a graduate student to comply with this requirement will result in dismissal from the program. A student who finds it necessary to be excused from registration must formally request a leave of absence from the graduate program.

Electives

Students must complete electives totaling at least 5-credits. Single credit courses that represent workshop, lab meetings, departmental journal clubs, etc., do not fulfill the elective requirement. Examples of courses that qualify as electives are listed in page 9. Students should consult with their dissertation advisor to determine an appropriate curriculum of elective courses. Students must complete the elective requirements prior to submission of their

dissertation.

Dissertation and Dissertation Defense

A dissertation is required of all candidates for the PhD degree and must conform to the standards of presentation as described in the [University Graduate School Dissertation/Dissertation Manual](#). A prerequisite for the dissertation defense is publication or submission of peer-reviewed papers. It is expected that the student will be the first or senior author of at least one of the peer-reviewed publications.

The Dissertation Defense Seminar (GMS 7981) will take place after the dissertation is submitted in a final form and approved by the DAC. Changes recommended at the time of the defense may be incorporated subsequently. The dissertation should be submitted to the DAC at least four weeks prior to the expected defense date to permit the members adequate opportunity for review.

After submission of the dissertation and completion of all other prescribed work for the PhD degree, the degree candidate will submit to the Dean of the University Graduate School a Request for Oral Defense ([Form D-5](#)). This request must be approved by the DAC and the Dean of HWCOM. Form D-5 must be submitted to the University Graduate School at least 3 weeks before the date of the defense or by the deadline (whichever date is earlier). The University Graduate School publishes their [deadlines](#) for dissertation submission on their website.

If the student does not comply with these deadlines, then s/he may be forced to enroll for another term to be able to graduate. Students are encouraged to meet with their advisor to ensure that there are no delays in the graduation process. To apply for graduation, students must log into their [MyFIU portal](#) and select "Apply for Graduation" under the Academics drop down menu. Graduation application deadlines are available on the [Academic Calendar](#).

The Dissertation Defense Seminar announcement is an invitation to members of the University community to observe and participate in the defense. The defense must be held on a business day during the regular term. The defense must occur at the time, date and place of the announcement and all committee members must be in attendance. The defense announcement must be posted at least two weeks prior to the defense and will include at least the following information:

- A concise one-page description of the dissertation
- Dissertation title
- Student's name
- Dissertation committee chairperson's name
- College and department
- Date, time, and place of the defense

The oral presentation is followed by defense of the dissertation to the DAC in closed session. Following the examination, the DAC evaluates the performance in the candidate's absence and votes to pass or fail the candidate.

Final Approval of Dissertation

The vote is recorded on FIU University Graduate School - [Final ETD Approval Form](#). Completed Final ETD Approval form must be submitted in accordance with the HWCOM and University Graduate School deadlines. Successful completion of all of these steps will culminate in the granting of the PhD degree.

Online Dissertation Milestones

Dissertation milestones mark the progress of a doctoral candidate's progress toward completing the dissertation and are major components that contribute to the completion of a doctoral program (PhD/EdD/DBA).

The submission of all online dissertation milestones must follow registration, good academic standing, and deadlines requirements. Hence, be sure to comply with all requirements such as guidelines, timelines and deadlines for all dissertation milestones. Furthermore, do make sure to include all required documents, as instructed on each dissertation milestone. The Online Dissertation Milestone – Activity Guide is available at <https://my.fiu.edu/>, under your Student environment, in the Tasks tile.

General Dissertation Milestones described below:

Annual Student Evaluation and Mentoring Plan - Submit annual student evaluations to UGS by May 30.

Program for Doctoral Degree and Application for Candidacy – All coursework must be complete with the required number of credits.

- Pass all comprehensive and qualifying examinations
- Maintain a 3.0 or higher cumulative GPA
- Clear any incomplete grade (s)
- Any transfer of credits must be reflected in the FIU transcript prior to submission of this dissertation milestone
- In general, doctoral students advanced to candidacy with a minimum of 60 graduate credits
- Approved candidacy is required to commence dissertation credits enrollment
- Due to UGS five days prior to the first day of classes in the term in which dissertation credits enrollment will commence

Appointment of Dissertation Committee – Establish dissertation committee by mutual agreement with the student and major professor or co-major professors.

- Must meet the University's minimum composition requirements, <https://policies.fiu.edu/files/780.pdf>.
- Include a 250-Word abstract of your proposed research project (Approximately a one-page, double-spaced document in a Word or PDF format attachment).*
- Include the expertise of your proposed dissertation committee in relation to your proposed research project (in the "Enter Expertise" fields you must state how their expertise will contribute to your proposed research project).*

**Please make sure to provide the 250-Word Abstract (one-page, double-spaced document) and in the "Enter Expertise" fields clearly explain how your proposed dissertation committee will contribute to your proposed research project. Otherwise, this online form will be returned. You will be able to submit a new Appointment of Dissertation Committee accordingly.*

Doctoral Dissertation Proposal – Completion of original research proposal.

- Complete original research proposal
- Complete required Responsible Conduct of Research Certification (RCR).
- If proposal project involves human or animal research, approval memos such as IRB/IACUC/IBC, respectively, are required.
- For all information about RCR, online research training, refer to <https://gradschool.fiu.edu/rcr/>.

Preliminary Approval of Dissertation and Request for Oral Defense – Written dissertation must conform to the standards of presentations as described in the University Graduate School manual for Electronic Theses and Dissertations.

- Public presentation of dissertation to the University Community to be held on a business day during the regular term
- Due at the UGS by no later than three weeks prior to the proposed date (whichever date is the earliest).

Click Here to Learn about the Request for Oral RequestProcess: <https://gradschool.fiu.edu/oraldefensesubmission/>

Final Electronic Dissertation Approval – Final written dissertation for preservation in the University's Digital Commons.

- For SACS accreditation, a full version of the Curriculum Vitae must be provided (this is different from the 2-page VITA).
- For PhD candidates, a Certificate of Completion from Survey of Earned Doctorates is required. Complete this at <https://sed-ncses.org/login.aspx>.

Click Here to Learn about the Final ETD Process: <https://gradschool.fiu.edu/the-final-eta-process/>

Important – Please be advised that towards the end of the term (check academic calendar), you will receive an email from us with instructions to upload your final manuscript to Digital Commons. Hence, it is essential to submit your online Final ETD to us by no later than the due date.

Financial Assistance for PhD Students

Stipend and Tuition

The PhD Program in Biomedical Sciences in association with the University Graduate School offers a limited number of assistantships to support graduate students. These generally fall into three categories: Graduate Assistant (GA), Graduate Teaching Assistant (GTA), and Graduate Research Assistant (GRA). Guidelines for graduateassistantships are available at the University Graduate School site.

Students who receive graduate assistantships must register for a minimum of nine (9) credits during the fall and spring term and six (6) credits for the summer term. All students who receive graduate assistantships should expect the support to continue throughout their period of study provided they maintain a cumulative graduate GPA ≥ 3.0 .

- Year 1: Graduate Assistantship; Stipends and tuition waiver
- Year 2: Graduate Teaching Assistantship; Stipends and tuition waiver
- Year 3 and later: Graduate Research Assistantship; Stipends and tuition waiver from extramural research grants held by the Dissertation Advisor.

Students are also strongly encouraged to apply for extramural and intramural fellowships that they may qualify for (see below). If the Dissertation Advisor loses his/her grant, then HWCOM will provide support contingent on satisfactory student performance.

Students with graduate assistantships are responsible for the per credit tuition fees, term fees, and other

miscellaneous fees as described [here](#).

Medical Insurance Contribution

All students enrolled in the PhD Program as GA, GTA or GRA will receive 75% contribution towards the student health insurance plan. The GA/GTA/GRA is responsible for 25% of the premium, which will be deducted from their biweekly paycheck. For more information on the plan and benefits, please click on [brochure of GA Health Insurance Benefits and Coverage](#).

Students may opt out of the University plan, if they have their own insurance plan, and the insurance company can verify their coverage. For more information, please visit the UGS website on [Graduate Assistant Insurance](#).

Taxes

Any portion of stipend or fellowship used for living expenses is subject to U.S. taxes. The interpretation and implementation of the tax laws is the domain of the [Internal Revenue Service](#). Students may consult a tax expert for advice.

For an international student, the University is required to withhold taxes on the portion of the fellowship used for living expenses unless there is a tax treaty between the student's country and the United States.

Conference Travel Funding

Graduate students are advised to attend and present their research findings at scientific conferences and meetings. For travel funds, students may check with the sponsors of the conference they wish to attend and professional associations in their field. Students may also apply for conference travel funds through FIU's [Graduate and Professional Student Committee](#).

Outside Employment

Students with graduate assistantships are considered to be fully engaged. They are held to a high degree of accountability and are not permitted to have other jobs while they are in the program.

Termination of Graduate Assistantship

Graduate Assistants with a cumulative graduate GPA below 3.0 or who fail to comply with university policies regarding graduate assistantships will have their assistantship cancelled by the University Graduate School. Graduate assistants who fail to maintain satisfactory academic progress may also have their assistantship cancelled by the University Graduate School. Cancellation of an assistantship within an active term will result in reversal of the tuition fee waiver, i.e., the student will become fee liable for all applicable resident or non-resident tuition. Cancellation of an assistantship may also result in termination of the subsidized health insurance. Employment may be terminated at any time if work performance is unsatisfactory.

University Graduate School (UGS) Fellowships

The [UGS](#) is committed to excellence in graduate education and is proud to offer fellowship opportunities for new and continuing students. It is important to note that funding for the fellowships is limited and very competitive. To be considered for specific awards, it is critical to submit a complete application prior to the stated deadline.

Doctoral Evidence Acquisition Fellowship (DEA)

The Doctoral Evidence Acquisition Fellowship is specifically intended to support doctoral students who have no financial support for evidence acquisition activities or those students for whom their current means of financial support would significantly interfere with or preclude their ability to collect the evidence needed for their doctoral research.

Dissertation Year Fellowships (DYFs)

The Dissertation Year Fellowships provide support to highly-qualified FIU doctoral students during the data analysis and writing phase of their dissertation. It is intended to facilitate the timely completion of high-quality manuscripts and dissertations. Students who are conducting outstanding research in their discipline and have established a notable record of publication during their doctoral studies (in comparison to others in their discipline) are favored in the application process. Dissertation Fellows are expected to graduate within one (1) year after receiving the award.

FIU McNair Graduate Fellowship (MNF)

The FIU McNair Graduate Fellowship was created to encourage promising undergraduate McNair Scholars to pursue their graduate education at Florida International University. To be considered for the fellowship a student must be fully admitted to a master's or doctoral degree program at FIU for the term the student is applying for. Preference will be given to students who are entering a doctoral program.

Latin American and Caribbean Graduate Fellowship (LAC)

The Latin American and Caribbean Graduate Fellowship program is designed to promote international education and research between FIU and the countries of Latin America and the Caribbean.

McKnight Doctoral Fellowship (MKF)

The McKnight Doctoral Fellowship program is designed to address the under-representation of African American and Hispanic faculty at colleges and universities in the state of Florida by increasing the pool of citizens qualified with PhD degrees to teach at the college and university levels. Newly admitted doctoral students who have been awarded a McKnight Fellowship from the Florida Education Fund are eligible to receive UGS Enhancement Funding.

Presidential Fellowship (PF)

The Presidential Fellowship is utilized for the recruitment of outstanding PhD-track students to graduate programs at FIU. Each fellowship provides a three-year award package to the fellow.

Why Apply for External Funding?

Even if a student is supported by an assistantship, there are a number of compelling reasons why they should consider applying for external funding:

- There are financial incentives to applying for a fellowship, as fellowship stipends are typically higher than departmental stipends and often cover fees that are not covered by assistantships.
- Receiving external funding allows students to get paid to work on their own research instead of having to perform duties associated with a teaching or research assistantship or having to pay their own way through graduate school.
- The prestige that comes with being awarded external funding conveys to potential employers that the student is someone who takes initiative, can synthesize and explain difficult concepts, and is an excellent writer, all of which are highly sought characteristics in any job market.
- The FIU committee that awards the Doctoral Evidence Acquisition (DEA) Fellowship and Dissertation Year Fellowship (DYF) takes into account whether or not the student has applied for external funding. It is looked upon favorably if the student has previously applied for external funding, successfully or not.
- Applying for external funding is a great experience. It is a chance to improve the student's writing skills, and any work that the student puts towards a proposal will make writing their dissertation that much easier.
- For more information on fellowship opportunities, check this [link](#) at UGS website.

Attendance Policies

The PhD Program in Biomedical Sciences expects mandatory attendance from the students. The objective is to create an effective learning environment to master course content and satisfy performance objectives and learning outcomes.

Instructors may establish specific class attendance requirements and may consider attendance and participation in class in evaluating student performance. During the first week of class, instructors will inform the students of any special requirements and articulate any penalties, including a failing grade that may result for non-attendance.

In general, instructors will excuse students from classes due to their military obligations, jury duty, religious days, illness, serious family emergencies and/or participation in official university activities, i.e., athletic events, artistic performances, curricular activities. Instructors will also offer affected students a reasonable amount of time to complete course work and/or assignments missed during their approved absence.

Only registered students in the PhD program are allowed to attend a class at the university. Lapses in enrollment for two consecutive terms require that the student apply for readmission subject to the admission procedures, criteria, and policies in effect at the time the reapplication is made. Doctoral students who have an approved dissertation proposal on file at UGS are required to be continually enrolled in dissertation (3) credits. At the mid-point of each term, an audit will be conducted to identify graduate students who are active but not enrolled. Graduate students identified as non-enrolled, but with active program status during the term will be required to register for twice the minimum number of credits

during the subsequent term. Students who wish to avoid this penalty need to have a request for a leave of absence approved by the UGS in advance.

Leave Policy

Students working as Graduate Assistants do not earn sick or vacation days. Any leave request is determined by the student's Dissertation Advisor or the Graduate Program Director.

Leave of Absence

A student should request a leave of absence any time they will not be enrolled, even for a single term. Any student wishing to file a leave of absence must do so prior to the start of the term in which they are seeking a leave of absence. A leave of absence request must be approved by the Dissertation Advisor, Graduate Program Director, Dean-HWCOM, and the Dean of the University Graduate School. International students must seek the guidance of the International Scholars and Student Services (ISSS) before submitting a request.

A leave of absence will generally be granted in cases involving personal hardship or family needs. Academic standing is not considered a reason for granting a leave of absence. A graduate student who returns from a leave of absence may be required to make changes to their research committee and/or research plan due to changes that have occurred during their absence.

Excused Absence Policies

Attendance Policy

Attendance policies differ by course and are specified in each course syllabus.

Excused Absences Policy

The excused absence policy is designed to provide graduate students the opportunity to attend to personal matters while minimizing disruptions to the educational setting and the program. Students do not need to request an excused absence to miss non-mandatory sessions.

Excused absences are generally granted for many different planned and unplanned events as listed below. If there is a personal conflict with a mandatory session and a student is unsure of policy or believes an exception to policy is warranted, he or she should consult with the Program Director of the Graduate Program for guidance and assistance. Excused absence requests are generally granted for these unplanned events (submission of supportive documentation may be required):

1. Acute illnesses
2. Accidents
3. Death of an immediate family member
4. Other emergencies on a case by case basis may be granted for:
 - Routine healthcare (nonacute)
 - Religious observances
 - Weddings (of a student or immediate relative)
 - Maternity/paternity
 - Funerals
 - Military orders or officer training
 - Administrative matters
 - Jury duty or other legal matters

- Scholarly activities (presentation of scholarly work at meetings)

Excused absence requests typically are not granted for:

1. Professional, scholarly, or academic activities occurring while a student is on academic probation
2. Weddings (other than that of a student or immediate relative)
3. Graduations
4. Social events
5. Family vacations and reunions

Excused Absences Processes Emergencies

In the event of unplanned absence, students must contact the Office of Academic Affairs, Graduate Programs, at 305-348-4372 as soon as possible.

An Excused Absence Request Form must be submitted to the Office of Academic Affairs. A student absent for 3 or more days due to illness must submit a note written by a health care provider documenting and attesting to the student's illness. A student may be placed on an involuntary leave of absence if an extended illness impairs the student's ability to meet the requirements of graduate school.

Planned absences

All requests for excused absences due to planned activities must be submitted to the Office of Academic Affairs by completing and submitting an excused absence form to the office. These requests should be made at least 4 weeks in advance of the planned absence.

Technology Policies

FIU expects the graduate students to abide by the established policies on the use of information technology. To learn more about information technology policies at FIU, please visit the link: <http://security.fiu.edu>.

E-mail Policy

Only HWCOT faculty, staff students, and other persons who have received permission from the HWCOT Information Technology (IT) office are authorized users of the FIU e-mail systems and resources.

Use of e-mail is permitted and encouraged where such use supports the university's academic goals and facilitates communication between faculty and students. However, if a student uses e-mail in an unacceptable manner, he or she is subject to sanctions, including but not limited to having his or her campus e-mail account deactivated.

Unacceptable Use of E-mail

Unacceptable uses of e-mail include but are not limited to:

- Distributing, disseminating or storing images, text or materials that might be considered discriminatory, offensive or abusive, in that the context is a personal attack, sexist or racist, or might be considered as harassment.
- Using e-mail systems for any purpose restricted or prohibited by laws or regulations.
- "Spoofing," i.e., constructing an e-mail communication so it appears to be from someone else.
- "Snooping," i.e., obtaining access to the files or e-mail of others for the purpose of satisfying idle curiosity, with no substantial academic purpose.

- Attempting unauthorized access to e-mail or attempting to breach any security measures on any email system, or attempting to intercept any e-mail transmissions without proper authorization.
- Sending chain mail that misuses or disrupts resources: E-mail sent repeatedly from user to user, with requests to send to others.
- Introducing any form of computer virus or malware into the network.
- Sending copies of documents in violation of copyright laws.
- Including the work of others into e-mail communications in violation of copyright laws.

Portable Computers and Mobile Devices Policy

Students are required to have their own personal laptop computers and/or mobile devices. Students are responsible for purchasing the required software/hardware necessary to be able to access and complete their assignments. HWCOT-IT does not offer technical support for personal computers. At the time of an exam, students will be using only university computers and not their personal laptops. Students will not be charged any usage fee for loaner laptops during their exams.

Medical Library

The HWCOT Medical library has the primary objective of providing collections and services for the medical and graduate curricula. The Medical Library is located on the third floor of the Green Library at Modesto Maidique Campus.

Books

The Medical Library acquires one print copy of all curriculum-required textbooks. The library also acquires one copy of recommended textbooks that are not available electronically. Each year, the Medical Library acquires new and updated editions to its list of titles. Over the years, the collection is supplemented with additional titles to provide depth.

Journals

The Medical Library has access to over 4,500 biomedical journals, including Cell and other important titles. Additional journals may be requested through departmental chairs.

Articles

Students may request journal articles that are not available online. An interlibrary loan link is located under “Services” at the top of the Medical Library web page. There is no charge for obtaining articles. Articles are delivered by email, usually in 1-3 days.

Databases

Databases are selected for their coverage of knowledge resources commonly used by biomedical researchers. Over 40 biomedical databases are available on the Medical Library webpage. Another 85 related science databases are available on the University Libraries webpage, such as *Biological Abstracts*.

Self-instructional Materials

Library self-instructional materials are available electronically on the webpage. They cover a broad array of information management skills on biomedical topics. They include tutorials on searching medical literature databases, finding and evaluating evidence-based biomedicine research, copyright applications, and other useful topics.

Access – Mobile Apps

Physical access to the Medical Library is accomplished by swiping the Panther I.D. card on the door. If the card is left behind, a doorbell is available to alert the Help Desk staff.

Electronic access to databases, journals, books, and services is through the [Medical Library website](#). Links are also available for recommending book purchases, requesting articles, obtaining a literature search, and downloading mobile apps. Additional science databases are available at this University Libraries [webpage](#).

Academic Misconduct

Code of Academic Integrity

Students enrolled in the PhD Program in Biomedical Sciences must adhere to the principles of conduct and ethics as established in the [FIU Standards of Conduct](#). FIU is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas, and community service. All students should respect the right of others to have an equitable opportunity to learn and honestly to demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of FIU.

Student Pledge of Honor

As a student of this university:

- 1) I will be honest in my academic endeavors.
- 2) I will not represent someone else's work as my own.
- 3) I will not cheat, nor will I aid in another's cheating.

Definition of Academic Misconduct

Students at FIU are expected to adhere to the highest standards of integrity in every aspect of their lives. Honesty in academic matters is part of this obligation. Academic Integrity is the adherence to those special values regarding life and work in an academic community. Any act or omission by a student which violates this concept of academic integrity and undermines the academic mission of the University shall be defined as academic misconduct and shall be subject to the procedures and penalties that follow.

Academic misconduct is defined as the following intentional acts or omissions committed by any FIU student.

Cheating: The unauthorized use of books, notes, aids, electronic sources; or assistance from another person with respect to examinations, course assignments, field service reports, class recitations; or the unauthorized possession of examination papers or course materials, whether originally authorized or not. Any student helping another cheat

may be found guilty of academic misconduct.

Plagiarism: The deliberate use and appropriation of another's work without any indication of the source and the representation of such work as the student's own. Any student, who fails to give credit for ideas, expressions or materials taken from another source, including internet sources, is guilty of plagiarism. Any student helping another to plagiarize may be found guilty of academic misconduct.

Misrepresentation: Intentionally lying to a member of the faculty, staff, administration, or an outside agency to gain academic advantage for oneself or another, or to misrepresent or in other ways interfere with the investigation of a charge of academic misconduct.

Misuse of Computer Services: The unauthorized use of any computer, computer resource or computer project number, or the alteration or destruction of computerized information or files or unauthorized appropriation of another's program(s).

Bribery: The offering of money or any item or service to a member of the faculty, staff, or administration by any student in order to commit academic misconduct.

Conspiracy and Collusion: The planning or acting with one or more fellow students, any member of the faculty, staff or administration, or any other person to commit any form of academic misconduct together.

Falsification of Records: The tampering with, or altering in any way any academic record used or maintained by the University.

Academic Dishonesty: In general, by any act or omission not specifically mentioned above and which is outside the customary scope of preparing and completing academic assignments and/or contrary to the above stated policies concerning academic integrity.

Any violation of this section shall first require a determination as to whether the act or omission constitutes academic misconduct. More information related to academic misconduct and academic misconduct procedures are described in this link <https://dasa.fiu.edu/all-departments/academic-grievances/>

Academic Grievance Procedure

Quality graduate education, especially at the doctoral level, is most effective in an environment of informality, mutual respect, cooperation, and open communication. Since there is a unique relationship between graduate students and faculty members, students in graduate programs must not only satisfy university and departmental standards for their programs, but also the professional expectations of faculty members.

Often grievances grow out of misunderstandings or misperceptions about expectations. Faculty and advisors have an obligation to ensure that graduate students are aware of professional and academic expectations. Graduate students have a concomitant obligation to diligently pursue and satisfy these standards; they are bound to observe and respect the policies, rules and regulations of the University, of their respective departments and of their professors. Many of these grievances should be settled through open communications.

Occasionally, a rift develops that cannot be settled informally. Although graduate students have a right to seek redress for academic grievances, they often forgo their rights so as not to offend the professor. Students should be aware that bringing a formal grievance may have the consequence of damaging the working relationship with the professor, and that any straining of the relationship with the professor may

interfere with learning. When all means of informal resolution have been exhausted, the parties must have a forum in which to seek review and resolution of an academic grievance.

Purpose

The purpose of this policy and procedure is to provide a means for graduate students to seek investigation and possible resolution of academic grievances, as defined below.

Scope of Policy

This policy and procedure covers graduate academic grievances which are defined as any complaint or controversy alleging:

- 2) unprofessional conduct by a professor which adversely affects either a student's ability to satisfy academic expectations, whether in the classroom, the field, or a lab, or the student's actual performance
- 3) improper admission counseling
- 4) improper counseling by an advisor
- 5) arbitrary grading for coursework, comprehensive examination, thesis or dissertation
- 6) arbitrary non-renewal of a graduate assistantship or arbitrary dismissal from a course or program

This policy does not address issues related to sexual harassment or discrimination based on age, sex, religion, race, marital status, national origin or disability. The Equal Opportunity Programs office is responsible for handling such issues in accordance with procedures developed to comply with the Florida Equity Act. If the graduate student alleges unauthorized utilization of thesis, dissertation or research materials by a professor, resolution of the issue must be sought using the University's policy: Protocols for Investigating Research Misconduct.

Informal Grievance Procedure

Graduate students must attempt to informally resolve an academic grievance as soon as possible; however, a student must initiate informal resolution by contacting the professor (or Assistant Dean for Graduate Programs) no later than ten (10) university days after classes begin in the term following that in which the complaint arose or the grievance will be deemed untimely. The student must first attempt to resolve the academic grievance through an informal meeting with the professor. If the matter cannot be resolved, or if the professor cannot be reached, the student must meet next with the chair and failing resolution, with the academic dean. If the student's grievance is against a committee, the students must meet with the committee chairperson and the academic dean to attempt informal resolution. A mutually agreeable resolution shall be formalized through a notation in the student's file/record which is initialed by the student and the professor.

If an informal resolution cannot be reached within thirty (30) university days after the initial contact with the professor, then the student has the right to seek a formal resolution of the academic grievance.

Formal Academic Grievance Procedure

The formal academic grievance procedure is initiated by filing a written complaint with the Dean of University Graduate School (http://gradschool.fiu.edu/documents/grievance_form.pdf). The complaint must be filed within fifteen (15) university days of the date the informal resolution process ends, or within twenty (20) university days after classes begin in the term following that in which the complaint arose, whichever is later.

After receipt, the Dean of University Graduate School, in consultation with the Chairperson of the Graduate Grievance Committee, will review the complaint to determine whether it falls within the scope of this policy and whether a formal hearing is wanted. When there are disputed issues of material fact which must be determined, a formal hearing is warranted. If the complaint does not fall within the scope of this policy, then the student shall be notified in writing by certified mail.

A. Graduate Student Academic Grievance Committee

Where a complaint falls within the scope of this policy and there are disputed issues of material fact to be determined, the Dean of University Graduate School will refer the matter to the Graduate Student Academic Grievance Committee. The grievance committee will be composed of five members, two of whom should be graduate students selected by the Dean of University Graduate School from a list of names supplied by the Graduate Student Association (GSA) and/or the academic deans. The other members of the Committee shall be three full-time faculty who have experience with graduate programs. They will be selected from lists supplied by the academic deans and/or the Faculty Senate. The faculty members of the committee will include two faculty members from academic units outside of the school/college where the student is enrolled and where the grievance has been filed. The chairperson of the committee will be jointly selected by the Dean of University Graduate School and the Chairperson of the Faculty Senate.

B. Procedures

A hearing shall be scheduled as soon as possible but no later than 45 university days after receipt of the grievance. The grieving student and the professor shall be notified by the Dean of University Graduate School by certified mail, of the date and time in which to appear for the formal hearing. The hearing shall be conducted with such formality as is necessary to ensure the proceeding is fair and in a manner that allows both sides of the dispute to be presented. The hearing shall be recorded. At the conclusion of the hearing, the members of the committee shall have the opportunity to deliberate outside the presence of the parties. A written report including findings of facts, conclusions and recommendations shall be prepared and forwarded to the Dean of University Graduate School. The Dean of University Graduate School shall issue a written decision within fifteen (15) university days of receipt of the Committee's report. The student and the professor will be sent copies of the Dean's determination by certified mail.

C. Appeals

Any decision of the Dean of University Graduate School may be appealed by either the grieving student or the professor where there is evidence that a significant impropriety in the review process occurred. The appeal must be in writing, specifying in detail the alleged procedural impropriety, and must be filed in the Office of the Provost within ten (10) university days, of the date of receipt of the Dean's decision. The Provost or a designee, shall review the appeal and the record of the formal hearing and issue a decision within twenty (20) university days. The decision of the Office of the Provost is final.

Committees

The following committees oversee various aspects of the PhD Program in Biomedical Sciences.

Recruitment Committee

- Implement best practices and develop strategic recruitment plans to attract quality students to our graduate program
- Employ all resources available through the University Graduate School (UGS)
- Join UGS in their recruitment trips and attend career fairs
- Identify and directly contact potential students
- Develop and distribute promotional materials, such as brochures, posters etc.
- Coordinate mailings and phone calls, and plan and oversee general recruiting efforts

Admissions Committee

- Identify applicants with the greatest likelihood of success in attaining the PhD degree
- Invite local applicants for a face-to-face/Skype interview
- Interview international candidates via Skype video call
- Annually review admission requirements to the PhD program
- Track the success of the admissions process each year
- Provide a written report on the activities and recruitment outcome to the Graduate Dean

Curriculum Committee

- Continuously monitor the effectiveness of the curriculum and propose changes whenever necessary
- Consider requests for changes in the curriculum that may be related to course content or the deletion or addition of courses
- Interact closely with faculty in the development of new courses
- Decide on a uniform grading policy
- Evaluate the grades of the graduate student
- Provide mentoring when student performance is unsatisfactory
- Oversee that the students abide by university policies on the use of information technology
- Oversee that the graduate students have completed all necessary laboratory safety courses
- Ensure that the quality of graduate student training remains consistently high throughout the program

Student Affairs Committee

- Plan and direct graduate student orientation
- Monitor and evaluate the progress of each graduate student
- Identify any problems and bring it to the attention of the student and the dissertation advisor
- Decide on the request from the student to change dissertation advisor or membership of dissertation committees
- Decide on the recommendations by advisors or dissertation committees for student termination
- Provide counseling to aide in the personal growth of the student
- Resolve student grievances
- Decide on student misconduct issues
- Maintain liaison with COM-OSA as well as both internal and external graduate programs
- Oversee extra-curricular activities of the graduate students

Course Descriptions

(GMS- Graduate Medical Sciences; Numbers in parenthesis indicate Credit Hours)

GMS 6103 Molecular Microbiology and Infectious Diseases (3). This course introduces the general principles of infectious diseases and the host response to infection. An overview of microbes (bacteria, viruses, protozoans, prions, and fungi) important to human diseases and disease processes will be presented. Understanding microbial diseases will include discussion of virulence mechanisms, evasion strategies used by pathogens against the antimicrobial immune response, and antimicrobial therapies. Study methods for learning specific pathogens will be introduced in the lectures and through a guided self-learning approach in mentored journal clubs and assignments. Prerequisites: HWCOM Graduate School Enrollment and permission of the Course Director.

GMS 6220 Molecular Genetics and Cellular Biology (6). The course is designed to introduce fundamental concepts in biochemistry, cellular and molecular biology, and genetics with an emphasis on medically-relevant themes. The topics will be presented as lectures, team-based learning activities, and whole class discussions. In addition, students will evaluate current scientific literature related to course topics. Students will also be introduced to responsible research conduct (scientific ethics) as part of the curriculum. Prerequisites: HWCOM Graduate School Enrollment and permission of the Course Director.

GMS 6300 General Pathology (4). This course introduces the molecular and genetic basis of human diseases while emphasizing the basic pathologic processes and vocabulary. Areas covered in this course include: cellular adaptations, necrosis, apoptosis, inflammation, repair, hemodynamic disorders, neoplasia, and pathology as it relates to genetic, nutritional, environmental factors, and blood vessel disorders. Prerequisites: HWCOM Graduate School Enrollment and permission of the Course Director.

GMS 6481 Physiology and Immunology (4). In this course, graduate students will be introduced to the fundamental concepts of physiology and immunology from a biomedical perspective. The objective of this course is to develop a working knowledge of physiology/immunology that will assist the students in evaluating pathology and therapeutic target options. Using an organ-based approach, physiology will be presented by emphasizing the dynamic coordination of molecules, cells, tissues, and systems required to maintain essential processes within the human body. Additionally, students will be exposed to basic immunological concepts and how abnormal immune functions contribute to pathophysiology. Prerequisites: HWCOM Graduate School Enrollment and permission of the Course Director.

GMS 6500 Basic Pharmacology (4). This course is an introduction to the basic principles of pharmacology and looks at drugs mainly from a molecular, cellular, and basic science perspective. The course includes a systematic study of the effects of drugs on different organ systems and disease processes, the mechanisms by which drugs produce their therapeutic and toxic effects, and the factors influencing their absorption, distribution and biological actions. Prerequisites: HWCOM Graduate School Enrollment and permission of the Course Director.

GMS 6605 Basic Structure of the Human Body (3-4). This course gives graduate students an introduction to basic concepts of human anatomy, including embryology, histology, gross anatomy and neuroanatomy. Essentials of early human development, composition of different tissues and organ morphology are taught as the foundation for an in-depth understanding of the physiology of the human body and of pharmacology. Course objectives will be delivered by lectures and different types of laboratory sessions. Prerequisites: HWCOM Graduate School Enrollment and permission of the Course Director.

GMS 6864 Principles of Clinical Epidemiology and Biostatistics (2). This course is an introduction to the elements and foundations of epidemiology and biostatistics. The main perspective is the use of these methods in the practice and research of medicine. Concepts from the sciences of clinical epidemiology and biostatistics will be presented to the student in theory and problem-based scenarios. The course will help the students to understand how clinical information is measured and translated into data for the purpose of research and evaluation, the roles of bias and chance as sources of error, how to control them, and how these concepts constitute the backbone of a scholarly analysis of medical and public health literature and of good clinical practices. Prerequisites: HWCOM Graduate School Enrollment and permission of the Course Director.

GMS 6904 Introduction to Scientific Writing (3). This course is designed to introduce first year PhD students to plan, write, and present scientific materials both as poster and PowerPoint presentations. In addition, the students will write a comprehensive review in a topic of their interest (in consultation with their current/future mentors). The final phase would involve the students learning how to write a NIH-style proposal. Prerequisite: HWCOM Graduate School Enrollment.

GMS 6939 Graduate Seminar (1). A weekly seminar/discussion course consisting of research presentations by students, faculty, and visiting scientists in the area of biomedical sciences will form part of a recurring credit. Prerequisite: HWCOM Graduate School Enrollment.

GMS 6940 Supervised Teaching in Biomedical Science (1). The purpose of the supervised teaching is to expose students to the effective teaching methods and tools, equip them with the skills needed to deliver high-quality instruction, and expose them to the broad scientific topics. Graduate students will assist the faculty members who teach either graduate or medical students. Graduate students will perform such tasks as preparing materials for class lectures, preparing examinations, maintaining records, and tutoring students outside formal classes. Graduate students may be involved in making presentations in laboratories or classrooms, conducting lectures, and leading discussion groups, but not as the teacher of record. This position requires extended knowledge of the subject and should be tested by the teaching faculty, be under the direct supervision of a faculty member experienced in the teaching discipline, receive regular in-service training, and be regularly evaluated.

GMS 6942 Laboratory Rotations (1). Laboratory rotations in specific laboratories of the HWCOM graduate program faculty that will eventually lead to the choice of a dissertation laboratory. Prerequisite: HWCOM Graduate School Enrollment.

GMS 6961 Qualifying Examination (5). The Qualifying Examination determines, in part, the student's eligibility for admission to candidacy for the PhD degree. The examination is designed to test the student's basic knowledge of biomedical sciences, as well as assess creativity and rationality of research design. Prerequisite: HWCOM Graduate School Enrollment. Co-requisites: Completion of all mandatory courses with an overall GPA of 3.0 and no less than a grade of "B" in all mandatory courses.

GMS 6962 Formation of Committee: Appointment of Dissertation Committee: Preliminary Proposal (1). The purpose of the Preliminary Proposal is to select the dissertation committee and define the future research to be conducted, analyzed, and presented in the PhD dissertation. The student submits preliminary research proposal approved by each member of the dissertation committee. Prerequisite: HWCOM Graduate School Enrollment.

GMS 6963 Doctoral Dissertation Proposal (3). Doctoral Dissertation Proposal written in NIH style R01 grant application. The purpose of the proposal is to formulate the detailed plan of the PhD studies. Prerequisite: HWCUM Graduate School Enrollment. Co-requisites: Completion of GMS 6961, and permission of the advisor.

GMS 6964 Dissertation Proposal Seminar (1). After completion of the Qualifying Examination and Dissertation proposal approval, the student must present his proposal to the Dissertation Committee. The student will give a PowerPoint presentation of the proposed research to the members of the dissertation committee. Prerequisite: HWCUM Graduate School Enrollment. Co-requisites: Completion of GMS 6961, GMS 6963 and permission of the Dissertation Advisor.

GMS 6979 Research Credits (1-10). The purpose of this course is to complete the high-quality research study leading to the dissertation proposal. Students will work in the PhD advisor's laboratory towards their future dissertation project. It is expected that they will devote most of their time free from lecture or seminar time to work in the laboratory. The purpose of these activities is to clearly define the area of future dissertation research, to learn the laboratory techniques, initiate experiments to obtain preliminary data, to develop a dissertation research outline, and prepare the Dissertation Proposal.

The students and the Dissertation Advisor should discuss the work schedule of the students, the class time and course load. The Advisor will also recommend the elective courses. Prerequisite: HWCUM Graduate School Enrollment.

GMS 7980 Dissertation Research Credits (1-10). The purpose of Dissertation Research Credits is to complete the high-quality research study leading to the completion of a doctoral dissertation. The focal point of the graduate experience will be the dissertation research conducted under the supervision of the dissertation advisor. To help guide student through this process, s/he will meet every six months with the dissertation advisory committee, comprised of dissertation advisor plus four faculty members with related interests, to discuss the progress of the research, possible ideas for upcoming experiments and sort out what experiments will drive the student project forward. These discussions, which are intended to enhance student critical thinking, form an important part of the intellectual growth as an independent scientist. The students take, on average, 5 years to complete their dissertation from the first day of graduate school to the dissertation defense. The publication of peer-reviewed manuscripts and presentation of the research data in scientific seminars and meetings is expected. Prerequisite: HWCUM Graduate School Enrollment. Co-requisites: Completion of GMS 6964 and permission of the Dissertation Advisor.

GMS 7981 Dissertation Defense Seminar (1). The dissertation defense includes a public seminar followed by defense of the dissertation to the DAC in closed session. Prerequisite: HWCUM Graduate School Enrollment. Co-requisites: Permission of Dissertation Advisor and dissertation committee.