PH.D. PROGRAM IN BIOMEDICAL SCIENCES

STUDENT HANDBOOK

COLLEGE OF MEDICINE

FLORIDA STATE UNIVERSITY

FALL 2012

(Last revised 8/7/2012)

Subject to changes as determined by the faculty
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WELCOME TO THE
PROGRAM IN BIOMEDICAL SCIENCES
COLLEGE OF MEDICINE
FLORIDA STATE UNIVERSITY

INTRODUCTION

This booklet contains information needed for successful completion of your graduate degree program. Please read this Handbook thoroughly. Familiarity with the contents will assist you to make a smooth transition into the Program and Department of Biomedical Sciences, and will help to minimize complications or delays in your training program. Advisors are available for assistance, however, you are responsible for assuring that all requirements are satisfied to meet your planned graduation schedule.

The Handbook is divided into two parts. Part I is an abbreviated, narrative description with tables and other aids to guide you quickly through the requirements for your graduate training. Part II describes in detail the policies and practices of the Program that you need to be familiar with. Part II is in alphabetical order.

Materials in the Appendix include a Progress in Program checklist to assist you in keeping track of program requirements and their deadlines. Also, included are University Catalog descriptions of graduate courses offered in the College of Medicine, courses offered in other departments that are suitable elective courses, and forms that should be completed and turned in to the Graduate Program Office to record satisfaction of various Program requirements.

University Requirements: As a student at The Florida State University you need to meet certain requirements that apply to all graduate students. Important examples of processes governed by University standards include, but are not limited to registration procedures and deadlines, the Qualifying Examinations for Admission to Candidacy for the Ph.D. Degree, the composition and qualifications of your Supervisory Committee, residency requirements, and the defense and submission of your Dissertation. In addition to this Biomedical Sciences Graduate Student Handbook you should become familiar with University requirements described in the FSU Graduate Student Bulletin published by The Graduate School available at http://registrar.fsu.edu/bulletin/grad/.

The degree requirements and other expectations of a graduate student generally are specified in the Program in Biomedical Sciences Student Handbook and FSU Graduate Bulletin for the year that the student entered the Program. These documents are contracts; however, the Program and University reserve the right to change requirements. Requirement changes and
the affected student entry dates are identified in this Handbook. Students with questions about application of requirement changes to their case should contact the Program Director for clarification.

The Director of Graduate Programs, Academic Program Specialist, and Biomedical Sciences Student Support Coordinator are available to provide student counseling about program requirements, registration, financial, housing and more personal matters. Please feel free to contact them as needed. We look forward to working with you and to your successful graduate training!

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PART I. GUIDE TO GRADUATE STUDIES

I.1. Overview of Graduate Training for a Ph.D. in Biomedical Sciences

The specific recommendations listed below assume typical backgrounds. These requirements should be followed unless amended during academic advisement. Amendments may be made if you are exceptionally well prepared, or need to remedy deficiencies indicated by your transcripts and interview.

Your first year should be devoted to orienting yourself to the biomedical sciences, learning about independent research, choosing your Major Professor and the area of concentration of your graduate training, and satisfying initial requirements of the graduate program. Specifically you should

- complete the required course work with a minimum grade point average (GPA) of 3.0*;
- participate actively in laboratory rotations (two required);
- attend seminars regularly offered by the College of Medicine (Grand Rounds) and the Department of Biomedical Sciences seminar series. (You may also wish to attend specialty seminar series in this or other departments.)

In addition, as you near the end of your first year you should

- select your Major Professor and Supervisory Committee;
- design your Program of Studies in consultation with your Supervisory Committee;
- begin research and explore dissertation project opportunities in the laboratory of your Major Professor.

* IMPORTANT NOTE: the University requires that graduate students maintain a minimum GPA of 3.0. A student is placed on academic probation after the first semester with a GPA below 3.0, and will be dismissed from graduate studies after two successive semesters with a GPA below 3.0.

In the second year you should become knowledgeable in your intended field of study, particularly the subspecialty of your Major Professor, become competent in laboratory techniques common to this field, and complete the majority of your formal requirements. Specifically you should

- complete required course work, including elective courses;
- regularly attend seminars as in Year 1;
- make substantial progress in independent research and defining a dissertation project;
- schedule and complete the comprehensive portion of the Qualifying Examinations;
- participate in collaborative research projects in the lab of the major professor;

In the third year you should complete the last formal Program requirements other than the dissertation, including achievement of Admission to Ph.D. Candidacy by passing the Qualifying Examinations, continue to develop knowledge in Biomedical Sciences and your chosen specialty, finalize design of your dissertation project, and make good progress in achieving your project aims. Specifically

- schedule and complete the presentation of your dissertation proposal, required for Admission to Ph.D. Candidacy (Spring of year 3);
- attend seminars as in Years 1 & 2;
- make progress in experiments to achieve the aims of your dissertation project.
Years 4 and 5 should be used to achieve the specific aims of your dissertation research project, to achieve expert knowledge and skills in your specialty area, to achieve broad knowledge in the biomedical sciences, and to publish and publically present major findings of your dissertation research. These years are the opportunity for you to focus on developing research and communication skills expected of a Ph.D. scientist. The time required to complete this phase of your training cannot be given precisely. Important research projects in biomedical sciences require a high degree of sophistication in thought and experimental techniques. Nationally, the average time to the Ph.D. in the life sciences is 5 to 5.5 years, but somewhat shorter and longer times are not unusual. Some students have graduated in as little as four years. Students in the Biomedical Sciences Ph.D. Program are expected to complete their degree within six years unless there are extenuating circumstances. The major uncertainty in the time to achieve your degree is you. Simply put, the students that work hardest and smartest are generally the earliest to graduate.

Specifically you should

- Complete dissertation research
- Present departmental research seminar
- Give research presentation (talk or poster) at a national scientific meeting
- Publish first author manuscript
- Defend dissertation
- Secure position in chosen area of interest (post-doctoral scientist, industry position, teaching position, etc.)
I.2. Summary of Degree Requirements

Following is a list of requirements. Recommendations for a typical semester-by-semester schedule are given in a later section.

I. Required Courses in Approximate Sequence (credit hrs. per semester unless noted otherwise, r=repeatable)

(semester, graduate year)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCB 5595</td>
<td>Advanced Molecular Biology</td>
<td>3 (F; G1)</td>
<td></td>
</tr>
<tr>
<td>STA 5172</td>
<td>Biostatistics</td>
<td>3 (F; G1)</td>
<td></td>
</tr>
<tr>
<td>BMS 5186C</td>
<td>Research Techniques in Biomedical Sciences</td>
<td>3 (F; G1)</td>
<td></td>
</tr>
<tr>
<td>IHS 5935</td>
<td>Health Sciences Seminar</td>
<td>1 (r)</td>
<td>(F, Sp; G1-5)</td>
</tr>
<tr>
<td>BMS 6936</td>
<td>Seminar in Biomedical Sciences</td>
<td>1 (r)</td>
<td>(F, Sp; G1-5)</td>
</tr>
<tr>
<td>BMS 5185</td>
<td>Research Opportunities in Biomedical Sciences</td>
<td>1 (Sp; G1)</td>
<td></td>
</tr>
<tr>
<td>PCB 5137</td>
<td>Advanced Cell Biology</td>
<td>3 (Sp; G1)</td>
<td></td>
</tr>
<tr>
<td>BMS 5525</td>
<td>Bioregulation</td>
<td>4 (Sp; G1)</td>
<td></td>
</tr>
<tr>
<td>BMS 5935</td>
<td>Advanced Topics in Biomedical Sciences</td>
<td>1 (r)</td>
<td>(Su; G1, 2)</td>
</tr>
<tr>
<td>MAT 5933</td>
<td>Responsible Conduct of Research</td>
<td>1 (Sp; G2)</td>
<td></td>
</tr>
<tr>
<td>IHS 5503</td>
<td>Proposal Development</td>
<td>1 (F or Sp; G3)</td>
<td></td>
</tr>
<tr>
<td>IHS 8960</td>
<td>Preliminary Doctoral Examination</td>
<td>0 (r)</td>
<td>(Summer; G2)</td>
</tr>
<tr>
<td>IHS 6980</td>
<td>Dissertation Research (1-12, r)</td>
<td>≥ 24 hrs</td>
<td>required for graduation</td>
</tr>
<tr>
<td>IHS 8970</td>
<td>Dissertation Defense (0, r)</td>
<td>variable</td>
<td></td>
</tr>
</tbody>
</table>

II. Other Requirements

- **Elective Courses**: (9 credits required) to be selected from offerings of GMS 6001. Special Topics in Biomedical Sciences (1-3) or APPROPRIATE GRADUATE COURSES in consultation with the Supervisory Committee. A partial list of applicable courses is provided in the Appendix. (Note: the Supervisory Committee may recommend additional electives to satisfy additional training requirements in certain specialties.)

- **Seminar attendance**: Regular attendance at seminars of the Department of Biomedical Sciences and the College of Medicine (Grand Rounds) is required throughout the graduate training period. Students normally should enroll in the corresponding courses: BMS 6936. Seminar in Biomedical Sciences (1-2), and IHS 5935. Health Sciences Seminar (1). The current University limit nine of (9) credit hours per semester for a full academic load may prevent registration for these seminar courses when a student is taking several required courses, especially in the first year. Regular seminar attendance is expected as a matter of professionalism, whether the student is registered or not for the seminar. (NOTE: The requirement for enrollment in seminar courses will be waived for a Ph.D. Candidate who intends to graduate in the current academic year and otherwise is not able to accumulate the minimum of 24 credit hours of Dissertation Research.)

- **Seminar presentations**: Students are required to give one departmental seminar in order to graduate. In addition, students are expected to give one research presentation (oral or poster) at a national scientific meeting.

- **Laboratory Rotations**: Students in their first year are required to begin research training through rotations in research laboratories of at least two faculty members and enroll in BMS 5186C. Research Techniques in Biomedical Sciences. Rotations are intended to be learning experiences as well as opportunities for students to become
familiar with faculty members and their laboratories before selecting their Major Professor.

- **Qualifying Examinations for Admission to Candidacy**: see Part II for details
- **Publications**: Students are required to publish at least one first author manuscript. The manuscript should describe a significant aspect of the students dissertation research and must be accepted for publication prior to the scheduled Defense of Dissertation.
- **Research and Dissertation**: Perform dissertation research under the direction of a supervising Major Professor. Submit, publicly present, and successfully defend a Dissertation describing an original research project in biomedical sciences. Dissertation Format and Defense of Dissertation requirements are specified by the University. Details are provided in Section II of this Handbook and in the University Graduate Bulletin.
I.3. Registration for Classes

The Program Director and Academic Program Specialist assist students in registering for their first semester of classes after the advisement period.

Students are responsible for selecting courses in subsequent semesters. Prior to the Registration Window students should fill out a Graduate Course Registration Form (see Appendix), have the form signed by their academic advisor, then take the completed form to the Academic Program Specialist. Registration is carried out through the FSU Online Registration and the Biomedical Sciences Registrar (Lilly Lewis). Window dates for FSU Online Registration are published by the FSU Registrar. The COM Enrollment Coordinator will register students for requested classes that are offered in the College of Medicine. COM classes have a BMS, GMS or IHS prefix. Students must use the FSU Online Registration to register for all other classes; that is, classes offered by other Colleges of the University--be sure to pay attention to registration dates to avoid being charged for late fees.

IMPORTANT NOTE: Students are not allowed to carry out Online Registration or register through the COM Enrollment Coordinator if they have outstanding fees of any sort (ordinary or penalty fees such as parking or library fines, late fees, etc.). Please be sure that you have paid all applicable fees before attempting to register by any means.

I.4. Annual Performance Evaluations

Graduate students are expected to perform at a high level and will be reviewed annually for continuation in the Graduate Program. Poor performance and unprofessional behavior are grounds for dismissal from the Program. Evaluations of each student are performed annually according to University policy. Students in the Program are evaluated during the spring semester each year. Evaluations of student performance in the first year are the responsibility of the Program Director in consultation with the Graduate Program Committee and Major Professor. Subsequent annual evaluations are performed by the student’s Major Professor with other members of the Supervisory Committee and reported to the Program Director by the Major Professor. The Graduate Program Committee meets with the student to review progress towards graduation. See Evaluations section in Part II for further details. The Graduate School also keeps a record of the annual review via the Graduate Student Tracking System.

I.5. Detailed Recommendations for Year One

Advising: The Program Director and his assistant will advise you for course registration and other matters when you enter the Program during Orientation week. The Director will continue to serve as your advisor for the first two semesters or until you have selected a Major Professor.

Living Stipend, Tuition and Fees: Your stipend and tuition are paid through the College of Medicine offices, regardless of funding source. The Academic Program Specialist in the Division of Research, Graduate and Undergraduate Programs will assist you in processing forms needed to pay tuition and to receive your stipend before the first semester. Each subsequent semester you are required to sign a Graduate Waiver Receipt Form agreeing to waiver policies. These forms become part of your permanent file stating that you are liable for tuition should you withdraw from the University. Any questions you have regarding these forms can be answered by the Academic Program Specialist.
Student fees must be paid directly by you each semester. University practices do not allow direct payment of student fees by the College. For this reason your biweekly stipend is increased by an amount that will compensate you for the cost of fees you incur during the year. Please note that you must budget accordingly so that you can pay fees due each semester on time. The Program cannot reimburse you for any penalties incurred for late payment of normal fees or late registration. You are also responsible for costs of services such as parking and healthcare. See University sources on these matters.

**Schedule of Classes:** You should register for the following courses in the indicated semesters unless advised otherwise. Credit hours for each course are listed in parenthesis ( ).

**Fall Semester:**
- PCB 5595 Advanced Molecular Biology (3)
- STA 5172 Biostatistics (3)
- BMS 5186C Research Techniques in Biomedical Sciences (3)

**Spring Semester:**
- PCB 5137 Advanced Cell Biology (3)
- BMS 5525 Bioregulation (4)
- BMS 5185 Research Opportunities in Biomedical Sciences (1)
- IHS 5935 Health Sciences Seminar (1)

**Summer Semester:**
- BMS 5935 Advanced Topics in Biomedical Sciences (1)
- BMS 5905 Directed Independent Study in Biomedical Sciences (8)

**Other Requirements (Year 1)**
- **Seminar Participation:** Attendance at Health Sciences Seminar (Grand Rounds) and Biomedical Science Seminar series in the fall and spring semesters.
- Selection of **Major Professor** before end of spring semester.
- Selection of **Supervisory Committee** before end of summer semester.

**I.6. Recommendations for Year Two**

You, your Major Professor and the other members of your Supervisory Committee should meet during the fall semester of your second year to determine the courses in your Program of Studies. Normally you should expect to accomplish the following in the second year.

- Take appropriate elective courses. You may take elective courses in other departments that are consistent with your training goals. The Supervisory Committee may recommend electives beyond the minimum nine hours to satisfy additional training requirements in your specialty area. (You may also choose to change or add courses to your Program of Studies as new offerings become available. The Program of Studies should be reviewed and updated annually.

- Regularly attend seminars as in year one and enroll in **IHS 5935: Health Sciences Seminar (1)** and **BMS 6936: Seminar in Biomedical Sciences (1)** in the fall and spring semesters.
- Enroll in **BMS 5935: Advanced Topics in Biomedical Sciences (1)** in the summer semester.
- Enroll in sufficient credit hours of **BMS 5905: Directed Independent Study in Biomedical Sciences (1-12)** in addition to other courses to achieve 9 credit hours per semester.
- Schedule and complete the comprehensive examination portion of your Qualifying Examinations with your Supervisory Committee during the summer semester.
I.7. Requirements in Additional Years

- Write and present your dissertation research proposal, normally by the end of the fall semester of Year 3. You should enroll in **IHS 8960: Preliminary Doctoral Examination (0)** and **IHS 5503: Proposal Development (1)** in the semester in which you intend to defend your dissertation research proposal. (Note: After you successfully present and defend the dissertation proposal you have passed the Qualifying Examinations and qualify for admission to Candidacy for the Ph. D. Degree.)
- Regularly attend seminars as in prior years and enroll in **IHS 5935: Health Sciences Seminar (1)** and **BMS 6936: Seminar in Biomedical Sciences (2)** in the fall and spring semesters. (NOTE: The requirement for enrollment in seminar courses will be waived for a Ph.D. Candidate who intends to graduate in the current academic year and otherwise is not able to accumulate the minimum of 24 credit hours of Dissertation Research.)
- Present the required research seminar and give research presentation (talk or poster) at a national scientific meeting
- Register for sufficient hours of **IHS 6980: Dissertation Research (1-12)** in addition to regular classroom and seminar courses to satisfy the enrollment requirements for the semester (currently nine (9) credit hours; subject to change). Complete a minimum of 24 hours of Dissertation Research to qualify for graduation.
- Submit and have accepted at least one first author publication to a peer-reviewed journal
- Write and defend your dissertation. Enroll in **IHS 8970: Dissertation Defense (0)** in the semester in which you plan to defend your dissertation.

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro to Applied Stats</td>
<td>Bio-Regulation</td>
<td>DIS</td>
<td>DIS</td>
<td>DIS</td>
</tr>
<tr>
<td>Health Sciences Seminar</td>
<td>Health Sciences Seminar</td>
<td>Health Sciences Seminar</td>
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<tr>
<td>Biomedical Sciences Seminar</td>
<td>Biomedical Sciences Seminar</td>
<td>Biomedical Sciences Seminar</td>
<td>Biomedical Sciences Seminar</td>
<td>Biomedical Sciences Seminar</td>
</tr>
</tbody>
</table>

- **Required Course, semester indicated**
- **Required Course, semester variable**
- **Required Seminar**
- **Non-scheduled times: DIS or Dissertation**
PART II: POLICIES, PRACTICES AND REQUIREMENTS

II.1. Admission to Candidacy for the Ph.D. Degree

The University does not award a student official Candidacy for the Ph.D. degree until he/she has met Program/Department requirements and has demonstrated basic competencies necessary for successfully completing the independent scholarly activities and dissertation for the Ph.D. degree. These competencies are assessed, in part, by the Qualifying Examinations. A student is awarded ‘Admission to Candidacy for the Ph.D. Degree’ after they pass both components of the Qualifying Examinations. Students should submit the appropriate approval form (provided in the Appendix), signed by the Supervisory Committee, to the Academic Program Specialist (Lilly Lewis).

Students are expected to complete the requirements for Admission to Candidacy during the third year of graduate studies unless there are extenuating circumstances. Students are eligible to register for IHS 6980. Dissertation Research (1-12) after their Supervisory Committee approves Admission to Candidacy. A student must complete a minimum of twenty-four (24) credit hours of IHS 6980 ‘Dissertation Research’ in order to graduate with the Ph.D. degree. The FSU Registrar must receive a completed ‘Admission to Candidacy’ form signed by the Dept. of Biomedical Sciences Chair and submitted by the Program/Department office before a student will be allowed to register for Dissertation Research. This form is available at http://registrar.fsu.edu/services/images/admiss_to_candidacy.pdf. Additional details about the Admission to Candidacy process are described in the later section on the Qualifying Examinations.

II.2. Advisement

Year 1: Entering students are advised by the Graduate Program Coordinator and Graduate Program Committee until they select a Major Professor. The Program Director will also explain procedures and provide advice for selecting laboratory rotations and a Major Professor.

The Major Professor is the principal advisor and mentor of a graduate student after the first year. Academic and other advice and counseling are available to the student and Major Professor from the Graduate Program Director, the Academic Program Specialist, the Biomedical Sciences Student Support Coordinator, and the Associate Dean for Research and Graduate Studies. Students are particularly encouraged to become acquainted with the Academic Program Specialist and the Biomedical Sciences Student Support Coordinator, both of whom provide valuable assistance to students on a variety of matters.

The following individuals are available to provide student counseling. Generally speaking, the Graduate Program Director (J. Michael Overton) most commonly addresses questions about Program requirements and academic status/evaluations; the Academic Program Specialist (Lilly Lewis) processes applications for admission, addresses employment and other issues of newly entering students, serves as Enrollment Coordinator enrolling students in COM courses, provides advice on registration procedures, and assists students throughout their academic career offering advice on a variety of issues; and the Biomedical Sciences Student Support Coordinator (Jonquil Livingston) maintains records of students’ performance, maintains correspondence with program...
alumni, collects valuable data for program evaluations and for grant applications, and assists with numerous social events for the department.

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Jonquil Livingston, Biomedical Sciences Student Support Coordinator
Department of Biomedical Sciences, RM 3350-A
Phone: (850) 645-8379, E-mail: Jonquil.Livingston@med.fsu.edu

II.3. Assistantships and Fellowships (Financial Support)

Program-Based Assistance: It is the intent of the Program to assure that all students receive financial support during their graduate training. Graduate students are supported on an assistantship from Graduate Program funds during the first year of training. The Major Professor is normally expected to support a student on a Research Assistantship (RA) from external grant funds in the first year after the student is accepted for mentorship; and to support the student on an RA in successive years if grant funds are available. Students are also strongly encouraged to apply for external and University fellowships that they may qualify for (see also below). If insufficient funds are available from grant sources or fellowships, the Program provides support contingent on satisfactory student progress in his/her degree program and availability of funds.

External and University Fellowships: Fellowships supporting graduate education are available on a competitive basis from a number of government sources and private foundations. In addition, Florida State University annually makes available on a competitive basis several fellowships to graduate students of all disciplines. Students are encouraged to apply for all sources of graduate fellowships as they may reasonably qualify for, both before and after they enroll in the Program. Receipt of an external competitive fellowship is a significant honor. The College of Medicine Division of Research, Graduate, and Undergraduate Programs and the University Office of Research can be consulted for details on fellowship programs. Students submitting a fellowship application that involves completion of a substantial research proposal (e.g. NIH, NSF) will be allowed to use this research proposal as part of their Qualifying Examinations requirement.

Receipt of a FSU fellowship of any type also is a worthy honor and assists the Program. Entering students may qualify for a College Teaching Fellowship or a McKnight Black Doctoral Fellowship. University Dissertation Fellowships are available for students entering their final year of graduate studies. University Fellowships are available to all graduate students. (Note: according to University sources, applicants with less than either a combined aptitude score of 1200 on the Graduate Record Examination or an undergraduate grade point average of 3.5 on a 4.0 scale stand little chance of receiving a University Fellowship unless one or the other is superlatively high, or
letters of recommendation are exceptionally laudatory.) Information and applications are available from the University website [http://www.gradstudies.fsu.edu/Funding-Awards/Graduate-School-Fellowships](http://www.gradstudies.fsu.edu/Funding-Awards/Graduate-School-Fellowships). Applications should be submitted through the office of the Biomedical Sciences Ph.D. Program.

**II.4. Course and Credit Requirements**

*Transfer of Course Credits from Other Institutions:* Courses taken at another institution cannot substitute for Program core courses and normally do not confer official credit towards the Ph.D. degree. Courses from other institutions may contribute otherwise to the overall training program of a student and be listed on the official Program of Study form, however, whether they are transferred with credit or not. *One graduate-level course from another institution may satisfy one Program elective requirement of a student, at the discretion of his/her Supervisory Committee.* See the current Florida State University Graduate Bulletin for regulations on official transfer of course credit from another recognized graduate school to be listed on a student’s Florida State University permanent record. Grades earned at another institution cannot be used to improve a grade point average at the Florida State University.

*Approval of Credits from Florida State University Courses taken prior to admission:* Graduate courses completed at FSU with a B grade or better normally will be approved for credit towards course requirements in the Biomedical Sciences Ph.D. Program. Students should formally petition the Program in writing to receive approval of credit for courses taken prior to admission.

**II.5. Dissertation Preparation and Defense**

Dissertation research is expected to be original and to make a significant contribution to the scientific discipline as judged by scientific peers. Students are expected to submit their dissertation research for publication in peer-reviewed journals prior to completing the dissertation. The dissertation becomes a published document and serves as a compendium of the background, aims, experimental strategies and results, and significance of the dissertation research. Standards for the detailed format of the dissertation are specified by the University. See The Graduate School website for details on dissertation preparation and review, and other requirements for graduation: [http://www.gradstudies.fsu.edu/](http://www.gradstudies.fsu.edu/). Students should enroll in IHS 8970: Dissertation Defense (0) in the semester in which they intend to defend the dissertation.

**IMPORTANT NOTES:**

1. Students are advised to plan well in advance for completing graduation requirements. The dissertation must be successfully defended and approved by The Graduate School at least four (4) weeks prior to the end of the semester in which a student intends to graduate.

2. At least two weeks prior to the date of the defense, the student must present an announcement of the dissertation title and the date and place of the examination to The Graduate School. [http://netprod.oti.fsu.edu/Defense_Announcement](http://netprod.oti.fsu.edu/Defense_Announcement). Consult the Registration Guide for the deadline dates. [http://registrar.fsu.edu/dir_class/apdefault.htm](http://registrar.fsu.edu/dir_class/apdefault.htm).

3. *Use of technology during the dissertation defense:* All committee members and the student must attend the entire defense in real time, either by being physically present or participating via distance technology. Individual departments may impose stricter requirements on physical attendance, e.g., all members must be physically present. Departments and other
degree-granting programs must publicize their policy on defense attendance in their Graduate Student Handbook and in the relevant section of the Graduate Bulletin. If exceptional emergency circumstances, e.g. medical or other emergency situations prevent the participation of a committee member then it may be necessary to arrange for an additional appropriately qualified colleague to attend the defense. A minimum of four members with Graduate Faculty Status must participate.

II.6. Elective Courses
The Program requires that a minimum of three elective courses (9 credit hours) be included in the Program of Studies. Students are encouraged to complete these courses during the second year in residence if the schedule of course offerings allows. The minimum number of elective course hours should be satisfied before Admission to Candidacy. Elective courses can be selected from offerings in the College of Medicine or from graduate or selected senior undergraduate (4000) level courses in FSU departments in the life or physical sciences. A list of approved courses offered by other departments is included in the Appendix II.

II.7. Employment Outside the Program
Graduate studies should be engaged as a full-time endeavor except under extraordinary circumstances. Students who are supported on a full value fellowship or assistantship are considered to be fully engaged and are not permitted to hold employment outside the Program. Small, non-recurrent tasks for which compensation is received, such as occasional tutoring, are permitted.

II.8. English-Speaking Policy
The ability to communicate in spoken English is a necessary component of training in this graduate Program in Biomedical Sciences. Entering international students who do not appear to be sufficiently fluent in English to be effective learners will be required to take remedial actions. A student who does not become competent in spoken English is unlikely to perform well in classes and will not be able to successfully complete Program requirements such as seminar presentations, teaching and the Qualifying Examinations. The University requires that students who are teaching assistants meet established standards for English speaking and comprehension consistent with the teaching assignment. Failure to meet these requirements will disqualify a student from participating in teaching opportunities.

The Department values the enrichment provided by international students in the program and understands when international students are not fluent in English upon their arrival to FSU. All international graduate students who are not native speakers of English should take the SPEAK (Speaking Proficiency English Assessment Kit) test upon arrival to campus. The SPEAK test is administered by the Center for Intensive English Studies to international students who have been appointed or will be appointed as teaching assistants in an academic department at Florida State University. (Students who scored a 26 or higher on the speaking portion of the IBTOEFL are exempt from this requirement). Students must score a 50 or above on the SPEAK test in order to participate in teaching. If this score is not attained it will be necessary for the student to enroll in English competency courses in order to improve their skills and the SPEAK test will need to be
II.9. Enrollment Requirements

The Program and University considers all graduate students to be full-time students and requires each student to register for 9 hours in the fall, spring and summer semesters. University regulations and liability clauses require such enrollment practices. Exceptions are made only for students who are not financially supported by Program or University funds and are in their final term prior to graduation (see below).

Unsupported student in final term: An unsupported student in his/her last term, whose only task is the writing of his/her dissertation or thesis, may petition the Graduate Program Committee to register for a reduced load. This action should be taken before the semester begins. A minimum 2-hour load generally applies to students who are still on campus and are utilizing Departmental facilities. In no case should a student registered for fewer than 2 hours continue to perform research. Only one term of a reduced load is permitted, hence students who have not completed the defense of their dissertation or thesis during the term in which they are registered for a reduced load must adhere to the 9 hour per semester minimum in all subsequent terms.

II.10. Evaluations—Annual Performance

Graduate students are expected to perform at a high level and will be reviewed annually for continuation in the Graduate Program. Poor performance and unprofessional behavior are grounds for dismissal from the Program. An annual review of the performance of each student is required by the University. Performance review of students after their first year is the responsibility of the Graduate Program Committee. Evaluation after the end of the first year is based primarily on performance in courses and rotations.

Reviews after the second and successive years are performed by the Major Professor and the Supervisory Committee as well as the Graduate Program Committee. An annual performance evaluation should be conducted before the end of each spring semester. Prior to the annual evaluation, the student in his or her second or successive years should provide the Supervisory Committee with a written summary of activities using the Annual Progress Report form provided in the Appendix. This written report serves as a basis for discussions between the student and Committee, and a final Committee evaluation. The student summary of activities and a written evaluation prepared by the Committee should be signed by the student and Supervisory Committee members and submitted to the Program Director by March 30.

 Unsatisfactory Progress: Participation of a graduate student in the Graduate Program is predicated on satisfactory progress towards the degree and consistent demonstration of Professionalism. Students may be dismissed with ‘due cause’. ‘Due cause’ must be based on a record of unsatisfactory progress documented in the annual and any interim evaluation(s) of the student, including failure to complete clearly defined and achievable performance objectives. The Major Professor and Supervisory Committee participate in setting objectives, annual evaluations and final decision processes; and are expected to assure that acceptable standards of due process and fairness are met. If the Supervisory Committee concludes from the annual evaluation that a student is making unsatisfactory progress, then performance objectives for the next semester

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or year, as judged appropriate, should be established by the Supervisory Committee and communicated to the student and the Graduate Program Director in writing. The Program Director may participate in these proceedings as an *ex officio* member of the Supervisory Committee. Subsequent ‘Unsatisfactory’ evaluations may serve as a basis for withdrawal of student financial support and assignment to a different Major Professor, withdrawal of Doctoral Candidacy status with an option for an M.S. degree (see sections below) or dismissal from the Program.

**II.11. Fees on Registration**

Your stipend and tuition are paid through College of Medicine offices, regardless of funding source. Student fees, however, must be paid directly by you each semester. University practices do not allow direct payment of student fees by the College. For this reason your biweekly stipend is increased by an amount that, by year end, will compensate you for the cost of fees you incurred during the year. You must budget accordingly so that you can pay fees due each semester on time. The Program cannot reimburse you for any penalties incurred for late payment of normal fees or late registration. You are also responsible for costs of services such as parking and [healthcare](#). See University sources on these matters.

Please note that all pending penalty or other fees **MUST** be paid before you can register for the upcoming semester.

**II.12. Florida Residency Status**

Out-of-state tuition is charged to the Program for all first year students who are not Florida residents. Students with US citizenship who are not Florida residents are expected to apply for Florida residency as soon as they are eligible for in-state tuition. International students are not eligible for Florida residency or in-state tuition by current Florida law. All students who are eligible for Florida residency **MUST** meet with the Academic Program Specialist upon arrival to begin filing the appropriate paperwork. Failure to apply for in-state residency will require the student to be held responsible for future out-of-state tuition costs.

**II.13. Healthcare**

Care for common maladies is available at the Thagard Health Center on the FSU main campus. The University requires that students provide proof of health insurance. Students who do not already have health insurance must purchase health insurance coverage and are eligible for limited financial aid. Please see the FSU Graduate Handbook or contact The Graduate School for details.

**II.14. Laboratory Rotations**

Admitted students should plan to meet with prospective rotation faculty during orientation week. Each student will do one rotation during the fall semester. The Program Committee and student will work to match up admitted students and rotation mentors.

Students are expected to submit a brief report of their research activities during the rotation period before the end of the fall semester to the Academic Program Specialist (Lilly Lewis). Faculty
supervisors provide a brief evaluation of each student’s performance during the rotation period. Supervisor evaluations are components of the annual review of first year students.

**During the fall semester, students should identify at least one additional laboratory in which to rotate during the spring semester. Additional rotations are permitted as necessary. After completing at least two rotations the student, in consultation with the Program Director, should identify a Major Professor. Reports should be submitted for all rotations.**

### II.15. Major Professor

**Major Professor Role and Selection:** The Major Professor is the principal advisor and mentor of a graduate student. A student’s choice of Major Professor has a substantial influence on his or her graduate training, field of expertise, satisfaction with the training experience, and ultimate employment.

Some students may have adequate expertise and focus to permit selection of a major professor upon admission to the Program. For all students, the Program encourages a thoughtful and deliberate approach to selecting a Major Professor. Laboratory rotations, the research techniques course and department seminar programs provide valuable means for students to become familiar with potential Major Professors.

A Major Professor should be selected by the end of the first year of graduate training. A formal notification form available from the Graduate Program Office and signed by the student and Major Professor should be used to report the choice of Major Professor to the Director and Academic Program Specialist (Lilly Lewis).

**Change of Major Professor:** Students have the right to change Major Professor in the event they believe there is irreconcilable disagreement or incompatibility. Students are advised that the earlier such a decision is made, the better for all parties, and that such a change may delay completion of the Ph.D. degree requirements.

### II.16. Minimum Grade Point Average

The University requires that graduate students maintain a minimum grade point average (GPA) of 3.0 in order to remain in good academic standing. A student whose aggregate GPA falls below 3.0 in a given semester will be placed on academic probation for the following semester. Failure to improve the GPA to 3.0 or better in the subsequent semester is cause for automatic dismissal from The Graduate School and Program unless there are extenuating circumstances. **Students who anticipate that their GPA may fall below a 3.0 should consult with the Program Director and Major Professor (if selected) prior to registering for the subsequent semester to determine the best course of studies to remedy the GPA deficiency.**
II.17. Program of Studies

The Supervisory Committee, in consultation with the Major Professor and student, determines the Program of Studies the student shall complete prior to Admission to Ph.D. Candidacy. The Program of Studies consists of the required and elective courses that constitute effective graduate training in the student’s chosen specialty as mutually agreed upon by the student and Supervisory Committee. The Program of Studies commonly includes graduate courses from other departments in the University, and in some cases may include courses beyond the minimum nine credit hours of electives to satisfy training needs of the student’s research specialty. The Program of Studies should be reported to the Graduate Program Office on the form provided when registering for spring courses in year two. The student should strive to complete the courses specified in the Program of Studies by the end of the second year in residence, but may be required to extend the time to completion into the third year because of limited course availability.

II.18. Publication of Dissertation Research

Students are strongly encouraged to publish research findings throughout their graduate training. Students entering in August 2010 or later are required to publish at least one peer-reviewed manuscript describing a significant aspect of their dissertation research prior to graduation. Evidence of acceptance of the manuscript by the Editor shall be considered to constitute ‘publication’ for the purposes of this requirement.

II.19. Qualifying Examinations and Admission to Candidacy for the Ph.D. Degree

All students seeking the Ph.D. degree must pass Qualifying Examinations before they can receive Admission to Candidacy for the Ph.D. degree. The Ph.D. Program in Biomedical Sciences administers this examination in two parts. Part I is a comprehensive exam consisting of written component that will be followed up by an oral defense of the written responses within the same semester. The written comprehensive examination is conducted within the sixth semester in residence, normally the summer semester of the second year. Part II consists of the development of a dissertation research proposal that is also orally defended prior to approval by the Supervisory Committee. This should be completed no later than Spring of the third year. The dissertation research proposal should be submitted in writing and presented orally by the end of the seventh semester in residence, normally the fall semester of the third year. This schedule for completing the Qualifying Examinations may be extended by the Supervisory Committee due to extenuating circumstances, but all students are expected to attempt both parts of the Qualifying Examinations within the third year of residence. A student who has not completed the Qualifying Examinations by the end of the summer semester of the third year in residence may be dismissed from the Ph.D. Program for failure to make adequate progress towards the degree, subject to review by the Program Director and Graduate Program Committee in consultation with the Supervisory Committee. Students should register for IHS 5503. Proposal Development (1) and IHS 8960. Preliminary Doctoral Examination (0) in the semester in which they plan to defend their dissertation proposal, completing the Qualifying Examination.

Students attempting either part of the Qualifying Examination may receive a Pass, Partial Pass, or Fail as described below. A student who has received a ‘Pass’ on both parts of the Qualifying Examination will be advanced to Candidacy for the Ph.D. Degree in Biomedical Sciences.
Students who are admitted to Ph.D. Candidacy are eligible to register for IHS 6980. ‘Dissertation Research’ in subsequent semesters.

**Part I: The comprehensive examination part of the Qualifying Examinations** is designed to assess the student's ability to comprehend and integrate knowledge obtained in formal course work, knowledge relevant to his or her field of specialization gained through experience or assigned readings, and knowledge of major advances as presented in special topic courses and required seminars. The student’s Supervisory Committee composes and administers the comprehensive examination portion of the Qualifying Examinations. The exact format of the examination is determined by the Supervisory Committee and may consist entirely of closed book questions or a mixture of closed book and open book questions. The Supervisory Committee as a whole determines the general content and format of the examination questions and provides the student with guidance on preparation for the examination questions. After all written questions are completed, the Supervisory Committee will assess the student’s performance on the examination and meet with the student to ask for clarifications and pose additional questions to the candidate.

**Possible outcomes of the comprehensive examination**

**Pass:** The student is considered prepared to continue work towards completion of the Qualifying Examinations and should complete a dissertation proposal before the end of the spring semester of the third year. The student should register for IHS 5503. Proposal Development. (1). (S/U grade only.) in the semester intended for presentation of the dissertation proposal.

**Partial Pass:** If deficiencies were noted in a minority of responses, then the Supervisory Committee will make recommendations to the Graduate Program Committee for remedy of these deficiencies. Remedies depend on the degree of deficiency and may consist of assignments such as retake of examination question(s), writing a paper, presentation of a seminar, or completing a course with a grade of B or better. The Graduate Program Committee will review the student’s performance on the examination and prior performance in the Program and may accept, modify or reject the recommendation of the Supervisory Committee. If necessary, the Graduate Program Committee will meet with the Supervisory Committee and reach a consensus on subsequent action if the initial recommendation is not accepted. Remedies must be completed within the allotted time or the student will not be permitted to continue towards the Ph.D. degree. After the remedy is completed successfully the student should complete a dissertation proposal before the end of the spring semester of the third year and register for IHS 5503. Proposal Development. (1). (S/U grade only.) that semester.

**Fail:** The Supervisory Committee will review the full record of a student failing a majority of the examination and make a recommendation for dismissal or for retention as a candidate for a Master’s in Science (M.S.) to the Graduate Program Committee. The Program Committee may accept, modify or reject the recommendation of the Supervisory Committee. If necessary, the Graduate Program Committee will meet with the Supervisory Committee and reach a consensus on subsequent action if the initial recommendation is not accepted. Possible final actions are

(a) approval to continue in the Graduate Program towards completion of a thesis M.S. degree (may require laboratory work to complete thesis research),
(b) approval to continue in the Graduate Program towards completion of a coursework M.S. degree (may require additional coursework or other assignment), or
(c) dismissal from the Graduate Program.
Students should consult the Academic Program Specialist for details of requirements for
the thesis and course work M.S. degrees.

Part II: The Dissertation component of the Qualifying Examinations consists of the composition,
presentation and defense of an original research proposal that will represent the research plan for the
dissertation project

The student should register for IHS 5503. Proposal Development. (1). (S/U grade only.) in the semester that
the proposal will be prepared and defended, normally by the spring semester of the third year.

The requirement for writing and presentation of the dissertation proposal is designed to assess the
student's preparedness for and abilities to perform valid and meaningful scientific research. These
abilities include, but are not limited to, the following:
• integration of concepts and knowledge in conceiving a scientifically viable and
  significant research proposition,
• selection and critical evaluation of the literature,
• application of knowledge of techniques appropriate to the proposed research and their
  limitations,
• demonstration of communication skills, including basic writing skills and the practice of
  sound scientific style in written and oral communications.

Possible results of assessment of the dissertation proposal presentation are (i) Pass, (ii) Re-
Examine, or (iii) Fail. The Supervisory Committee is responsible for setting re-examination
conditions. The student may make two attempts to pass, but the Supervisory Committee is
responsible for deciding between a Fail and a Partial Pass, which can be made up to a full Pass in a
specified manner.
The Supervisory Committee will review the full record of a student failing the examination and
make a recommendation for action to the Graduate Program Committee. Recommendations may be for
(a) approval to continue in the Graduate Program towards completion of a thesis M.S.
  degree (may require laboratory work to complete thesis research),
(b) approval to continue in the Graduate Program towards completion of a course-work
  M.S. degree (may require additional course work or other assignment), or
(c) dismissal from the Graduate Program.

Format of the Dissertation Proposal

The student is responsible for scheduling the presentation date with the supervisory committee. A two
hour period should be scheduled for the presentation and assessment. The examination period consists
of two parts, a 30-40 minute oral PowerPoint presentation of the proposal by the student, followed by a
questioning period. Two weeks prior to the examination date the student should submit to each
member of the Supervisory Committee a copy of the proposal. The dissertation proposal should follow
the format described below, which closely parallels that of major granting agencies.

Students will be informed of their status with respect to the examination immediately after
deliberations of the Supervisory Committee. The Major Professor should report the result of the
Qualifying Examinations and the vote for Admission to Candidacy to the Graduate Program Office on the form provided (see Appendix). The Graduate Program Office will notify the University Registrar and The Graduate School as required when a student is approved for Admission to Candidacy.

The dissertation proposal should contain the following elements. Each element should not exceed the length limitation indicated in parentheses ( ). Print text (excepting References) in using 12 point Times New Roman or other easily readable font. Supporting figures can be included and will not be counted towards the length limitations, but should be kept to an essential minimum.

- **Summary** (250 words). Summarize the overall project goals, specific aims, and general experimental approach.

- **Statement of Specific Aims** (1 page). Outline the specific questions that will be addressed or information that will be sought. Include hypothesis statements.

- **Background--Work by Others** (2-3 pages). Concisely review the literature so that the reader has a clear perception of both the general significance of the project and the observations most pertinent to the specific aims described below.

- **Preliminary Data--Work by the Student** (1-2 page). Briefly summarize any preliminary data (this is typically unpublished data from your own lab) that relates directly to your specific aims.

- **Experimental Approaches and Procedures** (6-7 pages). Describe the overall experimental approaches to the above aims and give the rationale for these approaches. Do not describe experiments as you would in a Methods section of a paper.

- **References Cited** (80 citation limit. Give full citations, including titles. Print in 10 point, Times New Roman.) Students are strongly encouraged to use the NIH Medline databank for literature searches and bibliographic software like Endnote.
II.20. Seminar Attendance and Presentations

**Seminar attendance:** Students are required throughout their graduate training to attend the following Department and College seminars and to register for the corresponding courses indicated below if sufficient credit hours are available after registering for other courses required in that semester. The requirement for enrollment in seminar courses will be waived for a Ph.D. Candidate who intends to graduate in the current academic year and otherwise is not able to accumulate the minimum of 24 credit hours of Dissertation Research.

Seminar schedules are posted on the COM website and Department bulletin board.

**IHS 5935. Health Sciences Seminar (1).** *(S/U grade only.)* This College-wide seminar series, commonly known as ‘Grand Rounds,’ is offered in the fall and spring semesters at 4:00 p.m. on the second Thursday of the month from September to April. The Grand Rounds seminar series provides graduate students with exposure to contemporary research and clinical practice issues in medicine.

**BMS 6936. Seminar in Biomedical Sciences (1-2).** *(S/U grade only.)* The seminar program of the Department of Biomedical Sciences is normally held at noon on Wednesday during the fall and spring semesters. The Department hosts a variety of academic and industrial speakers covering contemporary topics in biomedical sciences.

**Specialty Seminars:** Students are also encouraged to attend available seminar program in their specialty in the Department of Biomedical Sciences or other campus graduate Departments or Programs.

**Seminar presentations:** Students are required to present at least one departmental seminar on their research prior to graduation. In addition the student must also present their research (poster or oral) at a national scientific meeting.

II.21. Supervisory Committee

The Supervisory Committee plays an important role in the training of a graduate student as both a mentoring and evaluation body (see also sections on Program of Studies and Annual Evaluations). The Supervisory Committee is chosen by the student in consultation with the Major Professor. All doctoral committees formed after, August 24, 2009 are to be composed of a minimum of four members who have Graduate Faculty Status (GFS). Included among these four members will be the University Representative who must hold GFS, and must also be a tenured member of the faculty. Additional members of the committee, beyond four, maybe non-tenure track faculty holding Co-DDS or Co-MDS. Committees that were formed prior to August 24, 2009, which undergo changes, may be required to comply with the new standards. Choice of committee members should be made as soon as practical, but not later than the end of the semester after selection of the Major Professor, normally by the end of the summer semester of the first year in residence. A formal notification form signed by the student and Committee members should be used to report the choice of Committee membership and Program of Studies to the Director and Graduate Program Committee (see Appendix).
Appendix I. College of Medicine Graduate Courses

Biomedical Sciences (BMS, GMS prefix)

BMS 5935. Advanced Topics in Biomedical Sciences (1-2). (S/U grade only.) A seminar-based course in which students in the Ph.D. Program in Biomedical Sciences present seminars on current research from the literature on topics developed under the guidance of faculty members. Students will critically read, analyze, and present current research. May be repeated a total of eight (8) semester hours.

BMS 5525. Bioregulation (4). Prerequisite: PCB5595. An advanced, lecture-based course emphasizing the molecular basis of regulation in biological systems. An important component is study of the design and interpretation of experiments leading to current understanding of regulation of gene expression. The course relies on the contemporary research literature, and focuses on specific model organisms and current problems that illustrate experimental approaches used to investigate different aspects of the control of gene expression.

BMS 5905. Directed Independent Study in Biomedical Sciences (1-12). (S/U grade only.) An individualized research course intended for students in the Ph.D. Program in Biomedical Sciences prior to passing the Qualifying Examinations. May be repeated a maximum of fifty-four (54) semester hours.

BMS 5185. Research Opportunities in Biomedical Sciences (1-6). (S/U grade only.) Provides entering students in the Ph.D. Program in Biomedical Sciences opportunities to be informed of and receive training in research by rotating through laboratories in the Department of Biomedical Sciences. Students must complete at least two (2) laboratory rotations. Currently students should register for two (2) semester hours of credit for the spring semester in the first year of the Program.

BMS 5186C. Research Techniques in Biomedical Sciences (2-4). Prerequisites: PCB5595, PCB5137, BMS5525 (Bioregulation). An advanced laboratory course for students in the Ph.D. Program in Biomedical Science providing training in laboratory techniques and experimental approaches essential to contemporary molecular biology and biochemistry research.

BMS 6936. Seminar in Biomedical Sciences (1-2). (S/U grade only.) A seminar series in current topics in biomedical sciences. May be repeated a total of sixteen (16) semester hours for credit.

BMS 5122. Insights into Human Congenital and Developmental Disorders (3). Fall semester of even years. Letter Grade (A-F). This course is an advanced biomedical sciences course for graduate students to introduce the molecular basis of human congenital and developmental disorders. This course consists of three topics which cover genomic instability and cancer development, stem cells and their application in disease treatment, and neurodevelopmental disorders.

GMS 5095. Modeling Human Disease. (3). Spring semester of even years. Letter Grade (A-F). Advanced biomedical sciences course for Ph.D students or for upper level undergraduate students. This course will involve lectures and student-driven presentation and discussion. Students will learn how to critically evaluate the scientific literature, and how to use model systems for experimental research.

GMS 5303. Molecular Mechanism of Common Human Diseases (3). Spring semester of odd years. Letter Grade (A-F). This course will introduce modern biomedical research. The students will gain knowledge of the most common human diseases and their molecular pathology. In addition, the attempts to find the cure and the challenges that lay ahead will be discussed.

GMS 5304. RNA Silencing and Disease (3). Fall semester of odd years. Letter Grade (A-F). This course explores mechanisms of RNA silencing by the different classes of small RNAs. Topics discussed include how small RNAs are generated, the proteins involved, how small RNAs regulate chromatin formation, gene expression and how they are involved in cancer and disease.

GMS 5905. Directed Individual Study (1-3). (S/U grade only). Prerequisite: Instructor permission. Study on a selected topic as designated by the student or directing professor. May be repeated to a maximum of nine (9) semester hours.
GMS 6001. Special Topics in Biomedical Sciences (1-3). (S/U grade only.) An expert, lecture-based course focusing on recent advances and outlooks in biomedical science research. Course offerings include but are not limited to such topics as aging, biotechnology, bioinformatics, developmental biology, genomics and proteomics, molecular signaling, neuroscience and physiology. The general emphasis is on the molecular, genetic and cell biology aspects of these topics. May be repeated a total of sixteen (16) semester hours.

GMS 6097C. Biomedical Sciences Research (3). Laboratory course designed to provide students with individualized instruction in specific experimental strategies and methods important in their chosen specialty area of biomedical research training. May be repeated a total of twelve(12) semester hours.

Integrated Health Sciences (IHS)

IHS 5905. Directed Individual Study in Health Sciences (1-12). (S/U grade only). A course for graduate students who wish an individualized research experience in Biomedical Sciences, Medical Humanities and Social Sciences, Public Health or other fields represented in the College of Medicine. Students receive laboratory or other training in research methods and improve their readiness for and appreciation of research in health-related science. May be repeated a maximum of thirty-six (36) semester hours.

IHS 5515. Ethics and Professional Integrity in Research (1). (S/U grade only). A required course for students in the Ph.D. Program in Biomedical Sciences. This course provides a survey of three broad areas of research ethics: issues raised by using animals in research, using people in research, and by the scientific method itself. The course presents examples of ethical decisions faced in medical research, including (but not limited to) ascribing credit for contributions in publications, consequences of plagiarism and fraudulent data, access to genetic data, confidentiality, institutional review boards and considerations in research involving animal or human subjects.

IHS 5935. Health Sciences Seminar (1). (S/U grade only) Seminar program for graduate students in the Ph.D. Program in Biomedical Sciences and other health-related programs. Biomedical Sciences students are required to enroll each Fall and Spring semester. May be repeated a total of twelve (12) semester hours for credit.

IHS 5933. Seminar on Medical Science Education (1). (S/U grade only.) Prerequisite: Limited to graduate students in the College of Medicine. Preparation for supervised teaching and education outreach experiences. Topics include approaches to conduct of classes and laboratories, exam construction, ethics in teaching, legal and safety issues for instructors, and effective written and oral communication.

IHS 5945. Supervised Teaching (1-5). (S/U grade only.) Students in the Ph.D. Program in Biomedical Sciences are required to register for a minimum of two (2) semester hours before graduation. May be repeated for a total of (5) semester hours.

IHS 6980. Dissertation Research (1-12). (S/U grade only.) Ph.D. candidates in Biomedical Sciences should register for this course after passing the Qualifying Examinations. A minimum of twenty-four (24) Dissertation hours is required for graduation.

IHS 8970. Dissertation Defense (0). (S/U grade only.) Oral defense of dissertation research. One-time registration during the term in which student expects to defend their Ph.D. dissertation.
IHS 8960. Preliminary Doctoral Examination (0). (S/U grade only.) Oral examination and defense of the doctoral proposal; successful completion allows advancement of the student to Ph.D. candidacy.
Appendix II: Graduate Elective Courses Offered in Other Colleges

The following graduate courses are approved choices to satisfy the Program requirement for nine (9) credit hours of elective courses. Additional courses may be eligible for electives at the discretion of the Supervisory Committee. See the Graduate Bulletin of the Florida State University at http://registrar.fsu.edu/bulletin/grad/ for a complete listing of graduate courses. Students are advised that many departments offer special topics courses at irregular intervals. These courses may not be well advertised, but can be discovered by checking directly with the graduate offices of other departments in the life sciences.

Chemistry & Biochemistry

BCH 5505. Structure and Function of Enzymes (3). Pre- or co-requisite: BCH 4053 or equivalent. Course addresses elements of protein structure and structural motifs, structure determination methods; protein folding and stability; enzyme kinetics and mechanisms; structure-function relationships.

BCH 5745. Chemical and Physical Characterization of Biopolymers (3). Pre- or co-requisite: BCH 4053 or equivalent. Course covers biopolymer types and conformations; solution properties of biopolymers; macromolecular equilibria; hydrodynamic behavior; determination of size and shape; biopolymer separations; introduction to biological spectroscopy.

BCH 5886r-5887r. Special Topics in Biochemistry and Cell Biology (one to three [1-3] hours each). Each course may be repeated to a maximum of twelve (12) semester hours or a total of four times.

CHM 5506. Physical Chemistry of Macromolecules I (3). Prerequisite: Two semesters of physical chemistry or consent of instructor. Course covers conformational statistics of random chain polymer chains; ordered polymer structures and order-disorder transitions; thermodynamics of polymer solutions; structure-property relationships of polymers. Cross listed under physical chemistry.

CHM 5507. Physical Chemistry of Macromolecules II (3). Prerequisite: Two semesters of physical chemistry or consent of instructor. Course addresses principles and applications of spectroscopic methods to polymers and biological macromolecules including electronic, vibrational electron spin and nuclear magnetic resonance spectroscopy; and spectroscopic studies of dynamic systems. Cross listed under physical chemistry.

Biological Science

BSC 5409. Biophysical Principles of Biological Techniques (3). This course analyzes physical principles behind modern laboratory methods used in biological research.


MCB 5936r. Selected Topics in Microbiology (1-4). May be repeated to a maximum of sixteen (16) semester hours.

PCB 5137. Advanced Cell Biology (3). Principles of cell organization; membrane structure and transport; cyto skeleton; signaling; organelle structure and function; energy metabolism; cellular aspects of cancer and immunity.

PCB 5595. Advanced Molecular Biology (3). Prerequisites: PCB 4024 or PCB 5525 (molecular biology) or instructor permission. Gene regulation and its relationship to differentiation and development.

PCB 5785. Biology of Muscle (3). Prerequisites: BCH 4053; PCB 3743. Muscle biophysics, biochemistry, and physiology; an emphasis on contractile function, experimental methods, and specialization of muscular systems in vertebrates and invertebrates.
PCB 5795. Sensory Physiology (3). Prerequisite: Mammalian physiology I or general physiology/cell biology background. Mechanisms of sensory transduction; higher level processing of sensory information; comparative aspects of sensory physiology.

PCB 5835. Neurophysiology (3). Prerequisite: Mammalian physiology I or general physiology/cell biology background. Membrane biophysics; molecular aspects of cell excitability; advanced cellular neurophysiology.

PCB 5846. Neurocytology and Neurochemistry (4). Morphological, molecular, developmental, and phylogenetic relations to nerve tissues.

PCB 5936r. Selected Topics in Genetics and Cell Biology (1-4). May be repeated to a maximum of sixteen (16) semester hours.

PCB 5937r. Selected Topics in Physiology (1-4). May be repeated to a maximum of sixteen (16) semester hours.

PCB 6155C. Microscopy and Electron Microscopy for the Biologist (3). Permission of instructor required prior to registration.

**Neuroscience**

PSB 5057. Neuroscience Methods: Molecules to Behavior (2). (S/U grade only.) This course exposes graduate students to a broad array of current techniques and methodologies in the neurosciences from a molecular to behavioral level of analysis.

PSB 5077. Responsible Conduct of Research (2). (S/U grade only.) This course is an introduction to survival skills and ethics in scientific research. The focus is on basic principles of scientific conduct and practice for graduate students pursuing careers in biomedical research.

PSB 5341. Systems and Behavioral Neuroscience (4). This course covers integrated neural systems that ultimately lead to the behavior of organisms. Topics include fluid and energy balance, reproduction, sleep, emotions, cognition and neurological disorders.

PSB 6070r. Current Problems in Neuroscience (2). (S/U grade only.) Detailed examination of a current area of neuroscience research. May be repeated to a maximum of eight (8) semester hours.

**Statistics**

STA 5172. Biostatistics (3). This course introduces students to the statistical methods used in studying the prevention of disease in human populations.

**The Graduate School**

MAT 5933. Responsible Conduct of Research Course (1). This course will fulfill the ethics course requirement for students in the Ph.D. Program in Biomedical Sciences.
Appendix III: FORMS

LIST OF FORMS:

I. Graduate Program in Biomedical Sciences Major Professor Selection Form
II. Graduate Course Registration Request Form
III. Program of Studies and Supervisory Committee Membership
IV. Annual Student Review
   a. Student Activities Summary (to be completed by student)
   b. Faculty Evaluation (to be completed by Supervisory Committee)
V. Supervisory Committee Certification of ‘Pass’ of Qualifying Examinations and Admission to Ph.D. Candidacy
VI. Program in Biomedical Sciences Graduation Checklist
Graduate Program in Biomedical Sciences  
Major Professor Selection Form  
(rev. 5/9/2011)

PLEASE RETURN THE COMPLETED FORM TO THE GRADUATE PROGRAM OFFICE

Student Name: ______________________________ Date: __________________________

**Graduate Students:** Use this form to report the selection of your Major Professor.

**Faculty Members:** Your signature on this form indicates your willingness to serve as the Major Professor of this student and that you will advise them of their Program of Studies.

Major Professor: ____________________________  Signature: ______________________

Student Name: ____________________________  Signature: ______________________
FSU College of Medicine
Graduate Course Registration Form (rev. 5/13/2011)

Instructions: This form should be completed for registration each semester by all students in the Ph.D. Program in Biomedical Sciences. Students in other Colleges who wish to register for graduate courses in the College of Medicine should also complete this form.

First year graduate students will be registered for all required courses listed in the Student Handbook. The form must be signed by the Director of the Graduate Program.

Second and successive year students should consult with their Major Professor on recommended course selection and recommendations by their Supervisory Committee. All students must follow the departmental requirements in the Student Handbook. The form must be signed by your Major Professor.

Completed and signed forms should be submitted to Lilly Lewis for review. The COM Registrar will register you for courses offered within the College of Medicine. Normally these will have BMS, GMS or IHS prefixes.

IMPORTANT NOTE: If you wish to take a course offered in a different college from the COM, then you must use the FSU online registration system.

Student Name: ___________________________________________ Date ____________

Term of registration (circle):  Fall  Spring  Summer  Year: ______________

FSU Student Number (FSUSN): ________________________________

Courses for which you want to be registered: Credit Hour Instructor**
(include course number and name)
__________________________________________________________
__________________________________________________________
__________________________________________________________
__________________________________________________________
__________________________________________________________
__________________________________________________________

** If you are registering for a DIS course, please list the supervising faculty member and the topic for study.**

__________________________________  ________________________
Major Professor                    Date

__________________________________  ________________________
Program/Departmental Authorization Date

Biomedical Sciences Graduate Student Handbook
**Graduate Program in Biomedical Sciences**  
**Program of Studies and Supervisory Committee** (rev. 9/23/09)

**Graduate Students:** Use this form to report the composition of your Supervisory Committee and their approval of your Program of Studies.  
**Faculty Members:** Your signature on this form indicates your willingness to serve on the Supervisory Committee of this student and your approval of his/her Program of Studies.

The Program of Studies is intended to indicate the formal coursework that the student and Supervisory Committee agree are necessary for achieving a level of expertise in the Biomedical Sciences and the chosen subject area of the dissertation research expected of a Ph.D. graduate. Changes in the Program of Studies are permitted with approval of the Supervisory Committee.  
**Report changes of the Supervisory Committee or the Program of Studies on a new form marked “REVISED”.

**Program of Studies**  
(Do not list rotation, DIS, dissertation, seminar or similar courses)

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Semester Taken or Intended</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCB 5595</td>
<td>Advanced Molecular Biology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STA 5172</td>
<td>Biostatistics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAT 5933</td>
<td>Responsible Conduct of Research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCB 5137</td>
<td>Advanced Cell Biology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 5525</td>
<td>Bioregulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 5186C</td>
<td>Research Techniques in Biomedical Sciences</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Supervisory Committee:**  
<table>
<thead>
<tr>
<th>Printed Name</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Professor</td>
<td></td>
</tr>
<tr>
<td>Univ. Representative</td>
<td></td>
</tr>
<tr>
<td>Others (at least two)</td>
<td></td>
</tr>
</tbody>
</table>
ANNUAL ACTIVITIES INFORMATION SHEET

Program and University policy requires an annual evaluation of graduate student progress. To assist in this evaluation by your Supervisory Committee and the College of Medicine Graduate Program Committee you will need to fill out this form. Please fill in the requested information about your activities in the past academic year. This form should be completed and returned by e-mail to Lilly Lewis in the Department of Biomedical Sciences. Also a copy should be provided to your Major Professor. The form should be returned by the last scheduled day of classes for the Spring Semester (typically the third week in April.)

Student Name: ________________________  Year: __________________

1. Major Professor: ________________________

2. Year of Entry into Program: ________________

3. Committee members in addition to Major Professor (circle any changes from previous report):
   a. ________________________
   b. ________________________
   c. ________________________
   d. ________________________

4. Date of most recent committee meeting: __________________

5. Anticipated degree completion date: __________________

6. Completion date or Anticipated completion date for:
   Comprehensive Examination: __________________
   Dissertation Proposal Defense: __________________

7. Please list any of the following activities during the prior academic year:
   a. Courses taken and grade (do not list seminars):
      1. ________________________        ______
      2. ________________________        ______
      3. ________________________        ______
      4. ________________________        ______
      5. ________________________        ______
      6. ________________________        ______
b. Teaching responsibilities:

c. Proposals for Funding Submitted (list title, agency & nature of grant):

d. Manuscripts accepted or submitted for publication (list title, authors, journal and submission or acceptance date):

e. Presentations at meetings (list presentation title, meeting title and date):

8. Planned Research and Training Activities. Please list any of the following activities planned during the next academic year:

a. Courses to be taken:
   1. ________________________________
   2. ________________________________
   3. ________________________________
   4. ________________________________
   5. ________________________________
   6. ________________________________

b. Teaching responsibilities:

c. Proposals for Funding (list title, agency & nature of grant):

d. Manuscripts to be submitted for publication (list title, authors, journal and submission or acceptance date):
e. Presentations at meetings (list presentation title, meeting title and date):

9. Do you have suggestions for how the Program can make your training situation better?

10. Provide a one page description of your research goals and progress during the previous year. Please attach the one page description when submitting this form.
BMS Ph.D. Program Student Annual Review  
(rev. 7/24/12)

Program and University policy requires annual evaluation of graduate student progress by their Supervisory Committee. Each student is to present Committee members with an Annual Activity Information sheet, then schedule a meeting with the Committee in which the student’s progress is reviewed. After meeting with the student, the Supervisory Committee will discuss the student’s progress and arrive at a consensus evaluation and recommendations. The Major Professor should complete this evaluation form, discuss the evaluation with the student, and then submit this signed form to Lilly Lewis in the Department of Biomedical Sciences. Annual evaluations should be completed by March 30. Attach additional sheets as needed.

Date of Evaluation:_____________   Student Name:_______________________________

Summary Evaluation and Recommendations

Committee member signatures

____________________________ Major Professor ________________________________

____________________________ University Rep ________________________________

Graduate Program Committee Comments:
SUPERVISORY COMMITTEE CERTIFICATION OF ‘PASS’ OF QUALIFYING EXAMINATIONS AND ADMISSION TO PH.D. CANDIDACY

DATE:____________________

Each student should provide a copy of this form to the supervisory committee after they present and successfully defend their dissertation proposal. Each committee member should sign this form to indicate their approval of a ‘pass’ performance for the qualifying examinations and approval of ‘admission to Ph.D. candidacy’. The student should submit this signed form along with a copy of the dissertation proposal to the biomedical sciences graduate program office (lilly lewis).

Student Name______________________________________________

We, the Supervisory Committee, certify that the student named above has passed the qualifying examinations and met all additional requirements for admission to candidacy for the Ph.D. degree in biomedical sciences.

Major Professor____________________________________________

University Representative____________________________________

Committee Member___________________________________________

Committee Member___________________________________________

Committee Member___________________________________________

Committee Member___________________________________________
Program Graduation Checklist
Ph.D. in Biomedical Sciences
(Rev. 7/17/2012)

Checklist for Year 1

_____ Attend required departmental seminars for fall and spring semester
_____ Complete at least 2 lab rotations and submit lab rotation summaries
_____ Select major professor by the end of 1st spring semester
_____ Complete required coursework with overall GPA ≥ 3.0
_____ Select supervisory committee by end of 1st summer semester
_____ Complete annual evaluation signed by committee by March 30

Checklist for Year 2

_____ Attend required departmental seminars for fall and spring semester
_____ Register for elective coursework during the fall and spring semester with overall GPA ≥ 3.0
_____ Complete annual evaluation signed by committee by March 30
_____ Register and complete Preliminary Doctoral Examination IHS 8960 (written component)

Summer Semester

Checklist for Year 3

 _____ Attend required departmental seminars for fall and spring semester
 _____ Finish elective coursework with overall GPA ≥ 3.0
 _____ Register and complete Proposal Development IHS 5503 in spring semester
 _____ Admission to candidacy departmental approval by supervisory committee. Submit Departmental Candidacy Approval Form, signed by Supervisory Committee, to Program Office upon completion and passing of dissertation proposal defense.
 _____ Complete annual evaluation signed by committee by March 30

Checklist for Year 4 and 5

 _____ Attend departmental Seminars for fall and spring semester
 _____ Register for Dissertation Research (need minimum of 24 hours before graduation)
 _____ Thesis, Treatise, Dissertation Research Approval Form must be submitted before the graduation registration deadline, in the semester you plan to graduate. Must have a manuscript submitted to a peer-review journal accepted for publication
 _____ Complete annual evaluation signed by committee by March 30
 _____ Present a seminar on dissertation research
 _____ Present research at a national scientific meeting (poster or oral)
 _____ Register for Graduation during the semester you plan to defend your dissertation
 _____ Department notification of successful Dissertation defense