PhD in Biomedical Science Graduate Program

- Policies and Procedures -
MANUAL
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The University of South Carolina School of Medicine PhD Program in Biomedical Science is a cooperative effort of the School of Medicine basic science departments:

- Cell and Developmental Biology and Anatomy
- Pathology, Microbiology and Immunology
- Pharmacology, Physiology, and Neuroscience

The course of study in this program leads to the degree of Doctor of Philosophy. The student receives extensive theoretical and practical training in the biomedical sciences. The goal of this program is to prepare students to become productive biomedical researchers and highly qualified teachers.

During the first and second years, students are expected to divide their time profitably between course work and creative research. For the fall and spring semesters of years one and two, students are enrolled in course work and are also expected to perform research; summers are dedicated to research. In the first year, the student may choose several laboratories in which to gain practical research experience. The student will then select a major professor and department. Stipends are full-time research assistantships and it is anticipated that students will make a significant contribution to any laboratory in which they are involved. After completion of course work, the student's prime commitment is to the laboratory-based dissertation research.

The program is organized around the three departments that constitute the Biomedical Sciences of the Medical School. These are the Department of Cell and Developmental Biology and Anatomy, the Department of Pathology, Microbiology and Immunology and the Department of Pharmacology, Physiology and Neuroscience. Students select a home department according to the affiliation of their research mentor and until such a decision has been made are considered “at large” and under the guidance of the Director of the Biomedical Graduate Programs.

The first year of course work consists of the Biomedical Science core curriculum. This consists of:
  - Either the Cell and Molecular Biology track
  - Or the Neuroscience track

Once students select a research mentor, additional specialized course work is defined by the mentor, the department and the student’s advisory committee.

Research interests and recent publications of the School of Medicine faculty are listed on the Medical School’s web site.

The Director of the Biomedical Science Graduate Program will monitor and aid the progress of students through the Program. The rules that shall apply to each student shall be those in force at the time of admission; if the program is altered after the student is admitted, the student shall have the choice of complying with the new rules and regulations or those in force at the time of admission.
The Biomedical Science Graduate Program for the School of Medicine follows the general academic regulations of the Graduate School as described in the University of South Carolina Studies Bulletin. In addition, specific requirements of the Biomedical Science Graduate Program are described in this manual.

1. Program Administration

Within the School of Medicine, the Biomedical Science Graduate program is administered by the Director for the Biomedical Sciences Graduate Program. The Director for the Biomedical Sciences Graduate Program is also responsible for developing and maintaining the curriculum and managing admission. The Biomedical Science Graduate Advisory Committee consists of one representative from each of the participating departments and the Director for the Biomedical Sciences Graduate Programs. This committee is responsible for establishing policies and procedures consistent with University and School guidelines and for ensuring that program requirements are met. The Office of Graduate Studies maintains student files and required graduate forms and is located in room B-39 of Basic Science Building 1.

   Director the Biomedical Graduate Program           Dr. Richard Hunt  733 3218
   Program Coordinator                                Ansley Roberts     733-3100
   Assistant Director for Student Services            Jerel Arceneaux    733-3134

2. Departmental Administration

The Chairman of each participating department selects one faculty member to serve as its departmental representative to handle graduate affairs to serve on the Biomedical Science Graduate Committee. Departments may also elect to have a graduate committee to formulate departmental policies and to screen students for admission. The current department representatives are:

   Cell and Developmental Biology and Anatomy         Dr Wayne Carver
   Pathology and Microbiology                         Dr Kim Creek
   Pharmacology, Physiology, and Neuroscience         Dr Marlene Wilson

3. Academic Responsibility, Carolina Community and The Office of the Ombudsperson

The USC Student Handbook and Policy Guide, Carolina Community, is located at the Graduate School’s website. In addition to describing aspects of student life, this publication also contains the Carolinian Creed and associated policy on Academic Responsibility to which all students must adhere. Students in the Biomedical Science Graduate Program are expected to adhere to the University Rule of Academic Responsibility. This Rule is concerned with infractions of academic discipline or ethical conduct and prohibits plagiarism, cheating, and falsification of data.

The educational program in the School of Medicine has been developed to support and encourage the collegiality and professionalism essential to an effective learning environment. Students who believe that they have been punitively assessed or mistreated because of religion, race, ethnicity, gender, sexual orientation, age or other factors have access to the School of Medicine Ombudspersons who are empowered to receive and investigate reports of mistreatment in a completely confidential manner, to mediate between the parties involved and, in the event mediation is not successful, to make recommendations directly to the Dean of the School of
Medicine regarding appropriate resolution of any complaints. The use of the Ombudspersons’ services to resolve a complaint represents a form of alternate dispute resolution. For this reason the services of the Ombudsperson will no longer be available to a student once that student engages an attorney to initiate legal action against the School of Medicine, the University of South Carolina, or the employees of those institutions. The current Ombudspersons are: Dr. Gene Mayer, 733-3281; mayer@med.sc.edu and Dr. J. T. Thornhill, 733-3367; jthorn@gw.med.sc.edu.

Degree Requirements

1. Interim Advisor

The Director for the Biomedical Science Graduate Program will serve as Interim Advisor to PhD students until they have selected a major professor. The interim advisor will assist the student in the selection of a beginning course of study and in the selection of laboratory rotations. The interim advisor will also ensure that all early requirements are met. At all stages in the student’s participation in the graduate program, the interim advisor will try to ensure the smooth progress of the student through the program. A permanent graduate faculty advisor, usually the research advisor, should be appointed as soon as an area of research is identified but no later than “Admission to Candidacy” (usually at the end of the first academic year; see 4f).

2. Transfer Credits and Course Substitution for Advanced Standing

Applicants with previous graduate or medical training may request advanced standing to reduce course requirements so that the time to complete a degree is reduced. Students may be excused from repeating courses in the Biomedical Science Program when a similar graduate course has been taken elsewhere within the past three to five years. The student should consult with the Interim Advisor immediately after orientation so that a decision may be reached within the drop-add period of registration. Decisions regarding transfer of graduate credits as a substitution for required program core courses are decided by the Graduate Advisory Committee. Students may be asked to provide information about the course including an outline, credit hours, and required tests; in some cases, a competency exam may be recommended as a condition of course waiver. It is unlikely that transfer of credits will be allowed from colleges or universities whose standards are unknown to the faculty of the Medical School. Note that USC Graduate School policy requires that all course work including transfers must be no more than eight years old when the Ph.D. degree is awarded.

3. Academic Regulations

a. Grades and Academic Progress

Graduate courses may be passed for degree credit with a grade as low as C, but the student’s average on all courses attempted for graduate credit must be at least B (3.0 on a 4 point system). Graduate students whose cumulative grade point average drops below B (3.00) will be placed on academic probation and allowed one calendar year in which to raise the grade point average to at least 3.00. Students who do not reach a cumulative 3.00 grade point average during the grace period will not be permitted to enroll for further graduate course work in that degree program. Appeals for reinstatement to degree candidacy may be made first to the Biomedical Science Graduate Program and then forwarded to the Dean of the Graduate School.

2. Supervision of Graduate Assistantships
In the School of Medicine, the primary means of graduate student support is the Graduate Research Assistantship. Graduate Assistantships are provided to support costs of graduate education, providing a stipend for living expenses and reduced tuition. The graduate assistant is considered a temporary employee of the University and is normally obligated to assigned responsibilities in research support in the School of Medicine. The maximum number of hours of assigned duties required per week during semesters with required course work is twenty; during summer or semesters without required coursework, the student is expected to devote full time to research.

Whereas the Graduate Office coordinates administrative processing of appointment forms at the start of each fiscal year, supervision of graduate assistants is delegated to the major professor or to an appointed advisor prior to selection of the major professor. Graduate Assistants are not normally expected to work during examination periods and school holidays. Other vacations are at the discretion of the major professor. It is the responsibility of the supervisor to discuss the period of appointment, work schedule, specific duties, manner, method, and schedule of evaluation with the Graduate Assistant. Regular reviews should give feedback to the Graduate Assistant about areas of excellent performance and substandard performance which are detailed enough to make clear what results are desired.

Graduate students are expected to devote full-time effort to their studies and assistantship research responsibilities. Additional employment is therefore discouraged during terms of appointment. Students must discuss with their supervisor and obtain prior approval for any additional employment to insure that it does not interfere with academic performance. Students may request assistantship appointment for less than a 12-month period if they need time off to pursue other activities. Failure to comply with these policies is grounds for termination of assistantship support.

c. Pass-Fail Option

This option is available for courses whose content is related to the Program of Study, but in an area requiring different training or background. The pass-fail option permits enrichment of a student’s experience without affecting the grade point average. Courses required by the program may not be taken on a pass-fail basis.

4. Year One

a. Curriculum

The annual Graduate Studies Bulletin (available at the Graduate School’s website) lists, with a brief description, all graduate course offered by the University of South Carolina, arranged by graduate program and department. The Master Schedule (accessed from the Registrar’s website) lists which courses are offered in a given semester, as well as meeting time, place, and instructor. In order to satisfy program requirements, the sequences below are strongly recommended for all first year students:

**MOLECULAR AND CELLULAR BIOLOGY TRACK**

SEMESTER I

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 711</td>
<td>Structure-Function Nucleic Acids</td>
<td>3 credit hours</td>
</tr>
<tr>
<td>BIOL 717</td>
<td>Biological Chemistry</td>
<td>3 credit hours</td>
</tr>
<tr>
<td>BMSC 700</td>
<td>Interdisciplinary Lab I</td>
<td>1 credit hour</td>
</tr>
<tr>
<td>BMSC 702</td>
<td>Medical Cell Biology</td>
<td>4 credit hours</td>
</tr>
<tr>
<td>BMSC 801</td>
<td>Seminar in Biomedical Sciences</td>
<td>2 credit hours</td>
</tr>
</tbody>
</table>
NEUROSCIENCE TRACK

First semester students are required to complete at least 6 Neuroscience Basic Modules (PHPH752; or Fundamental Psychology Modules).

Neurobiology Basics training modules (A,B,C,D,E,F,G, H, I) will provide students with neuroscience-based literacy using a modular format that can accommodate training graduate students from diverse backgrounds ranging from psychology to cell & molecular biology. Each 5- week module (2 hrs, 30 min twice a week) provides basic literacy in neuroanatomy, neurophysiology, neurochemistry, neuropharmacology, or molecular neuroscience, plus the needed proficiency in physiology and quantitative methods required for conducting research in neurobiology.

Students may substitute other electives (Protein and/or Nucleic acid biochemistry) for these modules, or may take additional modules in their second year of training. Additional Fundamental Psychology Modules may be used to fulfill this requirement as well: Cognitive Psychology, Developmental Psychology, Learning and Motivation, Cognitive Neuroscience, Cognitive Developmental Neuroscience, Integration across areas of Psychology.

- **PHPH752A**: Neuroanatomy
- **PHPH752B**: Neurochemistry-Fundamental concepts
- **PHPH752C**: Neurochemistry-Advanced concepts
- **PHPH752D**: Neurophysiology
- **PHPH752E**: Physiology for neurobiologists
- **PHPH752F**: Neuropharmacology
- **PHPH752G**: Molecular Neurobiology
- **PHPH752H**: Quantitative methods in Neurobiology
- **PHPH752I**: Special Topics

Students will be required to take six of the **Neurobiology of Disease Modules** (PHPH753) over a two year period. Three will be taken in year 1, and three in year 2 of the program (spring-summer semesters)

- **PHPH753A**: Stress, Anxiety Disorders and the Amygdala
- **PHPH753B**: Stress, Depression and the Hippocampus
Other elective courses:

- BMSC 702 & 705 Medical Cell Biology I & II;
- CHEM 751, 752 & 753 Biochemistry;
- PHPH 701 Physiology for the Health Sciences;
- PHPH 750 & 751 Fundamental Neuroscience I & II;
- PSYC 709 & 710 Basic Quantitative Methods

### SUMMARY OF NEUROSCIENCE PROGRAM

<table>
<thead>
<tr>
<th>Modules</th>
<th>Other Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall Yr 1</strong></td>
<td><strong>Other Courses</strong></td>
</tr>
<tr>
<td>Six Neurobiology Basic Modules</td>
<td>Intro to Laboratory Methods (BMSC 700); PHPH 742-Scientific writing; Seminar</td>
</tr>
<tr>
<td>PHPH752 (six 5 week modules)</td>
<td>PHPH 742 Neuroscience Seminar- literature &amp; critical thinking;</td>
</tr>
<tr>
<td><strong>Spring Yr 1</strong></td>
<td></td>
</tr>
<tr>
<td>Neurobiology of Disease Modules (three 5 week modules)</td>
<td></td>
</tr>
<tr>
<td><strong>Fall Yr 2</strong></td>
<td></td>
</tr>
<tr>
<td>Physiology for Neurobiologists and other additional Neurobiology Basics Modules (PHPH752) if needed</td>
<td>Neuroscience Seminar (Grant writing PHPH 742); Protein Biochemistry; Medical Cell Biology or Nucleic acid Biochemistry</td>
</tr>
<tr>
<td><strong>Spring Yr 2</strong></td>
<td></td>
</tr>
<tr>
<td>Three new Neurobiology of Disease modules PHPH753 series:</td>
<td>Anatomical Methods (this is training in Instrumentation Resource Facility</td>
</tr>
</tbody>
</table>

Other items, such as journal clubs, may be recommended. The Biomedical Sciences Graduate Committee may recommend additional course work in special circumstances.

b. **Discussing the Research Interests of the Faculty**

In the first semester, students are also expected to meet the faculty to familiarize themselves with the ongoing research in the Biomedical Science Graduate Program. To help the student, symposia will be scheduled at the beginning of the first semester with potential mentors. Students may attend these symposia or may meet with potential mentors individually.

c. **Laboratory Rotations**

A laboratory rotation will usually consist of 2-8 weeks of research experience working with a faculty member; this may consist of a small independent project or of a component of an on-
going project. A student who undertakes a laboratory rotation with a faculty member is under no obligation whatsoever to continue dissertation research with that professor. A student will usually start rotations in his/her first semester.

To ensure the smooth progression of the student through the program, it is a requirement that students must do one or more for-credit rotations in the spring semester of the first year. To identify the mentor for this required rotation so that a corresponding section of a research course can be set for registration, students must complete Form 1 (see Appendix) and return it to Ms Roberts in the Graduate Office prior to the registration for spring semester. If a major professor has not been selected by the end of summer of the first year, for-credit rotations must be continued in fall and spring semesters of the second year; a new Form 1 (see Appendix) detailing the planned rotation schedule must again be submitted at the beginning of each semester.

d. **Selection of Major Professor**

The selection of major professor is by mutual agreement and is formalized by submission to the Office of Graduate Studies of a completed “Selection of Major Professor” form (Form 2, see Appendix). In general, the student should formally affiliate with a major professor by the end of the first year of graduate study.

It is important that the selection of a major professor be an informed decision by the student and advisor. The symposia given at the beginning of the first semester by potential advisors to showcase their research interests will give students the opportunity to select faculty with whom they share an interest. Rotations allow the student and faculty to determine on a trial basis whether they can act productively in a student/mentor relationship and whether the student can commit to a specific area of research.

The choice of a major professor by a graduate student and the acceptance of the role of major professor by a faculty member are important decisions that imply a certain sense of obligation on both sides. The choice of a major professor is normally made with every intention of that being a final decision. However, it is appreciated that a student may decide that the choice was inappropriate for that student; therefore, a mechanism exists for changing the major professor. It is pointed out to the student that this is not a decision to be taken lightly. It will almost certainly delay completion of his/her degree program as it will be necessary to develop a new dissertation research program and have it approved. If a change in major professor is to be made, it should always be made prior to the point at which the student attempts the Comprehensive Examination.

In the event that a graduate student deems a change of major professor necessary, the following procedures will apply:

1) The student and the advisor should attempt to reconcile their misunderstandings and differences, or, if they mutually agree that a change is advisable, they should arrange for a mutually satisfactory transition.
2) If initial attempts at reconciling differences are unsuccessful, the student and faculty member should confer with the student’s Advisory Committee and attempt to reconcile their differences.
3) In the event that no solutions emerge from these deliberations, the Director of the Biomedical Sciences Graduate Program will serve as an intermediary to arrange a mutually satisfactory transition.

e. **Transfer from PhD Program to the Master of Biomedical Sciences Program (MBS)**
A student’s Advisory Committee may recommend that a student transfer from the PhD program to the Master’s program. Students may elect to transfer from the PhD program to the MBS program if their career goals change. PhD students transferring to the MBS program may be required to enroll for a minimum of six (6) additional credits in the MBS program.

f. Admission to Candidacy

In June of the first year, students are required to complete a written Admission to Candidacy examination in order to test the students overall ability to synthesize information in biomedical science. This examination involves preparation of a 3-5 page typed summary of a for-credit rotation in the fall or spring semester of the first year, including an overview of the broad goals of the research and a description of laboratory methods or techniques used to obtain experimental data. The paper must be read and endorsed by the faculty member in whose laboratory the research was conducted and submitted by June 1 to the Director of the Biomedical Sciences Graduate Program for evaluation. If the evaluation is not satisfactory, a revision and re-evaluation will be required.

If a student receives a C or below in any first year curriculum course, a second written examination covering the area of deficiency may be required as determined by the Biomedical Science Graduate Advisory Committee. If a student receives MORE than one C or below in the first year curriculum, the student is subject to dismissal and must petition the Biomedical Science Graduate Advisory Committee to continue by demonstrating competency in a written examination covering the areas of deficiency. The exam questions for areas of deficiency may require an essay type answer or may provide a set of data and ask for deductive reasoning. In general, the aim is to show that the student can think about the topic and appreciate the broad picture as well as the more specific details and that the student has a sufficiently good grasp of the subject to be able to integrate knowledge of various areas.

Upon obtaining satisfactory results in the Admission to Candidacy Examination(s), the student is deemed to have passed the requirement for Admission to Candidacy. Upon notification from the Biomedical Science Graduate Advisory Committee, the Office of Graduate Studies will report to the Graduate School that the student has successfully completed the Admission to Candidacy examination.

g. Advisory Committee

As soon as possible after the Admission to Candidacy Exam is passed, the student and the major professor / mentor / advisor should provide Ms Roberts in the Office of Graduate Studies with a list of suggested committee members with appropriate expertise for their research area. The Graduate School’s Doctoral Committee Appointment Request Form is to be used; this form may be obtained from the Forms Library of the Graduate School’s website. The student’s advisor should be listed on the form as the chair of this committee although another committee member may function as chair of advisory meetings. Comprehensive and dissertation examination committees are also reported on this form, either at the time of formation of the advisory committee or later when these committees are needed. The major professor must be a full-time medical school faculty member and qualified to be a member of the USC Graduate Faculty. This committee will consist of at least five faculty members:

- The major professor
- One or two members of the major professor’s department
- One of two members of other departments of the medical school
- At least one faculty member from outside the Biomedical Science Graduate Program. The outside member(s) may be a faculty member(s) from another unit of the University of South Carolina or may be faculty member from another university.

The Advisory Committee shall be responsible for approval of the student’s program of study and
the approval of a dissertation research project and dissertation. The Advisory Committee should discourage research by students on projects with no assurances of the free exchange of ideas and scientific information. In addition, the Advisory Committee is responsible for monitoring the student’s research progress through conferences or seminars (approximately three times a year). The Committee Chair will be responsible for notifying the Office of Graduate Studies of all official actions of the Committee. An 80% positive vote is required for approval of any action by the Advisory Committee.

It is anticipated that the composition of the Advisory Committee will change only if there is a change in direction of research by the student, in which case an additional member with expertise in that area may be requested to join the committee, and a member who was appointed because of an area of expertise which is no longer relevant may volunteer to resign. If a student changes his major advisor, a new Advisory Committee will be appointed.

h. **Program of Study**

At the first meeting of the Advisory Committee, a Doctoral Degree Program of Study form should be completed specifying all courses the student will be required to take to complete degree requirements; a minimum of 62 graduate credits hours is required. The student and committee must agree to this and the form must be signed by the student, the advisor, and the Director of the Biomedical Sciences Graduate Program. No later than the end of the second year of study, the signed Program of Study form should then be sent to the Office of Graduate Studies for signature and forwarding to The Graduate School, where it becomes a permanent record of approved courses. No deviations from this program will be allowed without approval by the student, the advisor, the Director for the Biomedical Sciences Graduate Program and the Dean of the Graduate School; a Request for Adjustment in Graduate Program form is available for changes in Program of Study from the Forms Library of the Graduate School’s website.

5. **YEAR TWO**

a. **Curriculum**

Generally, students will complete the remainder of their courses in year two. This course schedule is set entirely by the major professor with which the student is registered. In addition to the above requirements, the student is expected to attend the weekly Biomedical Sciences Seminar Series each semester and register for BMSC 801. Other items, such as journal clubs may be recommended. The Advisory Committee may recommend additional course work in special circumstances.

The elective courses consist of a minimum of three courses of at least three credit hours each at the 700 or 800 level that are approved by the student’s advisory committee.

By the end of the second year, the student should have formulated specific goals for the dissertation research proposal. A written proposal should be submitted to and approved by the Advisory Committee within two-and-a-half years of the student’s admission into the graduate program.

b. **Comprehensive Examination**

The student’s Advisory Committee will determine exactly when the Comprehensive Exam will be administered. However, it should be after the majority of the course work is completed. The student should obtain the agreement of his/her committee to a topic for his/her comprehensive examination. The student should first present a 1-2 page abstract of his/her chosen topic to the members of his/her committee at least 10 days prior to an initial meeting. This initial meeting
should preferably be no later than the middle of the first semester, year 3; it may frequently be
the same meeting at which the dissertation research proposal is submitted. The topic should
not be directly related to the student’s research or the research in the laboratory of his/her
advisor. The advisory committee will decide if the topic is appropriate. Although the precise
format of the final typed proposal will be at the discretion of the committee, it is recommended
that it be in the form of an NIH style grant proposal which will include two parts: 1) an overview
of the literature, and 2) a proposal for research including experimental design.

The completed document should be submitted to the members of the committee within six
weeks of the initial meeting, preferably no later than the second semester, year 3. The
student’s Advisory Committee will be allowed 10 days to review the document; as soon as
possible after this reading period, there will be a committee meeting at which the student will be
required to present and defend his/her document orally. The committee can ask questions of
general knowledge in biomedical science as well as specific information directly related to the
chosen topic. Students are warned that they should thoroughly understand the principals of the
methods they have described in their proposal. The student is anticipated to be sufficiently
prepared to pass on the first attempt. The student may be allowed a second and final attempt.

When the Advisory Committee is satisfied that the student has passed the Comprehensive
examination, Form 3 (see Appendix) should be filed with The Graduate School through the
Office of Graduate Studies.

c. Dissertation Proposal

A Dissertation Proposal should be presented to the student’s Advisory Committee within two-
and-a-half years of admission into the graduate program. The typed written proposal must be
presented to the members of the Advisory Committee at least 10 days prior to the committee
meeting at which the student will orally defend his/her proposal. After the committee has read
the manuscript, the candidate is encouraged to visit privately with each member to determine if
any major changes are required before the defense.

The proposal should include:

1) a review of the relevant literature
2) an outline of the nature of the problem that the student wishes to investigate for his
dissertation research
3) an outline of the proposed experimental approach(es) to be used in the dissertation
research

At the committee meeting, the members of the Advisory Committee will expect the student to be
able to demonstrate a familiarity with the background literature for his/her research, and an
understanding of the principles and applicability of the research methodology proposed. The
student may present any preliminary data that he/she has. The aim of this proposal is to
demonstrate that he/she knows what he/she wants to do, why he/she wants to do it, and how
he/she plans to commence the work.

The committee will vote on whether to approve the proposal and its presentation. If the
committee perceives any weakness(es), it may require some remedial action, any such
remedial action should be approved by telephone conference/committee meeting/some other
form of action within three months of the original committee meeting. A Dissertation Proposal
Action Form (form 4, see Appendix) should be completed and returned to the Graduate Office to
document the proposal process.
6. YEARS THREE THROUGH GRADUATION

a. Curriculum

Biomedical Science Ph.D. students supported by research assistantship must enroll in at least 6 credits, but are requested to enroll in 12 credits, each fall and spring semester. Students should register for research or dissertation preparation credits as required to bring the fall and spring semester credits to 12.

Summer registration is not required by Biomedical Science; however students may elect to register in summer if they have a need.

Before graduation, a minimum of 12 credits of Dissertation Preparation is required of all Ph.D. students; there is no maximum limit to dissertation or research credits. The student should select the Dissertation Preparation 899 course corresponding to the department designator of the mentor's departmental affiliation and the section corresponding to the mentor - The School of Medicine Graduate Office will to open a section for new mentors.

The student should have at least one meeting of his/her Advisory Committee each year.

b. Dissertation Defense

The student’s written dissertation, which is the culmination of graduate study, should make a significant contribution to the body of current knowledge in Biomedical Science. The student will be required, as the final act before graduation, to present to the Advisory Committee an oral defense of the dissertation. The candidate must give a seminar as the first part of the dissertation defense. Scheduling and announcement of the seminar to the Biomedical Science Program should be coordinated through the Graduate Office. The seminar will be open to faculty and students, and questions will be invited from the audience. Following the seminar, the candidate and his/her committee will meet for additional questions; then the committee will determine if the performance is satisfactory. The dissertation defense is successful if no more than one member of the examining committee dissents. Each member of the committee signs (with black ink) the title page (on 100% rag paper) before it is taken to the Graduate School for the Dean’s signature. A dissertation title page template for Biomedical Science approved by the Graduate School is available as a Microsoft Word document at the Biomedical Science Ph.D. program requirements and curriculum website for enrolled students.

An information packet “Dissertation Guidelines” is available on the Graduate School website. Instructions on dissertation format, page numbering and margins, abstract contract, paper quality, deadlines and the procedures for submitted the official dissertation and required copies to the Graduate School are included in this packet. The deadline for submitting the signed dissertation is usually 15 or 20 days before commencement. The date, subject to change by the Graduate School, is published in the master schedule each semester. It is the responsibility of the graduating student to confirm to the deadline date and schedule the defense and exit appointments accordingly. Note: when the student has successfully defended his/her thesis, the Chair of the student’s Advisory Committee should write a letter to the Director of the Biomedical Science Graduate Program. A suggested format is shown in the Appendix, Form 5.
Research

Students are encouraged to participate in ongoing research beginning their first semester. Research interests and recent publications of the School of Medicine faculty are listed on the Medical School’s web site.

1. **W. Morgan Newton Graduate Student Research Award**

   This award has been established in honor of Dr. W. Morgan Newton, the former Director of the Animal Resource Facility. All Biomedical Science Ph.D. students are required to participate in the annual Newton Graduate Research Symposium at least once before their dissertation defense. Participants submit an abstract based on some aspect of their current research and make a 15-20 minute oral presentation before the faculty and students. An award committee consisting of at least one faculty member from each department selects a winner and recognizes several highly ranked presentations worthy of ‘honorable mention’. Selection criteria include the following: clarity and organization of presentation; quality of research; analysis and interpretation of data; and understanding of the research demonstrated by responses to questions. Those students selected for ‘honorable mention’ receive recognition and a check for $50. The winner receives a check for $200 and a certificate presented at the Medical School Graduation and Honors Day Ceremony in May. First place and honorable mention winners are nominated to make presentations at the University-wide Graduate Student’s Day held in April.

2. **Teaching Training**

   Biomedical Science graduates often take faculty positions at colleges, universities, and medical schools with teaching responsibilities. Therefore, training in effective scientific and medical education is offered. Basic Science departments may provide students with opportunities for participation in teaching one or more courses in the School of Medicine. In addition, a cooperative teaching affiliation with Midlands Technical College provides teaching opportunities in allied health fields; graduate students not only gain valuable experience but also earn additional income. Teaching tutorials for graduate students are also offered annually on the main campus and are required for students appointed as Teaching Assistants or Instructional Assistants.

3. **Biomedical Science Program Support of Academic Travel**

   Scientific conferences and meetings provide an important educational experience and graduate students are urged to attend and present the results of their research. To encourage student participation in scientific meetings, the program allocates a portion of its annual budget to support the expenses of academic travel. The policy for awarding program funds for academic travel by graduate students is as follows:

   - The regular University policy for allowable travel expenses applies.
   - Requests for travel support should include an estimate of expenses submitted on the graduate office travel request forms (Form 11, see Appendix). A University Travel Authorization must be submitted from the department, and copies of the TA and TRV (Reimbursement form) sent to the graduate office.
   - Program funds are available to match funds from a department or research account up to a limit of $750.00 per year.
   - To allocate funds fairly, a formula for determining priority will be used. Funds will be awarded starting at the highest priority until the available budget is exhausted. The priority formula will consist of the sum of these points:
<table>
<thead>
<tr>
<th>Seniority</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>First year students</td>
<td>0</td>
</tr>
<tr>
<td>2nd and 3rd year students</td>
<td>1</td>
</tr>
<tr>
<td>Students beyond 3rd year</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Significance of the meeting</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>National and small specialty</td>
<td>2</td>
</tr>
<tr>
<td>Regional meeting</td>
<td>1</td>
</tr>
<tr>
<td>Resort conferences</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Research presentation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorship on a presentation</td>
<td>1</td>
</tr>
<tr>
<td>Presenter of a presentation</td>
<td>2</td>
</tr>
</tbody>
</table>

(these are exclusive categories)

<table>
<thead>
<tr>
<th>Participation in the Newton Research Award Competition</th>
<th></th>
</tr>
</thead>
</table>

Requests should be made as early in the fiscal year as possible (even if the meetings are to be held or abstracts are not due until much later in the fiscal year) in order to have funds available for participation at meetings which occur late in the school’s fiscal year. Use Form 6 in the Appendix to request travel funds.
APPENDICES
PLANNED LABORATORY ROTATIONS FOR THE UPCOMING SEMESTER

SEASON; Fall, Spring, Summer

FIRST ROTATION:

I, ________________________________ plan to rotate through the laboratory of Dr. ________________________________

from _____________ until _____________

Signature of faculty member ________________________________

Signature of Director for the Biomedical Sciences Graduate Program

SECOND ROTATION [IF APPLICABLE]:

I, ________________________________ plan to rotate through the laboratory of Dr. ________________________________

from _____________ until _____________.

Signature of faculty member __________________________

Signature of Academic Director for the Biomedical Sciences Graduate Program
SELECTED OF MAJOR PROFESSOR AND FOCUS GROUP

THIS FORM SHOULD BE FILLED OUT AFTER CONSULTATION WITH THE MAJOR PROFESSOR.

I, _____________________________, wish to have Dr. _____________________________ appointed as my major professor.

Signed: _________________________________ (Graduate Student)

____________________________________ (Major Professor, I hereby agree to take financial as well as academic responsibility)

____________________________________ (Director for the Biomedical Sciences Graduate Program)
Date:

Dr. Richard Hunt
Office of Graduate Studies
University of South Carolina
School of Medicine
Columbia, SC 29208

Dear Dr. Hunt:

This letter is to inform you that on __________, 200_, __________________________________

successfully defended his/her Comprehensive Examination for the degree of Doctor of Philosophy in
the University of South Carolina School of Medicine, Biomedical Sciences Program.

The Committee consisted of:

________________________
Major Professor

________________________
________________________
________________________
________________________

________________________
Outside Member

Sincerely,

___________________________
(Chair, Examining Committee)
Biomedical Science Ph.D. Program

Dissertation Proposal Action Form

A dissertation proposal should be prepared and a meeting held with the advisory committee. This form is to be used to document the dissertation proposal meeting. The student and advisor should retain copies and a copy should be turned into the Graduate Office for the student’s file.

Student Name: ___________________________________________________________

Title of Dissertation: _______________________________________________________________________

______________________________________________________________________________________

Date: ____________________

Check One:  ____Initial meeting, ____ Non-meeting review,  _____Subsequent meeting

Action Taken (Check One):

Proposal approved  __________

Proposal approved conditionally*  __________

Proposal in need of re-review without another meeting  __________

Proposal in need of re-review with another meeting  __________

* Summary of Conditions:

Action Acknowledgment (please sign):
Dissertation Director: _______________________________________

Committee Member: _______________________________________

Committee Member: _______________________________________

Committee Member: _______________________________________

Committee Member: _______________________________________

Committee Member: _______________________________________

Student: _________________________________________
WHEN A STUDENT HAS SUCCESSFULLY DEFENDED HIS/HER DISSERTATION, A LETTER SHOULD BE SENT TO THE MEDICAL SCHOOL OFFICE OF GRADUATE STUDIES TO OFFICIALLY CONFIRM THAT THE DEFENSE WAS SUCCESSFUL

Date:

Dr. Richard Hunt
Office of Graduate Studies
University of South Carolina
School of Medicine
Columbia, SC 29208

Dear Dr. Hunt:

This letter is to inform you than on __________, 200_, ________________ successfully defended his/her dissertation for the degree of Doctor of Philosophy in the University of South Carolina School of Medicine, Biomedical Sciences Program.

The Committee consisted of:

Major Professor

________________________

________________________

________________________

________________________

________________________

Outside Member

________________________

Sincerely,

___________________________

(Chair, Examining Committee)
TRAVEL SUPPLEMENT REQUEST

Date: ___________________  

Name: ___________________________  

Department: ___________________________  

Destination: _________________________  

Trip Date: ___________________________  

Purpose: ______________________________________________________________________  

______________________________________________________________________________  

Abstract: ____Yes    ____ No  Poster:______Presentation:______  

(if yes, attach copy)  

Estimated total cost of trip: $_________  

Program funds are available to match funds from a department or research account up to a limit of $750.00/year.  

(Your department administrative assistant or business manager will originate the university Travel Authorization. Copies of Travel Authorizations (TAs) and Travel Reimbursement Vouchers (TRVs) should be copied to the Office of Graduate Studies.)  

Have you received a travel supplement from the Office of Graduate Studies during the current fiscal year? (July 1- June 30)    Yes___   No___  

Are you submitting an abstract for the next Newton Symposium?    Yes___   No___  

Comments:  

DISAPPROVED_____  APPROVED_____AMOUNT $_________  

__________________________________________  ____________________  

Director of the Biomedical Science Graduate Program  Date