

# **GUIDELINES AND POLICIES**

## For The Doctoral Program in Physiology

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## **I. GENERAL INFORMATION**

### **A. Introduction**

This booklet defines the guidelines and policies governing the Doctoral Program in the Department of Physiology, East Carolina University and is supplemental to the current University Graduate Catalog. The information in this booklet has been prepared for the graduate faculty, graduate students and applicants to the graduate program in Physiology. All faculty and students should be thoroughly familiar with the information provided, and should adhere to these guidelines and policies in formulating the student's program of education.

Administration of a graduate student's program is the shared responsibility of the ECU Graduate School, Brody School of Medicine Office of Research and Graduate Studies, Department of Physiology Graduate Studies Committee, Student Advisory Committee, and the student. The Graduate School confers final appointment of faculty to the Graduate Faculty, oversees the student application process, determination of state citizenship, registration, conferral of the degree, and graduation. The Brody School of Medicine (BSOM) Office of Research and Graduate Studies in conjunction with the BSOM Graduate Studies Committee oversees school-wide policies and liaises between students and departments, Medical School Administration, and the Graduate School. The BSOM Graduate Studies Committee is comprised of Graduate Directors from each department involved in Ph.D. education within the BSOM. The Associate Dean for Research and Graduate Studies serves as an ad hoc member of Committee. This Committee establishes school-wide policy pertaining to graduate programs in the basic sciences and votes on applications for appointment to the Graduate Faculty. The BSOM Office of Research and Graduate Studies oversees Graduate student fellowships, benefits, records of coursework including submission of course registration forms, and scheduling and advertising defenses. The responsibilities of the Department of

Physiology Graduate Studies Committee, Student Advisory Committee, and the students are articulate in the remainder of this document.

**B. Graduate Studies Committee (GSC)**

The role of the Graduate Studies Committee is to foster excellence in doctoral training in Physiology within the Brody School of Medicine. The GSC manages the graduate program in the Department of Physiology, and thereby is responsible for the following: formulating new or amended policies and practices to facilitate and improve the quality of graduate education; bringing policy changes before the Graduate Faculty for approval; implementing policies approved by vote of the Graduate Faculty in the Department; interfacing with BSOM and ECU administration; insuring compliance with existing and amended policies; and providing general support for the faculty and students in the Program. The Graduate Studies Committee consists of the Director of Graduate Studies, who serves as the committee chairman, and two other faculty members from the Department. The members are appointed annually by the Departmental Chairman from the Graduate Faculty in Physiology.

New policies formulated by the Graduate Studies Committee must be brought to the faculty for discussion and approval. New policies and amendments to current policy become binding only after they have been approved by two-thirds of the Graduate Faculty holding primary appointments in the Department of Physiology.

The Graduate Studies Committee facilitates progression through the program by disseminating information, advising students and faculty on established policies and procedures, scheduling biannual evaluation of students during regularly scheduled faculty meetings in January and June, maintaining records of students' progression through the program, overseeing the

curriculum, and advising students prior to formulation of the Student's Graduate Advisory Committee.

C. *Application for Graduate Study in Physiology*

Request for admission to the Graduate Program in Physiology involves submitting an application and all supporting materials directly to the Graduate School. Completed applications are forwarded to the Director of Graduate Studies in Physiology. The Graduate Studies Committee identifies qualified applicants, presents the applications at a department faculty meeting, and makes the applications available to the Physiology graduate faculty for review. The Departmental faculty members provide input to the Graduate Studies Committee, which then issues recommendations for admissions and granting of fellowship support to the Brody School of Medicine, Office of Graduate Studies, and through them, to the Dean of the Graduate School. Final admission is granted by the Dean of the Graduate School.

Admission to the Graduate Program in Physiology is based on both the strength of the applications and programmatic considerations. Preference is given to applicants who exhibit potential for academic and research success in physiology as demonstrated by academic achievement, Graduate Record Examination (GRE) scores, and letters of recommendation. Programmatic considerations include availability of research mentors, facilities, and resources.

Graduate studies in Physiology require knowledge of inorganic and organic chemistry, biology, physics, and mathematics. Therefore, in addition to the general admissions requirements of the Graduate School, students entering the doctoral program in Physiology should have the following prerequisites:

1. Biology - two semesters with laboratories
2. Chemistry - four semesters including organic chemistry with laboratories
3. Mathematics through Calculus
4. Physics

Although not required, students are encouraged to have had an introduction to biochemistry; cell biology, molecular biology or genetics; and statistics to provide a strong basis for advanced courses.

Deficiencies in the required courses can be removed during graduate study prior to the candidacy examination through appropriate courses and/or examinations as determined by the Student's Advisory Committee and/or the Graduate Studies Committee. It is the responsibility of the Graduate Studies Committee to determine that all requirements have been completed prior to admission to candidacy for the degree of Doctor of Philosophy.

Applicants may apply for admission to begin studies in any semester of the academic year. Application for admission to the Graduate Program is made by completion of forms furnished by the Graduate School. Applications must be supported by an official transcript from each institution attended since high school, official Graduate Record Examination scores, at least two letters of recommendation from persons able to assess the applicant's potential to successfully complete the academic and research requirements of a doctoral degree program of study, and an essay (1-2 pages) from the applicant describing their future career goals. Foreign applicants who do not use English as their native language must demonstrate proficiency in English through either a personal interview or achieving a score of 250 or higher on the "Test of English as a Foreign Language" (TOEFL) examination.

Inquiries regarding admission to the graduate program in Physiology should be referred to the Director of the Graduate Studies Committee.

## **II. INFORMATION FOR FIRST-YEAR STUDENTS**

**A. Advisors for New Students**

The Departmental Graduate Studies Committee (GSC) will act as the student's advisory committee prior to the convening of the Student's Graduate Advisory Committee, sometimes called the Dissertation Committee. The GSC will meet with the student prior to orientation to define student's academic background (strengths, weaknesses, and deficiencies). During orientation week, the GSC will meet with students and define a course of study for the first year that will accomplish the goals of the student and department. In some cases, the GSC may assign a student a faculty mentor from the Graduate Faculty within the Department to provide guidance through the first years in the program.

**B Advisory Committee**

The Departmental Graduate Committee recommends that all new students have an Advisory Committee which will direct the students until they pass qualifying their examination. This practice we hope will provide better integration of the new students with the life of the department, establishing better communication between students and faculty, and troubleshoot potential problems with coursework, rotations, choosing research area and Ph.D. dissertation mentor.

The advisory committee membership should be diverse, consisting of 4 faculty at each of the professorial ranks and representing the different areas of Physiology. The Departmental Graduate Committee will assist in identifying a chair and committee members. If the students have already identified a mentor that individual can serve as the Advisory Committee Chair and work with the

Departmental Graduate Committee to identify other members of the students' advisory committee. There will be every attempt to distribute/limit the faculty to serving on a single students Advisory Committee, so not to over burden any one faculty with excessive committee work.

The Advisory Committee should have their first meeting with a new student in the second week of the fall semester and set a schedule for monthly meetings thereafter. At each of the monthly meetings the student should provide informal update on the progress with coursework, rotations and Grad Forum /Seminar (please note that rotations and GF/S are to be graded as regular courses).

### **C     Research Rotation Program in Physiology**

The Graduate committee of the Department of Physiology recommended a new research rotation policy for first-year students. Students receive course credit for Introduction to Research PHL 7740.

The purpose of the lab rotations is to get experience in specific laboratories that will eventually lead to the choice of a thesis/dissertation laboratory. Such experience goes far beyond learning techniques; it is an opportunity for the student to determine whether he/she is compatible with the lab and the mentor. Rotations also provide the student with the opportunity to explore areas in which she/he may have interest but no direct research experience. It is recommended that at least one rotation be utilized to explore a field of research that the student may not have previously considered as a future research direction. Students are required to do a minimum of four different lab rotations, and a student can do additional rotations if necessary to find a compatible lab for thesis research.

The minimum period for a rotation is 8 weeks; students often spend a few weeks longer, depending on the term in which the rotation is done. A rotation can be also done in the summer before the beginning of the first year.

### ***Goals of the rotation experience***

1. To help first-year students make informed decisions regarding research advisor selection;
2. To encourage these students to learn more about research in the physiology department at ECU;
3. To give students a first-hand experience in the research culture and mentoring styles of different laboratories;
4. To give students the short-term opportunity to closely consider research in an area of physiology different from their first choice at the time they entered;
5. To encourage upper-level graduate students and postdoctoral researchers in the various laboratories to discuss their research with new graduate students
6. To encourage development of collaborations between two or more laboratories, with the possibility of students working with two research advisors.

### ***Structure of the rotation experience***

1. From late August through mid-September, students will meet with individually with the graduate faculty. All members of the graduate faculty should meet with the student and sign and date the form. These meetings should be completed by mid-September.
2. After further one-on-one meetings with potential faculty mentors for the research rotation experience, students can select a schedule of research rotations with two or three faculty. Students

submit their choices of rotation to the Graduate Program director advisor by September 22, 2009.

Example of rotations for 2009-2010:

<b><u>Four-rotation schedule:</u></b>	
First Rotation	Sept. 22 - Nov 7, 2009
Second Rotation	Nov. 10 - Jan 16, 2010
Third Rotation	Jan 19 – March 13, 2010
Forth Rotation	March 16- April 28, 2010

3. A student may change their choice of the second, third or forth rotation advisor during an earlier rotation period. The order of the rotations is arranged by the graduate committee. Priority is given to scheduling students as evenly as possible across all of the rotation periods, except if a faculty member arranges in advance not to schedule rotations during one of the periods due to teaching, extensive travel, etc.

4. Students will submit their first and second choice of summer rotation to graduate committee on May 1, 2010. Summer rotation is a full time research in the lab, which expected to result in an abstract submission to the local, regional; or national conference.

***Activities of the rotation experience***

1. Faculty is permitted considerable flexibility in assigning rotation activities, and should keep in mind those students who elect to take three (instead of two) courses in the fall semester will have less time available for the rotation experience. Faculty expectations should be discussed with students during the one-on-one meetings prior to selection of rotation advisors.

### ***Laboratory Rotations***

Research rotations consist of miniprojects carried out in the laboratory of and under the supervision of a faculty member. Students must complete at least four laboratory rotations during the first year. Most students elect to complete an additional full-time rotation during the summer. The rotations involve individual projects related to the general research interests of the students and the faculty mentors chosen. In recognition of the fact that a student's scientific interests often evolve considerably during the first few months of graduate study, students may choose to continue rotations into the second year. This gives students sufficient opportunities to explore all the options for laboratories in which thesis research might be pursued.

A rotation in a particular laboratory does not constitute a commitment on the part of the student or research adviser regarding the ultimate choice of thesis/ dissertation laboratory. Following their rotations, students select and join the thesis/dissertation laboratories where they will pursue research projects for their degree requirements. It is expected that this selection process will be complete by the second semester of the second year.

### **D. *Selection of a Dissertation Advisor***

The Graduate Studies Committee is responsible for assisting the student in selecting a Dissertation Advisor appropriate to the research interests and professional goals of the student, and consistent with the resources within the Department. Several mechanisms exist to help students define their interests and identify a faculty mentor.

During the first year, students gain familiarity with research programs in the Department through the Introduction to Research course (PHLY 6740). In this course, students rotate through 6 laboratories learning specific techniques and becoming acquainted with research programs within

the Department. Through this period, students are encouraged to spend as much time as possible in the laboratories, but no less than 6 hours per week.

In parallel with Introduction to Research, students participate in the Student Research Forum, which is part of the Seminar course (PHLY 6715). The Forum provides an informal venue in which graduate students engage in discussions of research (technology, protocols, results, problems, etc.) with the faculty and senior graduate students. This provides a second mechanism for first year students to focus their research interests.

Students participate in Research Internships, or Rotations, to further define their interests and identify a faculty mentor. Internships provide an intensive, 3 to 4 month, laboratory research experience and introduction to scientific literature. In most cases, the Internships begin in the summer after the first year and are to be completed by the end of the 3<sup>rd</sup> (Fall) semester. Extension of internships into the 4<sup>th</sup> semester is permissible, but discouraged since it delays final appointment of a Student Advisory Committee and preparation for the candidacy examination. Students are expected to spend as much time in the internships as their courses will allow.

The GSC and/or pre-candidacy advisor will discuss research interests and internship opportunities with students during the first year. In the 2<sup>nd</sup> semester, students approach potential faculty mentors, obtain permission to enter the laboratory for an internship, and inform the Chair of the GSC of their intentions. At the end of the internship, students inform the Chair of the GSC of their desire to remain in that laboratory, or take an internship in another laboratory. Research activities performed during internships, including the literature reviews, are presented in the Student Research Forum. All full-time students in the graduate program in Physiology should select a Dissertation Advisor by the beginning of the 4th semester in residence, excluding summers. In the event that a student does not have a Dissertation Advisor at this time, the Graduate Studies

Committee will recommend a Dissertation Advisor to be assigned by the Departmental Chairman. The assignment should be mutually agreeable to the student and to the Dissertation Advisor.

Upon selection of a Dissertation Advisor, the student and faculty mentor will notify the Graduate Studies Committee. The Graduate Studies Committee will make a recommendation to the Departmental Chairman who shall make the appointment. The capacity of an advisor to support the student and the dissertation research will be carefully considered by both the Graduate Studies Committee and the Department Chairman. To change the Advisor-Advisee relationship, a written recommendation from the Graduate Studies Committee and consent of the Departmental Chairman is required.

The Graduate Faculty support the student's right to work in a laboratory of their choosing and pursue a research project of interest to them. The following guidelines for matching students with Dissertation Advisors are to be followed to insure academic and fiscal accountability in the program:

1. Dissertation Advisors must be from the Graduate Faculty in the Physiology Department.

In the event that a student wishes to work under a faculty member outside of the Department, a formal request must be made in writing to the GSC, and subsequently approved by the Graduate Faculty and Departmental Chair at a formal meeting of the faculty.

2. Co-mentorship of thesis/dissertation committees by new faculty. It is strongly recommended to have a co-mentor on the first committee chaired by a faculty member, who did not chair graduate committee at ECU previously. This co-mentor must have previously and successfully chaired a dissertation/ thesis committee of their own here at ECU. This will help to insure consistency and familiarizing the new faculty member with the procedural aspects of committee work here at ECU, as well as

protecting/assisting the students in case of a departure of the mentor prior to the completion of their program.

3. The graduate program is a collective undertaking of the graduate faculty, intended to provide students with the training necessary to pursue careers as physiologists. It is expected that all graduate faculty members of the department will participate in graduate education, whether or not they serve as thesis directors, consistent with their expertise and experience.
4. Graduate student education and research programs are linked. Ongoing extramurally funded research programs should enhance the educational process in any laboratory, and participation by graduate students should enhance the advancement of the research program in any lab, but in the end, a well-trained doctoral student should be the result in each case.
5. It is expected that all laboratories engaged in research will support the costs of that research, including direct project costs of graduate students. Increasingly, this expectation will expand to include stipends of graduate students once candidacy has been established.
6. Laboratories without the ability to support a stipend after candidacy should not accept more than one doctoral student for thesis training unless specific exception has been discussed and approved by the Departmental Chair.
7. Graduate students supported by institutional funds will be considered as part of the internal support for the laboratory, and will be a factor in periodic review of departmental resource allocation.

E. *Graduate Advisory (Ph.D.)Committee*

Within one month of appointment as the Dissertation Advisor, it is the responsibility of the student's Advisor to recommend the composition of the student's Graduate Advisory Committee to the Graduate Studies Committee. The student's Dissertation Advisor will normally serve as the Chairman of the student's Graduate Advisory Committee. This Committee is composed of at least four graduate faculty members (the Chairman of the Graduate Advisory Committee and three other voting members). Three of these must be members of the Graduate Faculty in Physiology. At least one Committee member must be a member of the Graduate Faculty of another department within the University. In addition, one individual from outside of ECU may sit on the student's Graduate Advisory Committee to allow for specific expertise that is not available within the Graduate Faculty. In selecting committee members, the student and the Advisor should avoid constructing a committee with a narrow range of academic interests. The student and Advisor will submit the committee composition to the GSC on the Appointment of Student's Graduate Advisory Committee form (GSC-1). The GSC will review the committee composition for compliance with the guidelines stated above.

The student's Graduate Advisory Committee is responsible for establishment of the student's program of study in final detail, approval of the research program, counseling the student, monitoring the student's progress, administration and evaluation of the doctoral candidacy examination, criticism of the dissertation, and administration and evaluation of the dissertation defense. The final program of study for the Ph.D. degree (submitted on the Approval of Graduate Student's Program of Study form GSC-2) shall be formulated and approved by the student's Graduate Advisory Committee (in consultation with the student). Form GSC-2 must be submitted to the GSC within four weeks after approval of the proposed program of study by the Graduate Advisory Committee.

The student's Graduate Advisory Committee must meet at least twice a year. It is the responsibility of the student to schedule meetings at times when all members of the Graduate Advisory Committee can attend. Students will be expected to update the committee on progress and plans towards completion of the Specific Aims in their Dissertation Research Proposal. The Advisory Committee will assess the progress and provide guidance on proposed experiments. The chairman of the Graduate Advisory Committee will submit a written summary of each meeting to the Graduate Studies Committee for inclusion in the student's file, and provide copies to the student and to each committee member. The meeting summary must cite any deficiencies that the committee has identified, as well as the relevant action the committee has prescribed to correct the problem. At least once per year, this report shall include a description of the overall achievement and development of the student. This report will be forwarded to the Departmental Chairman by the Graduate Studies Committee and kept in the student's permanent file.

If the Dissertation Advisor leaves this institution, the Advisor and the student's Graduate Advisory Committee must insure that the student's progress toward the degree can continue at this or another institution. If the Dissertation Advisor goes on a Leave of Absence or becomes incapacitated, the Student's Advisory Committee will appoint an Acting Chairman, and submit their decision for approval to the Graduate Studies Committee and the Departmental Chairman.

### **III. GRADUATE CURRICULUM IN PHYSIOLOGY**

#### **A. Course Requirements**

Students enrolled in the Physiology doctoral program must meet all requirements specified in their approved program of study in order to obtain a degree. However, the student's Graduate Advisory Committee may modify the approved program requirements when such changes are beneficial to the student. Recommended changes in the program of study must be submitted in writing to the Graduate Studies Committee for review and forwarded to the Departmental Chairman for approval. Completion of the required coursework must be confirmed prior to the qualifying examination by submission of form GSC-6.

As a general rule, a minimum of 40 semester hours of course work is required for the doctoral program. The Core Curriculum presented in Table 1 is used to guide development of a student's program. The details of an individual student's approved program of study are the responsibility of the student's Graduate Advisory Committee.

In general, the major courses in the 1<sup>st</sup> semester are Biochemistry, Introduction to Research, and a graduate selective in cell biology, molecular biology, or genetics. The selective is chosen based on the student's background and career goals. Students are also required to take a seminar course to learn and practice presentation techniques. In the 2<sup>nd</sup> semester, students continue the Introduction to Research Course; study graduate organ systems physiology, neuroscience, and statistics; and present a departmental seminar based on a literature review or research they have conducted. The 1<sup>st</sup> summer session is spent in a research internship, working in a laboratory and reviewing literature with the faculty.

In the second year, students study pathophysiology in PHL Y 7703, endocrinology in PHL Y 7738, physiological genomics in PHL Y 7704, and a selective; continue their internships; and present the research results from the summer internship in the Student Research Forum. The Spring Semester of the 2<sup>nd</sup> year is reserved for selectives related to the student's dissertation research. Only one required course is taken: advanced topics in cell and molecular physiology in PHL Y 7701.

**Generalized Course Layout**

<b>Fall 1st Year</b>	<b>Course Number</b>	<b>Credit Hours</b>
Graduate Organ Systems Physiology	PHLY7702	5
Introduction to Research	PHLY7740	3
Research Ethics	GRADS 7004	2
Seminar/Forum	PHLY 7715	1
Fall Electives		0-5
<b>Spring 1st Year</b>		
Practical Biometry	PHAR 7777	3
Introduction to Research	PHLY 7740	3
Seminar/Forum	PHLY 7715	1
Spring Electives		2-9
<b>Summer 1st Year</b>		
Laboratory Research	<i>Full time</i>	
Adv. Topics in Physiology	PHLY 7710	
<b>Fall 2nd Year</b>		
Seminar/Forum	PHLY 7715	1
Laboratory Research	<i>Full time</i>	
Fall Electives		8-15
<b>Spring 2nd Year</b>		
Medical Physiology Special Topics	PHLY 7702	5
Seminar/Forum	PHLY 7715	1
Laboratory Research	<i>Full time</i>	
Spring Electives		3-10
<b>Summer 2nd Year</b>		
Comprehensive Exams		
Laboratory Research	<i>Full time</i>	
<b>Recommended Electives Examples</b>		
<b>Fall</b>		
Graduate Cellular Physiology	PHLY 7701	3
Physiological Proteogenomics	PHLY 7704	4
Translational Physiology	PHLY 7705	4
Biochemistry 1	BIOC7301	4
Molecular Biochemistry	BIOC 7310	3
Molecular/Cell Biology	MCBI 7410/ANAT 7202	4
Toxicology	PHAR 7680	4
Biostatistics I	BIOS 7021	3
Advance Topics in Physiology	PHLY 8710	2
<b>Spring</b>		
Graduate Neuroscience	PHLY7703	4
Advance Topics in Physiology	PHLY 7710	3
Medical Neuroscience	PHLT 7730	5
Regulation of Metabolism	EXSS8334/BIOC8320	4
Immunology	MCBI 7450	4
Cardiovascular Pharmacology	PHARM 7660	3
Practical Problems in Biometry	PHARM 7777	3
Biostatistics II	BIOS 7021	3

**B. Grades**

The grades used in evaluating the performance of doctoral students are:

A - Excellent  
B - Good  
C - Low Pass  
F - Fail  
I - Incomplete  
IP - In Progress

No grade less than B in any graduate course is acceptable for the Ph.D. degree credit requirements.

At the discretion of the Graduate Studies Committee any grade of C or less may result in termination of the student's program. A student who receives more than 6 hours of C or less in any portion of his or her program will have his or her program terminated.

The grade of "I" is given for a deficiency in the quantity of work done in a course. A grade of "I" not removed during next semester in which the student is enrolled in the University automatically becomes a failure. The grade of "IP" is given only for Dissertation Research. The completion of the research and defense of the dissertation changes this grade to a "Pass".

Withdrawal from any doctoral course is only allowed for extenuating circumstances, and must be authorized by the Graduate Advisor and Departmental Graduate Studies Committee prior to submission of the request to the Registrar.

**C. Research Grant Proposal**

Ability to organize and present ideas for research projects, solicit critical review of the ideas, and obtain support to test those ideas is a key attribute in a scientist. Therefore, every student is required to prepare a pre-doctoral grant proposal of the project. The proposal is written under the guidance of a faculty mentor, usually the Dissertation Advisor, and may be, but is not required to be, the basis of their dissertation research proposal. Students must submit the proposal to their Graduate Advisory Committee (or the Graduate Studies Committee in the event that the proposal is developed prior to appointing an Advisory Committee) and defend the proposal in an open departmental seminar. The Graduate Advisory Committee determines satisfactory completion of this requirement.

Submission of the proposal to an appropriate funding agency, such as National Science Foundation, National Institutes of Health, and the American Heart Association is encouraged, but not all areas of research are supported by agencies offering funding for pre-doctoral training. It is strongly recommended that the proposals be completed by the end of the 4<sup>th</sup> semester.

**D. Research Requirement**

All graduate students in Physiology are required to design and conduct an original, independent research project under the supervision of their Dissertation Advisor. The research project is a major component of the graduate curriculum. The student is expected to make research presentations at regional, national or/and international scientific meetings, and prepare and submit their findings to a peer-reviewed journal. Upon completion of the research project, a dissertation describing the research project and the results must be prepared under the direction of the student's Dissertation Advisor as specified in the Graduate Catalog.

**E. Teaching Responsibilities for Graduate Students**

In lieu of a formal departmental requirement, the student's Graduate Advisory Committee defines the requirements for teaching experience. Students expecting to enter academic career tracks are advised to accumulate teaching experience prior to graduation through presentation of lectures in undergraduate courses, acting as a teaching assistant for a course, or tutoring students in health profession programs. A student interested in gaining teaching experience should contact his/her Graduate Advisor for recommendations on appropriate teaching venues. The Advisors will work with Course Directors to define an appropriate experience. Course Directors will oversee the experience, evaluate performance of the students, and provide the Graduate Studies Committee with documentation of the student's performance for inclusion in the student's file.

**F. Obtaining Credit for Previous Graduate Coursework**

In some cases, students can obtain credit for graduate courses completed at other institutions or as part of other programs, or test out of coursework by demonstrating competency on an examination administered by the Graduate Studies Committee. Acceptance of credits from transfers or examinations is subject to approval by the Graduate Studies Committee, the Departmental Chairman, the Graduate School Administrative Board, and the Dean of the Graduate School. With the approval of the Graduate Studies Committee and Departmental Chairman, one or both portions of the doctoral candidacy examination requirement may be waived for transfer students who have successfully passed an equivalent candidacy examination in their former graduate program.

**IV. ADMISSION TO CANDIDACY FOR THE DOCTORAL DEGREE**

Admission to candidacy is conferred upon successfully passing the doctoral candidacy examination. The student's Graduate Advisory Committee will determine a student's eligibility for the examination and conduct the examination. The examination consists of a written comprehensive assessment of the general knowledge acquired in the curriculum, and an optional oral component to assess deficiencies identified on the written examination. Upon passing examination the student will be recommended for admission to candidacy for the degree, Doctor of Philosophy. Every effort should be made to complete the examination process during the summer between the 2<sup>nd</sup> and 3<sup>rd</sup> years.

**A. Written Qualifying Examination**

This written examination will measure the depth and breadth of knowledge acquired in the student's approved program of study. The Graduate Advisory Committee will solicit questions from the graduate faculty based on the student's approved program of study, and administered the examination over the course of one week. The examination will be comprised of 6 half-day sessions. Each session will focus on a different area of Physiology and the background knowledge important to that area. Answers to examination question will be graded as satisfactory or unsatisfactory by the submitting faculty member. Satisfactory responses on all questions will result in the Graduate Advisory Committee recommending the student for candidacy. If a significant deficiency is identified, the Graduate Advisory Committee will require that the student demonstrate command of the subject matter in an oral examination.

**B. Comprehensive Oral Examination**

An oral examination is conducted at the recommendation of the Graduate Advisory Committee to allow further assessment of the depth and breadth of knowledge a student has acquired, and their ability to integrate that knowledge in the context of their major area of study.

The student's Graduate Advisory Committee is responsible for the administration and evaluation of this examination. All of the Graduate Faculty in the Department are expected to participate and provide input to the Graduate Advisory Committee. It is expected that the Graduate Advisory Committee will invite questions from specific faculty to insure proper coverage of the area, and open the floor for questions from any departmental faculty member in attendance. Following the examination, the Graduate Advisory Committee will solicit input from the faculty on the student's performance in their area of expertise, and then meet in closed session to evaluate the examination. Approval of the student's performance will be by a roll call vote of the Graduate Advisory Committee with no abstentions. A passing vote consists of no more than one negative vote. The student's Graduate Advisory Committee Chairman will report the results of the Qualifying Examination to the Graduate Studies Committee using form (GSC-3) before the end of the next working day following the examination.

## **V. DOCTORAL DISSERTATION**

### **A. Dissertation Proposal**

Following the requirements of the Graduate Catalog of East Carolina University, each Candidate will prepare a dissertation proposal. The dissertation proposal must meet the guidelines specified in The Graduate Catalog, Section 7, School of Medicine, Doctoral Dissertation, including:

- 1) a review of the literature pertinent to the research,
- 2) a short statement on the nature of the project and the objectives of the proposed research,
- 3) an outline of a feasible research program.

The dissertation proposal must be approved by the student's Graduate Advisory Committee and a copy must be forwarded to the Graduate Studies Committee. The dissertation proposal may be modified as needed by the student's Graduate Advisory Committee. The research grant proposal (III, C, p17) may be used as the basis for the dissertation proposal. The dissertation proposal should be completed within 6 months of completing the doctoral candidacy examination. Extension of this timeline for cases in which preliminary data show the proposed experiments to be untenable can be granted by the Graduate Advisory Committee, but it is incumbent upon the student to provide proof of continued progress toward developing a feasible proposal.

### **Student proposal and progress-report presentations**

1. The graduate students should be presenting formal proposal and progress-report seminars in conjunction with the development of their dissertation research project.
2. The public proposal presentation should occur with the onset of the third year of enrollment in the doctoral program, and within 6 months of successful completion of the student's comprehensive examination.
3. This should take the form of a departmental seminar for student presentation followed by a question and answer period.
4. It is suggested that the student's committee had reviewed the proposal prior the presentation.
5. It is expected that the subsequent seminar presentations (progress-reports) should occur at yearly intervals after the initial proposal presentation. At least 1 public seminar presentation of the student's research progress must be presented in a public forum prior to their final dissertation/thesis defense.

Student proposal and progress-report presentations should be delivered as seminars to the faculty and students of the Department of Physiology who will be requested and expected to attend these presentations.

### **Dissertation Requirements**

The student will write a dissertation under the direction of their Advisor. The dissertation must reflect original, independent research, which contributes new knowledge to the candidate's major field. A high quality of experimental design, research technique, and communication must be demonstrated along with a clear perception of historical foundations, strengths, weaknesses, and implications of the results.

With the Graduate Advisory Committee's approval, the student will submit a complete typed draft of the dissertation to each Graduate Advisory Committee. The Committee will have a

minimum of two weeks to critique the dissertation draft and return it to the student. The student will prepare and distribute a complete, revised draft that reflects consideration of the Graduate Advisory Committee's critique. After reviewing the revised draft, each committee member shall convey to the student's Advisor whether the dissertation is of sufficient quality to schedule the oral defense.

Details pertaining to the preparation, binding, and distribution of the dissertation are specified in the Graduate Catalogue. Bound copies of the dissertation will be provided for the Advisor and the Department.

C. *Dissertation Defense*

The Advisor shall submit the "Request to Schedule Student Defense" form (GSC-4) and an announcement of the date, time and location of the oral defense to the Graduate Studies Committee and the Office of Research and Graduate Studies. The Office of Research and Graduate Studies will distribute the announcement to all School of Medicine faculty. Simultaneously, the Department of Physiology will distribute hard copies to all Physiology faculty and other pertinent faculty. The announcement must be distributed no less than 1 week prior to the oral defense.

The dissertation defense will consist of an oral presentation of the dissertation research in a publicly announced Departmental Seminar to which all interested persons are invited. The candidate should successfully defend the research findings by responding to all questions and criticism. Immediately following the seminar, the student's Graduate Advisory Committee will convene with the student to ask additional questions and to vote in the absence of the student whether or not to approve the student's dissertation. Voting shall be a roll call vote with no abstention. A successful defense requires no more than one negative vote. The vote will be recorded.

Recommendation to award the degree will be made by the Graduate Advisory Committee to the Graduate Studies Committee on the form "Report of Defense of Ph.D. Dissertation and Recommendation to Award the Degree" which will be provided by the Office of Research and Graduate Studies. The Graduate School's representative will bring this form to the dissertation defense. The Dissertation Advisor is responsible for obtaining the appropriate signatures and transmitting the form to the Chairman of the Graduate Studies Committee on the same day as the defense. The Chair of the Graduate Studies Committee will forward the recommendation to the Departmental Chairman who will submit the document to the appropriate offices.

If the dissertation defense is unsatisfactory, the defense will be re-scheduled. If the research findings contain major weaknesses, the candidate will be offered an opportunity to obtain additional data before re-scheduling a defense. The Dissertation Advisor is responsible for communicating the negative decision to the chairman of the Graduate Studies Committee. A letter describing the reasons for the decision, remedial efforts recommended by the Graduate Advisory Committee, and a proposed date for the re-scheduled examination should be delivered to the Chairman of the Graduate Studies Committee on the next working day after the defense.

The doctoral degree program must be completed before the end of the twelfth semester following initial enrollment, excluding summers. Under special circumstances, a student may request an extension from the Graduate Studies Committee with endorsement from their Graduate Advisory Committee. The Graduate Studies Committee will review the request and make a recommendation to the Departmental Chairman. In general, only one extension of not more than two semesters, summers included, will be approved.

The doctoral degree program is considered complete when the dissertation has been successfully defended, approved by the Graduate School, and a copy of the signed, final version has been forwarded to the Graduate School. This process is verified by completion of the form "Report of Final Submission of Dissertation" (GSC-5).

**D. Application to Graduate**

*Each semester, the University establishes deadlines for submission of materials necessary to graduate. Failure to meet the deadlines will delay the student's graduation until the next semestere. Some of the deadlines are early in the semester, and therefore all students should contact the Office of Research and Graduate Studies at the beginning of their last semester in residence to obtain the University's deadlines for submission of forms and material required for graduation.*

At the start of the final semester, the student must submit an Application for Graduation to the Registrar's Office. The application can be obtained from the Office of Research and Graduate Studies. By mid-semester, the following forms must be submitted to the Office of Research and Graduate Studies: Graduate Student Graduation Certification Completed (includes Graduate Student Graduation Summary and RG312), Dissertation Agreement form, and Survey of Earned Doctoral Degrees.

Students must be registered for the semester in which they graduate. If a student is not in residence at this time, they can petition the Graduate School to waive student fees by submitting the Continuing Studies Form to the Graduate School.

## **VI. ACADEMIC PERFORMANCE**

### **A. Grade Point Average**

Students in the doctoral program must maintain a cumulative grade point average (GPA) of at least 3.0 for graduate courses. The GPA will be calculated in the Department based on courses in the student's program of study that do not exceed the maximum credits allowed for courses that may be repeated for credit. At the discretion of the student's Graduate Advisory Committee, the Graduate Studies Committee, and the Department Chairman, additional course work may be added to the program of study to allow the student to bring the cumulative GPA to 3.0. A cumulative departmental GPA of 3.0 is a prerequisite for the administration of the Doctoral Candidacy Examinations. Only graduate level courses with a grade of "B" or better may be used to satisfy the minimum 40 credit hours required for the Ph.D. degree. A grade less than "B" in a course defined

by the department as being essential for the doctoral degree may result in program termination. Continuation in the program will require approval of the Graduate Studies Committee. The Graduate Studies Committee will review the performance of all students who earn a grade less than "B". After consulting with the student's Dissertation Advisor, the Graduate Studies Committee will recommend a course of action. Continuation of the program may depend on the outcome of a remediation program specified by the Graduate Studies Committee.

A grade of "F" is grounds for immediate termination of a student's program of study. Students have the right to petition to continue their program. The petition must be approved by the student's Graduate Advisory Committee, the Graduate Studies Committee and the Departmental Chairman. If approved, the student must repeat the course and earn a grade of "B" or better before the dissertation defense. The course (credits and grade) can be counted only once for graduation. If the petition is denied, the Graduate Studies Committee will request the Graduate School to terminate the student's enrollment in the doctoral program.

**B. Progress Evaluations**

The Department bi-annually reviews each student's progress. The reviews are presented by the Graduate Advisors to the Department in Departmental Faculty Meetings. The reviews consider all aspects of a student's performance. Examples of unsatisfactory performance include poor grades, non-compliance with regulations, irresponsibility, insufficient effort on dissertation research, unsatisfactory progress in writing the dissertation, scientific misconduct, and unethical behavior. If the student's progress is unsatisfactory, the Department, in consultation with the Advisor and Graduate Advisory Committee, may recommend remedial action be taken or termination of the Program of Study and dismissal from the Graduate School.

C. **Vacation Policy**

Graduate students receive 20 working days of vacation a year. Prior to taking vacation leave, graduate students must complete a Graduate Student Absence form (GSC-6) available in the Departmental office and give the form to their Advisor for approval and to the Departmental office manager.

**D. Leave of Absence Policy**

A Leave of Absence to address serious extenuating circumstances can be granted by the Departmental Chairman. Such Leaves are discouraged due to the time restrictions placed on doctoral programs and resource allocations required for successful completion of doctoral research. Requests for Leave are considered on a case-by-case basis. The student must submit a Request of Leave of Absence form (GSC-7) to the student's Graduate Advisory Committee, with a full explanation of the circumstances leading to the request. The GSC-7 containing the request and the Advisory Committee's recommendation will be forwarded on to the Graduate Studies Committee. The Graduate Studies Committee will then make a recommendation to the Departmental Chairman, who will inform the student and Graduate School in writing of the terms for the Leave.

**D. Honor Code**

While enrolled in the Doctoral Program in the Department of Physiology, graduate students must obey and support enforcement of the Doctoral Student Honor Code. A copy of the Code is given to all new students at orientation. Copies may be obtained from the Office of Research and Graduate Studies, School of Medicine.

Students or faculty members who witness any violation of the Doctoral Student Honor Code are required to report the infraction to the Student Attorney General or to the Dean for Research and Graduate Studies.

## **VII. GENERAL ACADEMIC REGULATIONS**

General regulations relating to the following are the same for all graduate students and are described elsewhere in the Graduate School Bulletin:

Official Announcements  
Credit  
Registration Procedures  
Preregistration  
Auditing Courses  
Policy on Posting Grades  
Access to Student Educational Records

## **VIII. PROCEDURES CHECKLIST**

- Pre-orientation – Discuss course selections with Chair of GSC
- Orientation – Select first semester courses
- 1<sup>st</sup> semester – Evaluate internship options
- 2<sup>nd</sup> semester
  - Inform GSC of Internship Choice
  - Present Research/Literature Seminar
- 1<sup>st</sup> summer
  - 1<sup>st</sup> Research Internship
- 3<sup>rd</sup> semester
  - Present summer research internship in Student Research Forum
  - 2<sup>nd</sup> Research Internship
  - Choose a faculty advisor/committee and submit Form GSC-1
  - Begin filling in the program of study form (GSC-2)
  - Begin preparing a grant proposal
- 4<sup>th</sup> semester
  - Finish electives
  - Defend grant proposal
  - Review for candidacy examination
- 2<sup>nd</sup> summer
  - Submit the program of study, form GSC-2
  - Candidacy examination
    - Performance reported to the Graduate Advisory Committee using GSC-3
    - Oral part of the candidacy examination (conditional)
- 5<sup>th</sup> semester
  - Submission and approval of a dissertation research proposal
- Prior to Scheduling the Dissertation Defense
  - Submit Application for Graduation
  - Approval of the Dissertation by the Graduate Advisory Committee
  - Request to schedule dissertation defense, submit GSC-4
- Submit the “Report of Defense of Ph.D. Dissertation and Recommendation to Award the Degree” to the Office of Research and Graduate Studies
- Submit Report of Final Submission of Dissertation (GSC-5)

Approved: 8/5/2003

List of revisions Approved by the Faculty and/or recommended by Graduate Studies Committee:

12/9/2002 - Require Graduate Neurophysiology/Sensory Systems in the 2<sup>nd</sup> semester

Move Graduate Cell and Molecular Physiology to the 4<sup>th</sup> semester

Revisions in Graduate School Procedures

08/5/2003 - Change in the timeline and forms required for graduation

08/16/2004 - Updated graduate course numbers

10/07/2008 - Revision of rotations procedures

- New form: Individual Meetings Form

- New Form: Rotation Evaluation Form

12/16/2008-Student proposal and progress -report

- Co-mentorship requirement

7/1/2009- Advisory committee recommendation

8/18/2009- Generalized Course list