

STUDENT HANDBOOK

**PHYSIOLOGY GRADUATE TRAINING
PROGRAM**

2014-2015

Revised 8/14

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GRADUATE STUDY IN PHYSIOLOGY

I. Introduction

The goal of this interdisciplinary, interdepartmental Physiology Graduate Training Program is to train the next generation of biologists how molecules, cells and organ systems interact. Powerful new tools in modern biology make it possible to link the cellular and molecular with integrative levels in physiological systems, such as the cardiovascular, respiratory, renal, endocrine, musculoskeletal, gastrointestinal, neurophysiological and metabolic systems.

This handbook provides basic information about the Physiology Graduate Training Program in Physiology for graduate students, their advisors and major professors. Students are responsible for knowing the requirements of the program as described in this document.

II. 2014-2015 Important Dates

Fall semester	
Labor Day	September 1 (M)
Classes and laboratory rotations begin	September 2 (T)
Rosh Hashanah*	September 26 (F)
Yom Kippur*	October 4 (S)
Eid-al-Adha *	October 4-5 (S-N)
Thanksgiving recess	November 27-30 (R-N)
Last class day	December 12 (F)
Exams begin	December 14(N)
Exams end	December 20 (S)
Commencement	December 21 (N)
Spring semester	
Martin Luther King, Jr., Day	January 19 (M)
Classes begin	January 20 (T)
Spring recess	March 28-April 5 (S-N)
Good Friday*	April 3 (F)
Passover*	April 3-11 (F-S)
Classes Resume	April 6 (M)
Last class day	May 8 (F)
Exams begin	May 10 (N)
Commencement weekend	May 15-17 (F-N)
Exams end	May 16 (S)

* In accordance with Faculty Document 488a, faculty are asked not to schedule mandatory exercises on these dates.

Days: T Tuesday; R Thursday; S Saturday; N Sunday

III. Weekly Seminar Course in Physiology 901

A seminar course will give students the opportunity to learn to speak, to learn about research in physiology, and to learn about what others in the program are doing. Students are required to present one seminar in this series annually and to attend the seminar course regularly. All faculty, students and postdocs are welcome at the seminars.

IV. Timeline for progress to the PhD

The following is a typical schedule of progression through the graduate program. Individuals will determine their personal timeline in conjunction with their thesis advisor and committee.

Year 1

Fall

Laboratory rotations

Coursework

Cellular and Molecular Neuroscience (Neuroscience 610)

Professional Development (Neuroscience 700) or Ethics (Obs&Gyn 955)

Elective

Seminar course (Physiology 901)

Spring

Begin research in thesis lab

Coursework

Human physiology (Physiology 435)

Physiology 533 (presented only every other spring)

Seminar course (Physiology 901)

Summer

Continue thesis research

Year 2

Fall

Continue thesis research

Coursework

Elective(s)

Teaching assistant

Seminar course (Physiology 901)

Spring

Continue thesis research

Coursework

Physiology 533 (if it was not taken in Year 1)

Seminar course (Physiology 901)

Summer

Continue thesis research

Preliminary Exam Part A

Year 3

Continue thesis research
Preliminary Exam Part B
Seminar course (Physiology 901)

Beyond Year 3

Continue thesis research
Meet annually with thesis committee
Prepare and defend thesis
Seminar course (Physiology 901)

V. Student Advising

Students are advised to meet with the Program Director and faculty mentors to discuss laboratory rotations, course requirements, and other issues pertaining to their graduate studies soon after their arrival.

Thesis Advisor

Each graduate student should select a major professor or thesis advisor by the end of the first semester of the first year. The duties of the thesis advisor are to supervise and support the student's research, provide advice regarding selection of courses, and act as a channel of communication within the Program. The thesis advisor serves as chairperson of the thesis proposal committee (Preliminary Examination Part B) and also of the final oral examination committee.

Thesis Committee

As early as possible, at the latest by the end of the spring semester of the first year, each student should select a thesis committee in consultation with his or her thesis advisor. The committee comprises five faculty members, one of whom is the thesis advisor, and another who is outside the major area of the student's research. The candidate meets with the committee at least once annually to evaluate progress and future research plans. It is the responsibility of the student to arrange these meetings. Students should report to the Program Administrator when each meeting has taken place.

Individual Development Plans (IDPs)

Beginning in October 2014, the National Institutes of Health will require that all students funded by their grants will be required to develop an Individual Development Plan. The Graduate School has broadened this policy, requiring it of all graduate students at the University. At this point, the policies are vague; i.e.: Both groups are *requiring* they be done, but no one is specifying *how* they be done.

The Physiology Graduate Training Program is in the process of defining the policy for their program. We intend to keep a copy of each student's IDP, so that we are able to monitor progress and meet the Graduate School's requirements when they begin asking individual programs about participation.

At this time, the policy is as follows: Students will be required to fill out myIDP via American Association for the Advancement of Science (AAAS). (<http://myidp.sciencecareers.org/>) This allows you to create a profile and modify your IDP as your career progresses. Any further updates to this policy will be added to the handbook and addressed by Mark Marohl.

After you have completed the IDP, you are allowed the option to print it. If you could print it (either electronically or hard-copy) and deliver it to Mark, that is the best way to know that it has been taken care of.

Grievance Procedures

If grievances arise students should consult members of their Thesis Committee or with the Director of the Training Program.

Information on the University's appeal and grievance procedures may be found on the University's website at:

<http://www.wisc.edu/grad/education/acadpolicy/guidelines.html#97>.

VI. Laboratory Rotations

Students supported by the program will complete 3-4 laboratory rotations in faculty labs in order to gain familiarity with different experimental approaches and to facilitate selection of a thesis advisor. Students should communicate with faculty prior to their arrival in the fall to arrange their rotations so that the first rotation commences within the first few weeks of the semester. It is anticipated that students will have completed their rotations and identified their thesis lab by the end of the first semester of the first year. Students who are admitted directly do not participate in laboratory rotations.

VII. Curriculum

The curriculum is designed to provide depth and breadth in physiology, as well as experience in critical reading and presentation of the literature. Students are required to take Physiology 901 every semester. Courses are selected with the help of the Thesis Committee and the Program Director, who may waive the requirement for one or more core courses and who may also recommend courses to fill in gaps in a student's background. The Graduate School requires students to take a minimum of 32 graduate level course credits (numbered >300 and including research credits) in order to qualify for the Ph.D. degree. The decision about what electives to take should be made in consultation with the thesis advisor and members of the Thesis Committee.

Core Courses	
Physiology 901	Student Seminar, 1 credit every semester
Neuroscience 610	Cellular and molecular neuroscience, 4 credits
Physiology 435	Human Physiology, 5 credits

Statistics 541 or 571 or Oncology 675	Statistics, 3, 4, or 2 credits
Neuroscience 700, Obs&Gyn 955 or equivalent	Professional Development, Ethics 1 credit

Electives Available to Physiology Graduate Students	
Animal Sciences 875	Reproductive Patterns, Endocrine Physiology, Pregnancy, Parturition and Lactation 1-4 credits
Biochemistry 550	Topics in Medical Biochemistry, 2 credits
Biochemistry 602	Biochemistry Mechanisms-Regulation/Cell, 2 credits
Biochemistry 630	Cellular Signal Transduction Mechanisms, 3 credits
Biomedical Engineering 505	Biofluidics, 3 credits
Biochemistry 665	Biophysical Chemistry, 4 credits
Genetics 466	General genetics, 3 credits
Kinesiology 773	Cardiorespiratory Adaptations to Exercise and Environment, 3 credits
Kinesiology 774	Metabolic Responses to Exercise and Environmental Stress, 2 credits
Kinesiology 779	Human Muscle Function in Health and Disease, 2 credits
Math 801	Topics in Applied Math, 3 credits
Neuroscience 611	Systems Neuroscience
Neuroscience 625	Brain Cell Culture and Imaging: Lab Course, 2 credits
Neuroscience 675	Special Topics, 3 credits
Neuroscience 765	Developmental Neurobiology
Nutritional Sciences 875	Intermediary Metabolism of Macronutrients
Oncology 675	Statistical Problems in Genetics and Molecular Biology, 2 credits
Oncology 675	Readings in Cancer Biology, 2 credits
Pathology 750	Cellular & Molecular Biology/Pathology, 3 credits
PBS 500	Molecular Biology Techniques
Pharmacology 711	Neurotransmitter Receptor/Ion Channels, 2 credits
Physiology 533	Molecular Physiology, 2 credits
Physiology 610	Cell and Molecular Neuroscience, 4 credits
Physiology 675	Signaling in cardiac diseases, 2 credits
Psychology 556	Hormones and Behavior, 3 credits
Psychology 610	Stat. Analysis & Psychology Experiments, 3 credits
Zoology 570	Cell Biology, 3 credits

A GPA of 3.0 (on a 4.0 scale excluding research credit) for graduate level courses (generally courses numbered 300 and above) must be maintained. The Graduate School may put a student on probation if minimum standards are not met. Incomplete grades remaining beyond the next semester are considered unsatisfactory.

Research Credits

Along with formal coursework, students register for research credits.

VIII. Teaching

Communication is an essential component of academic training. The Physiology Graduate Training Program thus requires students to develop teaching skills. In addition to presenting seminars annually in Physiology 901, students are required to teach for a minimum of one semester. Generally students serve as Teaching Assistants in Physiology 335, Physiology 435 or Organismal Biology, part of the campus Biocore program. Students may also participate in the Educator Emphasis program if they wish.

Educator Emphasis

The Educator Emphasis provides students with additional training, mentoring, and practice that will make them more competitive on career tracks at colleges and universities where teaching is emphasized. Students on this track receive the same rigorous training in research as other Physiology PhD students, but in addition, will work with an advisor/mentor to develop teaching skills and gain high-quality teaching experience.

The program is customized according to the needs and desires of individual students and their mentors. Curricula are designed around two goals:

- 1) the quality and rigor of the PhD research is the same as for students outside of the Educator Emphasis
- 2) the time required to attain the PhD degree is lengthened minimally.

All students in this program will be provided an opportunity to lecture in an undergraduate physiology course with the guidance of a faculty teaching mentor.

For more information on the Educator Emphasis program, please contact Dr. Kevin Strang, Department of Neuroscience. Office: (608) 262-8298, Fax: (608) 265-5512, Email: kstrang@wisc.edu

IX. Qualifying Exams

Courses, teaching requirements and laboratory rotations should be completed within the first 2 years following admission. Once course work is completed, students take a two-part qualifying examination at the end of their second year of study.

Preliminary Exam Part A

Part A of the preliminary examination is generally taken in the summer after the second year will be prepared by the Prelim Committee. Students will be asked to answer one question at the cellular and molecular and one question at the systems level, chosen from four questions in various topic areas; the written answers will be due one week (seven days) later. The preliminary examination tests the student's ability to assess experimental design, interpret published literature, evaluate published conclusions, and synthesize new experimental directions.

Preliminary Exam Part B

Part B of the qualifying examination is a thesis research proposal that is presented to the student's thesis advisory committee. Part B is usually completed within 6 months of finishing Part A. It is based on a written research proposal in the form of an NIH grant that is presented to the student's thesis advisory committee. This written document should be prepared in consultation with the thesis advisor and have the following format:

Specific aims (1 page)

Research Strategy (up to 12 pages)

Significance (puts the proposed work into context with a thorough review of relevant literature to establish the basis for the problem to be studied)

Innovation (short)

Approach (Give details on how you will approach each of the Specific Aims.

Include preliminary results that are related to the aims.)

References cited (unlimited)

Preliminary warrants must be issued by the Graduate School before Part B of the preliminary examination can be taken. These warrants assure the student and the Program that all Graduate School requirements for the degree, except for successful completion of the examination, have been met. Any 'I' or 'P' grades must be cleared before the warrant is issued. Application to the Graduate School for the warrants should be filed with the Program Graduate Admissions Coordinator within one month of taking the preliminary exam. Any deficiencies can then be detected and corrected.

Once the preliminary exam is successfully completed, the student becomes a "dissertator" and is engaged in full-time research, culminating in presentation and defense of the doctoral thesis.

X. Dissertator Status

After completing the core curriculum and recommended electives, and both preliminary exam part A and preliminary exam part B, the signed warrant is returned to the Graduate School. The student is officially admitted to candidacy for the Ph.D. degree and has then achieved "dissertator status." All requirements for dissertator status must be met prior to the first day of classes to be considered a dissertator for that semester.

As a Dissertator, each student registers for three credits per semester until the research thesis is filed in the Memorial Library. The Graduate School imposes a large fine if a three credit course load is not maintained while a dissertator. The three credit rule does not allow courses not related to research. Specific information on the calculation of this assessment can be obtained from the Graduate School Ph.D. Office.

XI. Ph.D. Thesis

A thesis describing the results of original laboratory research is required for a Ph.D. degree. The thesis presents evidence of general laboratory proficiency, mastery of a field and the ability to conduct independent laboratory investigation, along with a high degree of literary skill. The Graduate School Office provides technical details about the preparation of a thesis and abstract.

A final thesis defense and oral examination is required after all other requirements for the Ph.D. degree are completed. At least six weeks before the oral examination, the student will need to contact the Program Administrator to receive a warrant that verifies that all other requirements have been met. The oral examination begins with an open research seminar and is followed by a defense of the thesis before the Thesis Committee. The time and place of the examination are set by the student and the major professor, who acts as chairperson of the examining committee. Students are advised to meet with their thesis committees to obtain approval to write the thesis and set a date for the defense.

XII. Evaluation of Student Progress

Student progress is evaluated not only by the formal preliminary examinations, but also by annual meetings of the student's Thesis Committee. A student may be dismissed from the program for failing to make satisfactory progress. Unsatisfactory progress includes failure to pass the preliminary examination in a timely fashion, failure to fulfill course requirements, or poor research productivity.

XIII. Stipend, Tuition and Fees

The cost of tuition is paid by the Physiology Graduate Training Program or by the major professor. In 2014 students received stipends of \$25,000 (pre-tax) to cover the cost of living expenses. After registering each semester, each student receives a bill for "segregated fees" reflecting the cost of educational services such as libraries, DoIT, recreational facilities, and student organizations. Segregated fees are \$568 for non-dissertators and \$245 for dissertators.

XIV. People Contacts

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