



UNIVERSITY OF WYOMING DOCTORAL GRADUATE NEUROSCIENCE PROGRAM

The overarching goal of the Neuroscience Program and its faculty are to provide students with a highly competitive graduate education that promotes independent thinking, scholarly leadership, and a sense of ethical responsibility.

This document provides an overview of the: Organization of the Neuroscience Program, Admissions criteria and procedure, expectations for graduate students (also referred to as Benchmarks), steps that lead to the Doctorate degree in Neuroscience, assistantships, and termination (voluntary and involuntary) from the Neuroscience Program.

Helpful Point: Neuroscience is an interdisciplinary doctoral program and the degree awarded is in Neuroscience. As an interdisciplinary program any forms (e.g. Programs of Study) are signed by the Program Director (not a departmental chairperson) and the Provost or Assistant Provost (not a College Dean). Having the wrong signatures will only delay the process.

I. Oversight of the Graduate Neuroscience Program: Neuroscience Advisory Group (NAG)

1. The NAG shall consist of five Neuroscience faculty members. The committee will have an even representation of Neuroscience faculty in the various participating Colleges. The Director of the Neuroscience Program will serve ex-officio and shall vote only to break a tie.
2. The NAG will monitor incoming applications for Doctoral graduate study, will provide opportunity for evaluation of applicants, and will present recommendations to the Neuroscience faculty for acceptance into the specific Neuroscience degree.
3. The NAG will follow the progress of each graduate student to assure normal advancement in course work and the selection of a research project.
4. The NAG will, after discussion with the Neuroscience faculty, determine the awarding of state-funded assistantships. In addition, the Committee will discuss and oversee awarding Assistantships through the Neuroscience Center grant.
5. The NAG will provide the continuing function of review and Assessment of the Neuroscience graduate program and shall recommend guidelines and policies for adoption by the participating faculty, and communicate these changes to Office of Academic Affairs.

II. Benchmarks during the graduate experience that reflects critical skills and depth of learning.

The objectives are to have the student become capable of independent research and scholarship. The benchmarks reflect this progression of the student during the graduate education. Benchmarks include the student learning: 1) the relevant literature and having a broad appreciation of

neuroscience, 2) research design and experimental techniques to address the research question, 3) scientific writing and the publication process, 4) collegiality and scientific ethics; 5) communication skills, for research presentations and teaching, 6) independence.

Additional information is available at: Doctor of Philosophy Candidates Graduate Student Regulations and Policies: www.uwyo.edu/registrar/university_catalog/grad_students.html

1. Benchmarks: Doctoral Degree in Neuroscience

- a. During the first week of arriving on campus, each student will be consulted by an advisor. All students **MUST** have an academic advisor who is a tenure track faculty member in the Neuroscience Program at all times. Students cannot continue in the Program nor receive funding if they are without an advisor.
- b. During the first semester, students are required to take Introduction to Neuroscience (NEUR 5280), and complete by the end of the second year Structure and Function of the Nervous System (NEUR 5100) and Neurophysiology (NEUR 5685). Students are also required to take an upper level statistics course (e.g. STAT 5050). A grade of B or better is required for Neuroscience course work. Classes receiving a deficient grade will be repeated or arrangements will be made with the instructor to correct the deficiency.
- c. Neuroscience Seminar. Students are required to take the Seminar in Neuroscience (NEUR 5715) each semester during their first three years. The Seminar fulfills a classwork requirement and additional courses should be identified during the student's final years of graduate training.
- d. Graduate students are required to maintain a B average or better during their residency, and progress and performance will be reviewed annually.
- e. During the first year students, with the guidance of their academic advisor, will form a **Doctoral Thesis Committee**. The committee will consist of the advisor (Neuroscience faculty member), 3-4 faculty members in the Neuroscience Program, and an Outside (non-neuroscience) faculty representative.
- f. **The Program of Study** should be approved by the student and committee during the second year of study and approved by the Office of Academic Affairs. The Program of Study must include a minimum of 72 semester hours of credit at the 4000 level or above from UW or equivalent levels from another approved university. At least forty two (42) hours (of the 72 credit hour minimum) must be earned in formal class room courses. Only 12 credit hours of 4000-level coursework will be permitted on the graduate program of study and the remaining 30 hours must be at the 5000 level. A grade of B or A is required for classwork counting toward the 42 hour minimum requirement.

Additional credits counting toward the 72 hour minimum would include Thesis and Dissertation research hours. You will take 4 hours (maximum) of NEUR 5960 and then a minimum of 26 hours of NEUR 5980 and 4 hours of 5960.

- g. A formal Master's degree project is not presently required for doctoral students but a master's level neuroscience proficiency is expected to be demonstrated. This will be demonstrated by a research project that will be identified during year 1. The **benchmarks** for the successful completion of the master's level research will be the: 1) presentation of the research at national/international meeting; 2) presentation of the work during the Neuroscience and Physiology Series or in a prearranged seminar, with questions; and 3) the publication of the work in a refereed Neuroscience journal.

- h. **Research tool.** It is the responsibility of the student's advisory committee to ensure appropriate breadth of coursework and knowledge of Neuroscience, as assessed by the preliminary examination. No formal certification of a "tool," as designated by some departments, will be required by the Neuroscience Program.
- i. **Preliminary exam.** Doctoral students are required to successfully pass a preliminary examination. The examination is given after the student has completed at least 30 hours of coursework and the doctoral program of study has been approved. The examination is comprehensive, covering all areas of Neuroscience, but emphasizing the student's area or expertise. Questions are aimed at not only testing the student's in depth of knowledge in their area of expertise, but also their ability to synthesize and generalize to a broader area or topic. The format of the preliminary exam will consist of both a written and oral portion. The format of the exam will be determined by the student's graduate committee. The written portion may take the form of literature reviews, open or closed book questions, experimental design questions, etc. Students should take the preliminary exam in their fifth semester of graduate study.
- Assessment of a student's performance will remain the responsibility of the student's graduate committee. Failing to pass the examination is a serious situation and can result in termination from the graduate program. Prior to any such action, there will be meetings with the student, the Program Director, and the student's advisor. Appropriate actions will be identified. In such cases where the student has failed the exams and is not admitted to doctoral candidacy, the student may petition for a research-based Master's degree. The committee will identify which, if any, additional requirements must be met.
- j. **Research Proposal.** Students must have satisfactorily passed the Preliminary exams before advancing to the dissertation research. Doctoral students must write a dissertation following guidelines of the Graduate Student Regulations and Policies of the University of Wyoming (http://www.uwyo.edu/registrar/university_catalog/grad_students.html). The student will prepare a written proposal that will be submitted for review by the student's advisory committee. The committee will evaluate the: 1) originality; 2) quality, and 3) rigor of the dissertation research. Time schedule -- In general, it is recommended that the student present the research proposal during year 3 of his or her doctoral studies.
- k. **Advancement to candidacy for the Ph.D degree.** For advancement to candidacy for the Ph.D degree, students must have successfully completed the following requirements: 1) satisfactory research progress; 2) committee-approved program of study; 3) preliminary exam; and 4) committee-approved research proposal. Advancement to candidacy allows the student to proceed, but is not a guarantee that the PhD degree will be awarded. Additional requirements must be met before the final awarding of the degree.
- l. **Dissertation research:** Students will typically carry out the bulk of their research in their advisor's laboratory. The dissertation research reflects the individual student's contribution to the scientific field. Typically the dissertation will comprise several studies conducted during the student's graduate program. It is expected that the studies will show a progression to greater and greater independent and critical thinking on the part of the student. Not all experiments or publications during the student's graduate studies may be suitable for a dissertation, and the student with his/her advisor and committee will identify the projects included in the final dissertation. The dissertation research is expected to culminate in a focused, high-impact monograph that results in publications in quality peer-reviewed journals.

- m. **The Final Examination (Defense):** At least two (2) weeks prior to the final examination, all graduate candidates must provide public notification (flyers on campus, e-mail) of their defense. The notification should include the student's name, degree, thesis/dissertation title, time, date, place, etc. Student should provide a copy of the thesis/dissertation to their committee members at least two (2) weeks prior to final examination.

Awarding the Ph.D. The Ph.D or Doctoral Degree is the highest degree that is awarded by universities in many fields, including Neuroscience and is the highest level of academic achievement. Successful completion of all of the requirements will lead to the doctoral degree. As per Graduate School policy, *"The doctor of philosophy degree does not represent a specified amount of work over a definite period of time but rather the attainment of independent and comprehensive scholarship in a particular field. Such scholarship will be manifest in a thorough acquaintance with present knowledge and a demonstrated capacity for research. The fulfilling of the following requirements suggests, therefore, only the minimum task one must undertake to earn the doctor of philosophy degree. No amount of time spent in graduate study or accumulation of credit hours entitles the student to become a candidate for this degree."* Similarly, while publications are expected, the PhD is not awarded based on some arbitrary number of research publications. Only after the dissertation committee approves the dissertation research and the oral defense is the PhD awarded. An unsatisfactory final research dissertation or defense will delay or prevent awarding the PhD. In such a situation, the student will have the opportunity to meet with the committee to identify the problems. Students will be presented with options that may include, correcting the deficiency and having a re examination, opting out of the doctoral program, petitioning for a terminal MS degree.

III. Graduate Student Support: award of state-funded or Center-funded graduate assistantships. We seek to have all students supported by state or extramural sources. Students early in their graduate education will be supported by state-funded assistantships and serve as TA's for neuroscience courses. After that time, our goal is to have students transferred from state-funded assistantships to either individual grants or Center grants. The following are standards and maximum periods of state support.

1. Only those students that have met the requirements for admission or are in residence and are in good standing will be eligible for state-funded graduate assistantships.
2. Preference will be given to incoming students and to students who have been previously supported by extramural programs (individual grants, Center grant, etc). Students previously supported by extramural funding must be in good standing and the termination of their extramural support should have been no fault of their own. The student's performance as a teacher will be evaluated at frequent intervals and, if inadequate, the student, after consultation with the advisory committee, may be placed on probation the following semester. If the student's performance is judged unsatisfactory during the probationary semester, the TA will be terminated.
3. Students pursuing the Ph.D. degree shall be limited to a maximum of eight semesters of Neuroscience Center-funded assistantship support.
4. Students resigning a state or NIH Center funded assistantship are required to notify the Director of the Neuroscience Program at least 60 days before the beginning of the fall or spring semester.

5. State funded assistantships are typically awarded for the academic year.

IV. Termination from the Neuroscience Program. We hope that all student have a rewarding and enjoyable experience during their tenure as a Neuroscience graduate student. A student may voluntarily choose to withdraw from the Neuroscience Program for personal reasons. There are situations which may lead to involuntary termination. These situations include the following. First, Neuroscience graduate students are required to maintain a graduate GPA of 3.0. According to university regulations, *“A graduate student enrolled at the university shall be placed on academic probation at the end of a semester or summer session when his or her graduate cumulative UW grade point average in 4000-level or higher courses is below 3.0. Students who fail to bring their graduate GPA to 3.0 and remove themselves from probation after one semester or summer session will be suspended from the university. A suspended student may petition their academic program for reinstatement to the same degree program. A reinstated student will be on probation and may be subject to other performance criteria as specified by the dean of the affected department.”*

Second, students are expected and required to adhere to a **strict code of scientific ethics**. Violations in human research ethics, animal research ethics, non-compliance with IACUC, falsification of data or data misrepresentation in any form, cheating, and/or plagiarism are taken seriously and can be the basis for immediate termination from the Neuroscience Graduate Program.

The third case of involuntary termination involves—**inadequate/unsatisfactory progress**--

“A Program may recommend suspension of students from their degree program based on higher GPA requirements, or based on other performance criteria as well.”

Each student’s performance is reviewed by the advisor and neuroscience faculty to ensure adequate academic progress. Unsatisfactory academic progress include deficiencies in laboratory research performance and progress, classroom performance, professional demeanor, and communication skills. If the committee perceives a significant delinquency that has persisted over the time the student has been in the graduate program, it may recommend that the student be terminated from the graduate program. If a student is to be terminated, a meeting will be called with the student and the student will be presented verbally and in writing the decision and justification for termination.

Students leaving the program either voluntarily or involuntarily are required to do the following:

1. Meet with their advisor.
2. Students leaving voluntarily will provide a written letter indicating their intent to leave the program.
3. Students leaving the doctoral graduate program voluntarily, who have successfully published their research and have completed all but the final requirements for the PhD, may petition for a research-based MS degree.
4. Return all keys to either the advisor or main department.
5. Make readily accessible all research and laboratory related materials to the advisor. Lab notebooks and experimental data (both raw and analyzed) are formally university property and **MUST** be returned.
6. Where appropriate, students will contact International Student Program.

