

GRADUATE PROGRAM IN NEUROSCIENCE SUNY AT STONY BROOK

GUIDELINES, RULES, AND REGULATIONS

THE GRADUATE COMMITTEE. The Graduate Committee is charged with oversight of the admission of candidates, administration of the program, and the annual evaluation of students. Subcommittees of the graduate committee additionally organize administration of thesis proposals, annual research retreats, and other student-centered activities, including faculty/student lunches, and graduate student journal clubs/seminars. The Graduate Committee is chaired by a faculty member of the Department of Neurobiology and Behavior (SUNY Stony Brook) who is appointed to the position by the Department Chair for a three year term or terms. At least four additional members of the graduate committee are also appointed by the Department Chair; **all must be faculty members of the program. All members of the Graduate Committee are appointed to a three year term or terms.**

EFFECTING PROGRAMMATIC CHANGE. Changes to the Graduate Program can be recommended by Graduate Program faculty or students. Recommendations can be made to the Graduate Committee or the Executive Committee, where discussions of and refinements to proposals will generally take place. Additional standing committees such as the Curriculum Committee (Department of Neurobiology and Behavior) may also be brought in at this stage of the process. **Formalized recommendations for change must be brought for discussion, voted upon and approved by a simple majority of a quorum at a program meeting. At the discretion of the Graduate Committee or Executive Committee, discussion and voting may be carried out by e-mail.**

THE PROGRAM. The primary objective of the Graduate Program in Neuroscience is to prepare graduate students for successful careers in the highly competitive worlds of neuroscience and neuroscience research. The Program is committed to providing a training environment that has the flexibility, depth, and quality to enable all students to attain the highest standards in achieving their individual career goals.

STUDENT ADMISSIONS. Students seeking admission to the Program have a wide variety of academic backgrounds. The Program has few absolute requirements for admission. However, most successful candidates have completed courses in college level mathematics, physics, organic and inorganic chemistry, and biology. Deficiencies in these areas do not preclude admission. At the discretion of the Graduate Committee, however, students may be required to make up deficiencies prior to advancement in the Program.

The University's Graduate School requires that *all* admitted students

- have a bachelor's degree from an accredited college or university.
- have a cumulative grade point average corresponding to a B or better.
- Foreign students must additionally supply an official TOEFL (Test of English as a Foreign Language) score of at least 550; **this requirement cannot be waived.**

All students must show suitability for graduate study as evidenced by scores on the Graduate Record Examination, and as reflected in letters of recommendation from instructors, employers, and/or research mentors.

Because of curricular structure, applications are not considered for spring admission.

FINANCIAL AID/SUPPORT: All doctoral candidates deemed by the Graduate Committee to be in good standing can expect to receive a full tuition scholarship and an annual stipend for the duration of their study. The stipend compensates for living costs such as university fees, medical insurance, books, and room and board. Sources of funding include teaching and research assistantships, and individual faculty research grants. Students are also encouraged to seek individual extramural support. The stipend level is agreed upon by Programmatic vote, and is set to be competitive and commensurate with other graduate programs on the Stony Brook campus.

Note that TA support from the Graduate School cannot be guaranteed for admitted students whose language skills prevent them from effectively teaching in the classroom.

PHASE I: DIDACTIC STUDY.

A. COURSE REQUIREMENTS. The required curriculum includes seven courses over the first two years of graduate study. All courses are taught by Program faculty, and provide a foundation of knowledge in diverse fields of neuroscience. **All students must earn a B or better (or S) in each of these seven core courses (see Academic Standing).** In addition, students are required to take an additional two courses in a related field, including but not limited to cell and molecular biology, genetics, biochemistry, physiology, engineering, and mathematics. Selection of these elective courses is made in conjunction with the student's advisor. MSTP students are not required to take these non-BNB electives.

Tuition must be paid for credits in courses other than dissertation research for all students who have been advanced to candidacy (see below). Such tuition may be provided from Program resources, from research grants supporting the student's research, or from the student's own funds. Written approval from the thesis advisor is necessary for any student who has advanced to candidacy and who is being supported in a laboratory to petition the Graduate Program for funds to cover all or part of the tuition for an elective course or courses.

Core Neuroscience Curriculum: Fall Semester, First Year

BNB 561: Introduction to Neuroscience I. The first of a two semester neuroscience course. Topics covered include the ionic basis of resting potentials and electrical excitability, the structure, function and molecular biology of voltage- and ligand-gated ion channels, synaptic transmission, and gene regulation. Letter grades.

BNB 555: Laboratory Rotations in Neuroscience. This course provides formal evaluation of the three required rotations in faculty laboratories during the first year. Students will present oral reports of their research progress for each rotation. S/U grading.

BNB 551: Writing Neuroscience. This course provides training in the basics of scientific communication, with a strong emphasis on writing and revision. Practical exercises are designed to give experience and feedback in commonly needed aspects of scientific writing. Letter grades.

BNB 697: Neuroscience Seminar Series. Students attend weekly seminar presentations given by visiting speakers, in-house faculty, associates, and students (dissertation defenses). Seminars include sub-series of three to four lectures that focus on a particular topic in contemporary neuroscience. S/U grading.

Core Neuroscience Curriculum: Spring Semester, First Year.

BNB 562: Introduction to Neuroscience II. This is second of a two semester course in neuroscience and behavior. Topics covered include analyses of all of the major sensory systems, non-pyramidal motor systems, and systems mediating higher order, cognitive functions in the nervous system. Letter grades.

BNB 555: Laboratory Rotations in Neuroscience. This course provides formal evaluation of the three required rotations in faculty laboratories during the first year. Students will present oral reports of their research progress for each rotation. S/U grading.

BNB 697: Neuroscience Seminar Series. Students attend weekly seminar presentations given by visiting speakers, in-house faculty, associates, and students (dissertation defenses). Seminars include sub-series of three to four lectures that focus on a particular topic in contemporary neuroscience. S/U grading.

Core Neuroscience Curriculum: Fall Semester, Second Year

BNB 563: Advanced Topics in Neuroscience I. This course focuses on selected topics in Development and Plasticity. The course is organized into three modules, each lasting approximately five weeks and each counting 1 credit. Each module is taught by different Program faculty and will cover different aspects of Development and Plasticity. All Neuroscience graduate students are required to take all three modules in the second year, although especially able and advanced first-year students may also take one or more modules, with the second-year requirement being reduced accordingly. Letter grades.

BNB 599: Research. Directed research in the home laboratory for thesis work, prior to advancement to candidacy. S/U grading.

Core Neuroscience Curriculum: Spring Semester, Second Year

BNB 564: Advanced Topics in Neuroscience II*. This course includes three separate modules, taught by different faculty, on focused topics in neuroscience. Letter grades. (* or equivalent courses available from other programs)

BNB 599: Research. Directed research in the home laboratory for thesis work, prior to advancement to candidacy. S/U grading.

B. TEACHING RESPONSIBILITIES: All graduate students serve as Teaching Assistants for two semesters regardless of the source of their financial support. Normally, this service will be in the second semester of the first year and the first semester of the second year. The Graduate Program views this requirement as providing a valuable opportunity to gain real teaching experience, and expects students to take on these obligations with appropriate levels of seriousness and responsibility. A grade of S (satisfactory) or U (unsatisfactory) will be assigned for each semester of TA service in either BIO 600 or BIO 601. Any student receiving a grade of U will be reassigned to that class the next time it is offered to make up this deficiency. A grade of U in TA service may also be taken into consideration in determining adequacy of academic progress. Note: Some students will serve as "Prep TAs" for lab courses while their English skills are improving. This assignment alone will not fulfill the Program's teaching requirement; classroom teaching, grading, proctoring and other related responsibilities may be required of these students in their third and/or fourth semesters to obtain the requisite two semesters of experience.

C. ACADEMIC STANDING: YEARS 1 and 2. Grades recognized by the Graduate School are A, B, C, or F; with the exception of A+, plus and minus grades are also recognized for these letter grades. Courses taken with a pass/fail option are graded as either S (satisfactory) or U (unsatisfactory).

Good standing requires that students

- maintain a minimum GPA of 3.0 (B) or better.
- receive grades of B or better in all required Neuroscience courses.
- receive grades of S for all semesters of TA service, and for all S/U-graded Neuroscience courses.
- have identified a thesis laboratory by the end of the Spring semester of their first year.

Any student with a cumulative GPA falling below the minimum 3.0 will be placed on Academic Probation by the Graduate School; after two consecutive semesters on Academic Probation, the Graduate School will instruct the Program's Graduate Committee to withdraw support for the student. Although extenuating circumstances may be considered, remaining on Academic Probation for two consecutive semesters will likely result in dismissal from the Program.

Any student failing to obtain a grade of B or better in a required Neuroscience course must retake that course *the next semester it is offered*. Failure to achieve a grade of B or better in that course a second time will be grounds for dismissal from the Program.

Any student failing to obtain a passing grade (B or better, or Satisfactory) in **more than one** required neuroscience course will be reviewed by the Graduate Committee for possible dismissal from the Program. If the Graduate Committee determines that the student may continue, the student will be required to retake each course in which a passing grade was not achieved *the next semester that the courses are given*. Failure to achieve a passing grade in any course taken for a second time will be considered grounds for dismissal from the Program.

At the end of the second rotation period in the first year, the Graduate Committee, with feedback from mentors, rotation supervisors, and course directors, will review the progress of each first-year student and communicate the results to the student. Students who appear possibly

unsuited to the Program will be so warned at this time. At the end of the spring semester of the first year, a determination will be made, based on grades and performance in courses and rotations, as to whether the students are likely to be successful in the next year's coursework, and whether they would be recommended for admission to a laboratory. Students whose performance is judged to be inadequate by the Graduate Committee will be dismissed from the Program at this point.

The Graduate Committee will send to each student a letter of evaluation summarizing the first-year experience, including classroom performance, evaluations from TA supervisors, and performance in the research laboratory. Students must acknowledge receipt of the evaluation by signing and returning a copy of the letter to the Graduate Committee. Copies of letters are sent to the research advisor (if applicable) and to the Graduate School. Students who leave the Program after the first year, whether voluntarily or by dismissal, are NOT automatically eligible for a terminal master's degree.

D. ADVANCEMENT TO CANDIDACY. Students will be advanced to candidacy (in the summer of their second year) based on their performance in the Thesis Proposal, evaluations, and academic requirements (grades in classwork and modules). Students not advancing to candidacy by the start of their third year will be reviewed by the Graduate Committee and will be considered for dismissal from the Program.

The **Thesis Proposal** will be carried out in the Spring/Summer of the second year and will be in the area and on the topic in which the student expects to do their thesis research. The Proposal should be the student's best attempt to describe an actual set of experiments that they may do for their thesis research, but because the Proposal occurs very early in the course of their research, neither a comprehensive dataset nor a near-guarantee of success is required for a successful defense. (Should later events require a change in projects, students will not be penalized in any way for this.) The general area and some specific aims probably will be suggested by the supervisor, who may also provide advice and feedback on an early-stage outline (e.g., 1-2 pages of headings), but the final written product should be the student's own independent work. The advisor will be asked to write a covering note summarizing the extent of her/his input.

The purpose of the Proposal is to demonstrate the student's ability to evaluate the current state of knowledge in a specific area, to identify critical questions, and creatively and rigorously to formulate and test hypotheses. Proposals will be evaluated by these criteria, rather than on the quantity of preliminary data (which may be limited) or the proven feasibility of the experiments (though the committee may offer constructive help on the latter issue).

The proposal includes two parts: (i) a written submission and (ii) a short oral presentation. A more detailed description of these components is given in another document (Outline of the Thesis Proposal). Both parts will be evaluated by the initial thesis committee.

Initial Thesis Committee. In consultation with the advisor, students should choose an initial thesis committee to evaluate the Proposal. This should include the advisor and at least two other faculty members of the Program in Neuroscience (advisor + 2), one of whom will act as chair. If the student's research later changes focus, the composition of the committee may expand or change. In general, the initial thesis committee will form the basis of the student's dissertation committee (see below).

An Outside committee member (i.e., outside the Program in Neuroscience) does NOT have to

be selected for the Thesis Proposal presentation. However, we encourage the student to select and recruit an Outside Member as soon as possible thereafter -- this will help guarantee the quality of the science and speed up progress.

Because a successful Thesis Proposal is required for advancement to candidacy, at least one member of the Graduate Program Committee will also attend the presentation as a non-voting observer, unless the initial committee already includes a Graduate Committee member. This individual will be assigned by the Graduate Committee based on their familiarity with the area of the Proposal. They will attend only the oral presentation, not subsequent thesis committee meetings (unless they are also a member of the dissertation committee).

All students who are in good academic standing and have passed the Thesis Proposal, will be advanced to candidacy, and will begin the research-intensive portion of their graduate training. Students may continue to take elective courses after they have been advanced to candidacy, but tuition must be paid. Students may petition the Program for tuition payments for any such elective credits. The petition must be accompanied by a note of written approval from the thesis advisor for students who are supported in laboratories.

PHASE II: FOCUS ON RESEARCH.

Students are encouraged and assisted from the outset to identify areas of research interest, based largely on lab rotations in the first academic year. Students will select a dissertation advisor and laboratory by the conclusion of the spring term of the first academic year. The supporting faculty must be a member in good standing in the Graduate Program in Neuroscience. All decisions, including decisions to change labs at later dates, are subject to approval by the Graduate Committee.

A. DISSERTATION COMMITTEE. The dissertation committee composition will normally be based on the initial thesis committee. A final committee will consist of **four members**, including the student's mentor, two additional Program members, and one additional member from outside the Program (advisor + 2 + outside), though the outside member does not have to be selected immediately. The committee will select a chair, who must be a Program faculty member of associate professor rank or higher who is **not** the student's mentor. Students are encouraged to have more members than those minimally required.

Outside Member: for the outside member of the committee, students are encouraged to seek out experts in the field from institutions other than Stony Brook. An outside member, however, does not need to be selected for the initial dissertation committee meetings, typically those during years 3 and 4. However, we encourage the student to select and recruit an outside member as soon as possible. This will enhance the quality of the science and speed up progress. Also, outside members need not be present at all dissertation committee meetings, and can utilize video- or teleconferencing if necessary to participate in meetings or the dissertation defense. *The dissertation committee, including a named outside member, must be formally proposed to and approved by the Graduate Committee and by the Graduate School. This includes supplying biographical information about the Outside committee member.*

B. DISSERTATION COMMITTEE MEETINGS. The dissertation committee is to be convened every six to twelve months. *It is the responsibility of the student that this requirement is met.*

These regular meetings may be formal or informal, as agreed upon by the individual committee. After each meeting, the Dissertation Committee Chairperson must provide the Graduate Program with a written record of the meeting in a timely manner. These notices are generally brief summaries of discussions and future plans.

C. RESEARCH PUBLICATIONS: STUDENT CITATIONS. All published research that includes Program students as authors must cite the student's institutional affiliation as:
Graduate Program in Neuroscience, SUNY at Stony Brook.

D. ACADEMIC GOOD STANDING; YEAR 3 AND BEYOND. The Graduate Committee annually reviews the progress of all students. After advancement to candidacy, students must show timely convening of the dissertation committee and evidence of research progress at regular dissertation committee meetings. Student progress is also gleaned from annual evaluation letters prepared by the dissertation advisor and submitted to the Graduate Committee. A letter of evaluation summarizing all of the information gathered is sent to each student, who acknowledges receipt of the letter by signing and returning a copy to the Graduate Committee. Copies of letters are also sent to the dissertation advisor and to the Graduate School. Students who have advanced to candidacy register for course credit each semester in BNB 699, Dissertation Research. Any grade of Unsatisfactory in this course will be grounds for possible dismissal from the Program, after review by the Graduate Committee.

E. DISSERTATION DEFENSE. When the dissertation committee agrees that the dissertation research is completed, the student, advisor and chairperson of the committee should schedule a formal dissertation defense. The defense will consist of a complete, written dissertation that meets all requirements of the Graduate School and that is submitted to all members of the Thesis Committee *at least two weeks before an oral defense*. A thesis may include published or submitted manuscripts as component chapters, but must also contain:

- An extended introduction that reviews the relevant literature and appropriately frames the research questions
- A conclusion that summarizes the work and places results within a broader context.

The oral defense of the thesis will include a public seminar given to the Program at large. In compliance with the guidelines of the Graduate School, this public presentation will take place on the Stony Brook campus. The public address is followed by a defense of the work and its conclusions to the dissertation committee. The defense should be attended by the Outside member of the dissertation committee; video- or teleconferencing can be used if necessary.

DEFENSE DATE: Deadlines are set *each semester* by the Graduate School for students to (a) apply online for graduation, (b) advertise their defense, and (c) to file dissertations with the Graduate School Office. The Graduate Program additionally requires a written statement from the research mentor indicating their agreement with expected dates of graduation. Advanced students will receive e-mail notification of deadlines and a posting of that message will remain on the Graduate Program Bulletin Board throughout each degree awarding period. The Graduate School's webpage should also be consulted for updates of its requirements and "Guide to the Preparation of Theses and Dissertations."

Note: All students must be registered during the semester during which the thesis is defended. During the fall and spring at least one credit is required. In summer, the zero-credit course BNB 800 fulfills the registration requirement for graduation.

The Graduate School requires the submission of a Doctoral Degree Defense Announcement THREE WEEKS prior to the defense. The form is available to download from the Graduate School's link "Forms." It includes an abstract of the thesis, to be co-signed by the thesis advisor and electronically submitted to the Graduate School by the Graduate Program Director.

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A FEW GUIDELINES OF PARTICULAR INTEREST TO:

- DISSERTATION ADVISORS
- DISSERTATION COMMITTEE CHAIRS

1. RESEARCH PUBLICATIONS: STUDENT CITATIONS. All published research that includes Program students as authors must cite the student's institutional affiliation as: **Graduate Program in Neuroscience, SUNY at Stony Brook.**

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