BROWN UNIVERSITY-NIH

GRADUATE PARTNERSHIP PROGRAM IN NEUROSCIENCE

Organization and Policies

2018-19
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1. General Description

The Graduate Partnership Program (GPP) in Neuroscience at Brown University provides advanced study for academic and research careers in neuroscience. Students receive broad, multi-disciplinary training in neuroscience with a strong foundation in core concepts, skills, methodologies and advanced scientific literature. Students take a core curriculum that encompasses multiple levels of analysis including genes, cells, systems, cognition, translational neuroscience and neurological disease. At all stages of instruction, we integrate skills that are considered essential for successful, independent research careers in neuroscience. These skills include critical thinking and reasoning, effective science writing and oral presentation, knowledge of scientific review processes, and ethics training. Admission is limited to applicants for the degree of Doctor of Philosophy in Neuroscience.

To fulfill the Program’s requirements, students must pass all courses with a grade of “B” or higher, pass the Comprehensive Examinations, propose and defend a thesis topic (Preliminary Examination), and complete and successfully defend a doctoral dissertation. The thesis, which describes the student’s original research, should contribute significantly to the field of study and be of sufficient quality to merit publication in a peer-reviewed journal. Students are also required to participate in other Program activities (See Section 6).

2. Admission to the Neuroscience Graduate Program

Students interested in the Brown-NIH GPP must apply through the NIH. Two Admission Committees review applications for the GPP, one at Brown University and one at the NIH. The Brown Admissions Committee is comprised of the Director or Co-Director of the Neuroscience Graduate Program and at least one senior faculty trainer, one junior faculty trainer, and the Graduate Student Representative. This committee can include faculty from at least two different departments. The NIH Admissions Committee is comprised of the CoDirectors of the GPP and up to two NIH investigators.

The Admission Committees review all applications; Program faculty are permitted access to the applications. The Admission Committees compare their initial rankings and collectively generate an interview short-list based on their assessments, along with solicited comments and rankings from faculty. Applicants interview at both Brown and the NIH and both Admission Committees must agree upon the list of applicants to whom are offered admission. Admission letters are sent from both Brown and the NIH to successful candidates based on post-interview rankings and availability. The Program Directors keep faculty informed at all stages of the admissions process.

Application materials are usually due to NIH early in December and to the Graduate School by the end of March for September matriculation. Matriculating students are expected to have an undergraduate degree in a scientific discipline such as Biology, Psychology, Neurobiology/Neuroscience, Chemistry, Physics, Applied Math, Engineering, or Computer Science. Candidates whose undergraduate training does not include certain topics critical to their research interests may take additional courses as part of their program of study.
3. Coursework

All students take the same core courses at Brown University as NSGP students during their first year of study. These include, but are not limited to:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Term</th>
<th>Course Title</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEUR2030</td>
<td>Fall</td>
<td>Advanced Molecular and Cellular Neurobiology I</td>
<td>ABC/NC</td>
</tr>
<tr>
<td>NEUR2050</td>
<td>Fall</td>
<td>Advanced Systems Neuroscience</td>
<td>ABC/NC</td>
</tr>
<tr>
<td>NEUR2040</td>
<td>Spring</td>
<td>Advanced Molecular and Cellular Neurobiology II</td>
<td>ABC/NC</td>
</tr>
<tr>
<td>NEUR2060</td>
<td>Spring</td>
<td>Advanced Cognitive Neuroscience</td>
<td>ABC/NC</td>
</tr>
<tr>
<td>NEUR2010</td>
<td>Fall</td>
<td>Graduate Proseminar in Neuroscience</td>
<td>S/NC</td>
</tr>
<tr>
<td>NEUR2020</td>
<td>Spring</td>
<td>Graduate Proseminar in Neuroscience</td>
<td>S/NC</td>
</tr>
<tr>
<td>NEUR2980</td>
<td>Both</td>
<td>Graduate Independent Study</td>
<td>S/NC</td>
</tr>
</tbody>
</table>

To satisfy any course requirement, students must receive a grade of A or B. Lower grades (C and NC) will require remedial or other action including Academic Warning. In addition, all first year students take a two-part Comprehensive Exam (see Section 8) based largely on the content of the core courses.

GPP students leave Brown after completing their Comprehensive Exams at the end of their first year. At the NIH, there are no formal course requirements beyond laboratory work. However, the **Brown University Graduate School requires students to complete 24 course credits before graduation**. Therefore, **second and third year GPP students must sign up for four sections of NEUR2980 - Section 31 (Instructor: NSGP Director) S/NC until their 24 credit requirements are fulfilled.**

Short courses: During their first year, GPP students participate in all seminars, courses and didactic exercises undertaken by Brown University NSGP first-year students. This includes lab courses/experiences offered during January (NeuroPracticum and/or Neuroanatomy), Responsible Conduct of Research (RCR), and Ethics and Skills Workshops during the academic year. Some of these courses/experiences are not graded. Students are expected to earn a grade of A or B in courses that are graded to remain in good standing.

4. Advising

Entering students are assigned an advisor for the initial phase of their training. The Director or Co-Director generally serves as the GPP students' first-year advisor (see Directors and Contact Information page). The faculty advisor meets with the student at the beginning of the first semester to provide general training oversight and during the winter semester to discuss progress in course work, laboratory rotations, fellowship applications and general program information. Advisors summarize the student’s progress after each advisory meeting, using an electronic form which can be found at: [http://neuroscience.brown.edu/graduate/forms/](http://neuroscience.brown.edu/graduate/forms/).

GPP students transfer to the NIH at the end of their first academic year and subsequently select their Thesis Advisor. This decision must be approved by the Program Directors at Brown and NIH. (See Directors and Contact Information page). The Thesis Advisor is the first member of the student’s Thesis Committee. The student and Thesis Advisor then select two additional faculty members to serve as the Thesis Committee. One of these faculty must be an Associate or Full Professor and an approved faculty trainer in the
Neuroscience Graduate Program at Brown University. The second committee member should be an investigator at the NIH in a different laboratory than the Thesis Advisor. The chair of the Thesis Committee must be someone other than the Advisor. Students and Advisors may invite faculty who are not trainers in the Program to participate in Committee meetings. These faculty can add to the scientific discussion, but are not voting members of the committee. All students are expected to meet with their Thesis Committee at least once a year.

In the student’s second year, the Committee primarily focuses on helping the student prepare for the Preliminary Exam (see Section 9), which should occur before or at the start of the third year of study. After the Preliminary Exam, the Thesis Committee primarily guides the dissertation plan. All students are strongly encouraged to publish, present their findings at the Society for Neuroscience annual meeting, take summer methods courses and apply for individual predoctoral fellowships. The Thesis Committee must meet with the student annually to evaluate the progression of the thesis research (preferably during the months of September/October, annually). After each meeting, the Thesis Committee chair must complete and submit a training update report. Additionally, the student and Advisor will submit a progress report in the March/April timeframe, signed by both. If possible, students should arrange committee meetings when Brown faculty members are in Washington, D.C. Alternatively, students may set up video or internet conferencing so that the Brown University committee member is an active participant in committee meetings.

At least once each year, graduate students will meet as a group with the Program Directors at the NIH. These meetings are intended to keep students informed about the development and organization of the Program and provide an opportunity for student feedback concerning financial support, teaching responsibilities, Program requirements and other issues of mutual concern. In addition, students are encouraged to meet individually with the Director or Co-Director to discuss their progress in the Program and general programmatic affairs.

### 5. Laboratory Rotations and Research

A crucial responsibility for new graduate students is to choose a research area and a Thesis Advisor from the current Training Faculty. In order to gain sufficient knowledge to make an informed thesis lab selection, students interview with faculty, attend seminars and lab meetings, and complete lab rotations. A lab rotation consists of a one-semester research project under the supervision of a Program faculty member. Students are strongly encouraged to arrange their first rotation at the NIH during the summer immediately preceding their first year at Brown. GPP students should rotate in at least one Brown University lab during their first year. The final lab rotation at the NIH starts in June, at the end of the second semester. Students must inform the NIH & Brown Program Directors of their rotation plans and rotations must be approved. In addition, students must inform the GPP once they have selected their thesis advisor, for formal approval.

Laboratory research should be arranged and underway by the first semester of the first year. In special cases, a student may delay the onset of lab work until after the first semester with approval from the Program Directors. In such cases, the student is expected to establish a meaningful scientific relationship with a member of the training faculty and attend weekly lab meetings in preparation for their rotation during the second semester. All students are expected to work in a lab during the winter intersession and summer, except for a reasonable vacation interval. All students beyond 3rd semester must be actively undertaking research
under the direct supervision of a Program trainer, unless otherwise approved by the Program Director.

The general Neuroscience Graduate Program vacation policy is two weeks of vacation in addition to national/state holidays. 1st-year students can take Winter Break off, but should return when Brown University Winter Break ends. Research-grant funded, fellowship, or externally-funded students do not get additional time off; two weeks maximum is recommended. This applies to 1st-year GPP students also.

6. Graduate Program Activities and Events

A number of special Graduate Program activities and events are integral to graduate training, and students must arrange their schedules to participate.

- **Retreat:** A one-day retreat for the Neuroscience Graduate Program is held every year, usually during the week preceding the start of the academic year. The purpose of this retreat is to introduce the incoming graduate student class and familiarize students with Neuroscience faculty research, particularly faculty trainers. The retreat is organized and arranged by a committee consisting of the Graduate Student Representative, one faculty member, and several graduate students.

- **Neuro Practicum:** First-year students attend an eight-day session held in January at the Marine Biological Laboratories intended to introduce early-stage graduate students to cutting edge methods and experimental approaches used in neuroscience research. Small groups move through multiple lab stations, led by participating NSGP faculty, associated postdocs and advanced graduate students. GPP first-year student attendance is required. Expenses and travel are handled by the program.

- **The Graduate Proseminar in Neuroscience (NEUR 2010)** is intended to expose graduate students to the latest work in key fields of neuroscience. All first-year students must attend these weekly seminars on Thursdays at 4 PM. An informal social with the invited speaker follows the seminar and students are strongly encouraged to attend. Each year, outside speakers are chosen by the Colloquium Committee (see Section 12) with input from graduate students who select two speakers to invite and host. Also, two students are assigned to set up and operate the audiovisual equipment for the seminar and assist with refreshments each week.

- **In-House Seminars and Journal Clubs:** Second-year GPP students and beyond are required to present at the In-House Seminar Series every other year (2nd– and 4th–year students). All first-year students are required to attend In-House Seminars and may also attend Journal Clubs, if their schedule permits.

- **Weekly Laboratory Meetings:** Every research laboratory conducts weekly meetings and graduate student attendance is required for a passing grade in NEUR2980. Students must inform their advisor if, for any reason, they cannot attend.

- **Ethics and Skills Workshops:** All GPP students are required to attend the Ethics and Skills Workshops offered by the Program, as well as a seven-week series conducted by the Division of Biology and Medicine entitled “The Ethics of Responsible Conduct in Research (RCR).” These workshops are designed to foster skills necessary for a successful career in research.

- **Graduate Student Recruitment:** Recruitment is essential for Program vitality. Students assist in recruiting new students to the Program each year. The Graduate Student
Representatives help to coordinate recruitment efforts and establish a committee of students responsible for organizing social events.

7. Individual Development Plan (IDP)

An Individual Development Plan is a tool to assist graduate students and postdoctoral researchers in achieving their career goals and becoming contributing members of the biomedical research workforce. As of July 1, 2014, the Office of Graduate and Postdoctoral Studies at Brown University requires that all graduate students and postdoctoral researchers must complete an Individual Development Plan (IDP). The National Institutes of Health has mandated that the IDP’s be a regular part of their training. All incoming graduate students must complete and submit an IDP to the NSGP Program Directors and to the Office of Graduate and Postdoctoral Studies (OGPS), by the end of their first semester. All graduate students must submit an updated IDP to the Graduate Program Directors or mentors, respectively, as well as the OGPS, every 4 years if not sooner. An IDP template may be downloaded from the Office of Graduate and Postdoctoral Studies website: http://www.brown.edu/about/administration/biomed/graduate-postdoctoral-studies/. There will also be training in creating an IDP through the Responsible Conduct in Research (RCR) through classes offered by the OGPS in the fall semester. A file copy should be printed upon completion and given to the Graduate Program Coordinator.

8. Teaching

There are no formal teaching requirements for GPP students.

9. First-Year Comprehensive Exams

The Comprehensive Exams are taken at the end of each semester during the first year of study and must be passed to qualify for Ph.D. candidacy. The exams are designed to ensure that students have attained core knowledge in Neuroscience and incorporate all the material covered in the first year coursework, including neuroanatomy, ionic basis of excitability, synaptic transmission, neural development, molecular neuroscience, systems neuroscience and cognitive neuroscience. All first-year students sit for the same closedbook essay exams. A committees of at least four faculty members grade the exams. This grading system maintains uniformity in the evaluation process from year to year and provides a better overview of the students’ mastery of the course material. The Comprehensive Exams are also used to diagnose and recommend additional readings or electives for the second year of study. The committee may call for an oral examination of those students whose written answers reveal a serious deficiency. If students provide adequate answers in this oral exam, they pass the Comprehensive Exams. Students who fail the oral exam must re-take the Comprehensive Exam or re-take the associated course, at the discretion of the committee. Failure of more than one course or failing a course more than once results in academic warning and possible dismissal.

10. Preliminary Examination / Thesis Proposal

The Preliminary Examination is administered by the Thesis Committee. Before the beginning of the fifth semester (Fall of third year), students must present a written research proposal to the Thesis Committee and to Brown GPP Director at least two weeks before the scheduled examination. This written research proposal should be formatted as an NIH R01 grant
application. The proposal must include the specific aims, significance, background (a critical review of the relevant literature), experimental or analytical design, and detailed methods of the proposed research within a maximum of 50 pages double spaced. The Thesis Committee chair is responsible for notifying the student if the written proposal is not acceptable. The Brown GPP Director usually attends the Preliminary Examination.

When the written research proposal is accepted, students must present a 20-30 minute talk to the Thesis Committee summarizing their proposal and experimental plan. Students should be prepared to answer many questions from their Thesis Committee and defend their experimental plan. A successful project defense constitutes passage of the Preliminary Examination. When students complete all required courses and pass the Comprehensive and Preliminary Examinations, they advance to candidacy for the Ph.D. The Preliminary Examination must occur at least one year before the Dissertation Defense. Failure to schedule the Preliminary examination before the end of the third academic year is grounds for possible dismissal.

11. Dissertation Preparation and Defense

Upon the completion of their thesis research, students are required to write a doctoral dissertation to submit to their Thesis Committee for evaluation and minor revision. The appropriate format for the written dissertation is described at the Brown University Dissertation Guidelines web site: (http://www.brown.edu/academics/gradschool/academics/rules-regulations/dissertationguidelines). Before the thesis is submitted to the Committee, the student and Thesis Advisor must ensure that the thesis is complete and the Committee has adequate time to read it (usually two weeks in advance of the defense). A qualified outside reader with relevant expertise is invited to join the Thesis Committee. The outside reader may be a faculty member from an institution other than Brown and the NIH. The GPP Program at Brown University must also receive a copy of the thesis sent to the outside reader, no later than two weeks prior to the student’s scheduled defense date.

The thesis will form the basis for a public seminar that must take place at Brown University. A closed oral examination attended by the Thesis Committee and other interested Neuroscience Graduate Program faculty will follow the seminar. This final examination or defense must be scheduled by the candidate at the convenience of the readers. At least four weeks’ notice must be given to all faculty and students prior to the final defense date and at least two weeks must elapse between submission of the written thesis to the Thesis Committee and the final defense. The Brown GPP Director or NSGP Director usually attends the final examination.

Three weeks prior to the defense, candidates must provide the Neuroscience Graduate Program with appropriate dissertation defense information so the Thesis Defense Form can be completed and returned to the Graduate School. The following information is required:

- The names of the dissertation advisor and all readers (with contact information for anyone who is not at Brown University). The readers must attend the defense in person.

- The date, time, and place of the final examination. In some departments, this information will come from the manager or the director.
• All of the candidate's previous academic degrees, with institutions and dates of conferral.

• Date of preliminary examination.

• Language requirements, if any, including when and how they were fulfilled

On the day of the thesis defense, candidates will need at least two copies of their signature page printed on archival-quality paper for signing by their Thesis Committee. Immediately following the thesis defense, candidates must obtain the signatures of their Thesis Committee members to complete both the Thesis Defense Form and signature page.

After the thesis defense, the final doctoral dissertation and all associated forms and documents related to the completion of a Ph.D. must be submitted to the Graduate School by the first business day of May in order to graduate in that academic year. Please consult the Dissertation Guidelines from the Graduate School at: http://www.brown.edu/academics/gradschool/academics/rules-regulations/dissertationguidelines for forms, documents, and additional information regarding the thesis defense process.

12. Expenses

Expense related to the In-House seminar presentation and thesis defense are the responsibility of the Advisor and the NIH GPP. These expenses include travel from the NIH to Brown as well as expenses related to the outside reader. Student and Advisor should select an outside reader with these expenses in mind. The student is responsible for the $50 dissertation fee.

13. Governance

The Brown-NIH GPP is supervised by Program Directors at both Brown University and the NIH. (See Dates, Directors and Contacts page.) These directors are senior faculty members appointed for a three-year term. The Brown Director is selected by the Steering Committee in consultation with the Department of Neuroscience Chair. The NIH Director is selected by the GPP office at the NIH. The Brown Director works with students, the Co-Director, the Steering Committee, faculty trainers, and Advisory Committees to operate the Program. In conjunction with the students, the NIH Program Director annually appoints a Graduate Student Representative to serve as a liaison between the student body and the Program.

The Steering Committee serves as an advisory board to the Brown Director and Co-Director of the Neuroscience Graduate Program and is comprised of five members: The Chair of the Department of Neuroscience, the PI of the training grant, the Director of the NSGP, a current or former Chair or Graduate Program Director of a Department other than the Department of Neuroscience and a representative of the junior faculty. The Steering Committee has a number of responsibilities including advising the Brown Director and Co-Director, reviewing the status of current faculty trainers, reviewing applications from potential new trainers, selecting the External Advisor, considering complaints and concerns of trainers related to programmatic issues, and addressing trainee-mentor problems that are not readily resolved by the Program Director.
Four committees oversee admissions and the graduate curriculum:

- The **Admissions Committee** receive and review applications for the annual admission process to the graduate program.

- The **Curriculum Committee** oversees proposed changes to the graduate curriculum.

- The **Special Events Committee** organizes the annual events that bring together all members of the Program. The three major events are the annual NSGP retreat at the start of the academic year and the two recruitment weekends.

- The **Colloquium Committee** selects speakers for the NSGP Seminar series held every Thursday at 4 PM during the academic year.

The **External Advisor** is a senior faculty member from another University that serves as an external reviewer of the graduate program. The External Advisor will visit Brown to review the program at least once every two years. Annual visits may become required, and *ad hoc* consultations may occur at any time. During on-site visits, the External Advisor meets with students, faculty, post-doctoral fellows and selected Administrators in the Division of Biology and Medicine and the College. The goal of these visits is to identify areas for improvement and areas of success in training graduate students. The External Advisor provides a written report of the visit.

The **External Advisory Group** is an *ad hoc* review group appointed by the NIH to review the GPP every five years. The External Review group visited the NIH in July, 2014 and a written report of their review is available.

**14. Faculty Trainers**

Individuals are designated as Program Faculty Trainers after approval by the GPP and Brown- NIH GPP Directors. Faculty members seeking such designation should submit a Curriculum Vitae, a description of their current research interests, current funding sources, and an account of their past training history to the Program Directors for review. Appointment as a Program Faculty Trainer is based on the faculty’s potential to contribute to the Program and continued membership is contingent upon a visible contribution in the areas of teaching, advising, training, or Program administration.

The training program maintains strict requirements for the inclusion of faculty as trainers while at the same time encouraging the participation of junior faculty and other senior faculty distributed throughout the University system. The Steering Committee will annually review all current and prospective trainers and add or remove trainers according to the criteria below. A full trainer in the GPP must have:

- An active, ongoing basic neuroscience research program.

- Active participation in training activities.
• A record of successfully training graduate students. Junior faculty with no prior training experience are eligible, provided that they show exceptional promise as independent scientists and trainers. In these cases, a mentor will be assigned to junior faculty as a sponsor.

• Adequate research support to provide stable funding for the trainee, as well as an appropriate laboratory environment.

• The ability to provide instruction in the Core Curriculum or otherwise participate in a Neuroscience-related course in the Brown course offerings.

Individuals denied membership in the Program Faculty or approval as a Thesis Advisor may appeal the Steering Committee’s decision, by way of the Program Director. In addition, the Training Faculty can override the Steering Committee’s decision by a majority vote. Sixty percent of the active training faculty will constitute a quorum for such a vote. This vote will be reflected in the written minutes of the meeting at which it is taken. Members unable to attend this meeting may vote via a written statement to the Program Director. In this instance, faculty members not attending the meeting will become counted for quorum purposes.

15. Graduate Student Grievance Procedures at Brown (FRR Part 4 Section 10.II.A.)

Brown’s Neuroscience Graduate Programs follow Grievance Procedures outlined by Brown University in the Graduate School handbooks. These are available online on the Brown Graduate School website. Note that our graduate program is interdepartmental and does not reside in a single Brown University department. Unless the grievance issue is departmental in nature, the Neuroscience department chair is not involved per se in grievance procedures.

16. Graduate Student Grievance Procedures at the NIH (FRR Part 4 Section 10.II.A.)

Please refer to GPP policies and the current GPP Director at NIH.
Brown-NIH Graduate Partnership Program in Neuroscience
2018-2019

Director and Contact Information

NSGP Director, Brown University: Anne Hart

GPP Director, Brown University: Gilad Barnea

GPP Co-Directors NIH: Katherine Roche
Mark Stopfer

For more information, please use the following links:

Brown University: http://neuroscience.brown.edu/gpp/program

NIH: https://www.training.nih.gov/programs/gpp