

## **SUMMARY OF REQUIREMENTS FOR THE PH.D. IN NEUROSCIENCE (NOTE: Old Curriculum)**

### **The Graduate Committee:**

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### **Summary of requirements for advancing to candidacy in the Ph.D. program:**

All Neuro students must complete four lab rotations (nine weeks each), select a thesis lab by mutual agreement with a faculty member by the end of the first year, pass six lecture courses (including the required courses NBIO 140 and BIOL 200A) with a grade of B- or better, pass a qualifying exam (“Outside Exam”), defend a thesis research proposition (“Inside Exam”), and TA two courses (usually during the second year). Graduate students must register for and attend Responsible Conduct of Science in the first year and again in their fifth year (CONT 300, a not-for-credit course, or the equivalent Research Ethics Workshop), the Graduate Student Research Seminar every semester (BIOL 350, a not-for-credit course), and a Journal Club (NBIO 306) every semester. Presenting in the yearly Graduate Student Research Seminar is required to remain in good standing in the program. Students must also register for their advisor’s section of Dissertation Research (BIOL 401D) in the second and all subsequent years.

### **Courses:**

Students must take a total of at least six lecture courses during their graduate Program and pass with a grade of B- or better. There are two required/mandatory courses for all Neuroscience Ph.D. students: NBIO 140 (Principles of Neuroscience), and BIOL 200 (Proseminar). The remaining four must have catalogue numbers of 100 or above

(signifying graduate-level), be listed or cross-listed in the Neuroscience section of the Brandeis Bulletin (<http://www.brandeis.edu/registrar/bulletin/index.html>), and be relevant to the student's area of interest. Of these courses, at least one must focus on quantitative methods or approaches and one must focus on critically reading, discussing, and writing about the primary scientific literature. These classes can be selected from a number of neuroscience topic areas including cognitive, computational, systems, cellular, and molecular neuroscience and must be approved by the graduate committee. Normally, classes taken in the first year will count as four of the six required courses, with the remainder generally taken in the second year. Some students elect to take one or two additional lecture courses in their third year or later. Transfer credits will not be accepted.

### **Journal Clubs:**

Every student is required to register for and attend the "Topics in Neurobiology" Journal Club (NBIO 306). Students may also attend the other approved journal clubs listed below, but they must be in addition to NBIO 306. Students supported by a specific Training Grant must choose from Journal Clubs approved by the Director of that Training Grant. In their first year, students should go to the Journal Club(s) attended by the lab in which they are rotating. Under these circumstances, it is fine to register for a particular Journal Club and attend a different one. Students are not required to present an article until their third year.

### **Journal Clubs: (See course listings for times)**

Topics in Neurobiology:	NBIO 306
Systems/Computational Neuroscience:	NBIO 340
Topics in Molecular Genetics and Development:	BIOL 305

### **Colloquium Series:**

All students are required to attend the regular Joint Biology/Neuroscience Colloquia (i.e. talks given by visiting scholars) on Tuesday.

### **Graduate Student Research Seminars (BIOL 350):**

All students are required to register for and attend Friday Graduate Student Research Seminar Pizza Talks (BIOL 350), which are held at 12:30 PM. All Neuro (and MCB) students present their thesis work annually starting in their third year.

### **Chemical and Safety Trainings:**

All students must complete the appropriate chemical and safety trainings before they may begin in the lab. More information about these requirements will be explained during New Student Orientation. In addition, all neuroscience students are required to complete online Animal Care and Use training, to attend the Foster Animal Facility training, and obtain Occupational Health Clearance. If applicable, students must also complete in-person Virus Training and Controlled Substances Training.

## **SPECIFIC TIMELINE OF EVENTS:**

### **First Year**

**Courses:**

Students in the first semester of their first year (Fall 2018) should register for Rotations (NEUR 300), Proseminar (BIOL 200), Journal Club (NBIO 306), the Graduate Student Research Seminar (BIOL 350), and Principles of Neuroscience (NBIO 140). Students who may have previously taken NBIO 140 should enroll for NBIO 148.

Students in their second semester (Spring 2019) should register for Rotations (NEUR 300), a Journal Club (NBIO 306), Ethical Practice in Health-Related Sciences (CONT 300, or the equivalent workshop), the Graduate Student Research Seminars (BIOL 350), and two additional neuroscience courses.

**Graduate Student Research Seminars (BIOL 350):**

All students are required to register for and attend the Graduate Student Research Seminar Pizza Talk each Friday at 12:30 PM. All Neuro students are required to present their thesis work annually starting in their third year.

**Journal Clubs:**

Every student is required to register for and attend at least one Journal Club, which must be or include NBIO 306, Topics in Neurobiology". Students supported by a Training Grant must choose from Journal Clubs approved by the Director of the Training Grant. Students typically present starting in their third year.

**Colloquium Series:**

All students are required to attend the regular Joint Biology/Neuroscience Colloquia (i.e. talks given by visiting scholars) on Tuesday.

**Rotations:**

All first year students are required to register for the research rotations (NEUR 300). Every student is required to complete four rotations of nine weeks each in four different laboratories during the academic year (specific dates below). In the event that a student is completing only one rotation in a given term (fall, spring, or summer), the student should register for the half-credit rotations course, NEUR 301. The choice of laboratory rotations is made jointly by the student, the chair of the graduate program, and the faculty member in whose lab the rotation is to take place. Students may choose to rotate with any members of the neuroscience program, or other members of the life sciences community.

**Rotation Selection:**

During orientation week, students will attend a three-night faculty bazaar where faculty members who are accepting graduate students will introduce their work. After, students will turn in a list of three top choices for the first rotation. We will then **assign** students to a first rotation by Friday August 31<sup>st</sup>, 2018, no later than 5:00pm, doing our best to give everyone their first or second choice.

The remaining three rotations are the responsibility of the student to arrange with the appropriate faculty member ahead of time. We recommend that you arrange your next rotation within a few weeks of the end of the current rotation.

### Rotation Schedule:

	<b>Start</b>	<b>End</b>	<b>Written Report Due</b>
1 <sup>st</sup>	Tues. 9/4/18	Fri. 11/2/18	Mon. 11/5/18
2 <sup>nd</sup>	Mon. 11/5/18	Fri. 1/11/19	Mon. 1/14/19
3 <sup>rd</sup>	Mon. 1/14/19	Fri. 3/15/19	Mon. 3/18/19
4 <sup>th</sup>	Mon. 3/18/19	Fri. 5/17/19	Mon. 5/20/19

### Rotation Reports:

At the end of each rotation, the student will submit a written rotation report. The student should discuss expectations for the rotation report with their rotation advisor, and whether an oral presentation will also be required in that lab's group meeting. By 5pm on the date the report is due, an electronic copy should be sent to the program administrator in the Division of Science Graduate Affairs Office and the laboratory head. Any requests for extensions must be received in advance, and must be approved by the rotation advisor and program chair.

### Rotation Report Format:

All students should follow this standard rotation report format:

Instructions: The intended audience is your fellow lab mates, graduate students and PI, so use language that is understandable to these groups. Many labs will use this document to continue the project, so as you are writing, please consider what you would like to know if you were the person continuing.

**I) TITLE (include name, lab name, and rotation number)**

**II) Introduction and Background**

What is the big picture scientific question that the project is focused on? How does this work contribute to this question? Should be 1-2 pages.

**III) Methods**

Give enough detail that someone could pick the project up after you. Should be as long as necessary.

**IV) Progress and Results**

What did you do during the rotation? How did it work? Include any drawings of apparatus and any data figures in this section.

**V) Discussion and Future Directions**

If someone were going to pick up your project, what should they know? What advice would you give them? What would you try next if you were continuing? Include some discussion of your preliminary results and their implications.

**VI) References**

Put references here in some consistent format. Consider using a reference management program like EndNote because you'll need to use one for proposals, papers, and your thesis.

Reports should be no longer than 10 pages, double spaced, with figures embedded into the text.

### **Rotation Report Feedback and Grading:**

Rotation reports will be read by the PI and by an “outside reader”. Both will provide formal written feedback on the rotation report within one week of submission. Students will then have the opportunity to revise the report and resubmit one week later. Revised reports will be graded using the following criteria:

- I) Significance** (what was the impact on the field/lab of the completed rotation project and proposed next steps)
- II) Approach** (were the methods adequately described and experiments properly designed?)
- III) Rationale** (did the rotation report explain why these were the best experiments to do to answer the research question?)
- IV) Other** (to cover the remaining criteria - expected outcomes, pitfalls, alternatives)
- V) Writing style, figures, clarity**

### **Selection of a Thesis lab:**

Students are not permitted to approach faculty about joining a lab until Monday May 13<sup>th</sup>, 2019 and should make every attempt to complete the selection process by Friday May 24<sup>th</sup>, 2019. Students will begin work in their new thesis lab immediately following their decision. The graduate committee reiterates that students should not ask for a commitment from a faculty member – nor can a faculty member promise a spot in their lab – until May 13<sup>th</sup>. This policy protects the rights of all first year students in the Life Sciences and creates a level playing field independent of the order in which rotations are performed. It is taken very seriously by the Graduate Committees of all of the Life Sciences programs.

In exceptional circumstances, students may be permitted to complete a fifth rotation in the summer following their first year. Students who wish to work on a collaborative project between two labs with two co-advisors may do so with advanced approval.

### **First Year Proposition, “Outside Exam”:**

The first year proposition is intended as both an introduction to the intellectual skills involved in devising programmatic research and as an opportunity to gain breadth of scientific vision. The subject will be chosen from among the four topics covered by the students’ rotations. Written exams are due to the Grad Affairs Office the week of May 6<sup>th</sup> – 10<sup>th</sup> (exact date TBD), oral exams will take place the week of May 20<sup>th</sup> – 24<sup>th</sup> (exact date TBD).

### **WRITTEN “OUTSIDE” PROPOSITION**

1. Students will prepare a written document that will conform to the actual format and requirements of an individual predoctoral fellowship (NRSA) grant, including a Specific Aims page and following research plan and background.
2. We will make available several successful past NRSA applications.
3. Students should pick a problem that either builds on one of their rotation experiences or is independent. If independent, the topic must be approved by the graduate chair (Eve Marder).

4. The point of the exercise is not to discuss what was specifically achieved during a rotation but to lay out the experimental design for future work. This should be a feasible set of experiments suitable for an NRSA (i.e. completed by an individual, within a ~3 year timeframe) to address an interesting and fundamental question, related or not to the rotation project.

5. Our expectation is that training for preparing for this exercise will start during the Proseminar and that students will also work with each other and more senior students in the months or at least weeks ahead to obtain critiques and suggested revisions of the written and oral presentations.

### **Written Proposition evaluation:**

Written propositions will be due 2 weeks before the Oral defense, to allow sufficient time for faculty to provide feedback, and for the student to incorporate feedback into the oral defense. The written proposition will be read by several (2-3) faculty members and will be evaluated based on the following criteria:

"The applicant should describe the background leading to the proposed research, the significance of the research, the proposed approach (design and methods) for achieving the Specific Aims and the rationale for the proposed approach. Furthermore, applicants should clearly and specifically address the expected outcomes, potential pitfalls, and alternative approach and/or direction should the expected outcomes not occur. Applicants do not need to include extensive preliminary data in the application. However, applicants should nonetheless address technical feasibility, as well as the strengths and weaknesses of previously published (or unpublished) work that supports the project significance and approach taken. Given the lack of preliminary data in the application, it is especially important to include a discussion of the planned course of action should the proposed approach(es) be unsuccessful."

Provide scores (out of 5) for each of the following criteria:

1. Significance (what will the impact on the field be if the research questions are successfully answered)
2. Proposed approach (are the methods adequately described and experiments properly designed?)
3. Rationale (did the proposal explain why these are the best experiments to be doing to answer the research question?)
4. Other (to cover the remaining criteria - expected outcomes, pitfalls, alternatives)
5. Writing style, figures, clarity

For a total score of 25

### **ORAL DEFENSE AND EVALUATION:**

Oral defense/ symposium style. Students will give a presentation of their proposal followed by a question period. All students for that year will be scheduled for the same date (Week of May 20<sup>th</sup>-24<sup>th</sup>, date TBD), and the presentations will be open to all faculty and students. All faculty in attendance will rate the presentation in terms of clarity and content using the following criteria.

Your oral presentation is graded on the following criteria (5 points each):

Setup (Question)  
Research Design  
Presentation Style  
Handling Questions  
Overall Performance

The graduate committee will evaluate the results of the evaluations of the written and oral components, and if necessary can obtain additional readers for the written propositions.

The Graduate Committee will assign a PASS/FAIL grade to each student based on their written and oral performance. Students who fail their First Year Proposition may be placed on probation for one year (see additional section on Probation below).

Requests for exceptions to this schedule must be submitted in writing to the Graduate Committee and are only granted under extraordinary circumstances. Please contact Eve Marder with further questions about the first year exam (marder@brandeis.edu).

### **Summer, between all years**

#### **Courses:**

This and every summer, all students will be registered for CONT 250 (Summer Research).

#### **Thesis Research:**

Students will begin work on their thesis research immediately following their fourth rotation. They are expected to perform research through the summer. Vacations and other absences must be approved by the student's advisor.

### **Second Year**

#### **Courses:**

Generally students take one lecture course in the fall and one in the spring semester. These classes can be chosen from the list of graduate courses (catalogue number of 100 or above) in the Neuroscience section of the Brandeis Bulletin (<http://www.brandeis.edu/registrar/bulletin/index.html>). Students who did not take NBIO 148 in their first year should register for it in their second year.

#### **Teaching:**

Each student is required to serve as a teaching assistant (TA) for two semesters, typically both semesters of their second year in the program. Teaching assignments are decided in the summer preceding the second year and will be emailed to students (usually in July). Any PhD student who is TA'ing for the first time is expected to attend the Teaching Practicum for teaching fellows, which is held during Orientation events in August. TA assignments are decided by the Program, and students will usually do at least one semester of service in a basic biology course.

**Thesis Research:**

Students will work on their thesis projects starting at the end of their first year, when they join their thesis lab, and continue until completion of their dissertation (typically 6 years). Students must register for their advisor's section of NEUR 401 (Dissertation Research) each semester. Specific Ph.D. thesis requirements are set by the student's advisor and the thesis committee (see below).

**Graduate Student Research Seminars (BIOL 350):**

All students are required to register for and attend the Graduate Student Research Seminar Pizza Talks which are held each Friday at 12:30 PM. All Neuro students are required to present their thesis work annually starting in their third year.

**Journal Clubs:**

Every student is required to register for and attend NBIO 306, "Topics in Neurobiology", and may register for a second journal club if desired, or depending on the student's funding source. Students typically give their first journal club presentations this year.

**Colloquium Series:**

All students are required to attend the regular Joint Biology/Neuroscience Colloquia (i.e. talks given by visiting scholars) on Tuesday.

**Thesis Research Proposition ("Inside Exam"):**

Each student must write and orally defend a thesis research proposition (or "Inside exam"), consisting of a written document outlining specific plans (but not necessarily including preliminary data) for the student's thesis research and a discussion of the proposed research. Length, formatting, and content of the written and oral portions of the Inside Exam should be discussed between the student and their advisor. Inside exams must be taken by the end of May of the second year. For the 2018-2019 Academic Year, this timeframe will be **May 20<sup>th</sup> – May 31<sup>st</sup>, 2019**. Extensions to this timeframe must be approved by the Graduate Committee.

Written proposals should be handed in to the committee members a minimum of one week before the oral defense date. Inside proposition evaluation forms must be completed by each member of the examining committee and returned to the Graduate Affairs Office once the exam has ended. If revisions to the written exam or a re-defense are required, a second set of evaluations forms must be submitted indicating acceptance of the revision/re-defense and turned into the Graduate Affairs Office.

The examining committee is composed of three faculty members, not including the thesis advisor. For students with more than one advisor, one of the two co-advisors must be chosen as the "primary advisor" for the purpose of the inside exam. The primary advisor is allowed to be present in the room during the exam, but the proposal must be defended by the student alone in response to questions from the committee (i.e. the primary thesis advisor must remain silent during the process and their input is strictly prohibited). The primary advisor should NOT fill out an evaluation form for the student. The "secondary advisor" may serve as one of the three members of the committee, and is allowed to

participate and to fill out evaluation forms. Faculty for the examining committee should be selected by the student in consultation with their thesis advisor(s). One of the three faculty members must be chosen as Inside Exam Committee Chair, either by the student or by agreement between the three faculty members. At least one member of the examining committee, the thesis advisor(s), and a faculty member from a University other than Brandeis will compose the student's final thesis committee.

### **THIRD and Continuing Years**

#### **Thesis Research:**

Students by this time should be well into their thesis research projects. Students must register for their advisor's section of BIOL 401 (Dissertation Research) each semester.

#### **Graduate Student Research Seminars:**

Each student from their third year on is required to present a Friday Graduate Student Research Seminar Pizza Talk, (BIOL 350). The student should make sure that her/his thesis committee attends the talk and meets with the student very soon afterwards (usually the same afternoon or the following week) for their Annual Thesis Committee Meeting. All students must register and attend these seminars each semester, which are held on Fridays at 12:30 PM.

#### **Journal Clubs:**

Every student is required to register for and attend NBIO 306, "Topics in Neurobiology", and may register for a second journal club if desired or depending on funding source. Students typically make their first journal club presentations this year.

#### **Colloquium Series:**

All students are required to attend the regular Joint Biology/Neuroscience Colloquia (i.e. talks given by visiting scholars) on Tuesday.

#### **Annual Thesis Committee Meeting:**

The Thesis Committee is typically composed of two faculty members from the Inside Exam examining committee, plus the thesis supervisor(s). In the event that a student's research advisor leaves for another university or is on a non-resident leave of absence for more than one year, his/her graduate students must have another Neuroscience faculty member as a second mentor. This mentor shall meet with the student no less than once a month and will ensure that an annual thesis committee meeting will be held around the time of the student's Pizza Talk.

Once thesis work has begun, **each student is required** to meet at least once per year with his/her thesis committee to complete an Annual Progress Report. These meetings should be arranged in advance by the student soon after the student's presentation at the Friday Graduate Student Research Seminar Series Pizza Talk. The graduate student should give each committee member a copy of a committee meeting Annual Progress Report that they will fill out in advance. This form will list any meetings attended or presentations given, publications, or professional activity accomplished in the last year (or since

entering graduate school, if it is the student's first committee meeting). It should also contain a short summary of their project, specific progress on their project in the last 6-8 months, and their goals for the next 6-8 months. If the committee requires a more detailed written document, they should communicate this to the student prior to their committee meeting. The committee must fill out and sign the section of the Annual Progress Report reserved for the graduate student advisor committee, including an evaluation of their performance in their Graduate Student Research Seminar Pizza Talk that year, and an overall evaluation of their academic progress.

After the meeting, the student will revise their Annual Progress Report to indicate anything that has changed as a result of discussion during the meeting, particularly in regards to their goals for the next 6-8 months. Both the original and updated Annual Progress Report must be returned to the graduate affairs office after the committee meeting.

Students **are required** to have all of the Annual Progress Reports in their files in order to remain in good standing with the program. It is the student's responsibility to make sure that the report is signed by committee members and hand-delivered to the program administrator in the Graduate Affairs Office following the annual thesis committee meeting. The annual thesis committee meetings beginning at the end of the student's **fourth** year should provide a particularly detailed evaluation of the student's status and progress toward completion of the thesis. Before the meetings, the student will submit an additional Defense Planning Document to the Committee outlining progress to this point, including chapters that have been completed, are in progress, or are in preparation.

Once the committee agrees that the student has satisfied all thesis requirements set by the graduate program and the student's thesis advisor (see below), the student will be asked to assemble a thesis defense committee. The defense committee typically includes the student's advisor, 1-2 Brandeis faculty members (typically from the thesis committee) and must also include one "outside reader". The outside reader should be chosen in consultation with the student's advisor several months in advance of the defense.

See the University Bulletin for more detailed instructions on choosing a Dissertation Committee: <http://www.brandeis.edu/registrar/bulletin/provisional/gsas.html>

### **IDP (individual development plan):**

An IDP is a career development tool that is used to a) maintain communication between you and your mentor(s) regarding your long-term goals and career development b) help identify an appropriate career path based on your skills and interests c) assess current and missing skills and abilities for the desired career path d) set specific goals to prepare for the desired career path. The IDP will evolve as the interests and experience level of the student changes over time.

Students in their third year and above will be required to complete an Individual Development Plan with their advisors once a year. If the student does not feel comfortable speaking to their advisors about their career plans, they can meet with the

Program Chair instead. The student/advisor can choose the written IDP format that they prefer. They must confirm by indicating on the Annual Progress Report form that an IDP conversation has taken place and that a written document has been created or revised from the previous year. Example IDP forms can be found on the Brandeis Knowledge Base (or other online resources) at:

<https://kb.brandeis.edu/display/SCI/Individual+Development+Plans>

IDP's will be private documents between the student and advisor (or program chair if this is who the student met with).

### **Thesis Requirements:**

Specific Ph.D. thesis requirements are set by the student's advisor and the thesis committee. As a rough guideline, PhD students are expected to have a first-author papers or its equivalent accepted or published at the time of the thesis defense.

Specific deadlines for thesis submission to the thesis committee should be set by the student's advisor and approved by the entire thesis committee. It is expected that the candidate will ask all members of the committee precisely when they want/need the written document and that the candidate will provide the finished document by whatever date is requested.

### **Thesis Seminar:**

Upon completion of their dissertation work, each student is required to give a public thesis seminar on their research, followed immediately by a private thesis defense. Each member of the defense committee must be present at the talk and the defense.

### **OPTIONAL "MASTER'S IN PASSING"**

When students have completed the requirements needed to satisfy a Master's Degree in Neuroscience, they have the option to apply for a "Master's in Passing". Most Ph.D. students will qualify for a Master's in Passing after completing their second year in the Ph.D. program. Briefly, students must complete and pass six graduate level life science courses with a grade of B- or better, including one laboratory- or research-based course (One semester of rotations count towards this requirement). In addition to these six courses, students must register for and attend the following required courses/seminars: one semester of Responsible Conduct of Science or equivalent, two semesters of Journal Clubs, and two semesters of Graduate Student Research Seminar. The minimum residence requirement is one year.

### **TRANSITION FROM BRANDEIS M.S. TO PH.D. PROGRAM:**

Students who have earned a M.S. at another institution will be admitted as normal first-year students (i.e. the following text does not apply to students who have earned a M.S. from an institution other than Brandeis).

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Students in a Brandeis Life Sciences M.S. program who apply to and are accepted into the Neuroscience Ph.D. program may be allowed to count courses and/or research experience

towards the Ph.D. program. The exact timeline and circumstances surrounding the M.S. to Ph.D. transition will depend on the extent of independent lab research and courses completed during the M.S. degree. Brandeis M.S. students who have taken both NBIO 140, have had extensive research experience in a Brandeis lab, and have completed the Outside Proposition, may be able to combine aspects of the first and second-year program in an accelerated first year.

**Matriculation date:**

M.S. students may enter the Ph.D. program immediately following the completion of their M.S, as early as June 1<sup>st</sup> following their M.S. completion. The start of stipend payments will coincide with their matriculation date. Any exceptions to this timeline must be discussed with and approved by the graduate committee.

**Courses:**

Students should have completed all but one or two of the six required Ph.D. courses, each class taken during the M.S. will be approved for the Ph.D. on a case-by-case basis. The independent research or project lab course taken as an M.S. student cannot count towards the Ph.D. elective requirement and they may still have to take a class with emphasis on quantitative methods, depending on the specific courses taken as an M.S. student. These students are expected to complete the remaining one or two classes in their first year as a Ph.D. student, but no later than the end of their second year.

**Graduate Student Research Seminars (BIOL 350):**

As with all Ph.D. students, students who transition to the Ph.D. program from the M.S. program are required to register for and attend Friday Graduate Student Research Seminar Pizza Talks. Students are required to present annually, according to the timeline discussed and agreed upon at the time of matriculation into the Ph.D. program.

**Journal Clubs:**

Every student is required to register for and attend NBIO 306, “Topics in Neurobiology”, and may register for a second journal club if desired or depending on funding source. Students are required to present annually, according to the timeline discussed and agreed upon at the time of matriculation into the Ph.D. program.

**Rotations:**

All students who transition from the M.S. program to the Ph.D. program must complete two additional rotations, typically during the summer between M.S. and Ph.D. It is expected that these students would have performed a full semester of independent research (NEUR 296 and/or NEUR 299) in one or two labs in their M.S. year. If the student has completed a Project Lab in the M.S., they may be required to complete three additional rotations.

As summer rotations are shortened and since students will not be taking classes during the summer, students are expected to work in their summer rotation labs full-time. During this time, they will register for the research rotation course (NEUR 300). The choice of laboratory rotations is made jointly by the student, the chair of the graduate program, and the faculty member in whose lab the rotation is to take place. It is the responsibility of the

student to arrange with the appropriate faculty member ahead of time. Students may choose to rotate with any members of the neuroscience program, or other members of the life sciences community.

At the end of each rotation, the student will submit a written rotation report. One electronic copy should be sent to program administrator in the Division of Science Graduate Affairs Office and one should be provided to the laboratory head in which the rotation was done. In exceptional circumstances, students may be permitted to complete a fourth or fifth rotation. We recommend that you arrange your next rotation within a few weeks of the end of the current rotation.

**Selection of a Thesis lab:**

The thesis lab selection process will occur following the end of the final rotation, typically at the end of the summer following the M.S. year. Students are expected to join a lab and begin their dissertation project as soon as possible so that they may be on-track as a second year Ph.D. student.

**First Year Proposition:**

Students who apply to the Ph.D. program in their M.S. year will typically complete their first year proposition at the end of their M.S. year during the same time as the current first-year Ph.D. students, from **May 20<sup>th</sup> - 24<sup>th</sup>, 2019 (Exact date TBD)**. Requests for exceptions to this schedule must be submitted in writing to the Graduate Committee and are only granted under extraordinary circumstances. First Year propositions absolutely must be completed within a few weeks of finishing laboratory rotations. All guidelines and requirements are the same as for students who enter the program directly as Ph.D. students. Please contact Eve Marder with further questions about the First Year exam (marder@brandeis.edu).

**Teaching:**

Each Ph.D. student is required to serve as a teaching assistant (TA) for two semesters. Teaching assignments are decided in the summer and will be emailed to students (usually in July).

Ph.D. students are expected to attend the Teaching Practicum and Title IX training for teaching fellows, which will be held each summer during New Student Orientation week in August.

A student who has transitioned from the Brandeis M.S. program and who has been granted accelerated status will TA according to the timeline discussed and agreed upon at the time of matriculation into the Ph.D. program. If the student has joined a lab in the summer and has already taken NBIO 140, they may be required to TA in both semesters of the first year in the Ph.D. program; otherwise, TA assignments may be delayed into their second year in the Ph.D. program.

**Thesis Research Proposition (“Inside exam”):**

M.S. to Ph.D. students must complete their Inside Proposition no more than one year after joining their thesis lab. That is, Inside Proposition will be taken beginning one year after the first year proposition. Extensions to this timeframe must be approved by the Graduate Committee. All guidelines and requirements are the same as for students who enter the program directly as Ph.D. students.

## EVALUATION OF GRADUATE STUDENT PERFORMANCE IN THE NEUROSCIENCE PROGRAM

**Yearly Readmission:** Each year in June/July, student progress will be evaluated, and students will receive a Progress Letter from the Graduate Committee. If the student has not completed a requirement, this will be noted in the letter, along with a suggested timeline for completion. Students will also receive a letter from the Graduate School of Arts and Sciences informing them of their readmission status and financial support for the following year.

### YEAR 1:

- The students must complete their formal courses and four rotations with a grade of B- or better. To improve students' scientific writing skills, and to help prepare students for the First Year Proposition ("Outside" exam) and Second Year Proposition ("Inside" exam), at least two of these courses must have a term paper requirement. Any deficits in writing skills, even if the student receives a passing grade in the class, will be communicated in writing to the Grad committee and Grad Affairs Office by the instructor. A demonstrated deficit in writing skills is grounds for being assigned a writing tutor.
- Students must submit a rotation report for each rotation by 5pm on the indicated due date as established by the Grad committee/Graduate Affairs Office. No extensions will be granted. The written lab reports are reviewed by the rotation advisor and by the graduate committee. Two distinct components of the lab rotations will be evaluated by the supervising faculty member: lab work and written report. The faculty member will submit a grade and a brief written report, on a form provided by the Grad Affairs Office, on the student's performance to be included in the student's permanent file at the end of the rotation. .
- Students must successfully write and present the First Year Proposition ("Outside" exam) at the end of the first year. The examination and student's performance will be evaluated by the Graduate Committee members and a written evaluation must be submitted to the Graduate Affairs Office. Students who fail the Outside Proposition will **not** be allowed to re-take the exam.
- By the end of the first year students must have secured a thesis lab by mutual agreement with the faculty mentor. Note that securing a dissertation advisor is an absolute requirement for continuing in the program, and that failure to do so necessarily requires withdrawal from the program. The Grad Committee evaluates the progress of each student at the end of the first year. Students who perform below the minimum expectations outlined above will be placed on probation (see definition below)

### YEAR 2:

- Grades in formal courses must be B- or better.
- A panel of three faculty members (not including the thesis advisor(s)) are selected by the student for the oral defense of the Second Year Proposition ("Inside" proposal). Students submit their proposal in writing and orally defend their written proposal by the end of May of their 2<sup>nd</sup> year. Those committee members evaluate the student's performance and submit a written evaluation to the Grad Committee /Grad Affairs Office using a form provided by the Grad Affairs Office. Two of those faculty members will be retained for

subsequent service and, along with the thesis advisor(s), comprise the thesis committee until the student graduates.

- The Grad Committee evaluates the progress of each student at the end of the second year. Continuation in the program is decided based on successful defense of the First Year Proposition (“Outside” exam) and Second Year Proposition (“Inside” exam), a grade in all courses of B- or better, satisfactory teaching performance, and progress in thesis research. Students who perform below the minimum expectations as outlined above may not be re-admitted for the third year. Students are expected to have all course and teaching requirements fulfilled before the start of their fourth year; exceptions should be discussed with the Graduate Committee.

### **YEAR 3+:**

- Beginning in the third year, each student is required to present a research talk in the Friday “Pizza Talks” and have an Annual Progress Meeting shortly afterward to discuss progress toward the completion of the dissertation. Special attention will be paid to progress on data collection at this and subsequent meetings. Students are required to hold at least one thesis committee meeting per year to remain in good standing with the program, but meetings can be held more frequently at the discretion of the student and thesis committee. These meetings must be documented with a form signed by the thesis committee members and turned into the Division of Science Graduate Affairs Office by the student. Progress will be reviewed by the graduate committee at the end of each year, and a student may be asked to leave the program if his/her progress is found to be unsatisfactory.

### **THESIS:**

- The student submits the completed thesis, gives a seminar, and is examined by a panel consisting of at least three faculty members. The thesis committee must contain one faculty member from outside the university and the thesis advisor.

### **PROBATION**

Students may be placed on probation as early as the end of 1st semester (pending unsatisfactory grades in both course work and rotations), and then asked to leave at the end of Year 1 if sufficient progress (as determined by the graduate committee) is not made in semester 2.

Students may also be placed on probation at the end of the 1<sup>st</sup> year for failing to satisfactorily complete any of the above requirements.

Students on probation must pass all of their elective courses with a grade of **B-** or better, **MUST** complete their courses by the end of the 2<sup>nd</sup> year, and must receive a straight pass on the Second Year Proposition (“Inside” exam). In addition, these students must adequately perform their teaching duties, must be in a thesis lab, and must be making acceptable progress on their thesis work. The student’s standing in the program will be reassessed at the end of their second year **and if they have not displayed satisfactory progress they may be dismissed from the program.**

## **REQUIREMENTS FOR RETURN FROM A LEAVE OF ABSENCE (LOA)**

In the event that a student requests and is granted a LOA from the program within their first two years, the following conditions must be met in order for the student to be re-admitted to the program:

- Demonstration of appropriate progress made during LOA (letter from doctor or therapist, description of time spent, etc).
- Demonstration that the student has a thesis lab
- All class work must be successfully discharged within two semesters of re-admittance to the program with a grade of B- or higher.
- The First Year (“outside) and Second Year (“Inside”) Propositions must be passed without revision required.

## **GRADUATE TEACHING ASSISTANTS IN NEUROSCIENCE**

### **TRAINING**

All students who are scheduled to TA for the first time must attend the Teaching Practicum for teaching fellows, which is held during Orientation events in August.

### **ASSIGNMENTS**

Over the course of the graduate program, usually in the second year, each Ph.D. student is required to serve as a teaching assistant in TWO courses or labs.

Teaching assistant (TA) assignments are decided on by an interdepartmental graduate committee based on faculty request, course enrollment, training grant requirements, and graduate student expertise. For the 2018-19 academic year, the faculty member in charge of TA assignments in the MCB and Neurobiology programs is Prof. Sebastian Kadener ([skadener@brandeis.edu](mailto:skadener@brandeis.edu)).

In all cases, an attempt will be made to inform graduate teaching assistants of their assignments during the summer prior to the commencement of teaching responsibilities. In cases of unexpected enrollment shifts, cancellations or additions of courses, or inequities in work load, assignments may be changed with short notice. If there is a likelihood that such a change will be made, the TA Committee will notify those teaching assistants as soon as possible to permit ample preparation time.

### **RESPONSIBILITIES**

When the assignment is made or at the beginning of the term, graduate teaching assistants and faculty members will discuss course requirements, attendance policies, and the range of graduate responsibilities (in class, outside the classroom, administrative duties, technical assistance, e.g., running a projector, etc.).

In order to encourage an open, cooperative relationship between the graduate teaching assistant and faculty member, meetings will be held on a regular basis to discuss the progress of the course.

The TA and faculty member will consult each other on any problem arising in the course as soon as possible so that the faculty member and graduate student can cooperate in addressing it.

If TAs are to grade undergraduate papers or exams, the faculty member and TA will discuss the number of assignments, grading procedures and standards (letter grade/pass, fail/comments only, grading in pencil, and expectations for student writing ability), and an expected range of grades.

TAs may be required to hold at least two weekly office hours up to 2 hrs each), usually in the evenings.

TAs may be asked to tutor students requiring additional help. If tutoring is expected and one hour/week is insufficient to address difficulties in the course, the graduate student will refer the problem to the professor and, if necessary (and agreed upon), to the appropriate agency on campus for additional assistance.

Faculty members will advise TAs on policies for academic honesty and sexual harassment at the beginning of the term. At this time, procedures for alerting the proper university officers and dealing with such matters will be agreed upon.

## **EVALUATION/OVERSIGHT/PROFESSIONAL DEVELOPMENT**

TAs are encouraged to discuss teaching with the professor or with a member of the Graduate Committee.

TAs are expected to consult teaching materials available at the Office of the Dean of Arts and Sciences and to attend teaching seminars sponsored by the Graduate School.

Faculty should evaluate the TAs performance and provide written comments documenting the teaching fellow's experience and development over the course of the semester.

Every attempt should be made to resolve any difficulties experienced between a TA and faculty member. If such resolution is impossible, official grievances should be made per the stated procedures in the student handbook.

TAs are encouraged to document teaching experiences for future job searches. Faculty members should agree to provide letters of reference for teaching which will be included in the student's departmental file.

At the end of the semester, students enrolled in courses will complete a "TA evaluation report" where they will provide feedback of several aspects of their TAs performance. After the course is completed, TAs can retrieve these reports from sage. A copy of this record will also be stored in the student's file in the Graduate Affairs Office.

**QUESTIONS:**

**If you have questions you can contact a member of the graduate committee:**

Eve Marder ([marder@brandeis.edu](mailto:marder@brandeis.edu))

Shantanu Jadhav ([shantanu@brandeis.edu](mailto:shantanu@brandeis.edu))

Sebastian Kadener ([skadener@brandeis.edu](mailto:skadener@brandeis.edu))

Sacha Nelson ([nelson@brandeis.edu](mailto:nelson@brandeis.edu))

**You may also contact your program administrator in the Division of Science Graduate Affairs Office:**

Jena Pitman-Leung ([jpitmanleung@brandeis.edu](mailto:jpitmanleung@brandeis.edu))

To reach the entire Graduate Affairs Office team, email [scigradoffice@brandeis.edu](mailto:scigradoffice@brandeis.edu)