



**Neuroscience  
& Behavior** *Graduate  
Program*

UMassAmherst

**Graduate Program in  
Neuroscience and Behavior**

**Academic Requirements, Policies and Procedures  
2019- 2020**

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*The Neuroscience and Behavior Graduate Program at UMass Amherst is an interdepartmental PhD and MS degree-granting academic unit that brings together faculty members from various departments to provide cutting-edge research training.*

## A. ADMISSIONS TO THE PhD PROGRAM

### ***I. General***

*Admissions standards.* All graduate admissions are handled according to Graduate School guidelines and procedures. The Neuroscience and Behavior Program for doctoral students seeks applicants with a record of academic excellence who can present evidence of strong scientific background and training in the biological and physical sciences (e.g., undergraduate or master's degree/coursework in biological science, life science, and/or experimental psychological science). Students with degrees in other fields (physical sciences, mathematics, engineering) and a strong interest in the foundations of neuroscience and behavior are also encouraged to apply and will be considered for admission. Prior undergraduate and/or Master's level coursework of all applicants should include several semesters of biological science, organic chemistry and/or biochemistry, two semesters of mathematics (through calculus), one semester of statistics and at least two courses in neurobiology or biological/physiological psychology. Applicants with some deficiencies in prior coursework but with strengths reflected in relevant research experience may also be considered for admission. University of Massachusetts graduate students currently enrolled in participating departments, also are eligible for admission to the program.

*Admissions criteria.* These include a B average or above in undergraduate and/or graduate-level coursework, and at least two strong letters of recommendation from individuals who are able to assess the applicant's potential for a career in research and teaching in the field of Neuroscience and Behavior. Demonstrated potential for independent research is a particularly important criterion for admission to the program. Submission of Graduate Record Examination (GRE) scores is not required; it is completely optional.

*Admissions process.* The Admissions Committee, which is composed of Neuroscience and Behavior core faculty members, makes an initial evaluation of each applicant's record and credentials. Admissions to the program are done in consultation with the entire NSB graduate faculty. The NSB Graduate Program Director then makes recommendations to the Dean of the Graduate School for official acceptance to the program. Admitted applicants who enroll in the program are normally supported through their fifth year in residence. Support is provided through research assistantships, teaching assistantships, training grants, University fellowships, and federal funding applied for by the student.

## ***II. Admission Under Special Circumstances***

### **a. Program Requirements for Students Entering with Previous Graduate Work**

Students admitted to the NSB Program who have done previous graduate work at another institution (including the attainment of a Master's degree) must fulfill all NSB requirements including coursework, Research Colloquia, Preliminary Doctoral Comprehensive Examination, and Ph.D. Dissertation. However, waiver of certain requirements may be granted upon written petition of the Graduate Operations Committee.

### **b. Identifying an advisor and “home lab”: Lab rotations vs. targeted lab admission**

*Lab rotations.* Students may choose to rotate among two or more labs during the fall and spring semesters of their first year. Reasons to rotate include trying out labs of interest in order to help decide on a home lab, or gaining specific types of experience prior to joining the chosen home lab. The lab choices are provided following the admissions/interviewing process. All rotating first-year students should choose a home lab by May of the first year; this arrangement requires the mutual consent of the advisor and the student.

1. Purpose - Individual laboratory rotations allow the student to become acquainted with areas of current research within the program, through work on specific laboratory projects and participation in other activities of the research groups. They also provide an important opportunity for the student to gain a working knowledge of techniques commonly used in contemporary research in Neuroscience and Behavior. In addition, rotations give faculty members an opportunity to evaluate the student's performance in a research setting.

2. Description - Rotating students usually participate in two laboratory rotations, the first extending from September through mid-January and the second from mid-January through May. Students and faculty members are encouraged to contact possible rotations. The Graduate Program Director (GPD) or Associate Graduate Program Director (AGPD) will review and must approve all arrangements, to ensure that the student and rotation lab principal investigators (PI) are all in agreement with the plan.

3. Home Laboratory Affiliation – Students choose a home laboratory for their dissertation research by May of the first year. This selection should be made only after a thorough discussion of goals and expectations with the intended faculty advisor. Future stipend support for the student will be provided by the laboratory in which the research is being conducted, except in unusual cases. All choices are subject to approval by the GPD or AGPD, who should be informed of each student's preferences before the end of the semester.

Work in the home laboratory (and financial support) typically begins at the end of May. Students who are undecided by the summer may carry out an additional rotation from the end of May through August to assist them in the selection of a suitable laboratory. In that case, financial support during the summer is provided by the faculty member in whose laboratory the third rotation is taking place. It is understood that an NSB faculty member is expected to provide support for dissertation students throughout their tenure in the NSB Program. Faculty members who lose research funding and wish to request TA support for a dissertation student must do so according to established timelines.

*Targeted Lab.* Rotations are not required. Students may enter the NSB Program having already chosen their home lab and advisor. These students do not rotate, and the expectation is that the "targeted" student will remain in the laboratory of the "targeted" faculty member through graduation. A student may leave one lab in order to join another provided that the details of the transfer are agreed to by all parties, and assuming that the newly selected advisor can arrange for the financial support of the student. Transfer to a new home lab must be approved in writing by the Graduate Program Director (GPD).

## B. REQUIREMENTS FOR THE Ph.D. DEGREE

Neuroscience and Behavior students will complete the following requirements for the Ph.D. degree

1. Completion with a grade of B or above in at least the following courses within the first two years of graduate study: The first-semester proseminar, responsible conduct of research/ethics, two core courses, two of three required electives, and at least one quantitative course. The third required elective may be taken after the second year. Eighteen Ph.D. dissertation credits are also required for the Ph.D. degree.
2. Successful completion of Parts I and II the preliminary doctoral comprehensive examination no later than the end of the third year.
3. Presentation of a 20 minute "research talk" to the NSB community in the weekly seminar series before the end of the third year. Students are encouraged to give additional research talks prior to their final oral defense of the dissertation.
4. Completion and oral defense of an original dissertation. Length of time to degree will depend on sub-discipline, but the Program encourages students to strive for completion of the dissertation within five years of entering the program (depending on previous coursework, three or four years for students entering with a Master's degree in a related field).

Students are strongly encouraged to seek advice from their guidance and dissertation committees (defined below) concerning curriculum, career plans, and especially research. Faculty members outside the student's specific research area often provide valuable insights concerning these matters and may be able to facilitate greatly the completion of requirements in a timely and beneficial manner. Students are expected to meet with their committees at least once a year, but students may find more frequent meetings useful.

### ***I. Courses***

#### **a. Formal Coursework** (See Appendix 1-2, Ph.D. Calendar of Deadlines & Student Schedule)

##### *Proseminar*

All incoming NSB students are required to enroll in the NSB Proseminar (NEUROS&B 792A) during their first semester in the Program. The Proseminar is a one credit, pass/fail class that introduces students to the NSB Program and provides access to information about how to be a productive graduate student,

expectations for research, teaching, service, grant-writing, and the art of oral presentations.

### Responsible Conduct of Research in the Life Sciences, Ethics in Life Sciences

The “Responsible Conduct of Research, Ethics in Life Sciences for Graduate Students” (MOLCLBIO 793E) course is required of all first year Neuroscience and Behavior graduate students and is open to all graduate students in the life sciences. The one-credit pass/fail course covers expectations for scientific conduct and ethical behavior. Topics covered include responsible conduct of research, data management, mentoring, authorship, collaborative research, conflicts of interest, the use of animals and humans in research, and the harassment policy.

### Core Courses

Normally, all entering students take two core courses in their first year:

NEUROS&B 617 – Molecular, Cellular and Developmental Neurobiology (taught in the fall)

NEUROS&B 618 – Behavioral and Cognitive Neuroscience (taught in the spring)

These courses can be taken in any order, but both must be completed (with a grade of B or above) by the end of the second year in the Program. The core courses are intended to provide a common base of knowledge in contemporary Neuroscience for students from diverse undergraduate backgrounds. In certain circumstances, some students who enter the Program with a need for a refresher in Molecular and Cellular Neuroscience can elect, or be advised, to take Bio572 in the first Fall semester and then take NSB617 during the Fall semester of their second year.

Exemption from core courses can be requested and granted by the Graduate Operations Committee.

### Electives

In addition to the core courses, students will be required to complete three graduate-level elective courses with a grade of B or above. Courses should be at least three credit courses, and at least two of the three electives must be 600-level or above. Two of the courses must be taken prior to entry into candidacy for the PhD, and one can be taken at any time prior to completing requirements for the PhD. Although courses taught by a core faculty member in the NSB Program may serve as electives, students may request permission for other courses relevant to the student’s education taught by other faculty members.

Students may substitute three journal clubs for one 500-level NSB elective as long as they are graded and led by a faculty member.

### Quantitative Requirement

All students must take at least one graduate level (500 or above) course to satisfy the quantitative requirement. The course(s) to be taken will be determined by the student's Guidance Committee. In most cases the requirement will be satisfied by taking one or more statistics courses, such as:

- Psychology 640 and 641, Statistical Inference in Psych II
- Public Health 640, Intermediate Biostatistics

- Statistics 501, Methods of Applied Statistics
- Statistics 506, Design of Experiments

However, if the Guidance Committee deems it appropriate, the quantitative requirement can instead be met by taking other appropriate quantitative courses in areas such as bioinformatics, computational modeling, etc.

### Other Coursework

Independent study credits: In the first five semesters prior to completion of the Preliminary Examination Parts 1 and 2 (described below), students also should enroll in credits reflecting their independent research: NEUROS&B 696 or NEUROS&B 796 (for more details see summary of coursework below, and Appendix).

Finally, coursework in other areas, such as genetics, biochemistry, embryology, endocrinology, histology, cell biology, and pharmacology, will be strongly recommended by the Guidance Committee in relation to an individual student's chosen field of research, interest, and specialization. Students will also be expected to take several advanced seminars.

### **b. Journal Clubs**

All students are expected to enroll in relevant journal clubs as they become available. Journal Clubs covering various topics in the current scientific literature are offered by participating departments.

### **c. Seminar**

All students will register for the weekly NSB seminars (BIOLOGY 891A, section 3) during their first year. Regular attendance is strongly encouraged in subsequent years. The weekly seminars feature carefully selected guest lecturers from other institutions, as well as talks by NSB students and faculty and other University faculty.

### **d. Teaching Requirement**

All students are required to teach for at least one-semester. The intent of the requirement is that the student will do actual classroom teaching. There are several ways in which this teaching requirement might be met. These include but are not limited to being a Teaching Assistant in a course in which the Teaching Assistant actually teaches, such as in a laboratory course, or by teaching a Continuing Education course. Any questions regarding fulfillment of this requirement should be resolved in consultation with the Graduate Operations Committee (GOC, define below) or the Guidance or Dissertation Committee. The NSB Program Coordinator (i.e., the administrative assistant to the GPD and AGPD) should be informed of the completion of this requirement.

### **e. Guidance Committee**

Upon entering the program, each student will consult with the GPD, AGPD and faculty advisor(s) (i.e., targeted-lab or lab-rotations faculty) to form a Guidance Committee. This committee will consist of the advisor and two faculty members whose research interests match those of the student. Two of the three members of the Guidance Committee must be core NSB faculty and one member must be from a department other than that of the student's advisor. Postdoctoral fellows, who are associated with the

NSB Program, may serve as fourth members of the Guidance Committees.

The function of the Guidance Committee is to provide advice and support regarding the student's coursework and research direction. The Committee will first assist the student in the development of a curriculum plan, taking into account the student's proposed research area as well as the need to prepare for the Preliminary Doctoral Comprehensive Exam taken in the second and third year of graduate study (see below). In this context, the Guidance Committee will determine whether there are areas of weakness or deficiency that warrant specific coursework in addition to the normal core and elective requirements of the NSB program. The Guidance Committee will also determine how the student will fulfill the quantitative requirement (see above).

At the end of the second year of graduate study, the Guidance Committee will evaluate the student's laboratory work, coursework, presentation of the Research Talk (if relevant; see below), and will make a formal recommendation to the GPD as to whether the student should continue in the program.

#### **f. Research Talk and Progress Meeting**

*Research Talk:* It is important for all NSB graduate students to acquire, early in their careers, experience in the design, conduct, and reporting of empirical research. Therefore, all students are required to present a talk about a current research project to the NSB community at large. The talk should provide enough background for all members of the Program to understand, as well as data collected, and future directions.

This talk should take place before the end of the third year. For students who choose to complete their Research Talk toward the end of their second year so that it is prior to submission of their Comprehensive Exam Part 2 Grant Application (see below), the Research Talk will be formative, and questions and suggestions raised during the talk may be useful for informing the Comps Part 2 Grant Application.

*Progress Meeting:* By the end of the Spring semester of Year 2, all students must meet with their Guidance Committee to discuss progress and future directions. There is no proscribed format for this meeting, but it is expected that the student will provide an overview of data collected, classes taken, and in general, progress toward degree. Any issues with progress in research or in courses should be discussed to give the Guidance Committee an opportunity to provide help and guidance. The results of this meeting should be communicated to the GOC and the NSB Program Coordinator.

#### **g. Annual Graduate Student Review**

Graduate student review meetings are held in the spring of each year with each PhD student to provide support and constructive feedback regarding progress towards completion of the degree. These 15-20-minute conversations focus on progress during the past year and areas of focus for the coming year. Reviews are conducted by the GOC, with attendance by the student and the advisor. Students complete a web form in advance of the review meeting that includes milestones reached, a statement of research progress and goals, and a CV. Faculty advisors provide the GOC a brief written summary of their student's progress and goals for the coming year in advance of the meeting. After all

meetings have been conducted, the GOC Chair sends each student a memo summarizing key points of the meeting, along with the advisor comments.

## ***II. Preliminary Doctoral Comprehensive Examination (“Comps”)***

During the second and third year in the program, all students must pass a 2-part preliminary doctoral comprehensive examination (“comps”). This examination will serve both a formative and evaluative role. Its objectives are twofold: 1) to enable the student to develop and demonstrate a level of scholarship and knowledge in his/her chosen area of study that is appropriate for the doctoral level neuroscientist, and 2) to demonstrate the student's critical, integrative, and theoretical abilities within the broader scope of Neuroscience and Behavior. Successful passage of the Comps exam, advances the student to candidacy for a PhD.

The format of the comprehensive examination will be divided into two components: Part 1, a written examination and Part 2, a grant application (prepared either in National Research Service Award or National Science Foundation format).

### **a. Part 1, Written Examination**

Part 1 of the Comps Exam will be given approximately at the end of the third week in January of the student's second year (i.e., third semester) in the Program. In mid-December, approximately six weeks before the date of the exam, students will be assigned one paper for each of four examination areas. The exam itself will be based on the assigned papers as well as pertinent background relating to the papers, all designed to probe the students' understanding of the rationale, methods, conclusions, and limitations of each paper. A Committee comprising NSB Program faculty members will be responsible for assigning each paper, drawing up the study and exam questions, and grading each part of the exam. Students will be given the previous year's exam questions, but they should bear in mind that the papers and the committee change every year.

Each exam will be graded blind (i.e., student identity will not be known to the examiners) on a scale of 0-10, with half points allowed (e.g., 8.5). A passing grade on each exam is a score of 8.0 or higher. To pass the examination part of the Comps, students must receive an average grade of at least 8.0 (i.e., a total score of 32 for the four exams). If a student fails to achieve this average, then the examining committee (the writers of each set of questions) will convene with the GOC in order to review the student's record in the NSB Program. The student's advisor will be notified of the failing grade and will be asked to provide additional feedback concerning the student's aptitude. If the student has not been making adequate progress in the Program with respect to her/his coursework and research, then the joint committee has the option of recommending to the Director of the NSB Program that the student be denied qualification for the Ph.D., in which case the student will be given the opportunity to write up his/her results to obtain a terminal Master's degree. Termination decisions will be made by consensus of the GOC and the Director. Students will be given the opportunity to appeal this ruling to the GOC and the Director before the termination decision has been finalized. If the student has been making good progress in the Program with respect to his/her coursework and research, then s/he may be offered the opportunity to remain in the program but with a probationary status. In such cases, the

student will be required to retake the Comps exam at an agreed-upon time and must pass the exam at that time or s/he will be terminated from the program with the Master's degree option as described above. Depending upon the circumstances, the student may only be required to re-take the portion(s) of the exam that he/she failed.

### **b. Part 2, Grant Application**

The written "Grant Application" Part 2 of the Comps is due on September 1 of the student's third year in the Program. Normally, the Guidance Committee discussion will have included suggestions for the grant proposal. The grant proposal should be in NIH NRSA or NSF Dissertation Improvement Grant format or a similar format approved by the advisor and/or GOC. The grant application must be an original idea; however, feedback and other formative advice from fellow students and faculty members, including the Guidance Committee, are encouraged. Drafts of the application may and should be shown to committee members well in advance to obtain constructive feedback. Before October 1st, the student must defend the grant application *via* oral presentation to his/her Guidance Committee. It is expected that the student will be able to defend the rationale, hypothesis, methods, anticipated results, and understand potential pitfalls that may be encountered in the conduct of the proposed research. The Committee will ask the types of questions that may arise at a typical grant review panel at the NIH or NSF. The expectation is that the student will have become sufficiently prepared so that this "defense" may be more of a discussion. The Committee will grade the combined presentation and document as "pass," "conditional pass," or "fail."

If a student who has already failed the exam portion (Part 1) of the Comps also fails the Grant Application component (Part 2), s/he will be subject to termination from the program with the Master's degree option available. Students who pass the exam portion (Part 1), but who then fail the Grant Application component (Part 2), will be evaluated as outlined in Section II above and either given one opportunity to rewrite and defend the proposal or be subject to termination from the program with the Master's degree option. If allowed, the deadline for a second defense of the Grant Application proposal will be four to six weeks later.

Students are encouraged to refine and submit their Grant Application proposals to NIH, NSF or another appropriate granting agency if they have not already submitted a fellowship application. Students are encouraged to apply in their second year to maximize their opportunities for obtaining external funding. In this regard, it should be noted that there is currently a January 10th deadline for NIH Kirschstein-NRSA proposals, which allows ample time for the student to work with his/her advisor to refine the proposal from its original version and with the benefit of comments and suggestions from the Guidance Committee meeting and presentation.

It is the responsibility of the student's advisor to notify the NSB Program Coordinator that the student has passed Comps 2 so that the nomination to PhD candidacy memo can be sent over the GPD signature to the Graduate School.

**Students can register for NSB 899, Ph.D. Dissertation, *only after completing Parts 1 and 2* of the preliminary doctoral comprehensive examination (see detailed course requirements above, summary below, and Appendix).**

### ***III. Dissertation and Final Oral Examination/Dissertation Defense***

#### **a. Dissertation Committee**

The Dissertation Committee should be formed by the student in consultation with his/her advisor within a month after reaching PhD candidacy. The Committee must consist of at least four members of the graduate faculty, from at least two different departments, and including at least three NSB faculty members. Committee members will be available for advising and consultation throughout the planning, execution, and writing of the dissertation. In accordance with Graduate School requirements, the student should inform the GPD and Chair of the GOC as to the proposed membership of the Dissertation Committee. The GPD will then send a memo to nominate these individuals to the Graduate School, which carries out the actual appointment of faculty to such committees. As with the Guidance Committee, it is recommended that dissertation research be discussed with, and approved by, the Dissertation Committee before the student invests too much time in the proposed research. To facilitate this goal, Dissertation Committees are required to meet with students at least once each year to discuss the student's progress as well as possible changes in the research plan. The NSB Program Coordinator will be notified of such meetings by e-mail or written memo from the Committee chair (dissertation advisor) for inclusion in the student's permanent file.

#### **b. Dissertation Prospectus**

A dissertation prospectus outlining the student's planned dissertation research must be submitted to his/her Dissertation Committee for approval and submission to the Graduate School. Students can obtain prior examples from peers and/or their advisor or other NSB faculty, to guide them. The deadline for submission of a draft prospectus to the Dissertation Committee is November 1st of the student's fourth year in the program. After making any revisions of the prospectus that have been requested by the Dissertation Committee, the student should submit the approved and signed prospectus to the Graduate School by December 15. A copy of the signed prospectus must also be submitted to the NSB Program Coordinator for inclusion in the student's file. The dissertation prospectus should contain:

- A statement of the research problem or question that the student proposed to investigate.
- A review of the background and rationale of the problem.
- A clear statement of the hypothesis or hypotheses to be tested.
- A description of the proposed experiments, the approach, potential interpretation of the results, and a plan of action if the experiments do not work out as expected.
- An accurate bibliography

**c. Dissertation and Final Oral Examination/Dissertation Defense**

Preparation of the dissertation and the dissertation defense will be held in accordance with Graduate School regulations. Students should consult the Graduate School Checklist for Doctoral Degree as well as the Graduate School Handbook for full, current information

<https://www.umass.edu/gradschool/current-students/doctoral-degree-requirements-and-dissertation-information>

To facilitate adequate preparation and defense of the doctoral dissertation, the following procedures and timetable should be adhered to.

(1) The student should hold a "predefense" meeting with his/her Dissertation Committee no later than 6 months before the anticipated defense. At this time, the student will present a "progress report" and discuss any problems that have been encountered and/or any change in research plans since the last committee meeting. The GPD or AGPD must be informed of the outcome of the meeting.

(2) Dissertation Committee members should be given at least two weeks to read a draft of the dissertation that has been prepared by the student and deemed acceptable by the student's advisor to be forwarded to the Committee. The Committee must approve this draft as being suitable for defense before the defense can be scheduled. If revisions are required at this time, then such revisions will be made and the revised version of the dissertation provided to the Dissertation Committee. All committee members must first deem the dissertation to be acceptable for formal defense by the student before the defense can be scheduled.

If necessary, the defense will be postponed by notification of the Graduate School and the NSB Program until the draft dissertation has been approved by the Dissertation Committee. Note, however, that if at any time the chair of the Dissertation Committee believes that another member of the Committee has acted inappropriately or unfairly in preventing the formal defense to proceed, then s/he and the student may appeal to the GOC.

(3) The Graduate School must be notified of the date, time and location of the dissertation defense at least one month in advance of the oral defense date. This timeframe ensures that the defense is publicized adequately by the university, a requirement for graduation.

(4) At least one week prior to the date of the defense, an announcement will be sent to the NSB community announcing the date, time and location of the defense so that any member of the NSB community or the public may attend the public portion of the defense.

(5) The oral defense is composed of a public seminar, lasting an hour including questions from the public, followed by a closed oral examination. Immediately after the public seminar, the committee will excuse the public and conduct a private discussion of the dissertation with the candidate.

If the student fails to successfully defend his/her dissertation before the Dissertation Committee, then he/she will have an opportunity to revise the dissertation and prepare for another defense. In the

unlikely event that the student also fails the second defense, then the student will be considered for termination from the NSB Program by the GOC.

The approved and signed dissertation must be submitted along with the Doctoral Degree Eligibility Form to the Graduate School Office of Degree Requirements, 534A Goodell Building, by the deadline for the appropriate degree granting period. The deadlines are absolute and no exceptions will be made by the UMass Graduate School. The current deadlines and other important information can be found at: <https://www.umass.edu/graduate/policies/handbook/degree-requirements>

#### **IV. Summary of Requirements for the Ph.D. Degree**

In addition to below, student also participate in the Annual Student Review Meetings with the GOC, fulfill the teaching requirement, and the research talk requirement.

##### **a. Courses**

1. NEUROS&B 617 – Molecular, Cellular and Developmental Neurobiology..... 3 credits  
NEUROS&B 618 – Behavioral and Cognitive Neuroscience..... 4 credits
2. NEUROS&B 792A – Proseminar.....1 credit
3. MOLCLBIO 793E - Responsible Conduct of Research, Ethics in Life Sciences.....1 credit
4. BIOLOGY 891A (sec 3) NSB Seminar.....4 credits (1 credit each for 4 semesters)
5. Quantitative Requirement.....3-6 credits
6. Laboratory Research:
  - NEUROS&B 696 - Independent Study ..... 8 credits (4 credits each for 2 semesters)
7. Advanced Courses: A minimum of 3 graduate-level elective courses ..... 9+ credits total
9. Journal Clubs (suggested):..... 1-2 credits each
10. Dissertation Research Credits...(maximum 9 per semester).....18 credits minimum

##### **b. Comprehensive Examination (Part 1 written exam, Part 2 grant proposal)**

##### **c. Dissertation Prospectus, Dissertation, and Final Examination**

The NSB Program requires a minimum of 18 credits of NEUROS&B 899. There is no maximum limit on the total number of dissertation credits a student can take.

**MAXIMUM NUMBER OF CREDITS A GRADUATE STUDENT CAN SIGN UP FOR PER SEMESTER IS 16**

## C. REQUIREMENTS FOR THE FAST-TRACK THESIS MASTER'S DEGREE

This program is available only to graduates of the University of Massachusetts Amherst or the four colleges in the Five College community, and Bay Path College who have worked as undergraduates in the lab of a faculty member in the Neuroscience and Behavior Program. Students from other institutions, who have worked in the laboratory of an NSB faculty member, may request permission to apply to this Program from the GPD. Participating students will normally identify a faculty advisor in their junior year and become actively engaged in research throughout their senior year. The research should lead to a well-defined project suitable for a graduate-level Major Research Project in the Neuroscience and Behavior Program. The NSB Program does not typically provide or guarantee stipend support for students working towards this terminal Master's degree. However, in some cases, individual faculty advisors may have research assistantship funds available. Teaching assistantships are occasionally available, but this should not be assumed.

Students may apply for graduate admission in their senior year and must comply with all Graduate School regulations and requirements for admission. The Application packet should include: UMASS Graduate School application, official copy of undergraduate transcript, and two letters of recommendation. GREs are not required for applicants to the Fast Track Master's Program. Applications are due on December 15 for Fall admission. The Neuroscience and Behavior Admissions Committee will evaluate all applications and make recommendations for graduate admission to the NSB Director and Graduate School.

### ***I. Courses***

#### **a. Formal Coursework**

(See Appendix 3, Thesis Calendar of Deadlines, Accelerated MS students; Appendix 4, Typical Student Schedule, MS Thesis students)

University requirements for the Master's degree include a minimum of 30 credits.

#### *Proseminar*

All incoming NSB students are required to enroll in the NSB Proseminar (NeuroS&B 792A) during their first semester in the Program. The Proseminar is a one credit, pass/fail class that introduces students to the Program and its faculty. Besides several faculty members presenting their research, the course includes discussion about how to be a productive graduate student, expectations for research, teaching, service, grant-writing, and the art of oral presentations.

#### *Responsible Conduct of Research in the Life Sciences, Ethics in Life Sciences*

The Responsible Conduct of Research, Ethics in Life Sciences for Graduate Students (MOLCLBIO 793E) course is required of all first year Neuroscience and Behavior graduate students and is open to all graduate students in the life sciences. The one-credit pass/fail course covers expectations for scientific conduct and ethical behavior. Topics covered include responsible conduct of research, data management, mentoring, authorship, collaborative research, conflicts of interest, the use of animals and humans in research, and the harassment policy.

*Two NSB Core Courses*

NEUROS&amp;B 617 – Molecular, Cellular and Developmental Neurobiology

NEUROS&amp;B 618 – Cognitive and Behavioral Neuroscience

*Quantitative Requirement* (3 credits). Research methodology – (a variety of options are available including statistics courses, methods courses and research practica).

Students must earn a B or above in each of the core courses, quantitative requirement, and optional electives. In rare cases, a student who has earned a B- in an elective or statistics course may petition the GOC for permission to use this course to fulfill Master's degree requirements. In deciding whether to grant the exception, the GOC will take the entire student's record into account. In no case can a grade of B- or lower be accepted in a core course.

Note: Six (6) hours of course credit not used/needed to fulfill the B.S. degree requirements can be applied to the Master's degree course requirement.

*Independent Study credits in NeuroS&B 696.* A maximum of six independent study credits can be counted towards the MS degree.

**b. Journal Clubs**

Participation in Journal Clubs is encouraged for Fast Track Master's students, but is not a requirement.

**c. Seminars**

All students are required to attend weekly NSB seminars (BIOLOGY 891A, section 3), which feature guest lecturers from other institutions as well as NSB faculty from the University.

**II. Thesis and Final Oral Examination/Thesis Defense****a. Thesis Committee**

At the beginning of graduate study, the student, in consultation with the advisor and/or GOC will form a thesis committee that will consist of the advisor and two additional NSB faculty members, one of whom must be from outside the advisor's department. The student should notify the NSB Program Coordinator upon formation of the Committee, so that a memo with the GPD's signature can be sent to the Graduate School.

**b. Thesis**

Register for a minimum of 1 and a maximum of 10 Master's thesis credits NEUROS&B 699.

The candidate's **thesis prospectus** must be approved and signed by all members of the Thesis Committee and on file in the NSB Program Office at least four months before the Final Oral Examination ("defense") can be scheduled. All Thesis Committee members must attend the defense.

The oral defense must be scheduled and passed before the graduation deadline date. You should allow time for making minor revisions following the defense prior to uploading your thesis to Scholar Works.

All information pertaining to Master's degree requirements can be found on the Graduate School web site at: <https://www.umass.edu/graduate/form/masters-degree-checklist-requirements-graduate>. The thesis must be uploaded to ScholarWorks and an original signature page and the Master's Degree Eligibility Form must all be submitted to the Office of Degree Requirements, 534A Goodell Bldg., by the deadline for the appropriate degree granting period. The deadlines are absolute and no exceptions will be made by the UMass Graduate School.

### **III. Credits**

It is a Graduate School requirement for the Master's degree that the student take a minimum of 30 credits of graduate-level courses. A minimum of one-half of the total required credits must be on a letter-graded basis.

It is your responsibility to fill out all necessary forms and meet all requirements set by the Graduate School for graduation. See the [Graduate School Handbook](#) and [Graduate School Bulletin](#). For more information, contact the Graduate School at 545-0722.

### **IV. Summary of Requirements for the Thesis Master's Degree**

#### **a. Courses**

(must have a total of 30 graduate-level credits, at least 50% of them graded)

NEUROS&B 617 – Molecular, Cellular and Developmental Neurobiology.....	3 credits
NEUROS&B 618 – Cognitive and Behavioral Neuroscience.....	4 credits
NEUROS&B 792A – Proseminar.....	1 credit
BIOLOGY 891A – Graduate Program Seminar.....	2 credits (1 per semester)
MOLCLBIO 793E - Responsible Conduct of Research, Ethics in Life Sciences.....	1 credit
Quantitative Requirement.....	3-6 credits
NEUROS&B 696 - Independent Study .....	6 credits (3 per semester)
Master's Thesis (NEUROS&B 699): .....	1-10 credits
TOTAL minimum credits .....	30 credits

#### **b. Master's Thesis and Defense**

Students must enroll in Master's Thesis (NEUROS&B 699) while working on their thesis. Details of the thesis committee, thesis document and thesis defense are outlined above.

### **V. Period of Study**

It is anticipated that qualified students should be able to complete the B.S./M.S. program within 5 years, including two summers.

## D. TRANSFER FROM THE Ph.D. PROGRAM TO M.S. PROGRAM

Other than the Accelerated Master's Degree Program, students will not be admitted to the NSB program for a stand-alone Master's degree. Although not encouraged, students may petition to earn an M.S. in Neuroscience and Behavior while completing requirements for the Ph.D. In other circumstances, a student may leave the Program with an M.S. degree rather than a Ph.D. degree.

In addition to those requirements specified by the Graduate School, requirements for an M.S. degree in Neuroscience and Behavior will be:

1. Completion of the Proseminar, two core courses, and one statistics course with grades of B or above\*.
2. Submission of a formal Master's thesis based upon original research. The student's Guidance Committee will direct and evaluate the Master's thesis in both written and oral presentation.

\*Note: In rare cases, a student who has earned a B- in an elective or statistics course may petition the GOC for permission to use this course to fulfill Master's degree requirements. In deciding whether to grant the exception, the GOC will take the entire student's record into account. In no case can a grade of B- or lower be accepted in a core course.

## E. APPLYING TO Ph.D. PROGRAM FROM FAST-TRACK M.S.

It is discouraged, but any student who has begun but not yet completed the Fast Track MS program and wishes to change to the PhD program, must formally apply to the NSB Ph.D. program via the Graduate School. The student's entire record will be considered by the NSB Admissions Committee. If the student is accepted into the Ph.D. Program, applicable course-work credits already taken as part of the M.S. requirements will be transferred towards the Ph.D. Typically students will have taken, or be in the process of taking, the two NSB core courses (NEUROS&B 617 and NEUROS&B 618) during the first year of the M.S. degree program. Such students will be required to satisfy all the requirements for the Ph.D.

### ***I. Procedure and Requirements before the end of the first year of the M.S.***

M.S. program students who apply to the PhD program in the course of the first year, and who take both core courses in the first year, will initiate Part 1 of the written comprehensive exam in January of the second year.

### ***II. Procedure and Requirements during the second year of the M.S.***

Students who are accepted into the Ph.D. Program during their second year as a M.S. candidate will be required to take the comprehensive doctoral exam during January of the academic year they were admitted into the Ph.D. Program.

## APPENDIX 1: NSB CALENDAR OF DEADLINES, Ph.D. CANDIDATES

### **First Year:**

Students may choose to rotate among labs or go directly into a targeted lab. Students may rotate among more than two labs. All rotating first-year students should choose a home lab by May.

September 1 - January 15: First Laboratory Rotation

September 30: Guidance Committee should be formed as soon as possible during the first semester. The GOC will assist rotating students in the formation of this Committee. Advisors will assume primary role in assisting targeted lab (i.e., non-rotating) students.

January 16 - May 30: Second Laboratory Rotation

By March 15: Guidance Committee meeting. Organized by the student to present research and discuss progress in the Program. Should take place prior to the Annual Review meeting with the Graduate Operations Committee (GOC).

Spring Semester – Annual Review Meeting with GOC

### **Second Year:**

January: Written comprehensive exam (Comps Part 1).

By March 15: Guidance committee meeting. Organized by the student to present research and discuss progress in the Program. Should take place prior to the Annual Review meeting with the Graduate Operations Committee (GOC).

Spring Semester – Annual Review Meeting with GOC

In Second or Third Year: Research presentation (20 minutes) to NSB community at large

### **Third Year:**

In Second or Third Year: Research presentation (20 minutes) to NSB community at large

September 1: Written Comps Part 2 “grant application” due to Guidance Committee

October 1: Meet with guidance committee to defend Comps Part 2 “grant application” and to discuss research past, present, and future. This is the final part of the comprehensive exam and is graded as “pass,” “conditional pass,” or “fail.”

December 1: Submit names of Doctoral Dissertation Committee members (must consist of at least four members of the graduate faculty, from at least two different departments, and including at least three NSB faculty members; members must include the advisor as Chair, who must be a core NSB faculty member).

May 1: By the end of the Spring semester of Year 3 (prior to the Annual Review meeting with the Graduate Operations Committee, if possible), all students must meet with their Dissertation Committee to discuss progress and future directions. Deadline for submission to the Dissertation Committee of a draft dissertation prospectus outlining the student's planned dissertation research.

Spring Semester – Annual Review Meeting with GOC

#### **Fourth-Fifth Year(s):**

December 15 of 4<sup>th</sup> year: Deadline for submission to the Graduate School of revised dissertation prospectus that has been approved and signed by the Dissertation Committee. One copy is filed in NSB Program office; copy with original signatures of Committee and Director is submitted to Graduate School.

Spring Semester – Annual Review Meeting with GOC

Penultimate meeting with the Dissertation Committee will be held no later than 6 months before the anticipated defense (but minimum of 2 months). At this time, the student will present a "progress report" and discuss any problems that have been encountered and/or any change in research plans since the last committee meeting. The GPD and AGPD must be informed of the outcome of the meeting.

Dissertation document sent to committee minimum of 2 weeks before defense.

The final defense will have two parts: a 50-minute to 1-hour public presentation, immediately followed by a closed oral examination conducted by the Dissertation Committee. The NSB Program office and the Graduate School must be notified of the date of the dissertation defense at least 1 month in advance. This deadline is critical, as it ensures posting of the defense in the UMass newsletter, a graduation requirement.

#### **GRADUATION DEADLINES**

All requirements for any advanced degrees to be awarded at a given degree-granting period must be completed by the appropriate deadline. Degree filing deadlines are listed in the [Graduate Academic Calendar](#). It is your responsibility to fill out all necessary forms and meet all requirements set by the Graduate School for graduation. See the [Graduate School Handbook](#) and [Graduate School Bulletin](#). The URL for doctoral graduation requirements is: <https://www.umass.edu/gradschool/current-students/doctoral-degree-requirements-and-dissertation-information>. For more information, contact the Graduate School at 545-0722.

## APPENDIX 2: TYPICAL STUDENT SCHEDULE, Ph.D. CANDIDATES

**First Year:****FALL**

NEUROS&B 617 – Molecular, Cellular and Developmental Neurobiology.....	3 credits
NEUROS&B 696 – Independent Study (Laboratory Research).....	4 credits
NEUROS&B 792A – NSB Proseminar .....	1 credit
BIOLOGY 891A (section 03) – NSB Seminar .....	1 credit

**SPRING**

NEUROS&B 618 – Behavioral and Cognitive Neuroscience.....	4 credits
NEUROS&B 696 – Independent Study (Laboratory Research).....	4 credits
MOLCLBIO 793E – Responsible Conduct of Research, Ethics in Life Sciences.....	1 credit
BIOLOGY 891A (section 03) – NSB Seminar .....	1 credit
Elective course #1 .....	3 credits

**Second Year:****FALL**

BIOLOGY 891A (section 03) – NSB Seminar .....	1 credit
Elective course #2 .....	3 credits
PSYCH 640 – Statistical Inference in Psych I (or other approved Quantitative course).....	3 credits

**SPRING**

BIOLOGY 891A (section 03) – NSB Seminar .....	1 credit
Elective course #3 .....	3 credits
PSYCH 641 – Statistical Inference in Psych II (or other approved Quantitative course) .....	3 credits

Optional: Some students register for NEUROS&B 796 Independent Study credits in their second year and fall semester of third year prior to completion of Comprehensive Examination Parts 1 and 2.

Comprehensive Examination (Part 1) completed in January of the 2<sup>nd</sup> year.

In end of Second or during Third Year, give a 20-minute Research Talk to NSB at large

**Third Year and beyond:**

Comprehensive Examination (Part 2) defense to be scheduled at the beginning of the 3<sup>rd</sup> year.

Dissertation Committee appointed by May of 3<sup>rd</sup> year. Meets at least once every 12 months.

Dissertation prospectus submitted to committee by November 1 of the 4<sup>th</sup> year.

NEUROS&B 899 - Dissertation Research (1-9 credits per semester); 18 credits required.

BIOLOGY 891A (section 03) - NSB Seminar should be regularly attended

Journal Clubs

By end of Third Year, give a 20-minute Research Talk to NSB at large

Students must register each semester for at least one credit to remain in good standing with the Graduate School. Students are eligible for Continuous Enrollment/Program Fee (an alternate form of registration) after passing Oral Examination in any semester when taking no courses for formal credit.

## APPENDIX 3: NSB CALENDAR OF DEADLINES, ACCELERATED MASTER'S CANDIDATES

### Year 1

September 30: Thesis Committee (3 members, including advisor as Chair) submitted to NSB Program office.

October 31: Formal Thesis Outline approved by Thesis Committee and NSB Director. Copy on file in NSB Program office.

By August 15: Final Oral Examination/Thesis Defense - results reported to Graduate School; final written thesis submitted to Graduate School.

The goal is to graduate at the September degree-granting date following Year 1.

### **GRADUATION DEADLINES AND REQUIREMENTS**

All requirements for any advanced degrees to be awarded at a given degree-granting period must be completed by the appropriate deadline found in the [Graduate School's Academic Calendar](#).

It is your responsibility to fill out all necessary forms and meet all requirements set by the Graduate School for graduation. For more information, go to: <https://www.umass.edu/graduate/policies/handbook/degree-requirements>. You may also call the Graduate School at 545-0722.

## APPENDIX 4: NSB TYPICAL STUDENT SCHEDULE, THESIS MASTER'S CANDIDATES

(University requirements for the Master's degree include a minimum of 30 credits and at least 1/2 of credits counted towards graduation must be letter graded)

### **One Year:**

#### **FALL**

NEUROS&B 617 – Molecular, Cellular and Developmental Neurobiology.....	3 credits
PSYCH 640 – Statistical Inference in Psychology I.....	3 credits
NEUROS&B 792A – NSB Proseminar .....	1 credit
BIOLOGY 891A (section 03) – NSB Seminar .....	1 credit
NEUROS&B 696 – Independent Study.....	3 credits
NEUROS&B 699 – Master’s Thesis.....	4 credits

#### **SPRING**

NEUROS&B 618 – Behavioral and Cognitive Neuroscience.....	4 credits
PSYCH 641 – Statistical Inference in Psychology II.....	3 credits
NEUROS&B 696 – Independent Study.....	3 credits
MOLCLBIO 793E - Responsible Conduct of Research, Ethics in Life Sciences.....	1 credit
BIOLOGY 891A (section 03) – NSB Seminar .....	1 credit
NEUROS&B 699 – Master’s Thesis.....	3 credits

(16 credit maximum per semester for graduate students before needing special permission)

## APPENDIX 5: NSB CORE AND ASSOCIATE FACULTY MEMBERSHIP

There are two categories of NSB faculty membership as follows:

Core Faculty Members may teach NSB core courses, serve on NSB thesis/dissertation committees, and chair NSB thesis/dissertation committees. (Corresponds to Graduate Faculty Status "G".) In addition, Core Faculty Members will elect the Steering Committee from among their own ranks as described in Appendix 12, Governance Policy and Procedures.

Associate Members may teach graduate courses appropriate for NSB students and serve on NSB thesis/ dissertation committees, but cannot chair NSB thesis/dissertation committees. (Corresponds to Graduate Faculty Status "M".)

### **Rights and Responsibilities**

Core Faculty Members and Associate Members are invited to participate in all NSB-sponsored functions such as the colloquia, workshops, seminars and the NSB Open House for prospective graduate students.

Members will in general direct an independent research laboratory with adequate financial support, have a record of or expectation of graduate training in areas pertinent to the mission of the NSB Program, and provide evidence of appropriate publications in their specialty field. Members who accept doctoral students into their laboratories are expected to support the students until graduation. Should the member lose funding, requests for NSB student support must be made according to established IDGP procedures and timelines. Members also assume the responsibility to contribute to the training mission of the NSB Program through (1) substantial teaching efforts in a course or courses intended primarily for NSB graduate students, (2) service on NSB committees, such as Steering, Graduate Operations Committee, or Admissions, or (3) direction of NSB Master's or doctoral research. To remain in good standing, Members must serve in one of these capacities at least once every three years.

Members are also expected to take part in written and oral examinations, serve on thesis and dissertation committees, and participate in the NSB Colloquia and NSB Recruitment. Associate Members may share in these responsibilities if they so wish.

### **Selection and Appointment**

New faculty will be evaluated for Core Membership/Associate Membership on the basis of the appropriateness of their research field, their postdoctoral productivity, their promise for obtaining extramural grant support, and their commitment to participation in the activities of the NSB Program. Core Members and Associate Members will be appointed to initial one-year terms by the Director in consultation with the Steering Committee. At the conclusion of the initial appointment term the Director and Steering Committee will review the member's contributions to the NSB Program and the Director may reappoint the member for a five-year term. Subsequent reappointments to the NSB Program will be for five-year terms if the Member has demonstrated contributions to the Program as outlined under Rights and Responsibilities. The NSB Steering Committee will review all such reappointments and recommend appropriate action to the Director.

## APPENDIX 6: NSB COMMITTEES

The following descriptions are provided so that NSB faculty and students will be able to direct questions and requests appropriately. Appointments to committees are as follows:

- Steering Committee: Elected by NSB Faculty, 3-year terms
- Graduate Operations Committee: Requested to serve by NSB Director
- Preliminary Comprehensive Exam Committee: Requested to serve by NSB Director
- Seminar Committee: Requested to serve by NSB Director
- Admissions Committee: Requested to serve by NSB Director
- Outreach Committee: Requested to serve by NSB Director

### **Procedures:**

The NSB Director sends a questionnaire in the spring requesting that faculty indicate preference of committee service for the coming year.

Attempts are made to compose and rotate membership, so that every committee comprises both old and new members.

### **Steering Committee:**

1. Four faculty members elected by NSB faculty for 3-year terms; two student representatives (one voting, one non-voting), as determined by the Director. NSB Director is Chair, ex officio. The Steering Committee consists of the Director and Associate Director of the Program, the GOC Chair, and four at-large members of the NSB Faculty. The at-large members are elected by the NSB faculty, with no more than two elected from any one of the departments represented in the NSB Program. It is encouraged that makeup of the Committee include diverse research areas within the NSB program.

#### 2. Responsibilities:

- a. Policy decisions.
- b. Budgeting decisions.
- c. Election of new NSB faculty.
- d. Liaison with other NSB committees.
- e. Guide future direction of NSB Program.
- f. Review nominations and select nominees for NSB student fellowship applications
- g. Coordinate with Colloquium Committee to review nominees and select Annual Fite Lecturer

### **Graduate Operations Committee:**

1. Consists of 4 members, and a Chair.

#### 2. Responsibilities:

- a. Oversee academic issues concerning NSB students.
- b. Make decisions about special requests concerning exemptions from Program academic requirements.
- c. Meet with appropriate NSB faculty members about first year performance and report academic status to students in the context of their overall performance.

- d. Prepare written evaluation to be sent to individual students at end of each academic year.
- e. Review nominees and select Dethier Award winner
- f. Nominate selected students for Graduate School Fellowships.
- g. Nominate students for fellowships from sources outside the University.
- h. Work with NSB office staff to ensure deadlines are met, and records kept current.

**Preliminary Comprehensive Exam Committee:** selects recent and relevant publications for preliminary comprehensive exam. Write questions for exam and grade student answers. At times, a meeting after the results have been tabulated is necessary to discuss particular student weaknesses or strengths and to decide on recommendations for the Graduate Operations Committee.

**Admissions Committee:** comprises at least three NSB faculty members appointed by the Director. It works with the Director, Associate Director, and Program Coordinator to select applicants for interviews, and make recommendations to Director regarding admission to the Program

**Colloquium (Seminar) Committee:** composed of at least two NSB faculty members and two graduate students appointed by the Director.

**Outreach Committee:** make up will be determined by a process to be established

### **STUDENT-RUN COMMITTEES**

Graduate Student Retreat Committee

Social Chairs (students)

Spirited Discussion Directors

Recruitment Committee

Treasurer

Historian

NSB Liaison(s) to GEO

Graduate Student Senate

Educational Outreach Committee

Life Sciences Graduate Research Symposium Council

## APPENDIX 7: NSB TRAVEL GRANTS

### Student Travel –Interdepartmental Graduate Programs (MCB, NSB, OEB, PB)

Purpose: There is no better way to learn about a discipline and to begin building professional networks than to attend professional conferences and workshops. The purpose of the student travel program is to encourage students to attend these events by providing funds to supplement their cost.

#### Eligibility:

- All PhD students in the MCB, NSB, OEB, and PB programs, who are in good academic standing are eligible to receive supplemental funds to attend conferences and workshops once each year, up to a lifetime limit of \$2,500.
- Starting in their 3<sup>rd</sup> year, students must be presenting their research in order to receive travel funds for a conference or workshop.
- The annual limits on travel funds are:
  - Before completing the Prospectus, \$450
  - After completing the Prospectus, \$800

#### Procedures:

- Application for the travel grant must be made at least 2 weeks IN ADVANCE of the meeting.
- Request for a travel award is made by filling out the online Pre-Travel Authorization Form available on each program's website.
- Final authorization of the travel award will be made by the IDGP Director (Fund Administrator) or designee.
- If presenting at the conference, please include the title of your presentation on the line "Other Comments". If you are not presenting, please indicate your class year (first- or second-year student).
- After the trip, all receipts for reimbursement must be submitted to the IDGP office, and receipts must be "original" (not scanned copies).
- If booking airfare, hotel etc. in advance, students may use the departmental travel card in advance of the trip. This is intended to minimize out of pocket payments for students and the length of time a student must wait to be reimbursed. If using the departmental travel card, the total amount of the payment must be less than or equal to the award. If the payment put on the travel card is less than the annual trip allotment, the student may additionally bring receipts to the IDGP office after the trip for reimbursement up to the total award amount.
- Split-funded trips: In the case of funding from both IDGP and another source, the student must be sure both sources know the travel will be split-funded. In this case, two Pre-Travel Authorization Forms must be signed by the traveler and PI and submitted to both funding entities. Receipts should be submitted to one of the sources, with the understanding that official copies will be sent by that source to the second source.
- If the PI is covering the remainder of the travel costs (over the IDGP award amount), please provide the Speed Type for the remainder of the trip costs on the Pre-Authorization form on the line for 'Funding Source/Speed Type' and submit receipts to the IDGP office to split fund the total.

See additional information on the NBS web site under [Student Resources](#).

## APPENDIX 8: COMMITTEE CHAIR'S REPORT, DISSERTATION COMMITTEE

Name of student writing dissertation:

Date meeting held: \_\_\_\_\_

Name of committee member making this report:

Name of Advisor (Committee Chair):

Names of other committee members present:

Please indicate whether progress is generally on schedule or behind schedule:

Estimated date for completion of writing of dissertation:

Dissertation committees are required to meet once per year and are encouraged to meet twice per year.

Month and year agreed upon for next meeting:

Did the candidate show good command of the presentation and the project, or did the candidate too often allow the adviser to answer questions and lead the discussion?

Benchmarks requested for next meeting, problems the committee asked the candidate to deal with, concerns of the committee. List items which remain to be completed in order for the dissertation as a whole to be completed; if this is premature, so indicate. (Use continuation page if necessary.)

Please return this form to the NSB Program office.

## APPENDIX 9: DISSERTATION OR THESIS FINAL EXAM REPORT

Candidate:

Advisor:

Thesis or Dissertation Committee:

1.

2.

3.

4.

Date of final exam:

Judgment of the Examining Committee: \_\_\_ PASS \_\_\_ FAIL

Revisions to dissertation or thesis that are required prior to Director's signature on the face page:

Signatures of the Committee Members:

1.

2.

3.

4.

Signature of the adviser confirming that the thesis or dissertation is complete:

## APPENDIX 10: NSB Doctoral Student Checklist

### Year 1

1<sup>st</sup> wk Work with NSB GPD and AGPD to choose *Guidance Committee*:  
(Advisor) 1. \_\_\_\_\_.

2. \_\_\_\_\_.

3. \_\_\_\_\_.

Oct. 1 Name of graduate student (peer) mentor: \_\_\_\_\_.

**Coursework: Required courses. Must earn “B” or above:**

**GRADE**

NSB 617, Molecular, Cellular, and Developmental Neurobiology \_\_\_\_\_.

NSB 618, Behavioral and Cognitive Neuroscience \_\_\_\_\_.

Quantitative course(s) \_\_\_\_\_.

**Required courses. Must “pass”:**

NSB 792A Proseminar (Fall) \_\_\_\_\_.

MOLCLBIO 793E - Resp Conduct Research, Ethics Life Sci (Spring) \_\_\_\_\_.

BIOL 891A, seminar (both semesters) \_\_\_\_\_.

May 1 Guidance Committee meeting. Date: \_\_\_\_\_.

Annual Student Review Meeting with GOC Date: \_\_\_\_\_.

### Year 2

**Coursework. Required courses. Must earn “B” or above:**

Electives (3 required, 2 must be 600-level or above, 1 allowed at 500-level)

Elective 1 (by end of Year 2) \_\_\_\_\_.

Elective 2 (by end of Year 2) \_\_\_\_\_.

Elective 3 (before completing Ph.D.) \_\_\_\_\_.

**Required courses. Must “pass”:**

BIOL 891A, seminar (both semesters) \_\_\_\_\_.

Jan. Pass Comps Part 1, written comprehensive exam (8-10 = pass) Result: \_\_\_\_\_.

May 1 Guidance Committee meeting Date: \_\_\_\_\_.

Present 20-minute Research Talk (in 2<sup>nd</sup> or 3<sup>rd</sup> year) Date: \_\_\_\_\_.

Annual Student Review Meeting with GOC Date: \_\_\_\_\_.

**Year 3**

- Sep. 1 Submit Comps Part 2 "grant application" to your committee. Date: \_\_\_\_\_.
- Oct. 1 Comps Part 2 meeting with your committee about:  
 1) grant application discussion  
 2) research past, present, future  
 (graded "pass," "conditional pass," or "fail.") Result: \_\_\_\_\_.
- Dec. 1 Form your dissertation committee. (must include one NSB member outside committee chair's home department) Names of *dissertation* committee members:  
 (Chair) 1. \_\_\_\_\_ 2. \_\_\_\_\_  
 3. \_\_\_\_\_ 4. \_\_\_\_\_
- May 1 Annual Student Review Meeting with GOC Date: \_\_\_\_\_.
- Present 20-minute Research Talk (in 2<sup>nd</sup> or 3<sup>rd</sup> year) Date: \_\_\_\_\_
- Bio 891A, NSB Program Seminar (attend as many as possible)

**Year 4+**

- Nov 1 Dissertation prospectus, written and oral. (min. 7 months before defense) Date: \_\_\_\_\_.
- Bio 891A, NSB Program Seminar (attend as many as possible) \_\_\_\_\_.
- Teaching requirement fulfilled \_\_\_\_\_.
- Annual committee meeting Date(s): \_\_\_\_\_.
- May 1 Annual Student Review Meeting with GOC Date: \_\_\_\_\_.
- Enroll in NSB 899 to receive dissertation credits. (min. 18 credits) Total: \_\_\_\_\_.
- Penultimate meeting with dissertation committee (min. 2 months before defense) Date: \_\_\_\_\_.
- Dissertation to committee. (at least 2 weeks before defense) Date: \_\_\_\_\_.
- Oral Dissertation Defense Date: \_\_\_\_\_.

## APPENDIX 11: TEMPLATE FOR DISSERTATION/THESIS SIGNATURE SHEET

[Title of Dissertation/Thesis]

A [Dissertation/Thesis]

Presented by

[Full Name]

Approved as to style and content by:

---

[Name of Faculty ], Chair.

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[Name of Faculty], Member

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[Name of Faculty], Member

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[Name of Faculty], Member

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[Name of NSB Program Leader], Graduate Program Director  
Neuroscience and Behavior Program

## APPENDIX 12: GOVERNANCE POLICIES AND PROCEDURES FOR THE NEUROSCIENCE AND BEHAVIOR PROGRAM (revised July 2018)

This document describes the responsibilities of the Program Leader of the Neuroscience and Behavior (NSB) Program, the Associate Program Leader, the Steering Committee, the Graduate Operations Committee, and the Faculty of the NSB Program, and the interrelations between these entities. All changes or additions to the Governance Document will be recommended to the Steering Committee for its consideration and must be approved by the NSB Faculty.

### ***NSB Program Leader***

Functions of the Program Leader: The primary responsibilities of the NSB Program Leader are to provide intellectual leadership to the NSB Program and to represent the interests of the program both within and outside the University. Specific duties include (but are not limited to):

- (1) assure that NSB committees function according to their objectives (described below);
- (2) act as host or representative (or appoint a representative if unable to attend) of the program at functions such as recruiting events, orientation, welcoming reception;
- (3) represent the program at meetings with upper administrators – including IDGP leaders' meetings and CNS leadership meetings, campus-wide graduate program director (GPD) meetings;
- (4) oversee aspects of the budget allocated to the program (seminar budget, recruiting budget, community building budget);
- (5) act as the official GPD providing signatory authority for GFAs and other documents, act as instructor of record for seminar (Bio 891), administer the comprehensive exam, and handle student issues (lab changes, dismissals) with recommendation given from the Graduate Operations Committee (GOC).

The NSB Program Leader is also the permanent Chair of the Steering Committee, and appoints the members of any subcommittees of the Steering Committee as well as members of standing committees including the Graduations Operations Committee, Admissions Committee, Comprehensive Exam Committee, and Colloquium Committee.

Selection of the Program Leader: The Program Leader is appointed for a renewable, 2-4-year term by the College of Natural Sciences Dean following the recommendations of the NSB Search Committee for the Program Leader. Generally, the Associate Program Leader will be promoted to Program Leader. For an inside search, the NSB Steering Committee will serve as the search committee. The search committee will identify willing and qualified candidates (based on academic record, contributions to the program, and vision) and will conduct an election by the NSB faculty to select a candidate to be recommended for appointment as Program Leader. For an outside search, a search committee will be appointed by the Dean with NSB membership playing an active role.

***NSB Associate Program Leader***

Functions of the Associate Program Leader: The Associate Program Leader shall work with the Program Leader and assist with any and all functions delegated to her/him.

Selection of the Associate Program Leader: The Associate Program Leader is appointed for a renewable, 2-4 year term by the College of Natural Sciences Dean following the recommendations of the NSB Search Committee for the Program Leader as outlined above.

***NSB Steering Committee***

Functions of the Steering Committee: The Steering Committee is the executive committee of the NSB Program and has the responsibility for advising the NSB Program Leader in the formulation and implementation of the goals and policies of the Program. The Steering Committee may advise the Program Leader regarding appointments to standing committees of the Program. It may also appoint *ad hoc* committees to consider possible policy changes for subsequent consideration by the Steering Committee and ultimately the Program faculty. The Steering Committee may periodically review the performance of NSB Program Committees and reconstitute them if necessary.

The Steering Committee will annually review program expenditures (in flexible budgets such as seminar, community building, and recruitment budgets) and advise on significant changes in budget allocation or use. Additionally, the Steering Committee will annually (at minimum) review the activities of the GOC.

Selection of the Steering Committee: The Steering Committee shall consist of the Program Leader, the Associate Program Leader, the chair of the GOC, and four at-large members of the NSB Faculty. The at-large members are elected by the NSB faculty, with no more than two elected from any one of the departments represented in the NSB Program. Members of the Steering Committee are to be elected sequentially by a secret ballot, either at a meeting of the NSB Faculty (if a quorum of >50% of core faculty is present) or via internet ballot. In the latter case, the NSB Program Leader will solicit nominations via e-mail and then conduct the election, itself, via internet ballot. In order to be elected, a nominee must receive a simple majority of the votes cast. In the event that no nominee receives a majority of the votes cast on the first ballot, a run-off vote will be held between the nominees receiving the two highest vote totals. This sequential process continues until all vacancies have been filled. The normal term of membership is three years.

Also, one NSB graduate student elected by the NSB Graduate Student Organization will serve as a voting member. A second NSB graduate student will serve as a non-voting member. At the discretion of the Program Leader, the graduate student members may be excluded if a discussion of a specific student's standing or other likewise sensitive/confidential issue is to be discussed.

Any Steering Committee member can be removed by a recall vote of two-thirds of the faculty.

Meetings of the Steering Committee: The NSB Program Leader will call meetings of the Steering

Committee as needed or requested, approximately once per semester during the academic year. All meetings of the Steering Committee are open to any member of the NSB faculty, although only members of the Steering Committee are eligible to participate in any votes taken at the meeting. Minutes of each meeting will be provided to the NSB faculty and graduate student representative.

### ***Graduate Operations Committee***

Functions of the Graduate Operations Committee: The Graduate Operations Committee (GOC) has primary responsibility for formulating the academic requirements to be met by graduate students within the NSB Program, for ensuring that these requirements are met in a timely fashion, and for evaluating student progress in the program on a yearly basis. The GOC will also perform a regular review of the NSB curriculum. Proposals for changes in the curriculum or other student requirements are forwarded to the Steering Committee for further consideration. Such proposals are then presented to the NSB faculty as a whole for discussion and final approval by majority vote.

Selection of the Graduate Operations Committee: The GOC consists of four members, plus the committee chair, all appointed by the NSB Program Leader. In choosing members for the GOC, an effort should be made to ensure adequate representation of the various academic disciplines and interests within the NSB Program. The term of membership is normally for a three-year period.

Chair of the GOC: The Chair of the GOC is an important role for the program, overseeing activities of the GOC as well as providing support for the Program Leader. The GOC Chair will be appointed by the NSB Program Leader with approval of the Steering Committee. Primary duties include overseeing annual student reviews and initiating GOC conversation regarding student issues (failing classes, approving electives, etc.).

Meetings of the Graduate Operations Committee: The Chair of the GOC will call meetings of the Committee as they are needed, but at least once per semester. When specific student cases are under discussion, GOC meetings are closed. All other meetings of the GOC are open to any member of the NSB faculty, although only members of the GOC are eligible to participate in any votes that are taken.

### ***Other Standing Committees***

The Program Leader, in consultation with the Steering Committee, will appoint an Admissions Committee to organize graduate admissions activities, review applications, and recommend applicants for acceptance into the NSB Program. The Program Leader will also appoint a Colloquium Committee to organize each year's NSB Colloquium series, solicit nominations for speakers from the NSB faculty, postdocs, and graduate students, and select the speakers to be invited. The Program Leader will also appoint Comprehensive Exam Committee. This Committee will select articles for the Comps Exam, grade the exams, and jointly resolve any concerns regarding

the exam. The Admissions, Colloquium, and Comprehensive Exam Committees will meet as needed.

### ***NSB Faculty***

Functions of the Faculty: The primary responsibilities of NSB Faculty are to conduct research, to offer courses in neuroscience and behavior, to supervise the research and academic training of NSB graduate students, and contribute to NSB functioning (by participating in program activities, committees, and/or grad student advising).

Selection of NSB Faculty: Five College Faculty who have an interest in neuroscience and behavior are eligible for Regular Faculty membership in the NSB Program. Candidates for membership should submit their curriculum vitae and other relevant information to the NSB Program Leader and Steering Committee. Those candidates whom the Steering Committee believes will make a central contribution to the teaching, research activities, student mentoring, and other central program activities will be invited as Regular Faculty.

Individuals whose research and scholarly work are in the area of neuroscience and behavior, but whose contribution is likely to be less central to the NSB Program, may be granted Associate membership on the NSB Faculty after consideration by the Steering Committee. Associate members may attend and participate fully in discussions during all committee and faculty meetings, but cannot participate in any votes taken, nor may they chair NSB graduate student committees.

NSB membership will be reviewed annually by the Steering Committee. If Regular Faculty become inactive, they can be moved to Associate members. Likewise, Associate members may be moved to Regular Faculty status if their contribution to the program increases.

### ***Meetings of the NSB Faculty***

Meetings of the NSB Faculty are called by the NSB Leader or Steering Committee as the need arises, but no fewer than once during each academic year. Notice and an agenda for NSB Faculty Meetings must be given at least one week in advance. All major changes in governance policies and procedures and in academic requirements for the NSB Program must be approved by a majority vote of the NSB Faculty at an NSB Faculty Meeting or via internet ballot conducted by the Program Leader. In order to constitute a quorum, a majority (at least 51 percent) of the NSB faculty must be present at such meetings. Although proposals for consideration by the NSB Faculty will normally originate from the Steering Committee, a proposal may also be placed on the agenda of the NSB Faculty Meeting if accompanied by a petition signed by 25 percent of the NSB Faculty. Minutes of each faculty meeting will be provided to the faculty by the NSB Program Leader and will serve as the archival record with regard to policies, recommendations and actions taken by the NSB faculty.