NEUR 99: Senior Research and Senior Honors in Neuroscience 2020-2021 Information

(1) Read the information on pages 2-4, including the timetable of deadlines. Detach and **keep** these pages for yourself.

(2) To enroll in NEUR 99a for the fall semester, complete the NEUR 99 petition online. Your sponsor will be notified to review the petition. One that is approved you will be emailed to set up an appointment to meet with Prof. Paul Miller (NEUR 99 Coordinator) no later than Sept 4, 2020. Once the NEUR 99 Coordinator approved the petition he will notify the Neuroscience Office who will then email you will give you a consent code to enroll in NEUR 99.

(3) **To enroll in NEUR 99b for the spring semester**: if you have already enrolled in NEUR 99a in the fall, you do not need to do the petition again but you must **inform** mollynelson@brandeis.edu of the **Biology Department** by **Jan. 15, 2021 that you wish to enroll in NEUR 99b to receive a consent code.** If you are enrolling in NEUR 99 for the first time (e. g., you did NEUR 93 in the fall), you must ***complete the online petition*** **as well as *meet* with the NEUR 99 coordinator** no later than January 15, **2021**.

NEUR 99 Senior Research /Honors Coordinator
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NEUR 99: Senior Research and Senior Honors in Neuroscience

The Senior Research program is designed to provide an opportunity for students concentrating in Neuroscience to participate in a **two-semester** long independent research project during their senior year and to receive both course and elective credit for that research. Any senior concentrating in Neuroscience can participate in Senior Research (NEUR 99) and ask to be considered for Senior Honors. Eligibility for honors is determined by the student's academic record and research performance.

Selection of Senior Research Sponsor The neuroscience concentration recommends that students begin to plan for senior research during sophomore or junior year. Many students find it beneficial to spend the summer before their senior year working in the sponsor's lab. Research interests of Neuroscience Concentration faculty can be found on the website. Students should contact possible faculty sponsors and seek the sponsor's agreement to accept you for senior research in their lab.

How to Enroll in NEUR 99 Having secured the agreement of a Neuroscience faculty sponsor, you must complete the NEUR 99 petition online. Your sponsor will be notified to review the petition. One that is approved you will be emailed to set up an appointment to meet with Prof. Paul Miller (NEUR 99 Coordinator) no later than Sept 4, 2020. Once the NEUR 99 Coordinator approved the petition he will notify the Neuroscience Office who will then email you will give you a consent code to enroll in NEUR 99.

Course Requirements for 1st Semester of NEUR 99 (usually NEUR 99a).

At the completion of the first semester of NEUR 99, the student writes a paper that reviews the literature in the scientific field pertinent to his/her research and includes a bibliography of cited papers. Some suggestions for the paper:

In a minimum of 8 pages of double-spaced text, this review should describe and discuss the scientific literature that is important for the problem being investigated. If there are models or hypotheses, the review should describe what they are. What evidence supports or negates the models? What is the specific question or problem being explored and how will it be solved? The review should include references in the text and provide a bibliography containing those citations [the bibliography does not count toward the 8 pages of text]. This review will be useful when writing the introduction to the senior thesis.

A copy is given to the faculty sponsor and a pdf copy is submitted electronically to the Biology office by the designated deadline (see timetable).

Course Requirements for 2nd Semester of NEUR 99 (usually NEUR 99b).

At the completion of the second semester of NEUR 99, the student writes a formal **Senior Research thesis** which contains the following sections:

Title Page: includes student's name, the title of the senior research, and date.

Abstract: (not more than 250 words): summarizes the nature of the research project, the results obtained, and the relevance of those results.

Introduction: poses the research question that was asked in the context of current knowledge in the relevant field.

Materials and Methods: provides in sufficient detail all aspects related to how the experiments were conducted.

Results: provides a written description along with figures and tables, of the experimental data obtained.

Discussion: evaluates the results obtained and their relevance and significance to current models and data in the field.

References: includes complete citations (authors' names, paper titles, journal, volume, page, year). See the journal *Neuron* for examples.

The thesis is given to the research sponsor and a pdf copy is submitted electronically to the Biology office by the deadline designated in the timetable (below).

Candidacy for Senior Honors

To become a *candidate* for Senior Honors, the student enrolls in two semesters of NEUR 99 in senior year and completes the NEUR 99 petition including the section asking to be considered a *candidate* for Senior Honors. Senior Honors is the departmental award for Distinction in Neuroscience and requires both excellence in laboratory research and a good academic record (GPA eligibility):

- Neuroscience majors enrolled in NEUR 99 are eligible for honors if they have a **Neuroscience FOC GPA of 3.0 or better and** if they have achieved a **B+ or better in both NEUR 99a and NEUR 99b.** Also, the student's faculty research mentor must support the student's honor candidacy.

Senior Honors Requirements All the 1st and 2nd semester NEUR 99 course requirements given above for Senior Research apply to *candidates* for Senior Honors. The Honors candidate must write an Honors thesis using the format of the Senior Research thesis (see above) and give a **public oral presentation and defense** of his/her work to the Faculty Research Committee, which is composed of the student's research sponsor and two other Neuroscience concentration faculty members. The oral presentation and defense should last one hour. Typically, the candidate prepares a 30-35 minute talk that includes an introduction that shows

why the work was undertaken, what goals were set, the results obtained and why they are significant. Throughout this presentation, the research committee members will ask questions. Presentations may include the use of a blackboard, handouts, slides, overhead transparencies, and/or Powerpoint projections, etc. Each member of the research committee evaluates the written thesis and oral presentation/defense and makes a recommendation to the Neuroscience concentration faculty that the candidate graduate with no Honors, Honors, High Honors, or Highest Honors. Assuming GPA eligibility has been met, these recommendations are considered by the Department of Neuroscience faculty who make the final determination about the candidate's Honors status.

NEUR 99 Timetable for 2020-2021 Academic Year

Fall Semester 2020

(1) No later than Sept 4: To request enrollment in NEUR 99a, complete and submit the online NEUR 99 petition.

(2) Deadlines for NEUR 99 Review or Senior Thesis:
(a) If you are a Senior Honors Candidate and are defending at the end of Fall semester:
-by Nov. 20, 2020, 3 pm: Give one copy of your Senior Honors Research thesis to each member of your Faculty Research Committee. You will be notified beforehand as to the faculty composition of your committee.
-on Dec. 14-18: Honors Oral Presentation and Defense

(b) If you are concluding Senior Research in the Fall (2 semesters) but are NOT an Honors Candidate:
-by Dec. 18, 2020, 3:00 pm: Your Senior Research thesis is due. Submit one copy to your faculty Sponsor and send an electronic pdf copy to Molly Nelson (mollynelson@brandeis.edu) in the Biology office. **(c) If you are doing NEUR 99a in the Fall and intend to do NEUR 99b in the Spring (whether or not as Honors):**
-by Dec. 18, 2020, 3:00 pm: The review paper on your field of research is due. Submit one copy to your faculty Sponsor (co-sponsor) and send an electronic pdf copy to Molly Nelson (mollynelson@brandeis.edu) in the Biology office

Spring Semester 2021

(1) During the week of Jan. 11-15, 2021: If you were enrolled in NEUR 99a in the Fall, do not complete the petition again but email mollynelson@brandeis.edu in the Biology department to give you a consent code to enroll in Neur 99b. If you are starting NEUR 99 this Spring semester and will conclude NEUR 99 in Fall 2021, or if you are a senior combining NEUR 93 (Fall) and NEUR 99b (Spring), complete and submit the NEUR 99 online petition.

(2) Deadlines for NEUR 99 Senior Thesis:
by April 23, 2021, 3:00 pm: Send a PDF of your **Senior Honors Research thesis** to your Brandeis research sponsor or co-sponsor and ask for feedback by April 27. You then have time to incorporate any feedback and send the final version to your research sponsor and the other members of your committee by

April 29, 2021 (and give paper copies, if asked). You will be told beforehand who the committee members are.

-on May 4, 2021: Honors Oral Presentation and Defense [May 5, May 6 are backup dates] -by May 7, 2021, 3:00 pm: If **revisions** are required by your research committee, send a **final version** of your Senior Honors Research thesis to your faculty sponsor and a pdf copy to mollynelson@brandeis.edu.

(b) If you are *not* doing Senior Honors but are concluding Senior Research in the Spring:
-by May 3, 2021, 3:00 pm: Send a PDF of your **Senior Honors Research thesis** to your Brandeis research sponsor or co-sponsor and to mollynelson@brandeis.edu.