

NEUR 93: Research Internship and Analysis in Neuroscience

Information and Petition

- (1) Read and save the information on pages 2-3, including the timetable of deadlines. Detach and keep the pages for yourself.
- (2) Complete the NEUR 93 petition **including** the registrar's "form for adding a 93 independent research internship course" (pages 4-6).
- (3) For the Fall semester, **please ensure you email Prof. Miller (NEUR 93 Coordinator) at pmiller@brandeis.edu by August 24** to arrange a time to meet. For the Spring semester, meet with Prof. Miller the week of **Jan. 17-23, 2017. Bring the completed and signed pages 4-6 of this petition with you to the meeting.**
- (4) Prof. Miller and the Neuroscience department will enroll you in NEUR 93 assuming the petition is complete and the faculty mentor and project requirements have been met.

NEUR 93 Coordinator

Dr. Paul Miller

Volen Center, Room 252, x6-2890

pmiller@brandeis.edu

NEUR 93: Research Internship and Analysis in Neuroscience

NEUR 93 is a **one-semester** course that enables the student to experience what life science research is like by working with a Neuroscience department faculty sponsor in his/her laboratory at Brandeis University. In consultation with the student's faculty sponsor, the student will design and execute an individual research project, culminating in an oral and written presentation about the resulting work. Students are permitted to do NEUR 93 research with any faculty member, irrespective of their department, if the research is of a neuroscience nature, **provided the student obtains permission from the NEUR 93 coordinator (who will consult with other faculty in uncertain cases)**. ***Students cannot use NEUR 93 for off-campus internships.***

Course Credit. NEUR 93 does not count as an elective toward the Neuroscience major. It is restricted to juniors and seniors. It can be taken only once, either in the fall or spring semester. Rising seniors can do a *summer research internship* in the laboratory of their faculty sponsor and receive NEUR 93 course credit. To do so, juniors must **obtain permission** from the NEUR 93 coordinator as well as from their faculty sponsor in the spring semester preceding the summer internship. The student does summer research in the lab (a minimum of 10 weeks full-time work) and fulfills the other NEUR 93 course requirements (an oral presentation and a written report, see below). In the subsequent fall semester, the student enrolls in NEUR 93a to receive course credit for this summer research.

How to Enroll: There is no GPA requirement to enroll in NEUR 93. The student completes the petition for NEUR 93 (pages 4-6). The petition requires signatures of both the Brandeis faculty sponsor and the NEUR 93 Coordinator. **The completed petition (pages 4-6) is returned to the NEUR 93 Coordinator who will enroll the student in NEUR 93.**

Course Requirements

- 1. Research.** The *minimum* Fall or Spring semester expectation is 10 hours of laboratory research per week.
- 2. Written Report.** This is equivalent to a laboratory rotation report, ~10 pages in length (excluding references). See timetable on p.3 for the due date. It should contain the following sections:
 - Title Page, which includes your name, the title of your research and the date.
 - Abstract (not more than 250 words), which summarizes the nature of the research project, the results obtained and the relevance of those results.
 - Introduction, which poses the research question asked in the context of current knowledge in the relevant field.
 - Materials and Methods, which describes how experiments were conducted.
 - Results, which provides a written description along with some figures and tables of the experimental data obtained.
 - Discussion, which evaluates the results obtained and their relevance and significance to current models and data.
 - References, which includes complete citations (authors' names, paper titles, journal, volume, page, year). See the *Journal of Neuroscience* for examples.
- 3. Oral Presentation.** Specifics are left to the discretion of the faculty sponsor. E.g., this could be a data presentation during "group" lab meeting, or a more formal presentation at the end of the semester to the lab, or a talk given at a meeting, etc.

Combining NEUR 93 and NEUR 99

Typically, students who elect to take NEUR 93 intend to do only one semester of research. However, students may elect to continue with their research and proceed to take one semester of NEUR 99. If NEUR 99 is taken in addition to NEUR 93, then NEUR 99 **must be with the same faculty research sponsor as NEUR 93 and NEUR 99 must be taken the semester immediately after NEUR 93 was taken.** The two-semester combination of NEUR 93 and NEUR 99 may be used as one neuroscience elective (Group 3 and also as senior research) as long as the student fulfills all of the NEUR 93 requirements **AND** at the conclusion of NEUR 99, the student writes a **senior research thesis** (see the NEUR 99 petition for full details). The senior thesis may incorporate some of the NEUR 93 report, but it must be significantly longer with substantially more data.

Since it is unlikely that one semester of NEUR 93 and one semester of NEUR 99 will lead to sufficient research for senior honors, a 3-semester combination of research courses may also be taken. NEUR 93 (either in the spring of junior year or the summer before senior year) followed by two semesters of NEUR 99 (in senior year) may be taken *if all are with the same faculty research sponsor*. The 3-course combination may be used as a single Group-3 elective in Neuroscience and may provide sufficient experience for the student to be a candidate for senior honors.

NEUR 93 TIME TABLE FOR 2016-2017 ACADEMIC YEAR

If Enrolling for FALL SEMESTER 2016

Contact NEUR 93 Coordinator by August. 24, 2016

To enroll in NEUR 93a, **meet with the NEUR 93 Coordinator (Prof. Paul Miller) and bring the completed NEUR 93 petition.** This petition must be signed by you and also by your faculty sponsor.

December 19, 2016 by 3pm:

Written report is due: Submit one copy to your faculty sponsor and a pdf copy to the Biology office.

Oral presentation: Timing and format are at the discretion of the faculty sponsor. It is recommended to schedule this with your faculty sponsor no later than one week from the report due date and even earlier is suitable.

If Enrolling for SPRING SEMESTER 2017

During the week of Jan. 17-23, 2017

To enroll in NEUR 93b, **meet with the NEUR 93 Coordinator (Prof. Paul Miller) and bring the completed NEUR 93 petition.** This petition must be signed by you and also by your faculty sponsor.

May 12, 2017 by 3pm

Written report is due: Submit one copy to your faculty sponsor and a pdf copy to the Biology office.

Oral presentation: Timing and format are at the discretion of the faculty sponsor. It is recommended to schedule this with your faculty sponsor no later than one week from the report due date and even earlier is suitable.

THE NEXT 3 PAGES ARE THE NEUR 93 PETITION. Complete these 3 pages and take them to your meeting with the NEUR 93 coordinator.

PETITION FOR NEUR 93

RESEARCH INTERNSHIP AND ANALYSIS IN NEUROSCIENCE

Student's Name: _____
(Print) First Last

Telephone #: _____ Mailbox #: _____

Email: _____

A. Petition to Enroll in Independent Research (NEUR 93)

I will take NEUR 93 with: _____
(PRINT the Name of your Neuroscience Research Sponsor)

Department Affiliation of Your Sponsor: _____

Title of Research Project:

Brief description of the proposed research including questions asked, goals, and techniques.

I understand that taking NEUR 93 **requires that I submit both a written report** to my faculty sponsor and to the Biology office by the deadline specified on the timetable as well as **give an oral presentation** on my work.

_____ **Student's Signature**

NEUR 93 Coordinator has discussed NEUR 93 requirements with the student.

_____ **NEUR 93 Coordinator's Signature**

B. TO BE COMPLETED BY THE FACULTY RESEARCH SPONSOR

I accept this student for NEUR 93 (Independent Research). I understand that in addition to a *minimum work load of 10 hours per week*, the **course requirement for the student to complete NEUR 93** are (i) to give me a **written report** (similar to a graduate student rotation report) by the deadline specified (**Dec 19, 2016** for the Fall semester or **May 12, 2017** for the Spring semester) and (ii) to give an **oral presentation** (whose date, time and format I can specify).

I will email the NEUR 93 coordinator (Paul Miller at pmiller@brandeis.edu) at the conclusion of the semester to confirm that the student has fulfilled both of these course requirements. I will also assign the student a grade for the course.

Signature of Research Sponsor

Date

internship hours/week expected of this student [minimum is 10 hrs/week]

C. TO BE COMPLETED BY THE FACULTY RESEARCH SPONSOR

If the research to be conducted by this student involves any of the potential hazards listed below, please put a check next to that hazard:

___radiation or radioactivity

___chemical hazards, e. g., drugs, poisonous or explosive materials, carcinogens

___physical hazards, e. g., high voltages, pressure, or temperature; intense laser sources

___microbiological hazards, e. g., infectious or disease-producing bacteria, viruses, etc.

___recombinant DNA or genetic engineering

___use of or exposure to human tissues/cells/fluids/samples, etc.

___other (please specify)_____

Does the proposed work involve the use of human subjects: yes or no [circle one]
If yes, I will insure that this project receives human subjects approval from the University Committee on Protection of Human Subjects in Research (IRB) prior to beginning the work.

I will provide any required and appropriate safety instructions for each of the hazards the student may encounter while conducting research in my laboratory.

Signature of Research Sponsor

Date

Office of the University Registrar
Kutz 121
Waltham, MA 02454-9110
Phone: (781) 736-2010
Email: registrar@brandeis.edu



Brandeis University

Form for Adding a 93 Independent Research Internship Course

Name: _____ ID: 2 _____

Email: _____ Phone: _____

Subject: _____ Course: 93A Term: Fall 20____ / Spring 20____

Faculty Sponsor: _____ Email _____

Internship Site (Off-campus only): _____

1) Research Project Description

Describe the student's research problem/project in the space below or on an attached sheet. Include proposed methods of research:

2) Supervision

Describe the type and frequency of supervision to be given to the student:

3) Standards for Evaluation of Course Work

- , Quality of written research report
- , Quality of oral presentation of results in a public forum (symposium, research group)
- , Other criteria as listed below:

Additional Grading Criteria:

4) Research Project Title/Topic *(will not appear on transcript)*:

Internship Dates: _____ to _____ # Internship Hours/Week: _____

Faculty Sponsor *(Signature)*: _____ Date: _____

Student *(Signature)*: _____ Date: _____