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) Meet with Prof. Paul Miller (NEUR 93 Coordinator) before Sept 5th 2014 for Fall semester NEUR 93, or before Jan 16th 2015 for Spring semester NEUR 93. Bring completed and signed pages 4-5 of this petition with you to the meeting. Make an appointment for this meeting by email: pmiller@brandeis.edu

(4) Professor Miller and the Neuroscience Staff will enroll you in NEUR 93, assuming the petition is complete and is approved (i.e. all requirements are met).

Coordinator of NEUR 93

Dr. Paul Miller
Volen Center, room 252
NEUR 93: Research Internship and Analysis in Neuroscience

NEUR 93 is a single semester course that enables the student to experience what life science research is like by working in the laboratory of a faculty sponsor, who is in the Neuroscience Program 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 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 4-5). The petition requires signatures of both the Brandeis faculty sponsor and the NEUR 93 Coordinator. The completed petition (pages 4-5) 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. It should be of about 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 200 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.
**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. The two-semester combination of NEUR 93 and NEUR 99 may be used for a single Neuroscience elective (Group 3) 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 should 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 Junior year or the summer before Senior year) followed by two semesters of NEUR 99 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 2014-2015 ACADEMIC YEAR**

**FALL SEMESTER, 2014**

*During the week of Sept. 2-5, 2014*

To enroll in NEUR 93a, the student meets with the NEUR 93 Coordinator (currently Dr. Paul Miller) and brings the completed NEUR 93 petition (signed by you and your faculty sponsor).

*December 18, 2014, 3pm:* Deadline for submission of NEUR 93a written report. Submit one copy of your written report to your faculty sponsor and send an electronic copy in pdf format to pmiller@brandeis.edu and qchu@brandeis.edu. Timing and format of the oral presentation are at the discretion of the faculty sponsor.

**SPRING SEMESTER, 2015**

*During the week of Jan. 12-16, 2015*

To enroll in NEUR 93b, student meets with the NEUR 93 Coordinator (currently Dr. Paul Miller) and brings the completed NEUR 93 petition (signed by the faculty sponsor).

*May 7, 2015, by 3pm:* Deadline for submission of NEUR 93a written report. Submit one copy of your written report to your faculty sponsor and send an electronic copy in pdf format to pmiller@brandeis.edu and qchu@brandeis.edu. Timing and format of the oral presentation are at the discretion of the faculty sponsor.

**THE FOLLOWING 2 PAGES CONSTITUTE THE NEUR 93 PETITION.** Please complete them before meeting the NEUR 93 coordinator.
PETITION FOR NEUR 93
RESEARCH INTERNSHIP AND ANALYSIS IN NEUROSCIENCE

Bring this form to the Neuroscience UAH (Paul Miller, Volen 252) by September 5, 2014

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)

Title of research project:

Brief synopsis of proposed research:

I understand that taking NEUR 93 requires that I submit both a written report to my faculty sponsor and the pdf by email to pmiller@brandeis.edu and qchu@brandeis.edu by the deadline specified on the timetable for this academic year, 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 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 18th 2014** for the Fall semester or **May 7th 2015** 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, pmiller@brandeis.edu) at the conclusion of the semester to confirm that the student has fulfilled the course requirements. I will also assign the student a grade for the course.

I will provide appropriate safety instructions as required for each hazard (checked off below) that may be encountered by this student while conducting research in my laboratory.

________________________________________
Sponsor's signature

C. To be completed by the 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.

________________________________________
Sponsor's signature