

NEUR 93: Independent Research Internship in Neuroscience

Course Overview

NEUR 93 is a one-semester course that enables the student to experience what life science research is like by working with a Neuroscience program faculty sponsor in their laboratory at Brandeis University. In consultation with the student's faculty sponsor, the student will design and carry out an individual research project, and give oral and written presentations about this work. Students are permitted to do NEUR 93 research with Brandeis life sciences faculty who are not in the Neuroscience program (e.g., in Biochemistry), but to do so, **the student must obtain permission of the NEUR 93 Research Coordinator**. In all cases, the proposed research must have a **neuroscience** basis and ask a **neuroscience** question. **Students cannot use NEUR 93 for off-campus internships.**

1. Course Credit

There is no GPA requirement to enroll in NEUR 93. NEUR 93 may be taken only by juniors and seniors and can be taken only once. Rising seniors can do a **summer research internship** in the lab of a Neuroscience program member and receive NEUR 93 course credit: to do so, juniors must **obtain permission** from the NEUR 93 Research Coordinator as well as 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) and fulfills the other NEUR 93 course requirements (oral presentation and written report, see below). In the subsequent Fall semester, the student enrolls in NEUR 93a to receive course credit for this summer research. **NEUR 93 does not count as an elective toward the Neuroscience major.**

2. How to enroll in NEUR 93

The student should meet with their faculty research sponsor. The student then submits the completed NEUR 93 Petition online. The Neuroscience office will then email the research sponsor a Sponsor's Agreement form to complete. The enrollment application will be complete only when the student and research sponsor have submitted their forms. The Neuroscience office will then send further enrollment information to the student.

3. Course Requirements

1. **Research:** the **minimum** expectation for Fall or Spring semester is 12 hours of laboratory research per week.
2. **Written report:** equivalent to a laboratory rotation report, ~10 pages (excluding references); see timetable for when this is due.
 - **Title Page**, which includes your name, the title of your research, and 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 the 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 in the field.
 - **References**, which includes complete citations (authors' names, paper titles, journal, volume, page, year). See the journal *Cell* 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.

4. Combining NEUR 93 and NEUR 99

Typically, students who elect to take NEUR 93 intend to do only one semester of research. However, students who really like the NEUR 93 experience may want to continue doing research. These students (if seniors) can then take one semester of NEUR 99, but this must be with the **same research sponsor as NEUR 93, and NEUR 99 must be taken the semester immediately after NEUR 93 was taken**. This two-semester combination of NEUR 93 and NEUR 99 may be used as one Neuroscience elective (and also as senior research) as long as the student fulfills the NEUR 93 requirements and the student at the conclusion of NEUR 99 writes a **senior research dissertation** (see the NEUR 99 petition for information about the senior thesis). The senior dissertation may incorporate some of the NEUR 93 report but it must be longer and provide a brief review and introduction, much more data, and a lengthier discussion.

It is unlikely that one semester of NEUR 93 and one semester of NEUR 99 will provide research sufficient for senior honors. A 3-semester combination of research courses may also be taken: NEUR 93 in spring of junior year or over the summer before senior year (see above), and two semesters of NEUR 99 in senior year, *all with the same research sponsor*. This 3-course combination may be used as one elective for the Neuroscience major, and it may provide sufficient research for candidacy for senior honors.

2023-2024 Information

- **To enroll in NEUR 93 for Fall semester:** complete [the Neuroscience 93 Petition online](#) **no later than Sept 6, 2023**. The neuroscience office will send further information so you can register in NEUR 93 if the petition is complete, your faculty research sponsor has filled their separate form, and project requirements have been met.
- **To enroll in NEUR 93 for Spring semester:** complete the [Neuroscience 93 Petition online](#) no later than **Jan 17, 2024**. The neuroscience office will send further information so you can register in NEUR 93 if the petition is complete, your faculty research sponsor has filled their separate form, and project requirements have been met.

2023-2024 Timetable

1. If enrolling for Fall Semester 2023

No later than Sept. 6, complete the [Neuroscience 93 Petition online](#).

By Dec. 18, 2023 by 3 p.m.: written report is due. Submit one copy to your faculty sponsor and send a pdf copy to the [Neuroscience office](#).

Oral presentation: timing and format are at the discretion of the faculty sponsor.

2. If enrolling for Spring Semester 2024

No later than Jan 17, 2024, complete the [Neuroscience 93 Petition online](#).

By May 8, 2024, 3 p.m.: written report is due. Submit one copy to your faculty sponsor and send a pdf copy to the [Neuroscience office](#).

Oral presentation: timing and format are at the discretion of the faculty sponsor.