BIOL 93: Independent Research Internship in Biology
Information 2019-2020

To enroll in BIOL 93 for Fall semester: complete the Biology 93 Petition online no later than Sept 9, 2019. The biology department will send you the consent code so you can register in BIOL 93 if the petition is complete, your faculty research sponsor fills their (separate) form, and project requirements have been met (and notify you if not).

To enroll in BIOL 93 for Spring semester: complete the Biology 93 Petition online no later than Jan 13, 2020. The biology department will send you the consent code so you can register in BIOL 93 if the petition is complete, your faculty research sponsor fills their (separate) form, and project requirements have been met (and notify you if not).

BIOL 93: Independent Research Internship in Biology

BIOL 93 is a one-semester course that enables the student to experience what life science research is like by working with a Biology department 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 BIOL 93 research with Brandeis life sciences faculty who are not in the Biology department (e.g., in Biochemistry), but to do so, the student must obtain permission of the BIOL 93 Coordinator. In all cases, the proposed research must have a biological basis and ask a biological question. Students cannot use BIOL 93 for off-campus internships.

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

How to enroll in BIOL 93. The student should meet with their faculty research sponsor. The student then submits the completed BIOL 93 Petition online. The Biology department 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 Biology department will then send a consent code to the student so they can enroll in BIOL 93.

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.

Combining BIOL 93 and BIOL 99: typically, students who elect to take BIOL 93 intend to do only one semester of research. However, students who really like the BIOL 93 experience may want to continue doing research. These students (if seniors) can then take one semester of BIOL 99, but this must be with the same research sponsor as BIOL 93, and BIOL 99 must be taken the semester immediately after BIOL 93 was taken. This two-semester combination of BIOL 93 and BIOL 99 may be used as one biology elective (and also as senior research) as long as the student fulfills the BIOL 93 requirements and the student at the conclusion of BIOL 99 writes a senior research dissertation (see the BIOL 99 petition for information about the senior thesis). The senior dissertation may incorporate some of the BIOL 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 BIOL 93 and one semester of BIOL 99 will provide research sufficient for senior honors. A 3-semester combination of research courses may also be taken: BIOL 93 in spring of junior year or over the summer before senior year (see above), and two semesters of BIOL 99 in senior year, all with the same research sponsor. This 3-course combination may be used as one elective for the Biology major, and it may provide sufficient research for candidacy for senior honors.
BIOL 93 Timetable for 2019-2020 Academic Year

If enrolling for FALL SEMESTER 2019:

No later than Sept 9, 2019, complete the Biology 93 Petition online. By December 19, 2019 by 3 pm: written report is due. Submit one copy to your faculty sponsor and send a pdf copy to Laura Woolf (lwoolf@brandeis.edu) in the Biology office. Oral presentation: timing, format are at the discretion of the faculty sponsor.

If enrolling for SPRING SEMESTER 2019:
No later than Jan 13, 2019, complete the Biology 93 Petition online.

(a) If you are a Senior Honors Candidate and are Defending in the Spring Semester:
-by April 20, 2020, 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 22. 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 24, 2020 (and give paper copies, if asked). You will be told beforehand who the committee members are.

-on April 30, 2020: Honors Oral Presentation and Defense [May 1, May 4 are backup dates]
-by May 4, 2020, 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 ask for feedback by April 22. 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 24, 2020 (and give paper copies, if asked). You will be told beforehand who the committee members are.

(b) If you are not doing Senior Honors but are concluding Senior Research in the Spring:
-by April 29, 2020, 3:00 pm: Send a PDF of your Senior Honors Research thesis to your Brandeis research sponsor or co-sponsor and to lwoolf@brandeis.edu.

BIOL 93 Independent Research Internship in Biology Coordinators
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