Instructions to Students

BIOL 098: Undergraduate Research

Biology Undergrad Research Advisor: Dr. Bryan Ballif\*

\*subject to change before the beginning of the fall semester – we will notify all enrollees by email if this is the case

Students are responsible for understanding and following requirements, address questions to Dr. Ballif\*.

**Section Description:**

Students step into an ongoing research program, working under the supervision of a faculty mentor, but perhaps helping a graduate student or postdoctoral fellow. Students may take BIO 098 during any semester, from their first year through Senior year. The course may be taken during any semester, from the first through Senior year. Majors in Biology/Biological Science/Zoology/A&S Environmental Sciences may work with either a Biology Department faculty member or a faculty member in another life science department. Students who are not majors within the Biology Department must work with a Biology Department faculty member. Students in the Continuing Education PostBac Program may also enroll.

Students can enroll for 1-18 credits. Each credit requires a minimum of 40 hours. For example, 3 credits require a minimum of 120 hours, or at least 8 hours per week during a 15-week semester or 10 hours per week during 12 weeks in the summer.

**Section Expectations:**

Enrolling in BIOL 098: Students first identify a laboratory and research mentor. To obtain an override the student or mentor needs to email Dr. Ballif\* the student name, netid, mentor’s name, course number and number of credits. Note: occasionally students enroll after the drop/add period, email Dr. Ballif\* if you have questions about this.

Enrollment Form: Required of all students by the end of the drop/add period. Available through Blackboard.

Learning goals: Form is available on and submitted through Blackboard. To be developed with and approved by the mentor, complete the check list with 10 skills you will develop during the project. Possible skills include writing and information literacy, lab techniques (e.g. pipetting, PCR), data collection and record keeping, data management on spreadsheets, statistical analysis and writing reports.

Proposal: In addition to the enrollment and learning goals forms, write two paragraphs, one briefly stating the goals of the mentor’s research that you will participate in, the second outlining your role in the project

Final Assignment: A final assignment submitted through Blackboard is at the discretion of the advisor.

When completing the proposal, set a date to review your learning goals at the end of the semester with your mentor. Based on this meeting you will complete your final assignment (if required, see details in blackboard). Your mentor must email a grade for you by the LAST DAY OF CLASSES. You must remind your mentor to submit the grade by e-mail to Bryan.Ballif@uvm.edu by **Dec. 9**.

MESSAGE TO RESERCH MENTORS

Thank you for agreeing to serve as a Mentor for a student in your laboratory. Over the years students relay that undergraduate research projects were a central part of their academic experience. Students remember research mentors as their most important role models.

The goal of BIOL 098 is for students to work closely with experienced researchers as part of an ongoing, successful research project. Mentors are overseen by a faculty member but the student may work day-to-day under the supervision of a Postdoctoral Fellow or senior graduate student. Although the undergraduate will be incorporated into an ongoing project, they are also expected to understand the thrust of the project and to contribute ideas and comments throughout the semester's activities. The central goal is for the student to learn some new skills that might be applied in the future as part of a senior research project.

Students may take BIOL 098 for 1-18 credits. Each credit requires a minimum of 40 hours. For example, 3 credits require a minimum of 120 hours, or at least 8 hours per week during a 15-week semester or 10 hours per week during 12 weeks in the summer.

**Evaluation:** Dr. Ballif\* will submit the final grade based on the evaluation of the mentor. A one page essay relating their semester work to their learning goals is required at the end of the semester. The student will meet with you at the latest the last week of classes to discuss the assignment, submit their assignment by the last day of classes and the grade needs to be submitted to me by the last day of classes, **Friday, Dec 9**.

The guidelines for grades are:

"A" = Completed all assigned duties on time with a high degree of accuracy and dedication. Participated in all lab discussions. Read the assigned publications and offered thoughtful comments. The final work is of quality that could be the basis for further research or part of a grant proposal.

"B" = Completed most assigned duties on time and with good accuracy. Sometimes participated in lab discussions. Read the assigned publications and asked solid questions. The final work is useful to the laboratory.

"C" = Completed many of the assigned duties, mostly on time. May have had to repeat observations to attain accuracy. Read the assigned publications and appeared to understand the central ideas. The work is useful to the lab.

"D" = Completed some assigned duties, often with low quality. Failed to complete some readings. The final work has limited interest and not likely to be used in future studies.

"F" = Failed to meet minimum requirements for a passing grade.