

INDEPENDENT RESEARCH PROJECT GUIDELINES

The Biology Department encourages students to participate in laboratory research (BIOL 388, 388S (additional guidelines also attached), 390) and/or library research (BIOL 389). Students may choose to work with faculty in the Biology Department or students choosing to work with a member of another department must also have a Biology faculty member act as Biology Sponsor. These students must also be sure that their Research Sponsor receives a copy of these guidelines.

1. **TIME COMMITMENT:** A student should work out with his/her sponsor a regular schedule of time devoted to the research project. (Some flexibility is allowed for variability in course workload.) The student is expected to spend a minimum of 9 hours per week (on average) in the laboratory (or library) to earn 3 credit hours, though sponsors may require more time than this.

2. **INPUT INTO PLANNING:** For BIOL 388, the student may be expected to help plan the research project or may be assigned a project. In either case, background reading and discussions should assure that the student thoroughly understands the specific project and its general significance. For BIOL 390, the student is expected to at least help in planning the research project.

3. **MEETINGS WITH SPONSOR:** The student should meet with his/her research sponsor and Biology Department sponsor on a regularly scheduled basis (weekly or twice a month is suggested). This is particularly important for BIOL 389 to insure that progress continues throughout the semester.

4. **FORMAT OF PAPER:** Students doing BIOL 388 and BIOL 390 must submit a paper in the format of a scientific journal research article. If results are incomplete, the paper can be a progress report, but should still be in research article format. For BIOL 389, the paper should be similar to a long term paper or review article and the majority of the references should be primary research papers. It is suggested that a specific number of papers be discussed with the BIOL 389 sponsor at each regularly scheduled meeting, and that an outline of the paper be completed by mid-semester. It is also recommended that a first draft of the paper be submitted at least two weeks prior to the end of the semester so that revisions are possible.

5. **EVALUATION:** The Biology Department Sponsor will read the paper and assign a grade. If the Research Sponsor is outside the department, he/she will complete an evaluation form for the benefit of the Biology Sponsor. Please note that BIOL 390 is graded on a pass/fail basis only.

To sign up for BIOL 388, 389, or 390, obtain the department permit form from the Biology Office, DeGrace Hall, Room 206, complete the form, and return it to the Biology office.

BIOLOGY 388S – UNDERGRADUATE RESEARCH SAGES CAPSTONE EXPERIENCE

Undergraduate students at Case Western Reserve University may elect to utilize BIOL 388S, Undergraduate Research, as their SAGES Capstone experience. The following criteria must be met in order for their research to satisfy the requirements of a SAGES Capstone experience.

1. The student must obtain a BIOL 388S Permission Form from the Biology Office. This is a separate form.
2. The name and campus address of the research sponsor must be written on the form and it must be signed by the research sponsor.
3. If the research is to be done outside the Biology Department, a Biology sponsor must be designated and his or her name and signature must also appear on the form.
4. A research plan must be provided on the form.
5. The student must sign the form and submit it to the Biology Office.
6. Once the research plan is accepted, a permit will be issued and the student may register for the course. STUDENTS REGISTERING FOR BIOL 388S MUST REGISTER FOR **THREE CREDITS**.
7. During the second week of the semester, a more detailed plan, developed in conjunction with the research sponsor, must be submitted to the Biology Office.
8. During the semester in which the research is being conducted, the student must interact regularly with his or her research sponsor. In addition, the student must meet with the research sponsor AND Biology sponsor during the fifth week of the semester and during the tenth week of the semester and present a progress report.
9. A final report must be submitted to the research sponsor and Biology sponsor at the end of the semester.
10. The student must give a public presentation of his or her research either in an arranged poster session featuring undergraduate research or through a seminar open to faculty and students or through some other approved medium, such as at a regional or national scientific meeting at which research papers are presented.

STUDENT AND SPONSOR ACCEPTANCE OF CRITERIA:

We have read and accept the criteria necessary for this BIOL 388S research to count as a SAGES Capstone experience:

Student Name (print)	Student Signature	Email	Date
Research Sponsor Name (print)	Signature	Department	Date
Biology Sponsor Name (print)	Signature		Date

EVALUATION OF BIOL 388S, 388, 389, OR 390

To be Completed by Research Sponsor for Biology Dept. Sponsor

Name of Student: _____

Title of Project: _____

Course: ↑ 388 ↑ 389 ↑ 390
 Semester: ↑ Fall ↑ Spring ↑ Summer Year: _____

Research Sponsor: _____ Phone: _____

Research Sponsor's Department/Location: _____

Biology Dept. Sponsor: _____ Phone: _____

If you were to assign a grade to this project it would be: _____

Please evaluate the student on the following by circling the appropriate numbers:

	Low		Moderate		High
Student input into planning of project (low input into Planning 388 is OK)	1	2	3	4	5
Time commitment of student to this project (expect ~ 9 hrs/wk for 3 hr. credit, so that = moderate)	1	2	3	4	5
Interest in and understanding of project by student	1	2	3	4	5
Reliability of student's results (388 & 390)	1	2	3	4	5
Ability of student to work independently and help solve Problems that occur (388 & 390)	1	2	3	4	5

Comments: _____