

# Independent Research Permit Request

## BIOLOGY 388, 388s, 389, 389S, 390

(Circle Only One)

Date: \_\_\_\_\_

Semester:     Fall \_\_\_\_\_     Spring \_\_\_\_\_     Summer \_\_\_\_\_     20 \_\_\_\_\_  
Number of credit hours (may vary 1-3 credits): \_\_\_\_\_

Name:	Student ID number	Local Phone:
Local Address:	Email:	

### RESEARCH SPONSOR INFORMATION

(The individual in whose lab you will be working)

Name:	e-mail:
Campus Address and Phone No:	
Signature and Date:	

### BIOLOGY SPONSOR INFORMATION

(The individual within the Biology Department who will assign the final grade, may be different from Research sponsor)

Name:
Signature and Date:

The Biology Sponsor, by signing above, hereby authorizes the credit hours listed above.

### PROJECT INFORMATION

Project Title: (must be included):
(Please type a short description of your research project)
Student Signature: (I have read and understand the guidelines for my independent research project)

# INDEPENDENT RESEARCH PROJECT GUIDELINES

The Biology Department encourages students to participate in laboratory research (BIOL 388, 388S [additional guidelines attached], 390) and/or library research (BIOL 389, 389S [additional guidelines attached]). Students may request to work with a Research Sponsor who is a faculty member in the Biology Department or a member of another department. Students planning to work with a Research Sponsor outside of the Biology Department must also ask a Biology faculty member to serve as their Biology Sponsor. By agreeing to serve as the Biology Sponsor, it is expected that the Biology faculty member will ensure the suitability of the Research Sponsor and that the Research Sponsor is providing the appropriate training, resources and guidance to the student. The Biology Sponsor will determine the final grade after consulting the Research Sponsor's evaluation of the student's performance.

## **Restrictions:**

- Students may register for more than one BIOL research course number in the same lab during a single semester, but they must clearly be for different research projects.
- BS students cannot satisfy their BIOL 388S and BIOL 390 requirements during the same semester.
- Students may register for BIOL research credits and perform paid work in the same lab in the same semester, but the duties associated with each must not overlap.

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:** The student may be expected to help plan the research project or may be assigned a project. In either case, background reading provided by the Research Sponsor and discussions between sponsor and student should assure that the student thoroughly understands the specific project and its general significance.
3. **MEETINGS WITH SPONSOR:** The student should meet with his/her Research Sponsor (and Biology Department sponsor, if applicable) on a regularly scheduled basis (weekly or twice a month is suggested). This is particularly important for BIOL 389 and 389S to ensure that progress continues throughout the semester.
4. **RESEARCH SPONSOR RESPONSIBILITIES:** The Research Sponsor will be responsible for providing the appropriate training, resources (e.g. materials, equipment, etc.), and guidance to the student.
5. **BIOLOGY SPONSOR RESPONSIBILITIES:** If the student chooses an outside Research Sponsor, then the Biology Sponsor must ensure that the Research Sponsor fulfills their responsibilities as described above.
6. **FORMAT OF PAPER:** Students doing BIOL 388/388S 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.
7. For BIOL 389/389S, the paper should be similar to a term paper or review article and the majority of the references should be primary research papers. It is suggested that a specific number of

reference papers be discussed with the BIOL 389/389S 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.

8. EVALUATION: The Biology Department Sponsor will read the final 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/no pass basis only.

To sign up for BIOL 388, 388S, 389, 389S, or 390, students must obtain the form from the Biology Office (DeGrace Hall room 203), complete the form, and return it to the Biology Office. This form is also available online through the departmental website.

# **Biology 388S, 389S – UNDERGRADUATE RESEARCH SAGES CAPSTONE EXPERIENCE Permission Form**

Undergraduate students may enroll in BIOL 388S or 389S to satisfy their SAGES Capstone requirement. The following criteria must be met in order for their research to satisfy the requirements of a SAGES Capstone.

1. In addition to this permission form, the student must also fill out the “Independent Research Permit Request” form included in this packet and return it to the Biology office.
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/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 or 389S 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/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 to present a progress report.
9. A final report must be submitted to the Research Sponsor and Biology Sponsor at the end of the semester, at a date to be determined by the Research and/or Biology Sponsor.
10. The student must give a public presentation of his/her research: e.g. an arranged poster session featuring undergraduate research, a seminar open to faculty and students, or through some other approved medium, such as 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/389S research to count as a SAGES Capstone experience.

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

# Evaluation of BIOL 388, 388S, 389, 389S, OR 390

To be completed by the Research Sponsor for the Biology Dept. Sponsor

Name of Student: \_\_\_\_\_

Title of Project: \_\_\_\_\_

Course:      ☐ 388      ☐ 388S      ☐ 389      ☐ 389S      ☐ 390

Semester:      ☐ Fall      ☐ Spring      ☐ Summer      Year: \_\_\_\_\_

Research Sponsor: \_\_\_\_\_ Phone: \_\_\_\_\_

Research Sponsor's Department/Location: \_\_\_\_\_

Biology Dept. Sponsor: \_\_\_\_\_ Phone: \_\_\_\_\_

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Please evaluate the student by circling the appropriate numbers:

	Low		Moderate		High
Student input into planning of project	1	2	3	4	5
Time commitment of student to this project (9 hrs/wk for 3 hr. credit = 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, 388S, 390)	1	2	3	4	5
Ability of student to work independently and solve problems (388, 388S, 390)	1	2	3	4	5

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Final grade suggested by Research Sponsor: \_\_\_\_\_

## Undergraduate Biology research course attributes matrix (BIOL 388, 388S, 389, 389S, 390)

Y = yes      N=no

	Prereqs	Credits	Grades	Availability	Counts toward BIOL degree	Counts toward CWRU degree	SAGES capstone	Counts towards Honors Thesis in Bio	Bench or field research	Scholarly literature review with bibliography	Journal article format	Public presentation required (lecture or poster session)
<b>BIOL 388</b>	None	1 – 3	A – F or P/NP	Repeatable up to 3 credit hour maximum	Y only if A – F grades, N if P/NP	Y	N	Y	Y	Y	Y	N
<b>BIOL 388S</b>	None	3 only	A – F	Once	Y	Y	Y	Y	Y	Y	Y	Y
<b>BIOL 389</b>	None	1 – 3	A – F or P/NP	Repeatable up to 3 credit hour maximum	Y only if A – F grades, N if P/NP	Y	N	Y	N	Y	N	N
<b>BIOL 389S</b>	None	3 only	A – F	Once	Y	Y	Y	Y	N	Y	N	Y
<b>BIOL 390</b>	388 or 388S	1 – 3, but BIO-BS must be 3 for first time	P/NP	Repeatable	BIO-BA:N SYB-BS:N BIO-BS:Y for first time only, N thereafter	Y	N	Y	Y	Y	Y	N