

# **BIOL 395H - Honors Research in Biology**

## **SPRING 2018**

MONDAYS or THURSDAYS 2:30PM-4:00PM  
1378 GENOME SCIENCE BLDG.

Dr. Gidi Shemer

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### **Monday Section**

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### **Thursday Section**

Dr. Jean Smith

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### **Prerequisites**

BIOL 201 or 202. For Biology majors only.

### **Credit**

BIOL 395H may be taken for no more than six graded academic credits. Three credit hours of research may be counted as one lecture course toward fulfillment of the Biology major requirements; six credit hours may be counted as one lecture course with laboratory toward fulfillment of the Biology major requirements.

### **Course description and expectations**

The purpose of BIOL 395H is to provide honors students with independent research experience, while working in a research lab on a question of current biological interest. Under the supervision of a faculty member, and with contribution of research postdoctoral fellows or graduate students, students will learn more than just basic research techniques. They will learn how to start to think as scientists, raising hypotheses and finding ways to test them in an empirical manner.

We will also discuss topics relating to academia more generally (eg. the process of publishing your work, issues relating to graduate school and the academic career track, peer-reviewed publication vs. pre-print servers).

As all other biology research students, BIOL 395H students will either submit a 10-page paper (in their first semester of research) or present a scientific poster (in their second semester) by the end of the semester.

BIOL 395H is similar in many ways to BIOL 395, but in addition to the research performed in their labs, the BIOL 395H students will meet with each other on a weekly basis. These meetings will be dedicated to the following activities:

- 1. Journal clubs:** students will discuss primary scientific literature. Each journal club session will be led by a group of students who will choose a peer-reviewed paper or a pre-print beforehand and will post it on the course Sakai site. All the 395H students are responsible to read the paper before class and participate in the discussion. The first two journal clubs include papers chosen by the instructor and will showcase a comparison between one peer-reviewed paper and one pre-print.
- 2. Chalk talks:** each student will present his or her research project. The presentations will be 20-30 minutes long and will not be based on powerpoint presentations, but rather- board and marker (the modern version of a board and chalk).
- 3. Writing and reviewing assignments:** students will have writing assignments (e.g. writing an abstract on their research, or writing a mini-grant to propose follow up experiments for papers we have read) that will be later reviewed by their peers during class meetings

Abstract Guidelines: Your abstract should be around 250 words in length and cover the following points. Background and significance, Methods, Results, and Conclusions. Abstracts generally do not contain citations while specific journals or conferences will have varying guidelines these are generally useful. For more information please read:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3136027/>

- 4. Open Discussions about Science and Academia:** Students will have the opportunity to ask questions and discuss topics related to the process of doing science, publishing, graduate school, and career paths through academia.

### Grading

The grades will be assigned by the research advisor (PI) and the biology faculty sponsor (when applicable). Grades will be assigned based on evaluation of the research paper/poster and the performance in the lab throughout the semester.