

Department: MCB

Course No.: 225W

Title: Advanced Cell Biology Laboratory

Credits: 4

Contact: Kenneth M. Noll

WQ: W

Catalog Copy: MCB 225W Advanced Cell Biology Laboratory. 4 units Fall semester. Instructor: David Knecht. Honors Course.

Theory and experimental techniques of modern cell biology, emphasizing the visualization of living eukaryotic cells using the light microscope and digital imaging techniques. Students will learn cell culture, immunostaining, fluorescence localization, confocal microscopy, time-lapse video microscopy, DNA mediated transformation and other techniques, and then pursue independent projects.

Course Component: Laboratory Required/ Lecture Required. Students cannot pass the course without passing the W component. Students will be notified on the syllabus of this requirement.

Enrollment Requirement Group: MCB 210, which may be taken concurrently; open to sophomores or higher. Consent of instructor required. Enrollment limit 10.

W Criteria: The students are required to write up experimental protocols, results and interpretations for each experiment which will be either once or twice per week. Each writeup is about 3-5 pages and will take the form of a journal article. There are approximately 8 such papers in the course of the semester. These reports are reviewed by the TA and the instructor and returned to the students for revision. During the last 4-6 weeks of the semester, the students carry out independent research projects. The students are required to write up their independent project results in two ways. First, they write a 5-10 page paper describing their results prepared in the format of a journal article. Second they prepare their data and present it at a departmental poster session. Posters consist of an abstract, a brief description of background information (including literature citations), an outline of methods used in the work and a summary of the findings of the experiments. Both the final paper and the poster will be reviewed by the TA and instructor, revised and resubmitted for evaluation.

This course has a substantial writing component and it is primarily scientific writing which makes it appropriate for W in the major as required by the new GEOC guidelines. Last semester, every student evaluation commented that they thought they should have received W credit for the course.

As noted in the course syllabus, if students fail the “W” component requirements of the course, they will receive a failing grade for the course.

Role of Graduate Students: There is one full TA who works closely with students in the course. This TA is generally a graduate student in Dr. Knecht's lab and so has familiarity with the techniques being used. Dr. Knecht is usually in the lab as well throughout the lab period so the students have substantial interaction with both. When reports are handed in, the TA usually reads them first and comments on them, and then Dr. Knecht reviews them before returning them to the students. The same routine is used for resubmitted reports. The process serves as excellent training for both the students and the TA on the process of scientific writing.

New TAs will attend the W course orientations offered by the University. These TAs will be encouraged to attend any relevant supplemental workshops that are offered during the academic year.