

Disciplinary Communication in MCD Biology, Neuroscience, and Biochemistry and Molecular Biology

I. Educational objectives

UCSC's Biology curriculum struggles with large class sizes that are prohibitive to a writing intensive curriculum. Unlike other courses, our lab courses typically have enrollments of 14-20, so they are really the only place where individualized instruction can occur in our curriculum. Because of the nature of our large undergraduate lecture classes, students in most of the courses are only exposed to textbooks and do not get to experience the primary form of communication in our discipline, the research article. However, in the lab classes the students are often exposed to reading research articles to help in their experimental design. Students are required to present their experimental results to the faculty in the form of a research report, which takes the basic form of a research article, and which is handed back with corrections which in some classes can be modified and turned back in or in other courses are used as feedback to improve the subsequent lab reports. Therefore, our undergraduates are getting instruction in writing in the discipline in our various lab courses. In addition, students in the lab classes are often asked to present their research results to the class in the form of a poster presentation or short oral presentation accompanied by powerpoint. These classes therefore also contribute instruction in the two other major forms of scientific communication within the major as well.

Writing

Students should understand

1. how to present their experimental results in the form of a research report;
2. how papers are submitted, peer-reviewed and selected for publication;
3. the importance of considering their audience and their goals when communicating in writing.

Speaking/presentation

Students should understand

1. how to construct posters;
2. how to present their research results in the form of a poster presentation or short oral presentation accompanied by powerpoint;
3. how meetings are organized, who attends, how meeting organizers determine who will be invited to present talks and posters, and the typical formats of those presentations.

II. How the educational objectives are met in the curriculum

List of course(s) committed to disciplinary communications objectives and how each contributes to the objectives

1 5-unit upper-division lab from among the following. One such course is required of all majors.

BIOL100L - Biochemistry Lab - 5 Units

Lab requires some reading of the primary literature. There will be five 5 page lab reports in the form of a research article and the students present a class presentation on the final project.

Reports are corrected and handed back to students so that feedback can be used on next report.

BIOL105L - Genetics Lab - 5 Units

Lab requires reading of primary literature. The students are required to submit three 3-5 page lab reports in the form of a research paper. There will be a requirement that the students write a 10-15 page long grant proposal. Reports are corrected and handed back to students so that feedback can be used on next report .

BIOL105M - Microbial Genetics Lab - 5 Units

Lab requires some reading of the primary literature. There will be five 5 page lab reports in the form of a research article and the students present a class presentation on the final project.

Reports are corrected and handed back to students so that feedback can be used on next report.

BIOL109L - Yeast Genetics Lab - 5 Units

Lab requires reading of primary literature and six 4-7 page lab reports in the form of a research paper. Reports are corrected and handed back to students so that feedback can be used on next report.

BIOL110L - Cell Biology Lab - 5 Units

Lab requires reading primary literature and four 6-10 page lab reports in the form of a research paper. Reports are corrected and handed back to students so that feedback can be used on next report.

BIOL115L - Eukaryotic Molecular Biology Lab - 5 Units

Students are required to do a 15-25 page term paper in addition to several smaller written assignments. Students are offered help with rewriting of drafts on the term paper.

BIOL119L - Microbiology Lab - 5 Units

Scientific writing is a major component to the lab course, 35% of the grade. Students write four lab reports in the format of a research paper, 6-10 pages each. Students are required to incorporate primary journal articles as references in the intros and discussions. Instructor provides detailed edits and an evaluation sheet for each report. The students are allowed to make corrections and submit a revised copy to replace the previous paper.

BIOL119L - Microbiology Lab - 5 Units

Lab requires some reading of the primary literature. There will be five 5 page lab reports in the form of a research article and the students present a class presentation on the final project.

Reports are corrected and handed back to students so that feedback can be used on next report.

BIOC110 - Biochem Laboratory - 5 Units

Upper level biochem lab course available for BMB majors. Lab requires reading of the primary literature. Three large reports are required, lengths of 10, 25 and 50 pages. Students receive substantial feedback on each lab report in order to improve on the next ones.