

Expectations for Faculty Supervising CaSB Internship Capstone Projects

Overview of the Student Capstone Experience

The Capstone experience is a senior-level sequence of two courses integrating disciplines via mathematical modeling, simulation, and active research and report writing. The experience culminates with the completion of a senior thesis.

The three Capstone options are designed to be parallel to one other. Effective Fall 2021, the three Capstone options are:

- Option 1: C&S BIO 199 (4 units) and C&S BIO M187 (4 units)
 - Students will engage in supervised research with a UCLA faculty member while taking 4 units of C&S BIO 199, and continue this research while taking 4 units of C&S BIO M187, a research communications course.
- Option 2: C&S BIO 198A (4 units) and C&S BIO 198B (4 units)
 - Students will engage in directed honors research with a UCLA faculty member while taking 4 units of C&S BIO 198A and 4 units of C&S BIO 198B.
- Option 3: C&S BIO 195 (4 units) and C&S BIO M187 (4 units)
 - Students will engage in a community or corporate internship supervised by a UCLA faculty member (in addition to their on-site supervisor) while taking 4 units of C&S BIO 195. In C&S BIO M187, students will learn how to communicate their internship project results while taking this 4-unit research communication course.

Expectations for Students Completing Capstone Internship Projects (Option 3)

For this Capstone, students have been asked to identify a ladder faculty member who will agree to supervise their internship experience and final thesis/project paper. The ladder faculty member will serve as the instructor of record for C&S BIO 195. Students must complete a minimum of 80 hours of work at their internship site, though many will complete more. Students will be expected to coordinate with their on-site supervisor to ensure that the internship is suitable for use towards the Capstone project. In order to enroll in C&S BIO 195, students must provide proof of internship offer, on-site supervisor contact sheet, a description of the work to be completed, and the number of hours to be worked.

In order to use an internship towards completion of Capstone requirements, students should be completing a substantive computational biology project. The project should involve some aspect of math modeling, computational simulation, data analysis, or other quantitative work so that there is a quantitative/mathematical/computational piece. The project should also be connected to a biological question. While the project does not necessarily have to contribute to scholarly research, there should be some communicable results of the project. In the end, students should look for a project for which they can explain and justify a goal, and then communicate what they did to achieve said goal. For the Capstone requirements, the project needs to be enough for a coherent story: a 10-minute presentation, a poster, and an approximately 10 pages or longer paper.

Capstone Deliverables—to be completed by student by completion of C&S BIO M187 (for Option #3)

Presentation – The presentation should consist of approximately 10 slides that cover the following topics: Title, Background, Question that is being addressed by research or Goal of internship project, Methods, Results, Conclusions, Future Directions, Acknowledgements.

Poster – The poster should be printed on a large (48”x 36”) sheet. The Poster should contain a title, authors, abstract, figures of all results, conclusions, and references. A PowerPoint template will be provided in M187.

Thesis/Project Paper – The research thesis/project paper should follow standard guidelines for a scientific publication. The paper should be at least ten pages single-spaced. It should include the following sections: Title, Authors, Affiliation, Abstract, Introduction, Methods, Results, Conclusions, Acknowledgements and References. The references should follow the guidelines of a journal that is relevant to the topic, and there should be at least ten references. The paper should also include at least four figures. Each of the four figures can contain multiple panels and should include a caption. Figures should be embedded within the text of the thesis rather than added to the end of the report. The final report should be submitted in pdf format.

Supervising a Student Pursuing Capstone Option 3:

Faculty supervising a student pursuing Capstone Option 3 are asked to:

- Sign the C&S BIO 195 contract at the start of the quarter outlining the internship project and the tangible evidence of work completed (in the form of a 2-3 page write up of work completed) to be submitted by the student to the faculty member and the CaSB Undergraduate Office by the end of the quarter.
- Meet with the student and give feedback on internship project on an as-needed basis. Faculty can provide expertise/advice, but all materials required to complete the internship (technology, software, etc.) must be provided by the internship site.
- Collect student’s tangible evidence, in the form of a 2-3 page project write-up on the internship project, at the conclusion of the quarter.
- Review On-Site Supervisor Evaluation Sheet provided by student’s on-site internship supervisor and confirm that the student completed a minimum of 80 hours of work.
- Assign final grade (P/NP grading basis) based on tangible evidence submitted by the student and On-Site Supervisor Evaluation Sheet at the end of the quarter.
- Provide feedback and sign off on the student’s final thesis paper/project report at the end of the quarter in which the student completes C&S BIO M187. The student will receive extensive feedback on their Capstone deliverables from the instructor of C&S M187 and their classmates. The grade for C&S BIO M187 will be assigned by the instructor of that class.