**The Collaborative Learning at the Interface of Mathematics and Biology (CLIMB) program emphasizes hands-on training and research using mathematics and computation to answer state-of-the-art questions in biology.**

**Life after CLIMB**

UC Davis seniors who have completed CLIMB may elect to continue as mentors in CLIMB or join the research laboratories of CLIMB trainers or other UC Davis faculty. The Intercollegiate minor in Quantitative Biology and Bioinformatics also is ideal for CLIMB students. Finally, you will be well-prepared to enter graduate school in several disciplines or in interdisciplinary programs that combine biology with mathematics or computation.

**How to Apply**

You can download an application from the CLIMB web page, climb.ucdavis.edu, which includes details about the application process. Send your application, a one-page personal statement, college transcripts, and one letter of recommendation to CLIMB, c/o Carole L. Hom, Section of Evolution and Ecology, University of California, One Shields Avenue, Davis CA 95616.

**Questions?**

Check out our web page, climb.ucdavis.edu, or contact the CLIMB academic coordinator, Carole Hom, at clhom@ucdavis.edu.

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**CLIMB**

Students in BIS 132, Introduction to Dynamical Models in Biology
Research projects in CLIMB are grouped into clusters that integrate biology and mathematics. CLIMB projects will emphasize the relationships between:

- mathematics and biology
- the interplay between theory and data
- modeling and experimental observations.

Through CLIMB, you will learn to use an array of quantitative tools to address challenging biological questions as members of interdisciplinary research teams.

Research may involve collecting data, analyzing it, constructing a model to predict experimental results...or all three!

CLIMB research clusters include...

- biofluid mechanics
- molecular motors
- phylogenetics
- fisheries and marine reserve design
- vertebrate sensory systems
- plant-insect interactions
- behavioral evolution
- dynamics of the rhizosphere
- gene regulation

The nervous system of *C. elegans* illuminated with green fluorescent protein. Image courtesy of J. Scholey.

Computational studies help biologists gain insight into everyday phenomena. Image courtesy of T. Higham

To enhance their modeling skills, CLIMB trainees also are expected to take one mathematical biology course that surveys mathematical modeling methods applied to a wide range of biological problems:

- **Fall Option:** Introduction to Dynamical Models in Modern Biology, BIS 132 (prerequisites: calculus and one biology course)
- **Spring Option:** Mathematical Biology, MAT 124 (prerequisites: linear algebra and differential equations).

**Collaborative Project**

We expect CLIMB trainees will spend approximately 10 hours per week in training activities during the academic year, and 40 hours per week for 10 weeks on the summer group project.

The group project provides a capstone for CLIMB students. You’ll select a project from the research clusters, define a specific question, and do the empirical and modeling work necessary to address it, with guidance from faculty and graduate student mentors. We’ll include weekly brown-bag brainstorm meetings, and once a month, you’ll hear a seminar presented by one of the faculty in the program to introduce an area of research that differs from the collaborative projects, and receive training in academic development in preparation for graduate school.

Faculty work closely with trainees in CLIMB. Photo by Debbie Aldridge/UC Davis.

As a trainee, you’ll participate in a year-long program that lays the foundations for doing research.

- **Fall:** a 3-unit course introduces emerging research problems at the interface of biology and mathematics through faculty research presentations, problem sets, and readings.
- **Winter:** trainees receive 3 units of credit for work on small-scale group projects drawn from the research clusters.

We expect CLIMB trainees will spend approximately 10 hours per week in training activities during the academic year, and 40 hours per week for 10 weeks on the summer group project.