

# Biology



The Biology department emphasizes *doing* biology – not just learning about it. In laboratory and field courses students develop skills that will help them flourish in careers in this rapidly changing field. They form hypotheses, design experiments, critically analyze and interpret results, and present their conclusions in professional formats. In their senior year, biology majors put their professional skills to practice by either carrying out a yearlong research project or participating in an industry-sponsored clinic. In addition to the senior project, many students do biology research during the summer. Finally, many students start working in research labs prior to their senior year.

The biology program prepares students for employment or advanced study in a variety of areas, including ecology, molecular genetics, and mathematical and computational biology. The department has young, energetic faculty, who are committed to undergraduate education and research and thoroughly enjoy working side-by-side with students in the classroom, laboratory and the field.

We emphasize individual instruction and active learning. We have an excellent faculty-to-student ratio in biology, which greatly enhances our students' classroom and research experiences. Advanced biology classes are typically limited to 12 students, which enables each student to contribute to discussion, make oral presentations and gain experience with professional-grade equipment.

Biology is increasingly interdisciplinary, and many of our courses and research projects reflect this. For example, several courses are team-taught with faculty from other departments (mathematical biology and biomechanics). Students from every Harvey Mudd major are welcome to participate in biology research projects and take biology courses. In addition, several faculty in other Harvey Mudd departments (mathematics, chemistry, engineering and physics) have research projects that involve biology.

At every step there's research and lab work and a collegial working relationship with our gifted professors. Start with core courses in the field: comparative physiology, ecology and environmental biology, evolutionary biology, molecular biology, carbon compounds, organic chemistry—the essential student toolkit. Students choose their electives: step up to the buffet and see what looks good—or order a la carte, designing a personalized concentration. We offer a formal concentration in molecular biology, but, hey, surprise us: make one up in genetics, ecology, plant biology, whatever makes sense. Interested in ecology and environmental biology? We're part of a consortium that allows our students to apply for the Semester in Environmental Science at the Ecosystems Center of the Marine Biological Laboratory in Woods Hole, Mass. Want to go to medical school? Arrange a pre-medical program through any of the majors; it'll require some effort, but students reap the benefits later. Students can also take courses at The Claremont Colleges (sample: conservation biology, immunology, genetic analysis); and of course they'll want to know about our joint majors in mathematical biology and chemistry and biology. And in their senior year—research, research and more research.

All of these activities require constant vigilance to make sure our students are working with the best equipment available. Our current critical needs include:

- High-speed video cameras and software for analyzing animal locomotion
- A small greenhouse for experiments involving plant physiology and ecology