



Master of Science in Biology

College of Natural Sciences and Mathematics

Why pursue the Master of Science in Biology?

This is an incredible time to be a biologist. Every day, new research findings are presented, from the level of single molecules to whole ecosystems. A master's degree in biology allows you to contribute to this research, to share this knowledge through teaching, or to apply it in public service or private industry. Many of our students use their M.S. as a stepping stone to doctoral or health professions programs. Others enter the workforce immediately in fields as diverse as biotechnology, government service, environmental consulting and teaching. The Cal State Fullerton master's degree in biology is a rigorous, research-based program that can be completed in two to three years and prepares you for a variety of careers in exciting and competitive fields.

What is distinctive about Cal State Fullerton's program?

We offer a strong, research-focused and thesis-based M.S. degree with graduate students working closely with their faculty mentor from the first day of their entry into the program. Our diverse faculty conduct research at all levels of biological organization reflecting the five areas of study available within the program. The faculty are supported by grants and contracts from foundations and government agencies, and with their students use state-of-the-art-equipment in their laboratories. For field work, the region is blessed with an incredible variety of accessible habitats including deserts, mountains, shrublands, wetlands, rocky coasts, kelp forests and offshore islands. The many academic institutions, biotechnology laboratories, consulting firms and government agencies in the area offer a rich intellectual and career environment for students engaged in M.S. research.

What is required for admission?

Students seeking admission to the Master of Science Program in Biology must have: a B.S. or B.A. degree in biology or related area from an accredited college or university; a GPA of 3.0 in all biology or biology-related courses (e.g., biochemistry) and a GPA of 2.5 in all supporting course work in chemistry, physics and mathematics. Students must submit the scores of one of the following: Graduate Record Examination (GRE) General test, Medical College

Admission Test (MCAT), or Dental Admission Test (DAT). No absolute score is required for admission, but the scores are used in the evaluation procedure. To be admitted to the program, a student must be accepted by a full-time faculty member in Biology who agrees to serve as the student's thesis adviser. For more information, visit our website at <http://biology.fullerton.edu>.

What are the requirements to complete the degree?

The study plan for the M.S. in Biology includes 30 units of adviser-approved graduate work; at least one-half of the total units must be at the 500-level. All study plans must include the following:

Biology 500 A and B Professional Aspects of Biology (2 units)

Biology 598 Thesis (1-6 units)

Biology 599 Independent Graduate Research (1-6 units)

At least two graduate seminars

A thesis acceptable to the adviser and thesis committee, covering a research problem, as well as a final oral examination on the thesis research, are required to complete the degree program.

What are the research interests of the faculty?

Five Research Areas

1. Biodiversity, Ecology and Conservation Biology

This M.S. degree area allows students to gain experience in the research methods used to study the evolution and ecology of organisms found in terrestrial, freshwater and coastal ecosystems. Research is conducted on individual organisms, populations, communities and ecosystems. Faculty members offer courses and active research experience in taxonomy and phylogeny, vertebrate and invertebrate ecology, evolutionary ecology, biogeography, behavioral ecology, plant ecology, ethnobotany, plant-animal interactions, and conservation biology. Much of this research is conducted in the diverse natural environments of the Los Angeles/Orange County region, including research on threatened and endangered species and human impacts on these environments.

Graduate faculty in biodiversity, ecology, and conservation biology: Sandra Banack, Douglas Eernisse, William Hoese, Michael Horn, Anne Houtman, William Presch, Darren Sandquist, Jochen Schenk, Paul Stapp and Sean Walker.

2. Marine Biology

This M.S. degree area is designed to provide students with research skills and expertise in the study of coastal marine organisms and ecosystems. Our program takes advantage of the proximity of coastal marine habitats ranging from wetlands and estuaries, rocky intertidal reefs, sandy shores, kelp forests, and soft-bottom systems to human-made harbors. Access to laboratory space in Los Angeles Harbor and use of several ocean-going vessels are provided through affiliation with the Southern California Marine Science Institute, which in turn provides opportunity for use of laboratory and living space at the University of Southern California's Wrigley Institute for Environmental Studies on Santa Catalina Island.

Graduate faculty in marine biology: Kathryn Dickson, Douglas Eernisse, Michael Horn, Steven Murray and Danielle Zacherl.

3. Cell and Developmental Biology

This M.S. degree area provides students with the opportunity to study animal and plant development, microbiology, cell signaling pathways, cytoskeleton dynamics, fertilization processes, cancer biology, and neurobiology. Research is conducted at the level of organisms and at the cellular and molecular levels. Campus facilities include modern laboratories with state-of-the-art instrumentation, in addition to facilities for animal and plant growth, mammalian tissue culture, and several types of microscopy. Most faculty in this program are members of the Center for Applied Biotechnology Studies.

Graduate faculty in cell and developmental biology: Merri Lynn Casem, Esther Chen, David Drath, Robert Koch, Nilay Patel and Nancy Pelaez.

4. Molecular Biology and Biotechnology

This M.S. degree area is designed for students seeking to develop skills and expertise to conduct molecular research using cutting-edge technologies to solve basic research problems relevant to genetics, medicine, agriculture and the environment. Emphasis is placed on molecular research in prokaryotic and eukaryotic organisms under the close guidance of a faculty mentor. Research areas include: bacterial virulence, pathogenesis, regulation of gene expression, plant environmental stress, and genetic recombination using the latest techniques in molecular biology, bioinformatics, gene manipulation and biotechnology. Most faculty in this program are members of the Center for Applied Biotechnology Studies.

Graduate faculty in molecular biology and biotechnology: Esther Chen, Amybeth Cohen, Rodrigo Lois, Marcelo Tolmasky and Frederick Whipple.

5. Biology Pedagogy Research

This M.S. degree area is designed to produce graduates with an interdisciplinary background in biology and pedagogical research. Our students gain advanced expertise in a biological discipline as well as in educational theory and research methodologies. Graduates of our program are broadly trained in teaching and research processes and go on to Ph.D. programs or careers as community college instructors or K-12 teachers.

Graduate faculty in biology pedagogy research: Merri Lynn Casem, William Hoese, Anne Houtman and Nancy Pelaez.

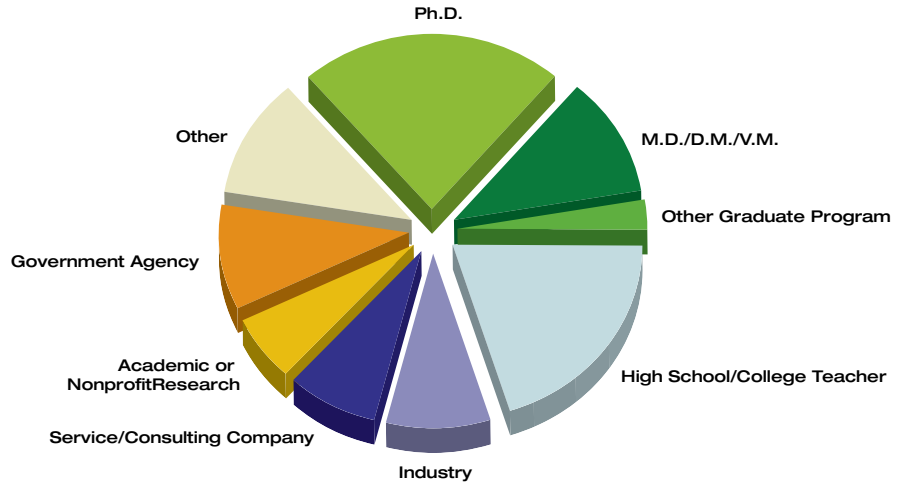
What kinds of financial support are available?

The Department of Biological Science offers teaching associate and graduate assistant positions to virtually all of our graduate students. Grant-supported research assistantships may also be available. These positions and assistantships provide a basic salary that helps to meet the costs of a graduate education. In addition, a number of small scholarships are available each

year. Non-resident tuition waivers may be available for some out-of-state and foreign students. For additional information about financial aid, contact the Office of Financial Aid at (714) 278-3125 or www.fullerton.edu/financialaid/.

What are Biology M.S. alumni doing now?

Most of our M.S. graduates enter Ph.D. programs, pursue health-profession degrees, become high school or college teachers, or take positions in industry, government agencies or consulting firms. [See diagram below.]



Where can I get more information?

For more information about our Master of Science Program in Biology, contact the graduate program adviser by email at BioGradAdv@fullerton.edu or by phone at 714-626-8700. You also are welcome to visit our department located in McCarthy Hall 282, or to write to: Graduate Program Adviser, Department of Biological Science, California State University, Fullerton, 800 North State College Blvd., Fullerton, CA 92834-6850.