

# MOLECULAR, CELL, AND DEVELOPMENTAL BIOLOGY 2009-10



## UNIVERSITY OF CALIFORNIA, SANTA CRUZ

### THE MOLECULAR, CELL, AND DEVELOPMENTAL BIOLOGY MAJOR

The molecular, cell, and developmental (MCD) biology major is designed for students interested in medical or other professional programs in the health sciences, graduate school, and careers in biotechnology industries. This major is more structured than the general biology major and requires that students pay careful attention to the prerequisites required for upper-division biology courses.

### STUDY AND RESEARCH OPPORTUNITIES

- ◆ B.S., M.A., Ph.D.
- ◆ Extensive interaction with faculty in MCD Biology and other biology-related programs at UC Santa Cruz, including computational biology and bioinformatics, biomedical engineering, chemistry and biochemistry, and microbiology and environmental toxicology

### HIGH SCHOOL PREPARATION

In addition to the courses required for UC admission, high school students who intend to major in biology should take high school courses in biology, chemistry, advanced mathematics (precalculus), and physics.

### TRANSFER PREPARATION

The faculty encourage applications from transfer students in the biological sciences. Students and their college advisers are strongly recommended to examine the degree requirements for the student's intended major: [undergrad.pbsci.ucsc.edu/programs/mcdb](http://undergrad.pbsci.ucsc.edu/programs/mcdb). Students should satisfy as many introductory requirements as possible prior to transfer. Courses offered at the student's institution should be compared to the UC Santa Cruz transfer agreements (found at [www.assist.org](http://www.assist.org)) and/or course descriptions to ensure that they will qualify for transfer. It is very important for transfer students to complete science prerequisite courses before transfer, especially calculus, general and organic chemistry with labs, and an introductory biology sequence. Students should also take physics, if possible. Prospective transfer students should visit the Physical and Biological Sciences Undergraduate Affairs web site at [undergrad.pbsci.ucsc.edu](http://undergrad.pbsci.ucsc.edu) for further information (see the *For More Information* section on the reverse).

Introductory requirements for the molecular, cell, and developmental biology major are:

- Biology 20A, *Cell and Molecular Biology*; Biology 20B, *Development and Physiology*; Biology 20C, *Ecology and Evolution*
- Chemistry 1A, 1B/M, and 1C/N, *General Chemistry with Laboratory* (three quarters)
- Chemistry 108A/L and 108B/M (two quarters); or 112A/L, 112B/M, and 112C/N, *Organic Chemistry with Laboratory* (three quarters)
- Mathematics 11A-B and 22, *Calculus with Applications* (three quarters) or Mathematics 19A-B and 22, *Calculus for Science, Engineering, and Mathematics* (three quarters)
- Physics 6A/L, 6B/M, and 6C/N, *Introduction to Physics with Laboratory* (three quarters)

### CAREERS

Biochemistry	Molecular biology
Biotechnology research	Pharmaceutical research
Cell biology	Physiology
Environmental toxicology	Veterinary medicine
Industrial ecology	
Medical research	<i>These are only samples</i>
Medicine	<i>of the field's many</i>
Microbiology	<i>possibilities.</i>

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## EDUCATION ABROAD OPPORTUNITIES

The UC Education Abroad Program (EAP) offers qualified students unique opportunities to broaden their educational horizons. MCD Biology encourages interested students to participate. Many programs are in English-speaking countries or use English for advanced courses. Many programs offer small classes and extensive laboratory and/or field research experience.

There are excellent programs for biological science students in Costa Rica, Australia, New Zealand, the United Kingdom, Denmark, and Germany, among others. MCD biology majors and premedical students might want to consider the Human Biology Program at the Panum Institute in Denmark. This program is taught in English for advanced students planning careers in medicine or biomedical research.

Students interested in study abroad need to get an early start on their basic science requirements, including general and organic chemistry, math, and introductory biology. Visit the EAP office as soon as possible to begin planning, and seek advice about your academic plan from the Physical and Biological Sciences Undergraduate Affairs adviser and/or faculty adviser.

## ACADEMIC ADVISING

Academic advising is available from Physical and Biological Sciences Undergraduate Affairs. Undergraduate Affairs publishes the web site at [undergrad.pbsci.ucsc.edu](http://undergrad.pbsci.ucsc.edu), which contains detailed information about the degree programs, sample schedules, transferring credit, placement exams, faculty research, and opportunities in the Physical and Biological Sciences majors.

## FOR MORE INFORMATION

For further information about the MCD biology major and upper-division course requirements, see:

[reg.ucsc.edu/catalog/html/programs\\_courses/biolPS.html#MCDB](http://reg.ucsc.edu/catalog/html/programs_courses/biolPS.html#MCDB)

Information about the MCD biology major can be found at: [undergrad.pbsci.ucsc.edu/programs/mcdb](http://undergrad.pbsci.ucsc.edu/programs/mcdb) or by e-mailing [biologyadvising@ucsc.edu](mailto:biologyadvising@ucsc.edu).

For specific information regarding MCD Biology faculty and research, please visit the department web site at: [www.mcd.ucsc.edu](http://www.mcd.ucsc.edu).

If you have other questions, contact:  
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