Studying Biology in CNR

CNR majors offer students a wide breadth of options when it comes to studying environmental and human issues, a distinction that is apparent in the range of approaches to studying biology. There are many reasons students choose to study biology in CNR. Why might you be?

- You are interested in graduate education in a biological field, or a career in research, government, industry, or academia.
- You would like opportunities to do research in a faculty lab and receive strong training in lab courses.
- You are interested in a pre-health professional program (e.g. medical, dental, optometry, pharmacy, veterinary schools) and want a major to help you stand out from the pack.

Don’t miss out on the opportunity to study a unique approach to a subject you love within a small college environment. The requirements shared by all majors allow you flexibility to explore within your first and second years at Berkeley. Below you’ll find descriptions for all biology majors in CNR, and we encourage you to reach out to advisors to learn more.

**Microbial Biology (MB)**

Concentrates on the study of microbes – microorganisms such as bacteria, fungi, algae, protozoa, and viruses that compose the overwhelming majority of the earth’s biological mass. The discipline focuses on the interactions between microorganisms and the environment, and investigates the fundamental roles that microbes play in maintaining the health of our biosphere. This includes how microbes can be used to help combat environmental pollutants, facilitate energy production, and influence the progress of medical research on infectious diseases. For students heading toward medical school or other health professions, or for those interested in biology in general, the major provides an excellent foundation in the biological sciences. Offered by the Department of Plant and Microbial Biology (PMB): [http://pmb.berkeley.edu](http://pmb.berkeley.edu)

**Tracks:**
- Host-Pathogen Interactions
- Evolution/Computational Genomics
- Ecology & Environmental Microbiology
- Microbial Biotechnology
- General Microbiology

**Advisor:** Ricky Vides, rickyv72@berkeley.edu

**Genetics and Plant Biology (GPB)**

Combines traditional plant sciences (physiology, biology, anatomy) with more recent biological disciplines (genetics, molecular biology, biochemistry) to study the role of plants in the global environment. The discipline emphasizes the study of plants from the molecular and genetic levels to the organismal level, including applications to biotechnology. Upper division core requirements provide a broad plant biology foundation, which students supplement with a track that further hones in on subject matter and teaches the latest techniques in genetics and plant biology. Offered by the Department of Plant and Microbial Biology (PMB): [http://pmb.berkeley.edu](http://pmb.berkeley.edu)

**Tracks:**
- Biotechnology and Bioenergy
- Plant Diversity and Evolution
- Plant Genetics, Genomics, and Bioinformatics
- Plant Microbe Interactions
- Experimental Plant Biology

**Advisor:** Jennifer Halpert, jhalpert@berkeley.edu

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**Common Requirements for Biology Majors:**

- Chemistry 1A and 1AL
- Chemistry 3A and 3AL
- Chemistry 3B and 3BL
- Biology 1A and 1AL
- Biology 1B (not required for Nutritional Sciences)
- 1 year of calculus
- Statistics (not required for MEB)
- Physics 8A
**Nutritional Sciences & Toxicology - Physiology and Metabolism, Molecular Toxicology**

Physiology and Metabolism combines a foundation in natural sciences with advanced course work in nutrition and the study of nutrient utilization and food properties. Molecular Toxicology focuses on the adverse effects of natural and synthetic chemicals on living organisms and how these effects are modulated by genetic, physiological, and environmental factors. Offered by the Department of Nutritional Sciences and Toxicology (NST): [http://nst.berkeley.edu](http://nst.berkeley.edu)

Emphases:
- Physiology and Metabolism
- Molecular Toxicology

Advisor: Nicole Lowy, nlowy@berkeley.edu

**Nutritional Sciences & Toxicology - Dietetics**

Students at the junior and senior levels take course work emphasizing the application of nutritional knowledge through dietetic practice. Students who would like to pursue the career option of becoming a Registered Dietitian (RD) must complete dietetics coursework, a dietetic internship and pass a national examination. The major is offered by the Department of Nutritional Sciences and Toxicology (NST): [http://nst.berkeley.edu](http://nst.berkeley.edu)

Advisor: Nicole Lowy, nlowy@berkeley.edu

**Molecular Environmental Biology (MEB)**

Focuses on biological organisms along a vertical span, from the molecular level up through the cellular, organismal, and ecological levels. The breadth of this biological science program provides a valuable perspective for students who have a passion for biology and are interested in the application of biological principles to learn how organisms function in their environment. Offered by the Department of Environmental Science, Policy, and Management (ESPM): [http://ourenvironment.berkeley.edu](http://ourenvironment.berkeley.edu)

Concentrations:
- Animal Health & Behavior
- Biodiversity
- Ecology
- Environment & Human Health
- Insect Biology/Anthropod Sciences
- Microbiology

Advisor: Elizabeth Storer, estorer@berkeley.edu

**Environmental Sciences (ES)**

Provides broad, comprehensive education in the fundamentals of biology, chemistry, math, physics, and social sciences. The discipline involves the study of interactions between human activities and biological and physical environments, on all scales from the local to the global. The ES major culminates with a year-long research project. Offered by the Department of Environmental Science, Policy, and Management (ESPM): [http://ourenvironment.berkeley.edu](http://ourenvironment.berkeley.edu)

Concentrations:
- Biological Science
- Physical Science
- Social Science

Advisor: Carina Galicia, cgalicia@berkeley.edu

**Forestry and Natural Resources (FNR)**

Focuses on the conservation and restoration of the earth’s natural resources through hands-on study of the ecology, stewardship, and management of forest, woodland, and grassland ecosystems. The topics studied include wildlife and conservation biology, ecosystem restoration, rangeland management, water policy, fire science, environmental justice, and rural sociology. Students can also choose to qualify for taking the Registered Professional Forester’s licensing exam in California. Majors participate in an 8-week summer field program in the Sierra Nevada. Offered by the Department of Environmental Science, Policy, and Management (ESPM): [http://ourenvironment.berkeley.edu](http://ourenvironment.berkeley.edu)

Concentrations:
- Forestry & Natural Sciences (Professional Forestry Specialization available)
- Human Dimensions of Natural Resources

Advisor: Carina Galicia, cgalicia@berkeley.edu