

## Studying Biology in Rausser College

Rausser College of Natural Resources offers students a wide breadth of options to study environmental and human issues, and the distinction is apparent in the range of approaches to studying biology within its majors. There are many reasons students choose to study biology in Rausser College. Why might biology at the college be right for you?

- 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.
- You would like opportunities to do research in a faculty lab and receive strong training in lab courses.
- You are interested in graduate education in a biological field, or a career in research, government, industry, or academia.

### Common requirements for Biology Majors

	Chem 1A	Chem 3A	Chem 3B	Bio 1A	Bio 1B	1 yr of Calc	Stats	Phys 8A
MB	X	X	X	X	X	X	X*	X
GPB	X	X	X	X	X	X	X*	X
NS-PM	X	X	X	X	X	X	X	X
NS-T	X	X	X	X		X	X	X
NS-D	X	X	X	X			X	
MEB	X	X	X	X	X	X	X**	X
ES	X	X		X	X	X	X+	X
EMF	X++	X++			X	X	X	

\*Statistics only required if doing Math 16 or 1 series | \*\*Statistics is optional | +Must be upper division, Statistics 131 | ++May take either Chem 1A or Chem 3A

### 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. Offered by the Department of Plant and Microbial Biology (PMB).

<https://nature.berkeley.edu/advising/majors/microbial-biology>

#### Concentrations:

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

Advisor: [pmb.ugrad@berkeley.edu](mailto:pmb.ugrad@berkeley.edu)

### Genetics and Plant Biology (GPB)

Combines traditional plant sciences (physiology, biochemistry, morphology) with more recent biological disciplines (molecular genetics and genomics) to study the role of plants in the global environment. The discipline emphasizes the study of plants from the sub-molecular levels to the organismal level. Relevant applications include biotechnology, bioenergy, agriculture, biomedical, food science, bioinformatics, and genetic counseling. Offered by the Department of Plant and Microbial Biology (PMB).

<https://nature.berkeley.edu/advising/majors/genetics-and-plant-biology>

#### Concentrations:

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

Advisor: [pmb.ugrad@berkeley.edu](mailto:pmb.ugrad@berkeley.edu)

### **Nutritional Sciences & Toxicology - Physiology and Metabolism, 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. 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 (NUSCTX).

<https://nature.berkeley.edu/advising/majors/nutritional-toxicology>

#### **Concentrations:**

- Physiology and Metabolism
- Toxicology

Advisor: [nst.ugrad@berkeley.edu](mailto:nst.ugrad@berkeley.edu)

### **Nutritional Sciences & Toxicology - Dietetics**

Students at the junior and senior levels take coursework 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 (NUSCTX).

<https://nature.berkeley.edu/advising/majors/nutritional-sciences-dietetics>

#### **Concentrations:**

- Physiology and Metabolism
- Toxicology

Advisor: [nst.ugrad@berkeley.edu](mailto:nst.ugrad@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).

<https://nature.berkeley.edu/advising/majors/molecular-environmental-biology>

#### **Concentrations:**

- Animal Health & Behavior
- Biodiversity
- Ecology
- Environment & Human Health
- Insect Biology/Anthropod Sciences
- Global Change Biology

Advisor: [meb.ugrad@berkeley.edu](mailto:meb.ugrad@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).

<https://nature.berkeley.edu/advising/majors/environmental-sciences>

#### **Concentrations:**

- Biological Science
- Physical Science
- Social Science

Advisor: [envsci.ugrad@berkeley.edu](mailto:envsci.ugrad@berkeley.edu)

### **Ecosystems Management & Forestry (EMF)**

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. In the Forestry specialization, students can also qualify to take the Registered Professional Forester's licensing exam in California. Majors can participate in an 8-week summer field program in the Sierra Nevada. Offered by the Department of Environmental Science, Policy, and Management (ESPM). <https://nature.berkeley.edu/advising/majors/forestry-and-natural-resources>

#### **Specializations:**

- Forestry (SAF accredited)
- Natural Resource Management

Advisor: [emf.ugrad@berkeley.edu](mailto:emf.ugrad@berkeley.edu)