# MICROBIAL BIOLOGY

*Bachelor of Science*

Berkeley
UNIVERSITY OF CALIFORNIA

## INTRODUCTION TO THE MAJOR

**Microbial Biology** focuses on the study of small life forms such as microbes, viruses, and fungi that make up the majority of planetary biomass.

The Department of Plant and Microbiology offers a **major** in Microbial Biology, as well as in **Genetics and Plant Biology**. The Microbial Biology major investigates interactions between microorganisms and the environment to determine the role microbes play in maintaining the health of our biosphere. Classes range in content, and include Virology, California Mushrooms, Plant Genetics, and Modern Applications of Plant Biotechnology.

*Photo credit: Elena Zhukova*

> *“MB’s versatile curriculum allows me to pursue computational bio with a strong micro bio foundation in a small college with lower student counts.”*
>
> *– Jason Chang, MB student*

## EMPHASES IN MICROBIAL BIOLOGY

All Microbial Biology students complete the same lower division coursework to gain critical training in biology, mathematics, chemistry, and physics. Upon declaring the major, MB students choose an emphasis, or concentration, which determines their upper division core courses and elective courses. There are five emphases in Microbial Biology:

- Host-Pathogen Interactions
- Evolution/Computational Microbiology
- Ecology & Environmental Microbiology
- Microbial Biotechnology
- General Microbiology (design your own)

## AMPLIFY YOUR MAJOR

- Take advantage of **summer research opportunities** in Berkeley or beyond.
- Build your community by joining clubs and organizations such as the **Microbial Sciences Association**.
- Conduct research and present your findings by applying to the **Rausser College Honors Program**.

*Photo credit: David Galvez*

## HOW TO USE THIS MAP

Use this map to help plan and guide your experience at UC Berkeley, including academic, co-curricular, and discovery opportunities. Everyone’s Berkeley experience is different and activities in this map are suggestions. Always consult with your advisors whenever possible for new opportunities and updates.

## CONNECT WITH US

### Cal Day

Come to UC Berkeley’s annual **Open House** in April for information sessions, campus tours, special talks, and more.

### Golden Bear Orientation

Join your peers in the campus-wide UC Berkeley **orientation** program for all new students.

### Events

Attend department events with students, faculty, and staff. Visit **nature.berkeley.edu** for news and updates.

## ADVISING

The Undergraduate Advisors for all Rausser College majors are located in the Office of Instruction and Student Affairs in 260 Mulford Hall.

Staff advisors provide support and assistance in completing the Microbial Biology major and preparing for after graduation. Visit **nature.berkeley.edu/advising/meet-rausser-advisors** for detailed office hours and appointment booking links. You may email general advising questions to **pmb.ugrad@berkeley.edu**.

**Peer advisors** are available for advising class content, planning help, and answering general questions. Declared students can meet with a **faculty advisor**—professors who advise on the department, courses, research, and academic issues.

Visit **vcue.berkeley.edu/majormaps** for the latest version of this major map.

Berkeley
**Rausser College of Natural Resources**
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Berkeley, CA 94720-3100
**nature.berkeley.edu**

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## DESIGN YOUR JOURNEY

Berkeley
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| | FIRST YEAR | SECOND YEAR | THIRD YEAR | FOURTH YEAR |
|---|---|---|---|---|
| **Explore** your major | Meet with your **college advisor** to discuss your academic plans.<br>Review **major** and **college requirements**.<br>Talk to the college's **peer advisors** about life in the major.<br>Visit the **PMB website** to learn about the five emphases within the MB major. | Continue completing lower division requirements<br>Consider a **minor** to complement your MB major.<br>Talk to a peer advisor to review your requirements and discuss which **concentration** you are interested in. | Finish lower division requirements for the major and start your emphasis-specific upper division courses.<br>Ask your college advisor about the **Rausser College Honors program**. | Do a degree check to ensure you are on track to graduate.<br>Finish any remaining major and college requirements.<br>Complete a course thread such as **Sciences & Society**, or **Humanities & Environment**.<br>Complete an optional **honors thesis**. |
| **Connect** and build community | Take advantage of the college's **Student Resource Center**.<br>Join a student group such as the **Microbiology Sciences Association**.<br>Follow PMB on **Facebook** and **Twitter**.<br>Meet current students and alumni at the **Rausser College Homecoming Picnic**. | Sign up for the college's **newsletter** to find out about events happening in the department.<br>Attend **Student Environmental Resource Center** meetings to engage with sustainability issues on campus.<br>Attend the weekly **Seminar Series**. | Help other students as a Rausser College **Peer Advisor** or **Student Ambassador**.<br>Consider becoming a **Golden Bear Orientation Leader**.<br>Seek mentorship from alumni through the **Rausser College Alumni Association**. | Join a professional organization such as the **American Society for Microbiology**.<br>Connect with the college's **alumni group on LinkedIn** and build your **network** as you prepare to graduate.<br>Connect with **alumni groups** and **Cooperative Extension Specialists**. |
| **Discover** your passions | Discover new interests in a **Freshman Seminar** such as PLANTBI 24.<br>Visit the **Office of Undergraduate Research and Scholarships**.<br>Learn about **research opportunities** by attending the college's **Honors Symposium**. | Enroll in a student-led **DeCal course**.<br>Explore research at the **Berkeley Natural History Museums**.<br>Assist faculty and graduate students in their research through **URAP** or **SURF-SMART**.<br>Check out research by your peers at a **poster session**. | Apply for a **Rausser College Travel Grant** to fund travel for academic conferences or research.<br>Apply for **fellowships** to fund your own research project.<br>Find research and funding opportunities in the **OURS database**, **SPUR**, or **URAP**. | Teach your own **DeCal course**.<br>Present your research at the college's **poster session** or submit it to the **Berkeley Scientific Journal**.<br>Keep pursuing your interests through a **fellowship** or **gap year** after graduation. |
| **Engage** locally and globally | Attend the **Calapalooza** student activities fair and get involved with a student organization.<br>Find service opportunities through the **Public Service Center**.<br>Research **study abroad** options for MB students, including programs in **biological and environmental sciences**. | Consider the **Alternative Breaks** program to go on service-learning trips over school breaks.<br>Enjoy teaching? Explore a career in education while gaining teaching skills with **CalTeach**.<br>Check out the **Moorea program** for fieldwork opportunities abroad. | Experience life at another UC or college on a **visitor and exchange program**.<br>Apply your skills in projects for **Solar Spring Break** or the **Green Initiative Fund**.<br>Attend professional association conferences like the **Clinton Global Initiative** for networking opportunities.<br>Research **post-grad service opportunities**. | Explore service opportunities after graduation, such as **Peace Corps**, **Teach for America**, or **U.S. Department of State**.<br>Look into **travel grants** offered by the college and ASUC. |
| **Reflect** and plan your future | Visit the **Career Center** and **Career Counseling Library**.<br>Join **Handshake** to find Berkeley-specific internship opportunities and Career Development workshops.<br>Check out the **Microbial Biology Career Snapshot**. | Take advantage of **career and pre-health advising** for Rausser college students.<br>Explore **career fields** through the **Career Connections Series** or a **winter externship**.<br>Learn about **graduate and professional school**. See **Step-by-Step** for planning help.<br>Think about doing an **internship** and attend an **internship fair**. | Conduct **informational interviews**.<br>Discuss graduate school options with advisors. Ask professors and graduate student instructors for recommendation letters.<br>Update your resume and **LinkedIn**. | Take any post-grad exams (GRE, MCAT, etc.).<br>Meet employers at **Employer Info Sessions** and **On-Campus Recruiting**.<br>Apply to jobs, graduate school, and other opportunities. |

## WHAT CAN I DO WITH MY MAJOR?

The Microbial Biology major provides excellent preparation for students interested in positions in government, industry, and academia. This major is intended for pre-med/health students, those interested in biology, those interested in pursuing graduate degrees in biology and biology-related fields, and those wishing to teach biology at the secondary school level.

### Jobs and Employers

Account Executive, A&R Partners
Assoc. Scientist, AbbVie Stemcentrx
Lab Tech., Fortiphyte
Medical Asst., Alta Bates Hospital
Research Asst., MD Anderson Cancer
Research Assoc., Amunix
Scientific Program Analyst, NIH
Scribe, Kaiser Permanente

### Graduate Programs

Biochemistry, Masters
Biology, Masters
Dentistry, DDS
Medicine, MD
Microbiology, PhD
Pharmacy, PharmD

Examples gathered from the **First Destination Survey** of recent Berkeley graduates.

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