

Microbial Biology Major Snapshot Department of Plant & Microbial Biology

Microbial biology is a pivotal field of study because small life forms such as microbes, viruses, and fungi make up the majority of planetary biomass, and constitute key branches of the Tree of Life. Microbes play fundamental roles in maintaining biosphere health: they degrade environmental pollutants; they supply essential nutrients and chemicals directly to multi-cellular organisms, and they engage in numerous beneficial symbioses with higher organisms. Infectious diseases regulate populations of plant and animals, and outbreaks recur in human societies globally.

The major investigates interactions between microorganisms and the environment to determine the role microbes play in maintaining the health of our biosphere. This includes how microbes can help combat environmental pollutants, facilitate energy production, and influence the progress of medical research on infectious diseases.

Advising for the major is available in the CNR Office of Instruction & Student Affairs in 260 Mulford Hall. Students may drop in or schedule an appointment during advising hours: M, Tu, Th, F 9am-12pm and M-F 1-4pm. Visit the MB major website for more detailed information: https://nature.berkeley.edu/advising/majors/microbial-biology

Research Opportunities + College Honors Program

In addition to the Berkeley's Undergraduate Research Apprenticeship Program (URAP), CNR students can also apply for faculty research projects through the CNR Sponsored Projects for Undergraduate Research (SPUR). Visit <u>http://nature.berkeley.edu/undergraduate-research/spur</u> for details.

Students with a GPA of 3.6 or higher may enroll in the College of Natural Resources Honors Program (H196) once they have reached upper division standing. To fulfill the program requirements, students design, conduct, and report on an individual research project working with a faculty sponsor. For more information, visit http://nature.berkeley.edu/advising/honors-program.

Getting a Degree

To earn a Bachelor of Science from U.C. Berkeley in Microbial Biology, students must fulfill unit and GPA requirements, university and campus requirements, college requirements, and major requirements. Please see the major advisor for more details about the major requirements.

College and University Unit Requirements + GPA Requirements

- □ 120 Total Units
- □ 36 Upper Division Units
- □ 15 Upper Division Units must be completed in the College of Natural Resources (EEP, ERG, ES, ESPM, NST, PMB)

Students must maintain a 2.0 cumulative GPA, a 2.0 GPA in their MB upper Division major requirements, and not receive a grade below C- in their major requirements (lower and upper division courses).

Microbial Biology Major Requirements

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L	ower Division R	equirements (all major requirements mus	t be taken for a let	ter grade)	
Μ	1ath & Statistics		Chemistry		
	*Math 10A: Met	hods of Mathematics: Calculus, Statistics,	Chem 1A/L:	General Chemistry [4]	
	and Combinator	rics [4]	Chem 3A/L:	Organic Chemistry I [5]	
	*Math 10B: Me	thods of Mathematics: Calculus, Statistics,	Chem 3B/L:	Organic Chemistry II [5]	
and Combinatorics [4]					
Physics			Biology		
Physics 8A: Introductory Physics [4]		\square Bio 1A/L:	General Biology [5]		
			\square Bio 1B:	General Biology [4]	
			DIG 1D.	amended (not required)	
Humanities & Social Sciences			University Requirements		
15 units of coursework taken from L&S breadth list					
excluding biological and physical science courses					
excluding biological and physical science courses		American History - American Institutions			
maximum or 6 foreign language units					
Upper Division Core Requirements					
	MCB C100A, 10	0B, 102, or 110: Biochemistry [4]	□ PMB C148:	Microbial Genomics & Genetics [4]	
			\square PMB C112/I:	General Microbiology [4/2]	
U	Ipper Division C	ore Electives: Choose 2 courses			
٠	PMB C103:	Bacterial Pathogenesis [3] or*	 PMB C116: 	Microbial Diversity [3]	
	IB 118:	Host-Pathogen Interactions [4] or*	 PMB 120/L: 	Biology of Algae [4]	
	PH 162A:	Public Health Microbiology [3]	 PMB 165: 	Plant Microbe Interactions [3]	
•	PMB 110/L:	Biology of Fungi [4]	• ESPM 112:	Microbial Ecology [3] or*	
	PMB 113:	California Mushrooms [3]	ESPM 131:	Soil Microbial Ecology [3]	
	PMB C114:	Comparative Virology [4]	20111 1011		
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M	licrobial Biology	Concentrations: Choose from Option 1 o	r 2		
C	Option 1: Choose a	a concentration from below and select four	courses. One of the	e four courses may be selected from the	
U	Ipper Division Cor	e Electives listed above. This course may n	ot be counted for I	both the Upper Division Core Electives and	
v	our concentration				
Ć	option 2 (General	Microbiology Concentration): Choose any fo	ur courses from th	e Microbial Biology Concentrations (below)	
a	nd/or the Unner [Division Core Electives (above) Courses sel	acted in Option 2 n	and overlap with the two courses used	
	and/or the opper Division Core Electives (above). Courses selected in Option 2 may not overlap with the two courses used				
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*No more than one course may be taken from this group to satisfy requirement *Students seeking exception to the Math 10A and Math 10B requirement must contact the MB major undergraduate advisor