

# MICROBIAL BIOLOGY MAJOR REQUIREMENTS

## ❖ FOR TRANSFER STUDENTS ❖

### ACADEMIC FACTORS IN DETERMINING ADMITTANCE TO THE DEPARTMENT

In order to be competitive for admittance to the program, students must have a high GPA and complete a specific set of courses. Typically students need at least a 3.2 GPA for admission although students have been admitted with lower GPAs and have not been admitted with higher GPAs. GPA in the core required courses is weighted more heavily than GPA in other courses.

❖ **REQUIRED TRANSFER COURSES FOR ADMISSION** (What follows is a list of courses that need to be completed before a student starts at UC Berkeley. The UC Berkeley equivalents are listed. To find out what course the UC Berkeley course corresponds to consult [www.assist.org](http://www.assist.org). Exceptions possible but highly unlikely):

Units	Courses and Title	Units	Courses and Titles
<input type="checkbox"/> 4	Chem 1A-General Chemistry	<input type="checkbox"/> 5	Biology 1A, 1AL-General Biology
<input type="checkbox"/> 5	Chem 3A, 3AL-Chem Structure and Reactivity	<input type="checkbox"/> 4	Biology 1B-General Biology
<input type="checkbox"/> 5	Chem 3B, 3BL-Chem Structure and Reactivity	<input type="checkbox"/> 3-4	Math 16A <b>or</b> Math 1A-Calculus
<input type="checkbox"/> 4	*English R1A-Reading and Composition	<input type="checkbox"/> 3-4	Math 16B <b>or</b> Math 1B-Calculus
<input type="checkbox"/> 4	*English R1B-Reading and Composition		

❖ **RECOMMENDED TRANSFER COURSES FOR ADMISSION** (Although not factored as heavily as the above courses, the following courses are recommended):

Units	Courses and Title	Units	Courses and Titles
<input type="checkbox"/> 4	Physics 8A-Introductory Physics	<input type="checkbox"/> 3-4	Stat 2 or Stat 20-Statistics Course
		<input type="checkbox"/> 15	*Humanities and Social Science Courses

\*IGETC will fulfill major requirements for English R1A, English R1B, and all Humanities and Social Sciences requirements. IGETC is not specifically required however and its completion will have no bearing on your admittance.

◆ **UPPER DIVISION SCIENCE REQUIREMENTS** (18 Units; These courses must be completed with a C- or better):

Units	Courses and Title	Units	Courses and Titles
<input type="checkbox"/> 4	MCB 102 <b>or</b> MCB 110-BioChem and Mol Bio	<input type="checkbox"/> 4	MCB C142 <b>or</b> MCB 140-General Genetics
<input type="checkbox"/> 6	<i>PMB C112/Lab-General Microbiology/Lab</i>	<input type="checkbox"/> 4	<i>PMB C148-Microbial Genomics and Genetics</i>

◆ **UPPER DIVISION SCIENCE ELECTIVES** (Choose at least 5 courses totaling at least 15 units from the following list, including a course with a lab or a lab course\*\*; Must be completed with a C- or better; No more than 4 units may come from 196 or 199):

Units	Courses and Title	Units	Courses and Title
<input type="checkbox"/> 4	** <i>PMB C102/Lab-Diversity of Plants and Fungi</i>	<input type="checkbox"/> 4	<i>ESPM 162-Bioethics and Society</i>
<input type="checkbox"/> 3	<i>PMB C103-Bacterial Pathogenesis</i>	<input type="checkbox"/> 2	<i>ESPM 192-Molec Appr to Env Prob Solving</i>
<input type="checkbox"/> 4	** <i>PMB 110/Lab-Biology of Fungi</i>	<input type="checkbox"/> 2	<i>Nutr Sci 113-Food Microbiology</i>
<input type="checkbox"/> 2	** <i>PMB 113-California Mushrooms</i>	<input type="checkbox"/> 4	BioEng 144-Intro to Protein Informatics
<input type="checkbox"/> 4	<i>PMB C114-Comparative Virology</i>	<input type="checkbox"/> 3	CE 114-Environmental Microbiology
<input type="checkbox"/> 3	<i>PMB C116-Microbial Diversity</i>	<input type="checkbox"/> 4	**IB 116/Lab-Medical Parasitology
<input type="checkbox"/> 3 or 4	** <i>PMB 120/Lab-Biology of Algae</i>	<input type="checkbox"/> 3 or 4	**PH162A/Lab-Public Health Micro
<input type="checkbox"/> 4	<i>PMB C145-Genomics</i>	<input type="checkbox"/> 4	MCB C100A-Biophysical Chemistry
<input type="checkbox"/> 4	** <i>PMB C146-Computational Biology &amp; Genomics</i>	<input type="checkbox"/> 3	MCB 100B-Biochemistry
<input type="checkbox"/> 3	** <i>PMB 185-Techniques in Light Microscopy</i>	<input type="checkbox"/> 3	MCB 111-Intro to Structural Biology
<input type="checkbox"/> 3	** <i>ESPM 112-Microbial Ecology and Lab</i>	<input type="checkbox"/> 2	MCB 113-Applied Microbiology and Biochem
<input type="checkbox"/> 3	<i>ESPM 131-Soil Microbiology</i>	<input type="checkbox"/> 2	MCB 115-Mol Biol of Animal Viruses
<input type="checkbox"/> —	<i>PMB H196-Honors Research</i>	<input type="checkbox"/> 4	MCB 130-Cell Biology
<input type="checkbox"/> —	<i>PMB 199-Undergraduate Research</i>	<input type="checkbox"/> 4	MCB 150-Molecular Immunology

### ❖ CHECKLIST FOR GRADUATION

- Subject A (Part of the English Composition requirements. See General Catalog for details)
- American History and Institutions (Normally satisfied in High School. Consult General Catalog)
- American Cultures Course
- Lower Division Requirements
- Upper Division Core Requirements
- Upper Division Science Electives
- 36 Upper Division Units
- 15 College of Natural Resources units (indicated by italics)
- Senior Residence (After 90 units, at least 24 of the remaining units must be completed at Berkeley)
- 120 Total Units (No more than 4 units may be in lower division physical education courses)
- PICK UP YOUR DIPLOMA!**

## ❖ Microbial Biology ❖

An exciting major in the College of Natural Resources

### THE FIELD

Microbes are the dominant life form on earth weighing more than all other life forms combined. Bacteria, Fungi, Algae, Protozoa, Viruses; they're everywhere, and we need to know more about them. Industry, government, and academia agree as we are seeing an increased demand for employees and students with knowledge and skills related to microbial biology. There is important work awaiting those who can devise ways to ward off dangerous microbes such as HIV and *Salmonella*; or promote the growth of microbes that eat harmful pollutants; or bring expertise to medical school; or teach the next generation of Biologists; or even develop new methods of energy production using microbes! The opportunities abound and are awaiting your discovery.

### THE MAJOR

The Microbial Biology major is very flexible. It almost perfectly mimics the requirements for Med-School and other health science professional schools while also supremely preparing you for graduate school in a number of fields. And if you want to work right after school, you'll find the opportunities to work in a lab and the challenging courses will be invaluable on your resume. The major also allows you plenty of unit room (23-35) to take courses from all over campus that interest you. So if you have interest in English or Music or Economics or Languages or even another science program, the Microbial Biology major and its advisors encourages you to pursue the diverse education you desire. Many of our students also study abroad for a semester and even a year (with good planning). No matter what you want to do or how you want to do it, we'll work with you to make it happen.

### ADVISING

The Student Affairs Officers for the Department of Plant and Microbial Biology are Kyle Dukart and Marjorie Ensor. They are infinitely approachable people who understand the importance of being accessible to students. They can help you through the paperwork or decisions associated with becoming a Microbial Biology major and help you plan your classes whether at UC Berkeley or at your local Community College. You can call Kyle at 642-5167 or email him at [kdukart@nature.berkeley.edu](mailto:kdukart@nature.berkeley.edu). Marjorie's phone is 642-1986 and her email is [marsensor@nature.berkeley.edu](mailto:marsensor@nature.berkeley.edu). Their office is in Koshland Hall Room 111C and one of them is usually around although you may want to call ahead just to make sure.

Loy Volkman ([lvolkman@nature.berkeley.edu](mailto:lvolkman@nature.berkeley.edu)) and Steve Lindow ([icelab@socrates.berkeley.edu](mailto:icelab@socrates.berkeley.edu)) serve as the Faculty advisors. They will gladly meet with you at any time; simply email them with a few suggested times. They can help you think about your coursework, graduate and professional school, your career, and obtaining a research position in the department.

### COURSES

The major offers a wide variety of courses from many disciplines and all taught by world renowned scientists. Not only that but the courses are small allowing you greater opportunity for contact with your professors. After you complete your lower division requirements, you'll take a core set of courses in Biochemistry, Microbiology, Genetics, and Genomics. These courses will prepare you for and introduce you to the more specialized courses that you choose from for your electives. See the back to see the categories and don't hesitate to talk with a Faculty advisor about a possible emphasis that best suits your interests.

### RESEARCH

Our department and the university offer many opportunities for students to get involved with exciting and important research on campus. The advising office will help you become part of a lab that sparks your interest, gives you invaluable experience, and fulfills some of the credits needed to complete the major. Teaching and research are the core around which great institutions like Berkeley function and we believe students should be intricately involved in both.

### CAREERS

Situated with a Bachelor of Science degree in Microbial Biology (MB) from UC Berkeley, students are primed to compete for research or administrative positions in government, industry, and academia; to succeed in medical, veterinary, or law school; to pursue post-graduate education in biology; and to teach biology to the next generation. Whether stethoscope or science books, lab bench or law firm, MB can help you attain your goals. Don't hesitate to call or email Kyle to set up an appointment.