

University of California, Los Angeles
Microbiology, Immunology & Molecular Genetics

MIMG 101: Introductory Microbiology

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Introductory Microbiology

Course Meeting Times

Lecture: MWF 1:00pm- 1:50pm

Location: Dodd Hall Room 147

Discussions: Dis 1A- 1L Below

(Students only enroll and attend one discussion section)

101	1A	RG	M	2:00P	2:50P	Mathematical Sciences 5148	
101	1B	RG	M	3:00P	3:50P	Mathematical Sciences 5225	
101	1C	RG	M	4:00P	4:50P	Moore Hall 1003	
101	1D	RG	M	5:00P	5:50P	Moore Hall 1003	
101	1E	RG	T	8:00A	8:50A	Moore Hall 1003	
101	1F	RG	T	9:00A	9:50A	Moore Hall 1003	
101	1G	RG	T	10:00A	10:50A	Public Affairs Building 2238	
101	1H	RG	T	11:00A	11:50A	Public Affairs Building 2238	
101	1I	RG	T	4:00P	4:50P	Bunche Hall 2178	
101	1J	RG	T	5:00P	5:50P	Bunche Hall 2178	
101	1K	RG	W	8:00A	8:50A	Royce Hall 164	
101	1L	RG	W	9:00A	9:50A	Royce Hall 164	

TA contact information also available on Canvas in Module 0

Office Hours: M 2:00pm-3:00pm, W 2:00-3:00pm 3801A MSB and online by Zoom, email, or by appointment. Meetings outside office hours require prior arrangement via email and are subject to availability.

TA Office Hours and contact information:

Saturdays 2-4pm via Zoom

Thursdays 4-5pm, Fridays 11am-12pm via Zoom

Wednesdays 10:30-12:30pm via Zoom

Tuesdays from 2-3p & Thursdays 1-2p via Zoom

* Zoom links on canvas in Module 0

COURSE DESCRIPTION:

MIMG 101 covers historical foundations of microbiology; introduction to bacterial structure, physiology, biochemistry, genetics, and ecology.

MIMG 101 introduces students to the fascinating world of microorganisms, highlighting their essential roles in health, biotechnology, and the environment. This course connects foundational principles to real-world challenges, offering valuable insights for careers in medicine, research, and environmental science, while fostering an appreciation for the profound influence of microbes on our world.

Community expectations, norms:

To succeed in this challenging and rewarding course, here are some study strategies to keep in mind:

Leverage the Textbook Effectively- While the lectures are your primary focus, the textbook is a valuable resource for clarifying and reinforcing key concepts. Use it to deepen your understanding of principles discussed in class.

Engage with Your Lecture Notes- Review, organize, and outline your notes soon after each lecture.

Summarize key themes and concepts in your own words- Write practice exam questions, focusing on higher-order thinking, to test your understanding and guide your study sessions.

Collaborate and Practice- Study with peers to share perspectives and explain concepts to

Manage the Workload- If you feel overwhelmed, break the material into smaller, manageable sections. Master each segment thoroughly before connecting them into a bigger picture. Identifying overarching themes will help integrate your knowledge.

Make the Most of Discussion Sections- Attend and actively participate in discussion sessions.

Use this time to ask questions, engage with the material, and solidify your understanding through interaction.

By staying organized, collaborating with peers, and proactively engaging with the material, you'll set yourself up for success in this course.

Course Information

Lecture, three hours; discussion, one hour. Letter grading.

Course Requisites:

Life Sciences 3 and 4, or 7A, 7B, and 23L.

Textbook:

Inclusive Access

Prescott's Microbiology, Edition: 12, by Willey, Sandman, and Wood

This course is part of the UCLA Inclusive Access program. Your course materials are being automatically provided to you, digitally, through Bruin Learn by the first day of class or upon enrollment. The materials are being provided at a reduced and competitive price. You will receive e-mail from the UCLA Store (UCLA Store) with program details and cost sent directly to your email address on file with the Registrar. It is your responsibility to read all communication coming from the bookstore. Check your spam folder if not received. Everyone enrolled in this course is automatically a participant to start and will have access to the materials through 2 nd week of class. Those remaining in the program after 2 nd week will be billed for the materials directly to their BruinBill account and will continue to have accesses to the course materials. If you do not wish to participate in Inclusive Access, you must opt-out by the Friday of 2 nd week deadline or you will be billed. Those who opt-out will lose access to the digital materials and will be responsible for obtaining the materials on their own. Do not pay for your materials through the publisher website unless you are opting out of Inclusive Access. All Inclusive Access course materials will be billed to your BruinBill account.

Any questions regarding the Inclusive Access program can be directed to

inclusiveaccess@asucla.ucla.edu.

Online Components

Reliable internet access

Access to Canvas (bruinLearn)

Class Notes

Enrollment is limited to departmental majors on the priority, first, and second enrollment passes.

There will be two MANDATORY midterm examinations from 6 to 8:50 p.m. on Wednesday, January 29 and 6 to 8:50 p.m. on Friday, February 21, 2025.

Learning Outcomes for this Course

After successful completion of this course, you should be able to:

1. Understand how to view microbial cells and how mutagenesis has resulted in the massive diversity of microorganisms that is seen on earth today.
2. Know the structures of microbial cells, functions of these structures, and differences from eukaryotic cells.
3. Know mechanisms of motility that enable microbes to move in their environment and the genetic processes that are used to sense and control motility.
4. Explain how microbes impact us and the environment.
5. Understand the metabolic processes that enable success of microbes in a diverse array of habitats.
6. Discuss how microbes interact with each other and other organisms.
7. Appreciate the unique processes that viruses must undergo to replicate their unique types of genomes and hijack their host cells to produce new viral particles.
8. Understand how pathogens are able to infect their hosts and cause disease.
9. Demonstrate the ability to formulate hypotheses and design experiments to test these hypotheses based on the scientific methods described in class.
10. Analyze and interpret results from a variety of microbiological methods and apply these methods and principles to investigate and understand new situations.
11. Understand the process by which scientific information is derived and established empirically.

Communications – Who to Contact

I will respond to emails within 48 hours on weekdays. Emails sent after 5:00 PM on Fridays or during weekends will be addressed the following week.

For discussion-related material, please use Campus Wire and indicate section number.

For content related questions and general inquiries, please post them on Campus Wire.

For personal questions contact the course instructors.

Please format your subject line with “MIMG 101 - [First Name] [Last Name] - [Subject]”.

Grading:

Homework Assignments	(4pts x10) 40
Discussion Worksheets/Activities	(4pts x10) 40
iClicker Participation	20
Exam I (Wednesday, Jan 29th, 6-8:50 PM; Section 1 material)	100
Exam II (Friday, February 21st, 6-8:50 PM; Section 2 material)	100
<u>Exam III (Tuesday, March 18, 11:30–2:30 PM; Section 3 + accumulative)</u>	<u>150</u>
TOTAL	450 pts

Lectures: The lectures will be in person three days a week. They will also be recored for review and available on Cavas BruinCast following the lecture. Staying current with lectures facilitates learning the material.

In-Class Activities: There will be in-class activities during lecture. These activities may include clicker questions, group discussions, or other activities for participation credit.

Exams: In most cases I do not give makeup exams. Requests for makeup exams are only warranted in cases of extreme illness or family emergency. Arrangements for makeup exams must be made before the scheduled exam period if circumstances allow and will require appropriate documentation such as a physician's report. There will be 3 unit exams worth. Exams will generally include questions that are multiple choice, matching, and true/false, and written response. Exams will focus mainly on new material covered, but will build on ideas and major themes from earlier units. The unit 3 Exam will be given during finals week. No accommodations will be made for exams due to scheduling conflicts with other classes or exams.

Class Rules and Responsibilities

Please show respect to the instructor and other students by listening attentively while they are talking. Always turn off (or put on silent mode) your cell phones before entering the classroom. Any disruptive behavior such as talking and laughing loudly or use of inappropriate language will not be tolerated. Do not disturb class but packing up early to leave, wait until the instructor ends the course lecture.

Grading Scale:

Letter Grade	%	Letter Grade	%	Letter Grade	%	Letter Grade	%	Letter Grade	%
A+	99-100%	B+	87%-89.9%	B+	87%-89.9%	C+	77%-79.9%	D	60%-69.9%
A	93%-98.9%	B	83%-86.9%	B	83%-86.9%	C	73%-76.9%	F	0%-59%
A-	90%-92.9%	B-	80%-82.9%	B-	80%-82.9%	C-	70%-72.9%		

EXAMS

Midterm 1 – 100 pts: Will cover approximately first third of course

Midterm 2 – 100 pts: Will cover approximately second third of course, but content builds on prior concepts

Final Exam – 150 pts: Section 3 + accumulative

Midterm 1 Wednesday, January 29, 2025 from 6:00 – 8:50 PM

Room TBD

Midterm 2 Friday, February 21, 2025 from 6:00 – 8:50 PM

Room TBD

Final Tuesday, March 18, 11:30–2:30 PM

Room TBD

POST-CLASS Assignments There will be reading assignment from the textbook. These readings are necessary for you to be able to participate in class discussions and in-class activities.

Homework Problems - After completing the reading assignments, you will complete textbook questions as homework. There will be discussion boards assessments. *Assignments may be submitted up to one week after the due date and will receive half credit.*

Online Discussion Board Participation – You will have online course question board through Campus Wire. Announcements and information may also be available on Campus Wire so it is your responsibility to keep up to date.

DISCUSSION SECTION

Discussion section will involve practice exam questions and/or Case Studies associated with the class topics covered each week, as well as preparation of the disease project and presentation. **You will be assigned to a group of 4-5 students, and you will work with the same students throughout the quarter to complete the assignments. You will submit one assignment for the entire group. Each member of the group will receive the same score for the submitted assignments.**

YOU WILL ONLY BE ALLOWED ONE EXCUSED ABSENCE FROM DISCUSSION SECTION. If you have to miss discussion section, the TA and I have to be **notified ahead of time** for anticipated absences or late arrivals. In addition, you must obtain permission from course instructors before any anticipated absence, or there must be a serious, mitigating circumstance after the fact, also subject to approval. In all cases, you must be able to provide evidence to establish the basis of any request.

Additional Course Policies and UCLA Policies

Academic Accommodations Based on a Disability: Students needing academic accommodations based on a disability should contact the Center for Accessible Education (CAE) at (310)825-1501 or in person at Murphy Hall A255. When possible, students should contact the CAE within the first two weeks of the term as reasonable notice is needed to coordinate accommodations. For more information visit www.cae.ucla.edu.

Inclusivity

UCLA's Office for Equity, Diversity, and Inclusion provides resources, events, and information about current initiatives at UCLA to support equality for all members of the UCLA community. I hope that you will communicate with me or your TA if you experience anything in this course that does not support an inclusive environment, and you can also report any incidents you may witness or experience on campus to the Office of Equity, Diversity, and Inclusion on their website (<https://equity.ucla.edu/>).

Message about Academic Integrity to all UCLA Students from UCLA Dean of Students:

UCLA is a community of scholars. In this community, all members including faculty, staff and students alike are responsible for maintaining standards of academic honesty. As a student and member of the University community, you are here to get an education and are, therefore, expected to demonstrate integrity in your academic endeavors. You are evaluated on your own merits. Cheating, plagiarism, collaborative work, multiple submissions without the permission of the professor, or other kinds of academic dishonesty are considered unacceptable behavior and will result in formal disciplinary proceedings usually resulting in **suspension or dismissal**.

Forms of Academic Dishonesty: As specified in the UCLA Student Conduct Code, violations or attempted violations of academic dishonesty include, but are not limited to, cheating, fabrication, plagiarism, multiple submissions or facilitating academic dishonesty:

Cheating: Unauthorized acquiring of knowledge of an examination or part of an examination

- Allowing another person to take a quiz, exam, or similar evaluation for you
- Using unauthorized material, information, or study aids in any academic exercise or examination – textbook, notes, formula list, calculator, etc.

- Unauthorized collaboration in providing or requesting assistance, such as sharing information
- Unauthorized use of someone else's data in completing a computer exercise
- Altering a graded exam or assignment and requesting that it be regraded

Plagiarism: Presenting another's words or ideas as if they were one's own

- Submitting as your own through purchase or otherwise, part of or an entire work produced verbatim by someone else
- Paraphrasing ideas, data or writing without properly acknowledging the source
- Unauthorized transfer and use of someone else's computer file as your own
- Unauthorized use of someone else's data in completing a computer exercise

Multiple Submissions: Submitting the same work (with exact or similar content) in more than one class without permission from the instructor to do so. This includes courses you are currently taking, as well as courses you might take in another quarter

Facilitating Academic Dishonesty: Participating in any action that compromises the integrity of the academic standards of the University; assisting another to commit an act of academic dishonesty

- Taking a quiz, exam, or similar evaluation in place of another person
- Allowing another student to copy from you
- Providing material or other information to another student with knowledge that such assistance could be used in any of the violations stated above (e.g., giving test information to students in other discussion sections of the same course)

Fabrication: Falsification or invention of any information in an academic exercise

- Altering data to support research
- Presenting results from research that was not performed
- Crediting source material that was not used for research

Resources for Students in Support of their Academic Success, Social Belonging, and Overall Well-Being as Bruins:

Academic Achievement Program (AAP): This program advocates and facilitates the access, academic success, and graduation of students who have been historically underrepresented in higher education; informs and prepares students for graduate and professional schools; and develops the academic, scientific, political, economic, and community leadership necessary to transform society. Learn more at <http://www.aap.ucla.edu/>

Academic Support on the Hill – UCLA Residential Life: Study spaces, computer labs, and free workshops on a wide variety of issues relating to academic & personal success; (310) 825-9315; <https://reslife.ucla.edu/academics/>

Academic Counseling: Academic counseling can help students determine how to fulfill requirements, create degree objectives, or decide on a major. <http://www.registrar.ucla.edu/Academics/Academic-Counseling>

Academic & Student Services (AS2): Assist student-athletes in their transition to the university, earn their UCLA degree, and develop their skills and confidence to be champions in life. <https://uclabruins.com/news/2013/4/17/208272559.aspx>

Bruin Resource Center: Student Activities Center, Suite B44: (310) 825-3945; <http://www.brc.ucla.edu/>

Bruin Guardian Scholars: <http://www.guardianscholars.ucla.edu/>

Bruin Guardian Scholars Academy: <http://www.bgsa.ucla.edu/>

Free Meals: <http://www.brc.ucla.edu/Resources>

GRIT Peer Coaching Program: <http://www.grit.ucla.edu/>

Intergroup Relations Program: <http://www.igr.ucla.edu/>

Students with Dependents Program: <http://www.swd.ucla.edu/>

Transfer Student Center: <http://www.transfers.ucla.edu/>

Veterans Resource Center: <http://www.veterans.ucla.edu/>

Undocumented Student Program: <http://www.usp.ucla.edu/>

Career Center: Don't wait until your senior year – visit the Career Center today to begin building a portfolio and engaging in opportunities to support your professional development and career success; <http://www.career.ucla.edu/>

Use Handshake to find internships, jobs and career opportunities; <https://career.ucla.edu/Handshake>

Center for Accessible Education: Located in A255 Murphy Hall: (310) 825-1501, TDD (310) 206-6083; <http://www.cae.ucla.edu/>

Clicker Loan Project: Offers free rental of clickers to students; may check out for entire quarter. Learn more at <http://lendme.oid.ucla.edu>

Clubs, Organizations, Recreation: Get involved in extracurricular activities and other happenings on campus that represent your interests both inside and outside the classroom; learn more at <http://www.ucla.edu/campus-life/clubs-organizations-and-recreation>

COMPASS Life Sciences: Resource for undergraduate students to learn about mentorship and research opportunity programs in life sciences. <https://compass.lifesci.ucla.edu/>

Counseling and Psychological Services (CAPS): Students in distress may speak directly with a counselor 24/7 at (310) 825-0768, or may call 911; located in Wooden Center West; www.caps.ucla.edu

Dashew Center for International Students and Scholars, 106 Bradley Hall: (310) 825-1681 www.internationalcenter.ucla.edu

Dean of Students Office: Located in 1206 Murphy Hall; (310) 825-3871; www.deanofstudents.ucla.edu

Financial Aid: Located in A129 Murphy Hall; (310) 206-0400; Explore available scholarships, work study positions, and more by visiting the website: www.financialaid.ucla.edu.

Scholarship Resource Center: <http://www.scholarshipcenter.ucla.edu/>

Financial Wellness: Find low-cost and affordable resources including employment, print/loan services (lab coats, laptops), food security resources, housing assistance (including shelters and emergency housing), and health and well-being services

Click here for access to Resource Guide with comprehensive list of campus programs.

Visit Arthur Ashe Student Health and Wellness Center for medical services; <http://www.studenthealth.ucla.edu/default.aspx>

First to Go: This program provides support for First-Generation to College Bruins. First-Gen Bruins represent a little over 30% of the undergraduate population and UCLA is committed to their success; <https://firsttogo.ucla.edu/About/Mission>

Healthy Campus Initiative: Promotes living well on campus through its seven areas: BEWell, BreatheWell, EatWell, EngageWell, MindWell, MoveWell, and ResearchWell; learn more at <http://healthy.ucla.edu/>

LGBTQ Resource Center: Education and advocacy services supporting intersectional identity development as well as fostering unity, wellness, and an open, safe, and inclusive environment for UCLA's LGBTQ community; <http://www.lgbt.ucla.edu/>

Library: Get help with your research, find study spaces, attend a workshop, rent a laptop, and more. Learn more: <http://www.library.ucla.edu/>

Group Study Spaces: Find inspiring places to study and collaborate; <http://www.library.ucla.edu/support/support-students/find-places-study-collaborate>

Office of Equity, Diversity, and Inclusion: Report an incident, access resources and attend public events: <https://equity.ucla.edu/>

Partnership UCLA | Alumni Career Programs

Bruin Development Academy: This experience is designed to provide participants with a competitive edge whether for internships or post-undergrad employment. <http://partnership.ucla.edu/bruin-development-academy/>

Recreation and FitWell: Explores healthy lifestyle choices at the John Wooden Center in the areas of fitness and exercise, nutrition and weight management, stress management, and general health education; learn more at: <http://www.recreation.ucla.edu/fitwell>

Student Legal Services: Located in A239 Murphy Hall: (310) 825-9894; www.studentlegal.ucla.edu

Undergraduate Resources to Support Learning in STEM

Scientific papers – Click here to find resources about how to read scientific papers

Study Strategies – Click here to learn about six strategies for effective learning

Undergraduate Research Portal: This online tool helps students and faculty connect over research opportunities. It is available under the Academics tab on MyUCLA and can be directly accessed at: urp.my.ucla.edu

Program for Excellence in Education and Research in the Sciences (PEERS): Assist students develop a strong foundation in the sciences and make teaching and/or research a part of their life's work. <http://www.ugresearchsci.ucla.edu/progpeers.htm>

Undergraduate Writing Center: Peer learning facilitators (PLFs) are undergraduates who understand the challenges of writing at UCLA. Scheduled appointment and walk-in options are available, see www.wp.ucla.edu/uwc for more information about writing programs and to get assistance with your writing.

UCLA ONE: An interactive, online gateway for mentorship, professional networking, peer driven career advice and exclusive job leads (similar to LinkedIn for the UCLA community): <https://uclaone.com/>

UCLA WI+RE: UCLA's Writing Instruction and Research Education provides quick and practical research and writing strategies, collaboratively designed by students, teachers, and librarians at UCLA; find research tips at <https://uclalibrary.github.io/research-tips/>

Disclaimer: The schedule is subject to change at discretion of instructor. This syllabus is intended to give the student guidance in what may be covered during the semester and will be followed as closely as possible. However, the professor reserves the right to modify, supplement and make changes as the course needs arise.

Class
Sample Schedule

<i>Section</i>	<i>Week</i>	<i>Ch</i>	<i>Day</i>	<i>Subject</i>
1	1	1	M	The Evolution of Microorganisms and Microbiology
		2	W	Microscopy
		3	F	Bacteria Cell Structure
	2	5 6	M	Eukaryotic Cell Structure (Partial) Viruses and Other Acellular Infectious Agents (Partial)
		7	W	Bacterial and Archaeal Growth (Only Bacteria)
		9	F	Antimicrobial Chemotherapy
	3		M	Martin Luther King Holiday
		10	W	Introduction to Metabolism
		11	F	Catabolism: Energy Release and Conservation
	4	12	M	Anabolism: The Use of Energy in Biosynthesis
			W	TBD
			W	EXAM I (6:00-8:50 PM) Section 1
2	5	13	F	Bacterial Genome Replication, and Expression
		14	M	Regulation of Cellular Processes
		15	W	Eukaryotic and Archaeal Genome Replication and Expression
		16	F	Mechanisms of Genetic Variation
	6	17	M	Recombinant DNA Technology
		18	W	Microbial Genomics
			F	TBD
	7		M	Presidents Day Holiday
			W	TBD
			F	EXAM II (6:00-8:50 PM) Section 2
		26	F	Exploring Microbes in Ecosystems
		27	M	Microbial Interactions

3	8	28	W	Microbial Interactions Biogeochemical Cycling and Global Climate Change
		29	F	Microorganisms in Marine and Freshwater Ecosystems,
	9	30	M	Microorganisms in Terrestrial Ecosystems
		33	W	The Microbo-Human Ecosystem
		34	F	Infection and Pathogenicity
	10	35	M	Epidemiology and Public Health Microbiology (only Epidemiology)
		41	W	Biotechnology and Industrial Microbiology
		42	F	Applied Environmental Microbiology
	Final			EXAM III (Tuesday 3/18, 11:30–2:30 PM) Section 3 + accumulative

***Lecture slides will be available after the lecture.