

MCB 55: Plagues and Pandemics FALL 2024
MWF 9:10 -10 am (2060 VLSB) 3 units

In this course, we will discuss how infectious agents cause disease and impact society at large. We will examine historically important pathogens and current examples of emerging pathogens. The course will begin by briefly providing necessary background in immunology and vaccines. In the subsequent lectures, we will discuss various infectious diseases with information about the epidemiology, the lifecycle of the pathogen, the immune response, vaccines, and treatment, as well as the historical impact of specific diseases.

****Note:** You will not receive credit for this class if you have **PREVIOUSLY taken** MCBC100A-Biophysical Chemistry, MCB102 -Survey of Biochemistry, CHEM135, MCB150 - Molecular Immunology, OR MCBC103/PMBC103/PHC102 –Bacterial Pathogenesis. But you may take this class *before or concurrent with* these upper division MCB, CHEM or PH classes.

Instructors:

Robert Beatty prbeatty@berkeley.edu
Laurent Coscoy lcoscoy@berkeley.edu
Molly Ohainle ohainle@berkeley.edu

Office hours

Fridays 10- 11 am 176 Weill Hall
Mondays 4-5 pm 447 Weill Hall
Fridays 10- 11 am 448 Weill Hall

There will be no section for this class and no GSI or teaching assistant.

Course Information and Policies

Learning Objectives

By the completion of this course, we expect that you will be able to:

- 1) Appreciate the historical impact of infectious disease on humanity.
- 2) Understand how the immune system recognizes and eliminates pathogens.
- 3) Understand the physical and biological differences between different types of disease-causing pathogens and the different disease symptoms they cause.
- 4) Compare and contrast the different strategies used by pathogens to multiply and spread among their hosts and transmit to the next host.
- 5) Assess the pros and cons of different vaccine and therapeutic strategies for limiting the spread of infectious diseases.
- 6) Analyze strategies for containing or eliminating a new infectious disease outbreak that are tailored to the specific pathogen.
- 7) Speculate on the future risks of infectious diseases to humanity.

Class Structure

See the separate Lecture Class Schedule for a list of the topics covered in each lecture.

The class is divided into three sections. Section 1 will be taught by Beatty, Section 2 will be taught by Coscoy, and Section 3 will be taught by Ohainle. There is an exam at the conclusion of each Section that will focus on the material taught in that Section. Class material and other essential information is posted to the bCourses website, which can be accessed by pointing your browser to:

<https://bcourses.berkeley.edu>.

Class Attendance

In-person attendance is expected unless excused. For excused absences please contact the instructor BEFORE class. Attendance/participation will be tracked using iClickers. You will receive 2 points each day when you answer at least 50% of the class participation questions or that day. You must attend at >20 of the classes with questions to receive the 40 points. See iClicker instructions below.

Safe, Supportive, and Inclusive Environment

Whenever a faculty member, staff member, post-doc, or GSI is responsible for the supervision of a student, a personal relationship between them of a romantic or sexual nature, even if consensual, is against university policy. Any such relationship jeopardizes the integrity of the educational process. Although faculty and staff can act as excellent resources for students, you should be aware that they are required to report any violations of this campus policy. If you wish to have a confidential discussion on

matters related to this policy, you may contact the Confidential Care Advocates on campus for support related to counseling or sensitive issues. Appointments can be made by calling (510) 642-1988. The classroom, lab, and workplace should be safe and inclusive environments for everyone. The Office for the Prevention of Harassment and Discrimination (OPHD) is responsible for ensuring the University provides an environment for faculty, staff and students that is free from discrimination and harassment on the basis of categories including race, color, national origin, age, sex, gender, gender identity, and sexual orientation. Questions or concerns? Call (510) 643-7985, email ask_ophd@berkeley.edu, or go to <http://survivorsupport.berkeley.edu/>.

DSP Students

UC Berkeley is committed to creating a learning environment that meets the needs of its diverse student body including students with disabilities. If you anticipate or experience any barriers to learning in this course, please feel welcome to discuss your concerns with your faculty instructor.

If you have a disability, or think you may have a disability, you can work with the Disabled Students' Program (DSP) to determine any accommodations you may need to have equal access in this course. The Disabled Students' Program (DSP) is the campus office responsible for authorizing disability-related academic accommodations, in cooperation with the students themselves and their instructors. You can find more information about the [DSP application process](#). We are available if you have any questions or concerns about your accommodations, but in the event of a disagreement, the proper procedure is for you to work with your DSP Specialist and your DSP Specialist to work with me toward a resolution.

You must have a Letter of Accommodation on file with UC Berkeley to have accommodations made in this course. Your MCB55 exams will be proctored through the DSP Proctoring Service. Please inform the instructors of any accommodations needed during the first week of the course or as soon as your accommodation letter is finalized.

Academic Integrity and UC Berkeley Honor Code. Cheating and Plagiarism are unacceptable behavior and if you are caught will result in a failing grade for the class. UC Berkeley's cheating policy (<http://bulletin.berkeley.edu/academic-policies/#studentconductappealstext>) will be followed. The student community at UC Berkeley has adopted the following Honor Code: <http://asuc.org/honorcode/> "*As a member of the UC Berkeley community, I act with honesty, integrity, and respect for others.*" The expectation is that you will adhere to this code. To copy text or ideas from another source without appropriate reference is plagiarism and will result in a failing grade for your assignment and usually further disciplinary action. For additional information on plagiarism and how to avoid it, read the UC Berkeley Library Citation Page, Plagiarism Section. If you are uncertain what constitutes cheating or plagiarism, go to <http://campuslife.berkeley.edu/conduct/integrity>. A good strategy is to act in such a way that no one would ever imagine that you would even consider cheating. Anyone caught cheating on a quiz or exam will receive a failing grade in the course and will also be reported to the University Center for Student Conduct.

Grading

Quizzes (10 pts each x 6 quizzes)	60 pts	15%
Midterm I (on 1 st third of the class)	100 pts	25%
Midterm II (on 2 nd third of the class)	100 pts	25%
Final Exam (on 3 rd third of the class)	100 pts	25%
iClicker points (20 class days)	<u>40 pts</u>	<u>10%</u>
Total	400 pts	100%

The median grade is usually a B/B-, with roughly 1/3rd of the class earning grades in the A+/A/A-range, 1/3rd in the B+/B/B-range, and 1/3rd in the C+/C/C-range or below.

Collaboration and Independence

Reviewing lecture and reading materials and studying for exams can be enjoyable and enriching things to do with fellow students. This is recommended. However, all assignments are to be completed independently and should be the result of one's own independent work.

End of Course Evaluation

Before your course ends, please take a few minutes to participate in the course evaluation to share your opinions about the course. Information about the course evaluation will be made available in bCourses. We value your input on the course. Each year we experiment with new material and teaching methods and adjust according to feedback we receive. Your evaluations also play an important role in our promotion and advancement, so please take it seriously and provide constructive feedback.

iClicker Instructions

We will be using iClicker in MCB55 to make our class time more engaging. This will allow us to understand what you know, give everyone a chance to participate, and increase how much you learn in class. This will also provide you feedback on how well you are comprehending course concepts. Participating in a majority of the iClicker sessions will be counted towards your final grade. You will need to answer the 50% of the questions each class day to get the points.

You are required to participate with the iClicker Cloud using an app on a smartphone, tablet, or laptop. It is your responsibility to follow the steps below to properly get added to the MCB55 iClicker course. It is also your responsibility to regularly check your iClicker records for any discrepancies and bring them to the instructor within 48 hours. **The MCB55 Class is set up on the iClicker Cloud website and iClicker has been integrated with bCourses. Please make sure you have an account using CalNet ID and check that you can see MCB55 class immediately.**

1. Make sure MCB55 is in your Courses list in iClicker.

If you do not see MCB55 in your Courses list, use the + sign to search for my course in iClicker.

- In the "Find Your Institution" field, enter University of California Berkeley.
- In the "Find Your Course" field, enter MCB55
- Double-check the details you see to make sure you select this course:
 - Plagues and Pandemics
MCB55, Fall 2024
 - MWF 9-10 am
- Select "Add This Course" and it will be added to the main Courses screen of iClicker.

2. Do NOT pay for an iClicker subscription.

- UC Berkeley has an iClicker site license and all student costs are waived as long as you have indicated that your institution is University of California Berkeley.

3. Set up the device(s) you'll use to participate in our class sessions.

- You can download the iClicker student mobile app via the App Store or Google Play, or you can use the iClicker web app by signing in as a student at iclicker.com.
- Connect to our classroom's Wi-Fi:

4. Keep track of your iClicker points

- You can review your record in iClicker, making it easy for you to manage your course participation points.

Academic Integrity Information

iClicker activities fall under the provisions of our campus academic honesty policy. Students must not engage in academic dishonesty while participating in iClicker activities. This includes:

- Checking in while not physically in class
- Having another student check you into class
- Answering polling questions while not physically in class
- Looking at other students' devices while answering live questions
- Using more than one iClicker remote or account at a time