



Basic Course Information

Semester:	Winter 2026	Instructor Name:	Fatima Villalobos
Course Title & #:	BIOL 220, Microbiology	Email:	fatima.villalobos@imperial.edu
CRN #:	15335	Webpage (optional):	N/A
Classroom:	2712	Office #:	2777
Class Dates:	1/5/26 – 2/4/26	Office Hours:	By appointment
Class Days:	M-F	Office Phone #:	760.355.5743
Class Times:	10:00am – 2:45pm	Emergency Contact:	Admin Assistant 760.355.6144
Units:	5.00	Class Format/Modality:	Hybrid

Course Description

Provides students with fundamental concepts of the structure and physiology of non-disease and disease producing microorganisms with particular attention to bacteria. Basic techniques for culturing, staining, counting and identifying microorganisms. Designed to meet the requirement to enter one of the medical fields as well as general education. (CSU/UC)

Course Prerequisite(s) and/or Corequisite(s)

CHEM 100 - and either, BIOL 100 or BIOL 120 or BIOL 124 or BIOL 180 or BIOL 182 - with grades of "C" or better; or, - successful completion of Intermediate Algebra or appropriate placement as defined by AB 705 and - current California LVN/RN license.

Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Accurately explain the basic principles of microbiology, which include but are not limited to: structure and functions of prokaryotic and eukaryotic cells, microbial metabolism, bacterial/molecular genetics, pathogenesis, virology, and immunology.
2. Devise a dichotomous key to aid in the identification of disease-causing bacteria in the lab, and accurately identify disease-causing bacteria by using the key and experimental techniques.
3. Perform experimental techniques in microbiology correctly to test hypotheses, determine characteristics of microbes and perform diagnostics.
4. Apply lecture and laboratory concepts with critical thinking to explain experimental data and scenarios in microbiology not addresses directly in class/laboratory.
5. Fully participate in classroom and laboratory activities.

Course Objectives

Upon satisfactory completion of the course, students will be able to:

1. The student will list and describe the major historical events in the field of microbiology and the people and experiments involved. The student will also describe different schemes of classification and utilize them to classify and identify microorganisms.
2. The student will describe different types of microscopy, their usage, advantages, and explain the general physical laws governing their operation.
3. The student will describe the general morphology of microorganisms and explain their associated cellular physiology.
4. The student will describe enzyme structure and explain enzyme function, regulation, and measurement of activity.
5. The student will describe and explain the various biochemical reactions and pathways of metabolism.
6. The student will recognize and apply various techniques and factors necessary for optimum growth of different microorganisms.
7. The student will describe the various means of inheritance and recombination in microorganisms and explain the results of various genetic situations. The student will describe technique of recombinant DNA.
8. The student will describe different modes of reproduction among microorganisms and calculate reproduction rates and population size of microorganisms. Student will differentiate among methods of producing pure cultures and describe cultural characteristics of microorganisms.
9. The student will describe death and death-rate determination in microorganisms and explain the effects of various physical and chemical agents on microorganisms.
10. The student will describe the normal microbial flora of the human and explain the infection process and the host's defensive response.
11. The student will describe the epidemiology and the various modes of transmission of infectious diseases.
12. The student will describe chemotherapeutics including antibiotics and will explain the action of antibiotics in microorganisms including measurement of activity.
13. The student will list and describe the bacterial and viral cause, symptoms, prognosis, and treatment of selected human diseases.
14. The student will explain the theory of common diagnostic techniques and describe their usage.
15. The student will list and describe the prion cause, symptoms, prognosis, and treatment of selected human diseases.
16. The student will list and describe the fungal or protozoan cause, symptoms, prognosis, and treatment of selected human diseases.
17. The student will list and describe the viral or bacterial cause, symptoms, prognosis, and treatment of selected plant diseases.

Textbooks & Other Resources or Links

Required Textbook:

We will use the digitally free and open educational resource (OER) provided by OpenStax:

Parker, N.; Schneegurt, M.; Thi Tu, A.; Lister, P.; Forster, B.M.. 2025. *Microbiology*. Rice University, OER (OpenStax). ISBN-13: 978-1-947172-23-4

Book URL: <https://openstax.org/books/microbiology/pages/1-introductionLinks to an external site.>



Your book is available in web view and PDF for free. (see Modules in Canvas for details)

Required Lab Manual:

Leboeffe, M., B. Pierce. 2016. *Microbiology: Lab Theory and Application, Brief Edition*. 3rd Morton Publishing. ISBN: 978-1617314773.

The lab manual is a required part of the class and the class will be aligned with it. Please see the Canvas course for any other recommended resources.

Required Materials:

1. Lab coat for Microbiology (cuffed sleeves recommended)
2. Eye Goggles

Course Requirements and Instructional Methods

This class an intensive lecture/lab course. In order to pass this class, students must participate in both portions of the class, including regular attendance and performing experiments.

Teaching will be aided with the use of PowerPoint and videos, based on the materials derived from the textbook and other sources. Students will be asked to answer questions relative to materials covered in each chapter and lab manual. Missed sessions will not receive any points. Late work is subject to the course Late Policy. **Late penalty may apply for assignments such as discussions: 10% deduction for every day the assignment is late.**

Exams

The course will include five non-cumulative exams covering concepts presented in lecture, book readings and labs. They may present in the form of multiple choice, true/false, fill in the blank, and/or short answer. **There are NO Make-Up exams or class/ lab activities** except for extreme circumstances. If you have a valid, documented reason for missing an exam, it is your responsibility to tell me about it and provide valid documentation by the next class meeting, otherwise you will not have the opportunity to make up the exam and will be given a zero for that exam.

Lab assignments

Labs are an essential part of this course; therefore, attendance is required in this hybrid class. There are NO make-up labs!

Discussions/Assignments

There will be approximately four assigned Discussions in the semester. Discussions will require a well thought out and supported response to a specific question, as well as responses to classmates' posts that result in collaborative conversations. Occasionally students may have other assignments in place of a

Updated 11/2024



discussion.

Out of Class Assignments: The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement.

What if I need to borrow technology or access to WIFI?

1. To request a loaner laptop, MYFI device, or other electronic device, please submit your request here: <https://imperial.edu/students/student-equity-and-achievement/>
2. If you'd like access the WIFI at the IVC campus, you can park in parking lots "I & J". Students must log into the IVC student WIFI by using their IVC email and password. The parking lots will be open Monday through Friday from 8:00 a.m. to 7:00 p.m.

Guidelines for using parking WIFI:

- Park in every other space (empty space BETWEEN vehicles)
- Must have facemask available
- For best reception park near buildings
- Only park at marked student spaces
- Only owners of a valid disabled placard may use disabled parking spaces
- Only members of the same household in each vehicle
- Occupants **MUST** remain in vehicles
- Restrooms and other on-campus services not available
- College campus safety will monitor the parking lot
- Student code of conduct and all other parking guidelines are in effect
- Please do not leave any trash behind

No parking permit required

If you have any questions about using parking WIFI, please call Student Affairs at 760- 355-6455.

DATES TO REMEMBER: (please check Imperial Valley College Important Dates & Deadlines)

- January 5, 2026: Class Start Date
- January 7, 2026: Last Day to Add
- January 11, 2026: Last Day to drop WITHOUT owing fees and/or be eligible for refund
- January 19, 2026: Holiday, MLK Observed- Campus Closed. No classes.
- January 27, 2026: Last day to drop WITH "W"
- February 4, 2026: Class End Date

Course Grading Based on Course Objectives

Your course grade will be based on exams, lab assignments, discussions, reading assignments and possible research project/oral presentation. Anticipated points awarded toward the final grade include:



Component	Number	Points Each	Total Points
Non-Cumulative Exams	5	50 (avg)	250
Notebook Checks	2	20	40
Minor Unknown	1	50	50
Major Unknown	1	100	100
Discussions/Assignments	6	10	60
TOTAL			500

For example, if Total possible points = 470 points. Calculating Grade Point; To calculate your grade, add all the points earned during the course, divide that value by total possible points, and multiply by 100. Example; if the total points that you earned is 400 points out of 470 possible points, your average grade for the course would be; $(400/470) \times 100 = 85\%$ which equals the letter grade "B". Extra Credit may be awarded in the form of critical thinking questions or bonus questions on exam.

Grading scale: A \geq 90 % B \geq 80% C \geq 70% D \geq 60%

Academic Honesty (Artificial Intelligence -AI)

IVC values critical thinking and communication skills and considers academic integrity essential to learning. Using AI tools as a replacement for your own thinking, writing, or quantitative reasoning goes against both our mission and academic honesty policy and will be considered academic dishonesty, or plagiarism unless you have been instructed to do so by your instructor. In case of any uncertainty regarding the ethical use of AI tools, students are encouraged to reach out to their instructors for clarification.

Accessibility Statement

Imperial Valley College is committed to providing an accessible learning experience for all students, regardless of course modality. Every effort has been made to ensure that this course complies with all state and federal accessibility regulations, including Section 508 of the Rehabilitation Act, the Americans with Disabilities Act (ADA), and Title 5 of the California Code of Regulations. However, if you encounter any content that is not accessible, please contact your instructor or the area dean for assistance. If you have specific accommodations through **DSPS**, contact them for additional assistance.

We are here to support you and ensure that you have equal access to all course materials.

Course Policies

Attendance

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See [General Catalog](#) for details.
- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.



- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.

What does it mean to "attend" an online class?

Attendance is critical to student success and for IVC to use federal aid funds. Acceptable indications of attendance are:

- Student submission of an academic assignment
- Student submission of an exam
- Student participation in an instructor-led Zoom conference
- Documented student interaction with class postings, such as an interactive tutorial or computer-assisted instruction via modules
- A posting by the student showing the student's participation in an assignment created by the instructor
- A posting by the student in a discussion forum showing the student's participation in an online discussion about academic matters
- An email from the student or other documentation showing that the student has initiated contact with a faculty member to ask a question about an academic subject studied in the course.

Logging onto Canvas alone is NOT adequate to demonstrate academic attendance by the student.

Online Netiquette

- What is netiquette? Netiquette is internet manners, online etiquette, and digital etiquette all rolled into one word. Basically, netiquette is a set of rules for behaving properly online.
- Students are to comply with the following rules of netiquette: (1) identify yourself, (2) include a subject line, (3) avoid sarcasm, (4) respect others' opinions and privacy, (5) acknowledge and return messages promptly, (6) copy with caution, (7) do not spam or junk mail, (8) be concise, (9) use appropriate language, (10) use appropriate emoticons (emotional icons) to help convey meaning, and (11) use appropriate intensifiers to help convey meaning [do not use ALL CAPS or multiple exclamation marks (!!!!!)].

How am I expected to act in an online "classroom" (especially Zoom)?

Attending a virtual meeting can be a challenge when there are many students on one conference call. Participating in such meetings may count as class attendance, but disruptive behavior may also result in you not being admitted to future meetings. Follow the tips below for best results:

- 1) Be RESPECTFUL**
 - a. Your written, verbal, and non-verbal communications should be respectful and focused on the learning topics of the class.
- 2) Find a QUIET LOCATION & SILENCE YOUR PHONE (if zooming)**
 - a. People walking around and pets barking can be a distraction.
- 3) EAT AT A DIFFERENT TIME.**
 - a. Crunching food or chugging drinks is distracting for others.
 - b. Synchronous zoom times are set in advance so reserve meals for outside class meetings.
- 4) ADJUST YOUR LIGHTING SO THAT OTHERS CAN SEE YOU**
 - a. It is hard to see you in dim lighting so find a location with light.
 - b. If your back is to a bright window, you will be what is called "backlit" and not only is it hard on the eyes (glare) but you look like a silhouette.

5) POSITION THE CAMERA SO THAT YOUR FACE AND EYES ARE SHOWING

- a. If you are using the camera, show your face; it helps others see your non-verbal cues.
- b. You may be at home, but meeting in pajamas or shirtless is not appropriate so dress suitably. Comb your hair, clean your teeth, fix your clothes, etc. before your meeting time to show self-respect and respect for others.

6) Be READY TO LEARN AND PAY ATTENTION

- a. Catch up on other emails or other work later.
- b. If you are Zooming, silence your phone and put it away.
- c. If you are in a room with a TV – turn it off.

7) USE YOUR MUTE BUTTON WHEN IN LOUD PLACES OR FOR DISTRACTIONS

- a. Pets barking, children crying, sneezing, coughing, etc. can happen unexpectedly. It's best if you conference in a private space, but if you can't find a quiet place, when noises arise **MUTE** your laptop.

8) REMEMBER TO UNMUTE WHEN SPEAKING

- a. Follow your instructor's directions about using the "raise hand" icon or chat function to be recognized and to speak, but make sure you have unmuted your device.
- b. Do not speak when someone else is speaking.

9) REMAIN FOCUSED AND PARTICIPATE IN THE MEETING

- a. Especially when the camera is on YOU, we can all see your actions. Engage in the meeting. Look at the camera. Listen to instruction. Answer questions when asked.
- b. Do not use the Zoom meeting to meet with your peers or put on a "show" for them.

10) PAUSE YOUR VIDEO IF MOVING OR DOING SOMETHING DISTRACTING

- a. Emergencies happen. If you need to leave the room or get up and move about, stop your video.

Academic Honesty

Academic honesty in the advancement of knowledge requires that all students and instructors respect the integrity of one another's work and recognize the importance of acknowledging and safeguarding intellectual property.

There are many different forms of academic dishonesty. The following kinds of honesty violations and their definitions are not meant to be exhaustive. Rather, they are intended to serve as examples of unacceptable academic conduct.

- Plagiarism is taking and presenting as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to "cite a source" correctly, you must ask for help.
- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question.

Anyone caught cheating or plagiarizing will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the [General Catalog](#) for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to, the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment; (c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment; (e) using a commercial term paper service.



How do I show academic honesty and integrity in an online “classroom”?

- **KEEP YOUR PASSWORDS CONFIDENTIAL.**
 - You have a unique password to access online software like Canvas. Never allow someone else to log-in to your account.
- **COMPLETE YOUR OWN COURSEWORK.**
 - When you register for an online class and log-in to Canvas, you do so with the understanding that you will produce your own work, take your own exams, and will do so without the assistance of others (unless directed by the instructor).

Examples of Academic Dishonesty that can occur in an online environment:

- Copying from others on a quiz, test, examination, or assignment;
- Allowing someone else to copy your answers on a quiz, test, exam, or assignment;
- Having someone else take an exam or quiz for you;
- Conferring with others during a test or quiz (if the instructor didn't explicitly say it was a group project, then he/she expects you to do the work without conferring with others);
- Buying or using a term paper or research paper from an internet source or other company or taking any work of another, even with permission, and presenting the work as your own;
- Excessive revising or editing by others that substantially alters your final work;
- Sharing information that allows other students an advantage on an exam (such as telling a peer what to expect on a make-up exam or prepping a student for a test in another section of the same class);
- Taking and using the words, work, or ideas of others and presenting any of these as your own work is plagiarism. This applies to all work generated by another, whether it be oral, written, or artistic work. Plagiarism may either be deliberate or unintentional.

Financial Aid

Your Grades Matter! In order to continue to receive financial aid, you must meet the Satisfactory Academic Progress (SAP) requirement. Making SAP means that you are maintaining a 2.0 GPA, you have successfully completed 67% of your coursework, and you will graduate on time. If you do not maintain SAP, you may lose your financial aid. If you have questions, please contact financial aid at finaid@imperial.edu.

IVC Student Resources

IVC wants you to be successful in all aspects of your education. For help, resources, services, and an explanation of policies, visit <http://www.imperial.edu/studentresources> or click the heart icon in Canvas.



Anticipated Class Schedule/Calendar

Week	Lecture Topic	Lab/Activities
Week 1 1/5 -1/11	Fundamentals of Microbiology	Ex. 2-1, 3-1 Ex. 1-4, 1-5, 3-4 Ex. 2-6, 3-6, Ex. 3-8, Ex. 3-9, 3-7, Minor Unknown Distributed EXAM #1
Week 2 1/12 - 1/18	Classifications, The Prokaryotes, Epidemiology & Pathogenicity	Ex. 4-3, 4-5, 4-4, Ex. 5-2, 5-3, Ex. 5-4, 5-5, 5-7 Ex. 5-8, 5-9 Ex. 5-10, 5-13, 5-14 Lab Notebook Check #2 Exam #2
Week 3 1/19 - 1/25	Microbial Metabolism, Growth & Control	Ex. 5-15, Minor Unknown Due 1/20 Ex. 5-6, 5-18 Antimicrobial Susceptibility; Major Unknown Distributed Exam #3
Week 4 1/26 - 2/1	Microbial Genetics, The Eukaryotes & Viruses	Major Unknown Lab Notebook Check #2 Exam #4
Week 5 2/2 – 2/4	Innate & Adaptive Immunity, Immunological Applications Disorders of Immune System Antimicrobial Drugs	Major Unknown Due 2/3 Clean up/Check-out Exam #5

Tentative, subject to change without prior notice