BIOL 2320
Microbiology for Non-Science Majors Lecture
Summer III 2026

LAMAR INSTITUTE OF TECHNOLOGY

CREDIT
3 Semester Credit Hours (3 hours lecture, 0 hours lab)

MODE OF INSTRUCTION
Online

PREREQUISITE/CO-REQUISITE:
Pre-requisite Biol 2101 and 2301
Passed the Reading/Writing Sections of TSI or any other accepted test
Co-requisite Biol 2120

COURSE DESCRIPTION
This course covers basic microbiology and immunology and is primarily directed at pre-nursing, pre-allied health, and non-science majors.
It provides an introduction to historical concepts of the nature of microorganisms, microbial diversity, the importance of microorganisms and acellular agents in the biosphere, and their roles in human and animal diseases.
Major topics include bacterial structure, growth, physiology, genetics, and biochemistry of microorganisms.
Emphasis is on medical microbiology, infectious diseases, and public health.

COURSE OBJECTIVES
Upon completion of this course, the student will be able to:
1. Describe distinctive characteristics and diverse growth requirements of prokaryotic organisms compared to eukaryotic organisms.
2. Provide examples of the impact of microorganisms on agriculture, environment, ecosystem, energy, and human health, including biofilms.
3. Distinguish between mechanisms of physical and chemical agents to control microbial populations.
4. Explain the unique characteristics of bacterial metabolism and bacterial genetics.
5. Describe evidence for the evolution of cells, organelles, and major metabolic pathways from early prokaryotes and how phylogenetic trees reflect evolutionary relationships.
6. Compare characteristics and replication of acellular infectious agents (viruses and prions) with characteristics and reproduction of cellular infectious agents (prokaryotes and eukaryotes).
7. Describe functions of host defenses and the immune system in combating infectious diseases and explain how immunizations protect against specific diseases.
8. Explain transmission and virulence mechanisms of cellular and acellular infectious agents.

Approved: Initials/date

Core Objectives

1. **Critical Thinking Skills:** To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
2. **Communication Skills:** To include effective development, interpretation, and expression of ideas through written, oral, and visual communication
3. **Empirical & Quantitative Skills:** To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
4. **Teamwork:** To include the ability to connect choices, actions, and consequences to ethical decision-making

INSTRUCTOR CONTACT INFORMATION

Instructor:	Melanie Daleo
Email:	mdaleo@lit.edu
Office Phone:	409-247-5323
Office Location:	MPC Building, Office 216
Office Hours:	See Starfish for Available Office Hours Click Here for Starfish

REQUIRED TEXTBOOK AND MATERIALS

OpenStax Microbiology https://openstax.org/details/books/microbiology/

Hardcover:

ISBN-13: 978-1-938168-14-7

Paperback:

ISBN-13: 978-1-50669-811-3

Digital:

ISBN-13: 978-1-947172-23-4

ATTENDANCE POLICY

1. You must log into Blackboard and access this course a minimum of 3 times per week.
2. Late assignments will be accepted with a deduction as a late penalty. Students will receive a zero for assignments not completed.
3. If you wish to drop this course, you must drop it administratively. If you do not drop the course, you will receive an F.

DROP POLICY

If you wish to drop a course, you are responsible for initiating and completing the drop process by the specified date as listed in the College Calendar on the Student Success web page. If you stop coming to class and fail to drop the course, you will earn an "F" in the course.

Weekly Checklist *Instructor reserves the right to modify as needed

Week:	To Do:	Due Dates
Week 1 **June 1 - 4** **Module 1:** Introduction to Microbiology	• Syllabus Quiz • Discussion: Netiquette • Discussion: Introduction • Video Quiz: History of Microbiology • Work on Individual Project: Pathogens due 07.18.26 • Sign up for Group Project: Microbial Diseases by 07.30.26	06.07.26
Week 2 **June 8 - 11** **Module 1:** Introduction to Microbiology	• Video Quiz: What are Light and Electronic Microscopes • Video Quiz: Types of Light Microscopy • Video Quiz: Prokaryotic vs Eukaryotic Cells • Work on Individual Project: Pathogens due 07.18.26 • Sign up for Group Project: Microbial Diseases by 07.30.26	06.14.26
Week 3 **June 15 - 18** **Module 2:** Microbe Diversity	• Discussion: Bioterrorism • Video Quiz: Bacteria • Video Quiz: Parasites: Protozoa (classification, structure, life cycle) • Video Quiz: Fungi: Death Becomes Them • Work on Individual Project: Pathogens due 07.18.26 • Sign up for Group Project: Microbial Diseases by 07.30.26	06.21.26
Week 4 **June 22 - 25** **Module 2:** Microbe Diversity	• Video Quiz: Helminths: Cestodes and Trematodes • Video Quiz: Helminths: Intestinal Nematodes Part I • Video Quiz: Helminths: Intestinal Nematodes Part I • Video Quiz: Viruses • Video Quiz: Viral Replication • Quiz 1: Module 1 and 2 (6/27 12:30 am - 6/28 11:59 pm) • Work on Individual Project: Pathogens due 07.18.26 • Sign up for Group Project: Microbial Diseases by 07.30.26	06.26.26
Week 5 **June 29 – July 2** **Module 3:** Biochemistry, Metabolism & Growth	• Video Quiz: Biological Molecules • Video Quiz: Metabolism and ATP • Work on Individual Project: Pathogens due 07.18.26 • Sign up for Group Project: Microbial Diseases by 07.30.26	07.05.26

Week 6 **July 6 - 9** **Module 3:** Biochemistry, Metabolism & Growth	• Video Quiz: Microbial Growth 1 • Video Quiz: Microbial Growth 2 • Discussion: Antibiotic Resistance • Midterm Exam: Module 1-3 (07/11 12:30 am – 07/12 11:59 pm) • Work on Individual Project: Pathogens due 07.18.25 • Sign up for Group Project: Microbial Diseases by 07.30.25	07.10.26
Week 7 **July 13 - 16** **Module 4:** Molecular Biology & Genetics **Module 5:** Microbial Control & Pathogenicity	• Video Quiz: Structure of Nucleic Acids • Video Quiz: DNA replication • Video Quiz: From DNA to Protein • **DUE:** Individual Project: Pathogens 07.18.26 • Work on Group Project: Microbial Diseases due 07.30.26	07.19.26
Week 8 **July 20 - 23** **Module 4:** Molecular Biology & Genetics **Module 5:** Microbial Control & Pathogenicity	• Video Quiz: Molecular Biology • Video Quiz: How CRISPR lets you edit DNA • Video Quiz: Infection and Intoxication • Discussion: Antimicrobial Products • Pathogen Project: Gallery Walk • Group Project: Microbial Diseases due 07.30.26	07.26.26
Week 9 **July 27 - 30** **Module 6:** Microbial Diseases, Epidemiology & Host Defenses	• Video Quiz: Immune System 1 • Video Quiz: Immune System 2 • Video Quiz: Immune System 3 • Discussion: Vaccines • **DUE:** Group Project: Microbial Diseases 07.30.26	08.02.26
Week 10 **Aug 3 - 6** **Module 6:** Microbial Diseases, Epidemiology & Host Defenses	• Video Quiz: This is What Happens When You Have an Autoimmune Disease • Video Quiz: Hypersensitivity Types in 4 Minutes • Video Quiz: Hypersensitivity Type 1 Allergic Reaction • Quiz 2: Module 5 (08/07 12:30 am – 08/08 11:59 pm)	08.06.26
Week 11 **Aug 10 - 13**	• Final Exam (08/10 12:30 am – 08/12 11:59 pm) • Congratulations!! You made it!! Celebrate ☺ 🎉	

COURSE EVALUATION

Final grades will be calculated according to the following criteria:

- Discussion Participation 10%
- Assignments (Video Quizzes) 20%
- Chapter Quizzes 20%
- Midterm & Final Exam 30%
- Individual & Group Project 20%

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Total = 100%

GRADE SCALE

- 90-100 A
- 80-89 B
- 70-79 C
- 60-69 D
- 0-59 F

Academic Dishonesty

Students found to be committing academic dishonesty (cheating, plagiarism, or collusion) may receive disciplinary action. Students need to familiarize themselves with the institution's Academic Dishonesty Policy available in the Student Catalog & Handbook at http://catalog.lit.edu/content.php?catoid=3&navoid=80#academic-dishonesty.

AI STATEMENT

Lamar Institute of Technology (LIT) recognizes that the recent advances in Artificial Intelligence (AI), such as ChatGPT, have changed the landscape of many career disciplines and will impact many students in and out of the classroom. To prepare students for their chosen careers, LIT aims to guide students in the ethical use of these technologies and to incorporate AI into classroom instruction and assignments appropriately. Appropriate use of these technologies is at the instructor's discretion. Students are reminded that all submitted work must be their own, original work, unless otherwise specified. Students should contact their instructor with any questions about the acceptable use of AI, including ChatGPT, in their courses.

Technical Requirements (for courses using Blackboard)

The latest technical requirements, including hardware, compatible browsers, operating systems, etc., can be found online at https://lit.edu/online-learning/online-learning-minimum-computer-requirements. A functional broadband internet connection, such as DSL, cable, or WiFi, is necessary to maximize the use of online technology and resources.

Quizzes and Exams in this course are administered through Blackboard. Exams will be administered with Respondus **LockDown Browser + Respondus Monitor (webcam)**

Requirements to take exams include:

- A reliable computer, desktop, or laptop (phones, Chromebooks, tablets, and iPads are not allowed).
- Windows: 10, 8, 7
- Mac: OS X 10.10 or higher
- Adobe Flash Player (bundled with the LockDown Browser installation)
- Web camera (internal or external) & microphone
- A reliable internet service provider. A broadband internet connection.
- A room to take the exam where you are alone (other individuals in the room are not allowed)

Watch these overview videos to understand the tools you will be using to take the exam.
Respondus LockDown Browser: https://www.youtube.com/watch?v=XuX8WoeAycs#action=share
Respondus Monitor: https://www.youtube.com/watch?v=hv2L8Q2NpO4 - action=share

Respondus **LockDown Browser + Respondus Monitor (webcam)**
Download Instructions:

- Select the quiz in the course
- Under Quiz Requirements, you will see "To take this quiz, you must use the Respondus LockDown Browser."
- Below, you will see: "You can use the button below if you have not already downloaded LockDown Browser." Click the button to go to the download page and then follow the instructions
- Use the link to download Respondus LockDown Browser to your computer; follow the installation instructions
- Return to the Quiz page in Brightspace (it may still be open in another tab) and select the quiz
- Select "Launch LockDown Browser"
- The quiz will now start

Note: LockDown Browser only needs to be installed once on a computer or device. It will start automatically from that point forward when a quiz requires it.

Guidelines while taking an online quiz: Follow these guidelines:

- Ensure you're in a location where you won't be interrupted.
- Turn off all other devices (e.g., tablets, phones, and second computers) and place them outside of your reach.
- Before starting the test, know how much time you have and that you've allotted sufficient time to complete it.
- Clear your desk or workspace of all external materials not permitted - books, papers, other devices.
- Remain at your computer for the duration of the test.
- If the computer, Wi-Fi, or location is different than what was used previously with the "Webcam Check" and "System & Network Check" in LockDown Browser, run the checks again prior to the exam.
- To produce a good webcam video, do the following:
    - Avoid wearing baseball caps or hats with brims.
    - Ensure your computer or device is on a firm surface (such as a desk or table). Do NOT have the computer on your lap, a bed, or other surface where the device (or you) is likely to move.
    - If using a built-in webcam, avoid readjusting the screen's tilt after the webcam setup is complete.
    - Take the exam in a well-lit room, but avoid backlighting (such as sitting with your back to a window)
- Remember that LockDown Browser will prevent you from accessing other websites or applications; you will be unable to exit the test until all questions are completed and submitted.

The following violations during testing will result in a grade of zero or a reduction in points:

- Using technology or electronic devices, including, but not limited to, iPads, phones, smart glasses, earbuds, and smartwatches.
- Leaving the testing environment or face missing from frame or obscured.
- Noises that might indicate external help.
- Any other questionable activities that indicate cheating.

Disabilities Statement

LIT uses an early-alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff through the Starfish home page. You can also log in to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the student's responsibility to pay attention to these emails and information in Starfish and to consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.
https://lit.edu/student-success/starfish

Student Code of Conduct

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand, and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at www.lit.edu. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of these documents.

STARFISH

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ADDITIONAL COURSE POLICIES/INFORMATION

Course Requirements

1. A Midterm and a Final must be taken using Respondus LockDown Browser, with two attempts allowed per assessment. The final score will be an ***average of both attempts***.
2. Students will complete video quiz and discussion board assignments.
3. Students will complete an individual and a group project.
4. Late assignments will be accepted, but a late penalty will be applied. Interactive quizzes given at the beginning of class cannot be made up. Students will receive a zero for assignments not completed.
5. Students are expected to follow the guidelines for testing in the 'Respondus Academic Integrity Policy'. The following violations during testing might result in a grade of zero or a reduction in points:
    - Using technology or electronic devices, including but not limited to iPads, phones, smart glasses, earbuds, and smartwatches.
    - Leaving the testing environment may result in a face being missing from or obscured in the frame.
    - Noises that might indicate external help.
    - Any other questionable activities that indicate cheating.

STUDENT EXPECTED TIME REQUIREMENTS

For every hour in class (or unit of credit), students should expect to spend at least two to three hours per week studying and completing assignments. For a 3-credit-hour class, students should prepare to allocate approximately six to nine hours per week outside of class in a 16-week session OR approximately twelve to eighteen hours in an 8-week session. Online/Hybrid students should expect to spend at least as much time in this course as in the traditional, face-to-face class.