BIOL_2120_5R1
Microbiology for Non-Science Majors Lab
Spring 2026

LAMAR INSTITUTE OF TECHNOLOGY

CREDIT
1 Semester Credit Hours (0 hours lecture, 2 hours lab)

MODE OF INSTRUCTION
Face to Face

PREREQUISITE/CO-REQUISITE:
Pre-requisite Biol 2101 and 2301
Passed the Reading/Writing Sections of TSI or any other accepted test
Co-requisite Biol 2320

COURSE DESCRIPTION
This course covers basics of culture and identification of bacteria and microbial ecology. This course is primarily directed at pre-nursing and other pre-allied health majors and covers basics of microbiology. Emphasis is on medical microbiology, infectious diseases, and public health.

COURSE OBJECTIVES
Upon completion of this course, the student will be able to:
1. Use and comply with laboratory safety rules, procedures, and universal precautions.
2. Demonstrate proficient use of a compound light microscope.
3. Describe and prepare widely used stains and wet mounts and discuss their significance in identification of microorganisms.
4. Perform basic microbiology procedures using aseptic techniques for transfer, isolation, and observation of commonly encountered, clinically significant bacteria.
5. Use different types of bacterial culture media to grow, isolate, and identify microorganisms.
6. Perform basic bacterial identification procedures using biochemical tests.
7. Estimate the number of microorganisms in a sample using methods such as direct counts, viable plate counts, or spectrophotometric measurements.
8. Demonstrate basic identification protocols based on microscopic morphology of some common fungi and parasites.

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

Approved: Initials/date

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. Lectures, classroom discussion, activities and labs promote understanding of key concepts. Please try to avoid unnecessary absences. If you are absent, you must make up the work in the allotted time frame. Students must make up exams the day you return and must make up labs within one week of absence at a day and time scheduled with the instructor.
2. Late assignments will be accepted with a deduction as a late penalty. Students will receive a zero for assignments not completed.

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.

Tentative Course Schedule *Instructor reserves the right to modify as needed

Week:	To Do:	Due Date
Week 1 **January 22nd** **Lab Safety**	☐ Syllabus Quiz ☐ Goose Chase: Lab Safety ☐ Look over Group Project: Gram Staining ***due 04.19.26***	☐ 01.25.26 ☐ 01.22.26
Week 2 **January 29th** **Microscopy**	☐ Exercise 1 Use of Microscope ☐ Stations: Microscope ☐ Work on Group Project: Gram Staining *due 04.19.26*	☐ 01.29.26 ☐ 01.29.26
Week 3 **February 5th** **Aseptic Techniques**	☐ Exercise 2 Aseptic Techniques ****Please Note:** This lab is a prerequisite for other lab activities and serves as foundational training on how to prevent contamination, which is critical for the safety of most subsequent experiments. It must be completed to participate in other activities. ☐ Work on Group Project: Gram Staining *due 04.19.26*	☐ 02.12.26
Week 4 **February 12th** **Aseptic Techniques & Streak Plate**	☐ Exercise 3 Isolation Streak Plate ☐ Work on Group Project: Gram Staining *due 04.19.26*	☐ 02.19.26
Week 5 **February 19th** **Microscopy: Algae & Cyanobacteria**	☐ Exercise 4 Microbial Phototrophs ☐ Quiz 1 covering Labs 1-3 on 02.20.25 (Online) ☐ Work on Group Project: Gram Staining *due 04.19.26*	☐ 02.19.26 ☐ 02.20.26
Week 6 **February 26th** **Microscopy: Eukaryotes**	☐ Exercise 5 Protozoa ☐ Exercise 6 Fungi ☐ Work on Group Project: Gram Staining *due 04.19.26*	☐ 02.26.26
Week 7 **March 5th** **Stain/Smear**	☐ Exercise 8 Simple Staining and Smear Preparation ☐ Quiz 2 covering Labs 4-8 open 03.06.25 (Online)	☐ 03.05.26 ☐ 03.06.26
SPRING BREAK	☐ Sleep, rest, relax ☐ Enjoy time with family and friends ☐ Netflix, etc. ☐ Exercise ☐ Read a good book ☐ Do something nice for someone	
Week 8 **March 19th** **Gram Stain**	☐ Exercise 11 Gram Stain ☐ Work on Group Project: Gram Staining *due 04.19.26*	☐ 03.19.26
Week 9 **March 26th** **Midterm Exam**	☐ Midterm Exam covering labs 1 – 6 and 8 on (In-Class) ☐ Work on Group Project: Gram Staining *due 04.19.26*	☐ 03.26.26

Week 10 **April 2nd** **Differential & Selective Media**	☐ Exercise 14 Blood Agar ☐ Exercise 15 Mannitol Salt Agar ☐ Work on Group Project: Gram Staining *due 04.19.26*	☐ 04.09.26
Week 11 **April 9th** **Differential & Selective Media**	☐ Exercise 16 Eosin Methylene Blue ☐ Exercise 17 MacConkey Agar ☐ **DUE SOON →** Work on Group Project: Gram Staining *due 04.19.26*	☐ 04.16.26
Week 12 **April 16th** **Kirby-Bauer Day 1**	☐ Exercise 25 Antimicrobial Susceptibility Testing (Kirby-Bauer method) ☐ Quiz 3 covering Labs 11, 14 - 17 open 04.17.26 (Online) ☐ **DUE →** Group Project: Gram Staining *due 04.19.26*	☐ 04.23.26
Week 13 **April 23rd** **Kirby-Bauer Day 2**	☐ Exercise 25 Antimicrobial Susceptibility Testing (Kirby-Bauer method) ☐ **Discussion Board:** Gram Stain Gallery Walk	☐ 04.23.26 ☐ 04.25.26
Week 15 **April 30th** **Infectious Diseases**	☐ Exercise 33 Vaccination & Herd Immunity	☐ 04.30.26
Week 16 **May 8th – 10th** **Final Exam**	☐ Final Exam covers Labs 11, 14, 15, 16, 17, 25, 33, and 52 *opens 05.08.26 and closes 05.10.26* (Online)	☐ 05.10.26

COURSE EVALUATION

Final grades will be calculated according to the following criteria:

1. Assignments (Lab Activities) * = 25%
2. Quizzes = 25%
3. Mandatory Group Lab Project = 20%
4. Midterm and Final Exam = 30%

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Total = 100%

***10% of each lab activity will be based on lab etiquette, including punctuality, preparedness, participation, and cleanliness after each lab meeting

GRADE SCALE

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

TECHNICAL REQUIREMENTS

For the latest technical requirements, including hardware, compatible browsers, operating systems, etc., review the Minimum Computer and Equipment Requirements on the LIT Online Experience page. A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of online technology and resources.

DISABILITIES STATEMENT

The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the Americans with Disabilities Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles' Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)-951-5708 or email specialpopulations@lit.edu. You may also visit the online resource at Special Populations - Lamar Institute of Technology (lit.edu).

STUDENT CODE OF CONDUCT STATEMENT

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 the same document.

ARTIFICIAL INTELLIGENCE STATEMENT

Lamar Institute of Technology (LIT) recognizes 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 selected careers, LIT desires to guide students in the ethical use of these technologies and incorporate AI into classroom instruction and assignments appropriately. Appropriate use of these technologies is at the discretion of the instructor. Students are reminded that all submitted work must be their own original work unless otherwise specified. Students should contact their instructor with any questions as to the acceptable use of AI/ChatGPT in their courses.

STARFISH

LIT utilizes 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 all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

ADDITIONAL COURSE POLICIES/INFORMATION

Course Requirements

1. A Midterm and Final are required using Respondus Lockdown Browser with two attempts given per assessment. The final score will be an ***average of both attempts***.
2. Students will complete in-person lab experiments.
3. Students will complete a group lab project.
4. Late assignments will be accepted, but a late penalty will be applied. Students will receive a zero for assignments not completed.
5. Cell phones should be visible and in use only during an activity designated by the instructor. Otherwise, they should be put away, and focus should be given to safely completing lab activities. *Students who continually use their cellphones for purposes other than class will lose etiquette points or be asked to leave for the day.*
6. 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.