

Microbial Physiology Lab
Fall 2020

INSTRUCTOR: Dr. Sangeeta Tiwari, Department of Biological Sciences
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OFFICE HOURS: Tue and Thurs, 11:30 – 12:30 pm., or by appointment

Lab Instructors: (Tentative) Mon 8:00-10:50 am & Tues 3:00-5:50 pm
email
(Tentative) Thurs 6:00-8:50 pm & Fri 1:30-4:20 pm
email

LABORATORY: Biology Building, Room B412 (Tentative)
LAB TEXT: Lab manual posted on Blackboard

LAB OBJECTIVES

A mixture of bacterial colony morphologies grew on a petri dish. The objective of this lab is for each group of students to utilize microbiological techniques in order to identify selected bacterial colonies. You will use common and advanced lab techniques to examine the physiology of the cell and the many processes the cell uses to produce energy and the metabolites required for survival. You will examine a multitude of techniques, including the principles behind, the uses for, and interpretation of these and other techniques. Understanding this information will be essential to your performance in this class.

LAB GOALS

1. Learn the fundamental concepts in microbial physiology
2. Apply the concepts you've learned
3. Extrapolate information and facts from what you already know
4. Communicate your understanding of microbiology
5. Learn to think critically

LABORATORY EXERCISES

The laboratory exercises are designed to teach fundamental microbiology techniques, including sterile technique, bacterial isolation and culture, macromolecule purification, and identification of microorganisms. The laboratory will meet in Room B412 (Tentative) of the Biology Building, starting the second week of class. The first session will include a REQUIRED laboratory safety lecture. NO ONE will be allowed to work without this training.

LABORATORY POLICIES

SAFETY. Rules exist for your safety, since the organisms we will be using in the lab can make you sick. The first laboratory meeting will include a REQUIRED safety lecture. You will not be permitted to work in the lab until this training has been completed. You are **required** to provide your own lab coat, which you must bring to the lab EACH WEEK; gloves will be provided. Only closed-toed shoes will be permitted and long hair must be pulled back OR placed in a hairnet. If you do not meet the dress requirements you will be asked to leave. No food, drink, or application of cosmetics will be permitted in the laboratory.

MISSING LAB. You will only receive credit for a lab report if you attended the lab itself. Do NOT miss lab, attendance will be taken each week and a quiz given at the start of class. Do NOT be late for class; excessive tardiness may result in not being given the quiz at the TAs discretion. Since there is only one lab section you cannot make up the lab nor the quiz after it has been given. If you miss a lab for a reasonable excuse, notify your TA. Going to the doctor is NOT a reasonable excuse!! Schedule your appointment for another time. Lab meets at the same time every week and cannot be made-up. **DO NOT** schedule **anything** during this time.

LATE LAB REPORTS. Each lab report is due ONE WEEK after the laboratory exercise has been concluded. It must be turned in to your TA at the beginning of lab. Lab reports will NOT be accepted on any other day. Failure to turn in a lab report will result in an automatic zero.

COURTESY. As a courtesy to your classmates, please give your full attention to all speakers and limit your in-class discussions to topics related to microbiology. Cell-phones and pagers must be turned off during class sessions and labs. The use of laptop or notebook computers or tablets during class and lab sessions is limited to note-taking and coursework only – refrain from browsing the internet or checking your email during class. Please be on time for class – roll may be taken at the start of each class session.

ACADEMIC DISHONESTY. It is the official policy of the University of Texas at El Paso that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. Scholastic dishonesty includes, but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Please see <http://www.studentaffairs.utep.edu> for details

DISABILITIES. If you have or suspect you have a disability and need an accommodation, please contact the Center for Accommodations and Support Services (CASS) at 747-5148, at cass@utep.edu or go to Union Building East, Room 106.

GRADING SYSTEM

Your grade will be based on 7 lab reports, 9 quizzes, midterm and final exams. It is recommended that you maintain a notebook. However, this is for your own study purposes and will not constitute a grade in the class. Lab reports are required and will be due the following week after the lab.

1. QUIZZES. You must read each day's lab manual assignment BEFORE COMING TO LAB. The quizzes are designed to test your knowledge of the material presented in lab and in your reading assignments. Your TA will give the quiz at the beginning of each laboratory period, so please be on time to lab or you will miss that day's quiz. A total of 10 quizzes will be given. One quiz will be dropped and the best 9 counted towards your grade.

2. LAB REPORTS. Lab Reports must be turned in ONE WEEK after each lab session. EACH GROUP will be required to turn in ONE common Lab Report.

3. EXAMS. Two exams will be given during the laboratory time. The exams are worth a total of 100 points. The exam will test your understanding of all of the materials covered in the laboratory and your ability to APPLY the concepts you have learned.

In summary, the grading policy is as follows:

7 lab reports 20 pts each	140 Points
9 quizzes 10 pts each	90 Points
Midterm exam	50 Points
Final	<u>50 Points</u>
	330 Points Total

Materials for this lab:

Sharpie (Required)

If you do not have a lab coat, you will not be allowed in the laboratory and there are no make-ups for the labs.

Lab Coat (Required)

Notebook (*Not* required but **HIGHLY** recommended)

Lab Manual

The lab manual is available on Blackboard. All protocols will be discussed in the lab prior to the lab in which the protocol is performed. It is recommended that you perform all protocols on paper, prior to lab and before attempting the protocol in lab. This will give you an idea of where and what kinds of problems to expect in lab. This is also a good way to learn the protocols and to understand where the theory of these protocols applies.

LABORATORY SCHEDULE

Lab Report	Series starts week of	TOPICS	Lab report due week of
1	8/24	LAB & BIO SAFETY – REQUIRED Isolation of bacterial colonies	9/14
	8/31	Antibiotic susceptibility testing	
	9/7	Labor Day Holiday	
2	9/14	DNA extraction	10/5
	9/21	PCR	
	9/28	DNA electrophoresis	
3	10/5	Protein extraction Bradford assay	10/12
4	10/12	Mass spectrometry	10/19
--	10/19	Midterm	
5	10/26	Lipid Extraction	11/9
	11/2	Thin layer chromatography	
6	11/9	Fermentation	11/23
	11/16	Fermentation	
7	11/23	Feedback Inhibition	11/30
--	11/30	Lab final	