

Microbial Physiology  
Fall, 2020  
**MICRO-3345**

INSTRUCTOR: Dr. Sangeeta Tiwari, Department of Biological Sciences  
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OFFICE HOURS: By appointment at <https://beta.doodle.com/DrTiwari>  
LECTURE: M/W 3:00 – 4:20pm; Physical Science Bldg. 208  
TEXTBOOK: Microbial Physiology by Moat, Foster, Specter **REQUIRED**  
**iClicker Cloud Polling App or web access**  
**Respondus Lockdown Browser**  
**Blackboard access**  
Reference: **Not required**  
1) The Physiology and Biochemistry of Prokaryotes by White.  
2) Stryer's Biochemistry or any Standard Biochemistry Text Book.

#### COURSE OBJECTIVES

This course is designed to provide the student with a foundation of physiology and biochemistry of bacteria, including the growth, division, adaptation, fermentation, energy production and chemotaxis.

#### COURSE 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

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](mailto:cass@utep.edu) or go to Union Building East, Room 106.

**BLACKBOARD.** I will post all materials for this course on Blackboard. It is your responsibility to download anything required for the class session and to bring it with you to class. I strongly recommend that you visit the course Blackboard site before each class. RATs will be given on Blackboard.

**MISSED EXAMS.** If you know ahead of time that you will not be able to take an exam on the scheduled date, notify me and I will allow you to take the exam, with no penalty. If you miss an exam and you can provide reasonable PROOF for your absence, the exam will be rescheduled at my convenience but must be taken before the graded exam is distributed to the class. If you miss the exam and you cannot provide proof for your absence, there will be NO make-ups!!

**LATE HOMEWORK.** Homework is due at the beginning of class ONLY on the due date WITH NO EXCEPTIONS. LATE homework will NOT be accepted. Failure to turn in an on-time assignment will result in an automatic score of zero.

**HONORS AND GRADUATE CREDIT.** Please see Dr. Tiwari by October 2 if you wish to take this course for honors credit or graduate credit (Undeclared Graduate and Masters' students only – Doctoral students may not take this course for graduate credit). In addition to the class requirements outlined below, you will be assigned a grant on a topic relevant to current problems in pathogenic microbiology. An outline of your paper must be approved by November 7, and the paper is due November 30, together with a copy of the honors contract reporting form. Students must also earn a grade of B or better to receive honors or graduate credit.

**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 pathogenic microbiology. Cell-phones and pagers must be turned off during class sessions. The use of laptop or notebook computers or tablets during class sessions is limited to note-taking and coursework only – please 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.

**DROP POLICY.** As per policy of the College of Science, a student may not take the same course more than three times, including dropped courses. The College of Science aligns with UTEP with respect to the drop date of October 30th. No requests for a withdrawal will be approved after that date. Students can always petition the Registrar for a complete withdrawal from all course pending documentation.

## **GRADING SYSTEM**

Grading is NOT based on a curve. You will each EARN a grade that reflects the effort you put into the course and the knowledge you have gained. Your grade will be based on a comprehensive assessment of your skills and their development throughout the course of the semester, using the following criteria.

**1. READINESS ASSESSMENT TESTS (RATs).** These will be given on Blackboard and are designed to test your knowledge of the material presented in your reading assignments. The RATs will ensure that you are keeping up with the class and will help me to focus my lectures on the topics you find most challenging. A total of 14 RATs will be given; the 2 lowest scores will be dropped. Each RAT is worth 10 points. Each RAT must be completed 1.5 HOURS before each day's class, that is by 12:00 p.m. on class days. You will have 15 minutes in which to take each RAT and will have access to it only once. The RATs that are due on Monday will be available at 3 pm the previous Friday and those that are due on Wednesday will be available at 3 pm on Monday. You may use your class notes and/or textbooks during each RAT but remember you only have 15 minutes to complete the test.

**2. PRESENTATIONS.** Choose an approved topic not covered in class. Some suggested topics will be distributed later. Research your topic and develop a 15-20 minute presentation about the topic to be presented in class. Be sure to document the role of each group member and turn it into me at the presentation. Presentations will be in late November. Closer to the date we will assign times. Beforehand, please email me a copy of your presentation with your group members' names.

**3. EXAMS.** A total of FOUR exams will be given during the semester, each worth 100 points. The fourth exam is an OPTIONAL, cumulative final that will be given during finals week. The exams will test your understanding of all of the materials covered in the textbook, in class, and on homework assignments, and your ability to APPLY the concepts you have learned. If you choose NOT to take the final, the average of your other exams will constitute your final exam grade.

**4. HOMEWORK.** A total of FOUR homework assignments will be given during the semester, each worth 40 points. These assignments are problem-based learning sessions with your small groups. They focus on your ability to integrate basic science and apply the concepts discussed in class and in the reading material. They will encourage you to work together, to develop critical thinking, to improve communication skills, and to get to know one another better. One copy will be turned in from each group at the beginning of class on the due date.

**5. IN-CLASS EXERCISES.** Various in-class exercises will be distributed throughout the semester to reinforce the presented topics. These will be due at the end of the class period or the beginning of the next period, as time permits and at the professor's discretion. In-class exercises will be done in groups and ONLY those present will be given credit for the assignment.

**6. iClicker Cloud.** In-class interactive questioning system that allows professor to gauge the level of student understanding and students to ask anonymous questions. These will be used throughout the class period and semester. The sum total will be accounted for in the final grade.

**IN SUMMARY, grades will be calculated as follows:**

RATs	120 points (12 RATs/10 pts each)
Exams	400 points (4 exams)
Presentation	110 points
Homework	160 points (4 homeworks/40 pts each)
In class exercises	105 points
iClicker Cloud	105 points
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Totals	1000 points

Where, A = 90 – 100%  
B = 80 – 89.9%  
C = 70 – 79.9%  
D = 60 – 69.9%  
F = 59.9% and below

## Course Schedule

(subject to change; alterations will be posted on BlackBoard)

<i>Date</i>	<i>Lecture</i>	<i>Topic(s)</i>	<i>Deliverables due</i>	<i>Reading Assignment</i>
8/24	Lecture 1	Intro	Groups	1-10
8/26	Lecture 2	Enzymes	Pre-assessment	
8/31	Lecture 3	Lipids		
9/2	Lecture 4	Carbohydrates		
9/7	Labor Day holiday			
9/9	Lecture 5	DNA/RNA/protein		27-74,279-287
9/14		Exam 1		
9/16	Lecture 6	Structure		277-322,340-349
9/21	Lecture 7	Locomotion		382-392
9/23	Lecture 8	Uptake & secretion		323-339
9/28	Lecture 9	Interactions		648-675
9/30		Exam 2	<b>Homework 1</b>	
10/5	Lecture 10	Glycolysis & Gluconeogenesis		350-352,394-411
10/7	Lecture 11	Alternates		353-359
10/12	Lecture 12	TCA		361-365
10/14	Lecture 13	ATP & ETC		368-381
10/19	Lecture 14	Fermentation	Review	412-433
10/21		Exam 3	<b>Homework 2</b>	
10/26	Lecture 15	Nitrogen assimilation		475-493
10/28	Lecture 16	Biosynthesis		503-560
11/2	Lecture 17	Biosynthesis		561-581
11/4	Lecture 18	Growth & Division		
11/9		Exam 4	<b>Homework 3</b>	
11/11	Group	Presentations		
11/16	Group	Presentations		

11/18	Group	Presentations		
11/23	Group	Presentations	<b>Homework 4</b>	
11/25	Thanksgiving holiday			
11/30	Group	Presentations		
12/2	Presentations, Final thoughts or review			
12/7	Final Exam	Dec 7 <sup>th</sup> 3:00-5:45pm		Comprehensive