

BIO 281 Microbiology For Health Sciences/Allies Lecture Spring 2022

T Th 11:00 am – 12:15 pm

Masterton 113

Instructor: Dr. Catherine Miller; cat.miller@maine.edu

Office: 476B-1 “C” Wing Science Building

Office Hours: Tuesday 12:30-2 PM and Thursday 12:30-2 PM and by appointment

Course Materials

Microbiology, The Human Experience, By Foster, Aliabadi, and Slonczewski, 2018. The textbook is strongly recommended, and you will understand the material much better if you read the assigned chapters. This new edition is pricey, but you will do fine with the previous edition (called the preliminary edition) if you can find a used copy. A copy of the text will be on reserve in the library as well.

All textbook sales at USM are filled by eCampus, USM's textbook provider. Order books online at the [Virtual Bookstore](#). Staff at the University Store are happy to help you place your orders and answer questions. Customer service is also available by contacting eCampus at (859)-209-6958 or [online](#).

Course Objectives

This course is for nursing and health science majors and is designed to help you understand the structure and function of microbes, particularly bacteria, and their role in disease.

The objectives you should establish for yourself for this class include (but are not limited to):

- Gain an understanding of the ubiquity and variability of microbes
- Gain an understanding of the basic functioning and metabolism of a microbial cell
- Learn how these basic functions are relevant to the lifestyle of a microbe (for some, including causing disease)
- Gain an understanding of the ways in which microbes interact with each other and their environment, including both positive and negative interactions with a human host

TENTATIVE Course Schedule

Date	Lecture Topic(s)	Readings	Item Due
1-18 Tues	<u>Syllabus Introduction</u>		
1-20 Thurs	Introduction to microbes vs pathogens	Ch. 1, 2, 3.1	
1-25 Tues	The composition of the bacterial cell → membranes and cell walls	Ch. 4.5, 5.1, 5.2	
1-27 Thurs	The cell wall as an antibiotic target	Ch. 5.3, 13.5	Quiz 1
2-1 Tues	<i>Review for Exam 1</i>		
2-3 Thurs	EXAM 1		
2-8 Tues	External bacterial structures	Ch. 5.1, 5.5, 18.2, 10.4	
2-10 Thurs	Bacterial energy acquisition	Ch. 4.4, 7.1 - 7.4	
2-15 Tues	Bacterial energy acquisition cont.	Ch. 7.3, 7.4, 27.3	
2-17 Thurs	Bacterial growth and division	Ch. 5.4, 6	Quiz 2
2-22 Tues	Bacterial growth and division cont.	Ch. 6	
2-24 Thurs	EXAM 2		
3-1 Tues	Controlling bacterial growth	Ch. 13 (27.4)	Microbe Flyer #1
3-3 Thurs	Bacterial antibiotic resistance	Ch. 13	
3-8 Tues	Bacterial genomes and gene expression	Ch. 8.1, 8.5, 8.7	
3-10 Thurs	DNA transfer, diversity and evolution in bacteria	Ch. 9, 10, 18.1	Quiz 3
3-15 Tues	<u>No lecture – Spring break</u>		
3-17 Thurs	<u>No lecture – Spring break</u>		
3-22 Tues	<i>Review for Exam 3</i>		Microbe Flyer #2
3-24 Thurs	EXAM 3		
3-29 Tues	The human microbiome	Ch. 14	
3-31 Thurs	Viruses	Ch. 12	Quiz 4
4-5 Tues	Viruses cont.	Ch. 12	
4-7 Thurs	Our immune system	Ch. 15, 16, 17	
4-12 Tues	Guest Speaker		
4-14 Thurs	EXAM 4		
4-19 Tues	Parasites and fungi	Ch. 11	
4-21 Thurs	Parasites and fungi	Ch. 11	
4-26 Tues	Other infectious diseases	Unit IV	Quiz 5
4-28 Thurs	Vaccinations	Ch. 16, 17	Microbe Flyer #3
5-5 Thurs	EXAM 5		

Distribution of points:

Lecture Points	
Item	Total Points
Exam 1	100
Exam 2	100
Exam 3	100
Exam 4	100
Exam 5	100
Quiz 1	20
Quiz 2	20
Quiz 3	20
Quiz 4	20
Quiz 5	20
Microbe Flyers (x 3)	30 points each x 3
TOTAL:	690 points

The final course grade will be determined by the total number of points received divided by the total number of points possible. Your final grade will be based on the following **Grading Scale:**

Percentage	Grade
92-100%	A
90-91.9%	A-
87-89.9%	B+
82-86.9%	B
80-81.9%	B-
77-79.9%	C+
72-76.9	C
70-71.9%	C-
67-69.9%	D+
60-66.9 %	D
below 59.9%	F

At the sole discretion of the instructor, students with exemplary class participation that are on the borderline between two grades (within 10 points) may receive the next highest grade.

Grading Policy: The final grade for the course is determined by dividing the total number of points earned by the total number of points possible and multiplying that number by 100%. The course consists of FIVE exams (including the final exam), FIVE quizzes and microbe flyers (directions to follow at a later date). Exam and quiz format may include multiple choice, true/false, matching, short answer and essay type questions. Exam policies and procedures must be followed while taking the exam. The main exam procedures include no talking during the exam and bringing your USM ID. Possession of visible papers or talking, texting, or looking at your phone during the exam results in an automatic F for that exam and possibly for the entire course. PLEASE NOTE: The final exam is NOT cumulative!

Attendance: Attendance at lectures will **NOT** be taken, but students are strongly encouraged to attend all lectures. It is the student's responsibility to obtain any lecture notes for the lecture sessions missed.

Academic Integrity/Plagiarism: Everyone associated with the University of Southern Maine is expected to adhere to the principles of academic integrity central to the academic function of the University. Any breach of academic integrity represents a serious offense. Each student has a responsibility to know the standards of conduct and expectations of academic integrity that apply to academic tasks. Violations of academic integrity include any actions that attempt to promote or enhance the academic standing of any student by dishonest means. Cheating on an examination, stealing the words or ideas of another (i.e., plagiarism), making statements known to be false or misleading, falsifying the results of one's research, improperly using library materials or computer files, or altering or forging academic records are examples of violations of this policy which are contrary to the academic purposes for which the University exists. Acts that violate academic integrity disrupt the educational process and are not acceptable.

Evidence of a violation of the academic integrity policy will normally result in disciplinary action. A copy of the complete policy may be obtained from the office of Community Standards and Mediation, online at usm.maine.edu/community-standards-mediation/academic-integrity or by calling and requesting a copy at (207) 780-5242.

Students with medical and/or professional obligations (sports, conferences, etc.): These students must contact me **before** anticipated absences. Student-athletes – it is your responsibility to provide an **official** list (signed by the coach or athletic department's educational program coordinator) of anticipated absences related to sport participation. I will make necessary accommodations for quizzes and exams; however, it will be your responsibility to ensure there is not conflict with presentation dates and group work. You will be responsible for all material presented if you are absent.

Disability Accommodations: The university is committed to providing students with documented disabilities equal access to all university programs and services. If you think you have a disability and would like to request accommodations, you must register with the Disability Services Center. Timely notification is essential. The Disability Services Center can be reached by calling 207-780-4706 or by email dscusm@maine.edu. If you have already received a faculty accommodation letter from the Disability Services Center, please provide me with that information as soon as possible. Please make a private appointment so that we can review your accommodations.

Title IX Statement: The University of Southern Maine is committed to making our campuses safer places for students. Because of this commitment, and our federal obligations, faculty and other employees are considered mandated reporters when it comes to experiences of interpersonal violence (sexual assault, sexual harassment, dating or domestic violence, and stalking). Disclosures of interpersonal violence must be passed along to the University's Deputy Title IX Coordinator who can help provide support and academic remedies for students who have been impacted. More information can be

found online at <http://usm.maine.edu/campus-safety-project> or by contacting Sarah E. Holmes at sarah.e.holmes1@maine.edu or 207-780-5767.

If students want to speak with someone confidentially, the following resources are available on and off campus: University Counseling Services (207-780-4050); 24 Hour Sexual Assault Hotline (1-800-871-7741); 24 Hour Domestic Violence Hotline (1-866-834-4357).

Tutoring and Writing Assistances: Tutoring at USM is for *all* students, not just those who are struggling. Tutoring provides active feedback and practice, and is available for writing, math, and many more subjects. Walk-in tutoring is available at the Glickman Library in Portland, the Gorham Library, and the LAC Writing Center. For best service, we recommend making an appointment

at <https://usm.maine.edu/learningcommons/schedule-tutoring-appointment>. Questions about tutoring should be directed to Naamah Jarnot at 207-780-4554. Interested in becoming a more effective, efficient learner? Check out <https://usm.maine.edu/agile>

Counseling: Counseling is available at USM. The best way to schedule an appointment is by phone at 780-5411. More information is available at <https://usm.maine.edu/uhrs>.

This syllabus may be changed WITH notice to students.