

# BIO 311 Microbiology Lecture (For Biology Majors) Spring 2022

Mo We 11:00 am - 12:15 pm  
Luther Bonney 410

**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 (First Edition). The textbook is recommended, and you will understand the material much better if you read the assigned chapters. This first 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](#).

## Technology Requirements:

- Brightspace, USM email, Zoom, and Google Drive
- Word processing (Word, Google doc, or similar) and other Google suite programs

## Course Description, including format:

- This course is aimed at biology/biochemistry majors and is designed to give you a good understanding of the structure and function of microbes, particularly bacteria, and their role in both disease and the environment.

## Course Objectives:

- Gain an understanding of the ubiquity and variability of microbes in the human host and in the environment surrounding us
- Gain an understanding of the functions and metabolism of bacteria (and viruses, fungi and parasites)
- Learn how cellular functions are relevant to the lifestyle of a microbe (pathogenic and non-pathogenic microbes)

- 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:
1-17 Mon	No lecture – MLK Jr day		
1-19 Wed	Syllabus/Course Introduction		
1-24 Mon	Introduction to microbes vs pathogens	Ch. 1, 2, 3.1	
1-26 Wed	The composition of the bacterial cell → membranes and cell walls	Ch. 4.5, 5.1, 5.2	
1-31 Mon	The cell wall as an antibiotic target	Ch. 5.3, 13.5	Quiz 1 due 2/1 by midnight to Dr. M
2-2 Wed	EXAM 1		
2-7 Mon	External bacterial structures	Ch. 5.1, 5.5, 18.2, 10.4	
2-9 Wed	Bacterial energy acquisition	Ch. 4.4, 7.1 -7.4	
2-14 Mon	Bacterial energy acquisition cont.	Ch. 7.3, 7.4, 27.3	
2-16 Wed	Bacterial growth and division	Ch. 5.4, 6	
2-21 Mon	No Lecture-Presidents' Day		
2-23 Wed	Bacterial growth and division cont.	Ch. 6	Quiz 2 due 2/27 by midnight to Dr. M
2-28 Mon	EXAM 2		
3-2 Wed	Controlling bacterial growth	Ch. 13 (27.4)	
3-7 Mon	Bacterial antibiotic resistance	Ch. 13	
3-9 Wed	Bacterial genomes and gene expression	Ch. 8.1, 8.5, 8.7	PSA #1 due 3/11 by midnight to Dr. M
3-14 Mon	No lecture – Spring break		
3-16 Wed	No lecture – Spring break		
3-21 Mon	DNA transfer, diversity and evolution in bacteria	Ch. 9, 10, 18.1	Quiz 3 due 3/22 by midnight to Dr. M
3-23 Wed	EXAM 3		
3-28 Mon	The human microbiome	Ch. 14	
3-30 Wed	Viruses	Ch. 12	
4-4 Mon	Viruses cont.	Ch. 12	
4-6 Wed	Biotech	Unit V	
4-11 Mon	Biotech	Unit V	Quiz 4 due 4/12 by midnight to Dr. M
4-13 Wed	EXAM 4		
4-18 Mon	Guest Speaker		
4-20 Wed	Parasites and fungi	Ch. 11	PSA #2 due 4/22 by midnight to Dr. M
4-25 Mon	Other infectious diseases	Unit IV	
4-27 Wed	Vaccinations	Ch. 16, 17	Quiz 5 due 5/3 by midnight to Dr. M
5-4 Wed	EXAM 5: 11AM		

**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	10
Quiz 2	10
Quiz 3	10
Quiz 4	10
Quiz 5	10
Public Service Announcements (x 2)*	60 points each
<b>TOTAL:</b>	<b>670 points</b>

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 TWO PSAs. Exam and quiz format may include multiple choice, true/false, matching, short answer and essay type questions. The quizzes will be take-home quizzes that need to be scanned and returned by email to Dr. Miller via email by the date and time stated in the lecture schedule. Please use these quizzes as a “pre-test” to determine how well you know the material.

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!

**\*Directions for the PSA projects will be defined after the course starts**

**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](http://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](mailto: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](mailto: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 Jarrot 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.**