

General Microbiology—01:447:390, Fall 2020
Canvas Site = **GENERAL MICROBIOLOGY 01 F19**
Dr. Mai Soliman

Contact Information and Schedule

My Email: solimanm@rutgers.edu

My Office: Nelson Biological Labs, Room B426, Busch Campus

Lecture Schedule: Monday/Wednesday 1:40 – 3:00 PM

Lecture location: Remote

Office Hours: Monday/Wednesday 10:00 PM – 11:00 PM on Canvas Conferences (Not Required)

Course Description and Learning

The primary learning goal of this class is to teach you the foundational terms, concepts and theories in Microbiology. It presents a broad overview of the field, and includes discussions of taxonomy, cell structure and organelles, genetics, metabolism, ecosystems, the means by which microorganisms cause disease and the means by which our immune system fights them.

Important note regarding the lab

I am not in charge of the lab for this class. The lab is taught by Drs. Alexandra Walczak (walczak@dls.rutgers.edu) and Haiyang Lu (hlu@dls.rutgers.edu). Drs. Walczak and Lu will send you an email early in the semester, giving you some information that will help you get oriented.

Your Responsibilities

All students are required to submit the Syllabus Assignment that is posted in the Assignments section of the course website. By doing so you are certifying that you have read the syllabus, you have had the opportunity to ask any questions you had about the syllabus, and you agree to abide by the terms of the syllabus. Please submit your syllabus assignment before September 15th. This is a required assignment and I will not begin grading any other assignments until you have completed this initial syllabus assignment.

Your other important responsibility this semester is to be self-reliant enough to use the resources you have available to you, rather than just reflexively email me with questions like “What’s covered on the next exam?” Please note that I do not do this in an effort to keep students from asking me questions. I do this because experience has taught me that some students still need help developing their attention to resources and self-reliance. Some students have still not developed the understanding that, in order to be a successful

member of any professional workgroup, you must be able to receive a set of instructions once and understand what actions are expected of you. This rule is intended to help those who need help to be more thoughtful, attentive to instructions and self-reliant—all important qualities for success in any professional environment.

This also applies to any questions you have over the course of the semester regarding any of your graded assignments. If you have a question about a grade, you must address the issue with me within one week of the day the grade was put on the Canvas website.

I will not deduct any points from your grade if you violate this provision of the syllabus, but I consider these sorts of performance items indicators of how mature you are, how well you organize yourself professionally, and how much attention you paid to your responsibilities while you were a student in my class. I will keep a record of incidents in which people exhibit a lack of attention or self-reliance (ex. by emailing me to ask me a question that has already been answered in the syllabus or in an email I sent out earlier). If, at the end of the semester, I see you have one or more of this type of incident in your record, this will reduce the probability that I will be willing to write you a letter of recommendation if you ask me for one later on.

Course Material

The book is:

[Connect Online Access for Microbiology](#)

11th Edition

By: Dorothy Wood, Joanne Willey, Kathleen Sandman

2020 Publication Date: May 1, 2019

You will not need to purchase the physical textbook. When class starts, I will establish the set-up for you to purchase the e-book which comes with the online Connect option. You will be given instructions for how to purchase the e-book directly from Canvas. This will give you access to the ebook as well as many resources and problems that will help solidify your understanding of the material.

In generating my lecture slides, I've used the material from the book and have tried to the best of my ability to write out as much of the important material as possible. The goal is that you will be able to study directly from the notes. There are some people however, who only feel prepared if they read the necessary chapters. Below you will find the reading that goes with every chapter I cover.

Weekly Agenda

I will be posting a weekly agenda with all the assignments that are required for that week and due dates. The agenda will serve as the home screen on Canvas when you first log into your Microbiology course. I will update the agenda weekly. This will help you stay organized during the semester. It will also indicate the location of where to find folders, files, and quizzes. Please refer to this agenda often in order to stay on top of your assignments.

Lecture Schedule (this is a tentative schedule and subject to change)

Date	Lecture	Lecture Topic (<i>Selected key topics</i>)	Preparatory Reading
Sept 2	1	Syllabus Review Scope and History of Microbiology <i>(History and importance of microbiology)</i>	Ch. 1
Sept 8	2	Microscopy <i>(Basics of microscopy and staining techniques)</i>	Ch. 2
Sept 9	3	Bacterial Cell Structure <i>(Cell wall and gram staining)</i>	Ch. 3
Sept 14	4	Bacterial Cell Structure <i>(Movement across membrane and other bacterial structures)</i>	Ch. 3
Sept 16	5	External Structures and Response to Environment <i>(Flagella structure and function. Mechanisms of Chemotaxis.)</i>	Ch. 3
Sept 21	6	Microbial Taxonomy <i>(Three-domain classification system. Methods of taxonomy)</i>	Ch. 19
Sept 23	7	Microbial Growth <i>(bacterial cell cycle, growth curve, environmental factors affecting growth)</i>	Ch. 7
Sept 28	8	Microbial Growth <i>(bacterial cell cycle, growth curve, environmental factors affecting growth)</i>	Ch. 7

Sept 30	9	Viruses and Other Acellular Infectious Agents <i>(Classifications, viral life cycles, other virus-like agents)</i>	Ch. 6
Oct 5	10	Viruses and Other Acellular Infectious Agents <i>(Classifications, viral life cycles, other virus-like agents)</i>	Ch. 6
Oct 7		Exam 1 (lecture 1-10)	Covering everything until Oct 5 th
Oct 12	11	Microbial Genetics: <i>(Bacterial genome replication and expression)</i>	Ch. 13
Oct 14	12	Microbial Genetics: <i>(Mechanisms of genetic variation + Microbial genomics)</i>	Ch. 16, 17, 18
Oct 19	13	Introduction to Metabolism <i>(ATP, Redox reaction, electron transport chain)</i>	Ch. 10
Oct 21	14	Metabolism <i>(Catabolism: Energy release and conservation)</i>	Ch. 11
Oct 26	15	Metabolism <i>(Anabolism: The use of Energy in Biosynthesis)</i>	Ch. 12
Oct 28	16	The Microbe-Human Ecosystem <i>(Microbiome, diseases connected to dysbiosis)</i>	Ch. 34
Nov 2	17	The Microbe-Human Ecosystem <i>(Microbiome, diseases connected to dysbiosis)</i>	Ch. 34
Nov 4		Exam 2 (Lecture 11-17)	Covering everything until Nov 2 nd
Nov 9	18	Innate Host Resistance <i>(Principles of host defense)</i>	Ch. 32

Nov 11	19	Adaptive Immunity <i>(recognition and memory)</i>	Ch. 33
Nov 16	20	Adaptive Immunity <i>(recognition and memory)</i>	Ch. 33
Nov 18	21	Control of Microorganisms in the Environment <i>(Mechanisms for controlling growth)</i>	Ch. 8
Nov 21	22	Antimicrobial Chemotherapy <i>(Antibacterial drugs)</i>	Ch. 9
Nov 23	23	Epidemiology <i>(Microbiology and public health)</i>	Ch. 36
Nov 25		Thanksgiving	No class Friday Classes
Nov 30	24	Environmental Microbiology <i>(Biogeochemical cycles, water treatment, bioremediation)</i>	Ch. 43
Dec 2	25	Human Disease caused by viruses <i>(Comparisons of diseases in humans)</i>	Ch. 38
Dec 7	26	Human Disease caused by bacteria <i>(Comparisons of diseases in humans)</i>	Ch. 39
Dec 9	27	Course wrap-up and final exam Q & A	
		FINAL EXAM – Lecture 18-27 (noncumulative) Date will be announced when final exam schedule is released	

GRADES

Grading Plan

Lab Grade: See the lab's Canvas website for information on the assignments. The lab grade is worth 50% of the overall course grade.

Exams: Exams will include multiple-choice questions of varying degrees of difficulty as well as short answers. Each exam will be worth 100 points and will last approximately 80 minutes. Exams will be administrated online using the quiz feature on Canvas as well as LockDown Browser. You will be expected to start the exam at the scheduled time. If this can't be done, you need to reach out in advance with a valid excuse. Exams are worth 80% of your lecture grade (or 40% of your overall grade in class). ***Absences from the exam will result in a grade of zero unless valid documentation is received from the Dean's office. The dean will contact me with notice that you have presented valid documentation to be excused from the exam. Then and only then will you be allowed to make up the exam.***

In lecture quiz and Connect assignments: Throughout the lectures, I will have questions embedded in your recordings. These questions can be answered directly in the recording using your electronic device. These questions are there to help keep you on track with the lectures and the reading if needed. We have a lot of material to cover in a short period of time and I need to make sure you guys are on task. These questions are also there to make sure that you are reviewing the material daily instead of studying all the material a day before the exam. I will also assign Connect homework assignments that can be accessed from the McGraw Hill website. These questions will correspond to the material I cover in the lecture and will offer you additional opportunities for practice. Some questions are interactive and offer a great opportunity to learn the material in a different format. The lecture quizzes and Sapling assignments are worth 20% of your lecture grade.

To pass the course, it is necessary to pass both the lecture and laboratory portions.

Lecture Exams = 50% of final course grade
 Laboratory = 50% of final course grade

Lab grade	50% of total grade
Exam 1	40% of total grade
Exam 2	
Exam 3	
In-lecture quizzes and Connect Assignments	10% of total grade
Total	100%

Grading Scale

- A 90-100%
- B+ 85-89%
- B 80-84%
- C+ 75-79%
- C 70-74%

D	60-69%
F	<60%

Curving or bumping grades: students often approach me after every exam asking if I curve class. Please understand that curving grades doesn't always mean an increase in your grade. For example, if the average for an exam is very high (for example 90) with many students in the A range, a curve would result in those students dropping to a lower grade in order to establish a standard curve with 68% within 1 standard deviation and 95% of the class within 2 standard deviations. It's not as simple as adding points to your grade. Also, my class policy is that I do not bump students to the next letter grade. For example, if you get 89.95%, that's a B+. It is not required that I round your grade to the next letter grade. In fact, this can often lead to an inflation in class grades.

Appealing Grades: You will have **1 week** to appeal any grades, Connect assignments, lecture quizzes, and exams. I will NOT address appeals at the end of the semester related to material covered in the beginning or middle of the semester.

ATTENDANCE

Because this is a remote class, I will not be requiring you to attend any meetings. I strongly encourage you to attend office hours. This will be where you can freely ask all your questions. If you send any questions to me during the week, I will address those questions during office hours. This will be recorded for those who can't attend.

In all cases, all students are responsible for all material, assignments and announcements made in class, whether they were present in that class or not. It is the student's responsibility to keep abreast of any changes in exam dates, due dates for assignments, and changes in assigned course material implemented during his/her absence.

ACADEMIC INTEGRITY POLICY

Anything any student submits for a grade must reflect that student's own independent work.

The full Rutgers University Academic Integrity Policy can be found at http://academicintegrity.rutgers.edu/files/documents/AI_Policy_9_01_2011.pdf. Violations include: cheating, fabrication, plagiarism, denying others access to information or material, and facilitating violations of academic integrity. All suspected violations of the policy will be reported to the Office of Student Conduct.

In-Class Behavior

Students are expected to conduct themselves with the appropriate scholarly and

professional attitude in class. Failure to do so will result in points being deducted from your overall point total. Penalties will be decided on a case-by-case basis.