

Microbiology

Fall 2021(Term 2221)
MWF 9:00 AM
324 Cathedral of Learning
University of Pittsburgh

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MICROBIOLOGY

MASKS ARE REQUIRED

If you fail to properly wear a mask (fully covering both your nose and your mouth), you will be dismissed from class. Work missed due to dismissal over mask non-compliance cannot be made up.

PLEASE DO NOT COME TO CLASS IF YOU ARE ILL.

Recordings of each lecture will be made available.

Office Hours

Office hours will be online until COVID rates in the region decrease (see COVID statement).

W 12:00 pm – 1:00 pm

F 12:00 pm – 1:00 pm

In person hours will be held in Clapp 102



This course will focus on building scientific skills while learning biological content.

Skill Focus

Critical Reading
Application
Quantitative Skills
Vertical Integration
Figure Analysis
Information Synthesis

Content Focus

Bacterial Structure and Function
Bacterial Growth and Nutrition
Bacterial Metabolism
Bacterial Genetics
Viruses
Infectious Disease
Immunology

Required Materials

Textbook

OpenStax: Microbiology
Found in TopHat

A working electronic device (i.e. laptop, tablet, phone...) for accessing Canvas and TopHat both in class and out of class

A functional and reliable internet connection

If you do not have access to a reliable internet connection and a PC that meets the recommended minimum standards, including a current operating system, a limited number of mobile hotspots and/or laptops are available for temporary loan. Please visit

<https://www.technology.pitt.edu/remotedevices>

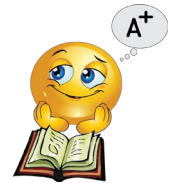
for more information

Please contact the [24/7 IT Help Desk](#) at [412-624-HELP \(4357\)](tel:412-624-HELP) or utilize [Virtual Technical Support](#) if you have questions or need assistance with device setup.

What is expected of me in this class?

You will complete reading/video assignments prior to class

- You will complete all pre/post class assignments by the posted due dates
- You will know assignment and exam dates
- You will attend class and participate
- You will bring a charged, TopHat compatible device to each class
- You will be on time for class
- You will attend discussion sessions and office hours
- You will daily review material



What happens in Lecture?

- You arrive to prepared to learn because you have completed the pre-class assignments.
- Dr. Damiani will utilize TopHat to lecture, ask questions, and assess understanding.
- Specific learning objectives and scientific skills will be addressed.
- You will have the opportunity to ask questions about the material.
- You will be respectful to your classmates and Dr. Damiani by staying on task, silencing your phone, and refraining from extraneous conversations.
- Dr. Damiani will be respectful to you by starting and ending class on time, refraining from any discriminatory practices, abiding by the policies set forth in the syllabus, and treating all students equally.

Where can I find...

Syllabus and Course Schedule?
Canvas

Lecture notes BEFORE class?
You won't find them. I do not post lecture notes before class

Lecture notes AFTER class?
TopHat (linked via Canvas)

Homework Assignments?
TopHat (linked via Canvas)

Assessment Dates?
Canvas (Readings and Assignments)

Grades?
Canvas

Announcements?
Canvas

Classroom Discussion?
Canvas

UTAs?
UTA Resources on Canvas

UTA Discussion Hour Times?
UTA Resources on Canvas

Class Learning Outcomes?
Canvas

What happens in Office Hours and Discussion Sections?

- Each week, I will hold **Office Hours**.
- Office hours will be a synchronous discussion guided by student questions.
- Due to the nature of these synchronous discussions (students asking questions), these sessions will NOT be recorded and posted for review.
- No NEW material will be presented during office hours.
- These are group office hours. I am not readily available for individual meetings. Only matters of high personal priority will be accommodated with a private meeting. Any course content questions or questions regarding study habits or how to improve in the course should be addressed in group office hours, with the UTAs, or on the Canvas discussion board. Individual e-mails regarding content questions or study techniques will not be addressed.
- A team of Undergraduate Teaching Assistants are available to help support you during this course. UTAs will hold **Discussion Hours** throughout the week.
- These sessions will be moderated by a group of UTAs. Dr. Damiani will not be available during these sessions.

NOTE: Until COVID rates in the region decrease, office hours will be held virtually.

If you ask questions in office hours, I may ask you to draw or explain what you know. This is not to embarrass you. It is just a way for me to understand what you know so I know what we need to cover.

Mental Health

Diminished mental health, including significant stress, mood changes, excessive anxiety, or problems with sleeping, can interfere with your academic performance. You have a support network to help you through these challenging times.

If you are in an **EMERGENCY** situation, call 911 or Pitt Police at 412-624-2121.

If your symptoms are due to **FINANCIAL** strain, please visit <https://pitt.libguides.com/assistanceresources> to see all available University resources.

If your symptoms are due to strained **RELATIONSHIPS**, families, or personal crises, please visit the University Counseling Center at <https://www.studentaffairs.pitt.edu/cc/> for free confidential services.

If your symptoms are strictly related to your **COURSE WORK** and performance in this course, please contact me.

Acknowledging that you need help, and getting that help, is smart and courageous.

Resolve Crisis Service (FREE 24-hour crisis service for Allegheny County):
1-888-796-8226

General Mental Health Crisis Response:
412-648-7930

Sexual Assault Response: 412-648-7856

National Suicide Prevention: 1-800-273-8255

NAMI Hotline: 800-950-6264

Course Objectives

- This course is a general survey of microbiology
 - You will be introduced to the basic biology of bacteria, archaea, and viruses with a concentration on bacteria.
 - Diversity within the microbial world will be emphasized, as well as relevance to the environment and human disease.
 - This course will help students make knowledgeable decisions when microbiology impacts everyday life (ie vaccinations).
 - The course will prepare students for advanced study in microbiology.
 - Detailed Learning Outcomes for the course can be found on Canvas (organized by learning outcome or by module)

How can I be successful? PAAADD your grade!

1. **PREPARE** for class with readings and assignments
2. **ACTIVELY** engage with the material
3. **ATTEND** UTA discussion hours and Dr D's office hours
4. **ASK** for help when you need it.
5. **DAILY** spend time with the material
6. **DRAW** figures

and experiments in a sketchpad

DO NOT underestimate the difficulty of the class!!



Assessments

Turn It In and/or Canvas will be used for class engagement, homework, and other assignments on the Monday following each module for a total of 6 required quizzes.

Quizzes will be worth 31 points but only 30 points will count towards your grade. The buffer point is to provide flexibility within the quiz benefit. It helps you review the information and check basic understanding. Therefore, it is in your best interest to put forth your best effort on these assignments. Completing homework assignments (5 minutes) before the quiz is not allowable.

- Quizzes will be worth 31 points but only 30 points will count towards your grade. The buffer point is to provide flexibility within the quiz benefit. It helps you review the information and check basic understanding. Therefore, it is in your best interest to put forth your best effort on these assignments. Completing homework assignments (5 minutes) before the quiz is not allowable.
- Your lowest 3 homework assignments will be automatically dropped. NO make-ups for missed quizzes, for ANY reason, including technology problems. This will count as your dropped quiz for the semester, irrespective of when the issue happens during the term.

Application Assignments

- During this class we will have some group activities focused on case studies, application of concepts, and critical thinking. Dates for discussions (electronically or mechanically) any part of any module assignments will be in the Readings and Assignments area. Quizzes will not be returned. We will discuss most missed questions. These sessions will generally not be recorded due to the small group discussion format.

Final Quiz

- A remote, OPTIONAL, 30-point, 50-minute, cumulative final exam will be offered during assignments. These may be graded for completion accurately or standard letter grade.
- Your lowest application of the final assignment will be dropped automatically.

Grade Calculation

This class will rely on a modified SPEC grading method.

For percentages, 0.5 and above is rounded to the next highest percentage (89.6% rounds to 90%). Anything below 0.5 will not round up.

For an A in this class:
≥ 90% average on all homework assignments
≥ 90% average on all module quizzes
≥ 90% average on all application assignments

For a B in this class:
≥ 80% average on all homework assignments
≥ 80% average on all module quizzes
≥ 80% average on all application assignments

For C in this class:
≥ 70% average on all homework assignments
≥ 70% average on all module quizzes
≥ 70% average on all application assignments

For a D in this class:
≥ 60% average on all homework assignments
≥ 60% average on all module quizzes
≥ 60% average on all application assignments

Any student not meeting the requirements for a D in the course will receive an F.

All benchmarks MUST be met in order to receive a specific letter grade. For example, if you receive an 82% on homework assignments, 95% on module assignments, and 95% on quizzes, you will receive a B in the course.

+/- in this class will be determined by the final quiz. Students receiving ≥ 27 on the final will receive a + Students receiving ≤ 19 on the final will receive a -

Grade Calculation

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- I will not give extra points so that you can move up to the next letter grade.
 - I will not regrade assignments to “find” points
 - You cannot make up missed assignments once due dates have passed
 - Synchronous, “in-class” participation points CANNOT be made up
 - I will not give extra credit to any individual student

Personal Conduct

Students are permitted to discuss concepts and ideas with classmates and UTAs. However, each student should turn in work reflecting their own thoughts, skills, and abilities.

- The following are suitable resources to consult for non-quiz assignments: instructor, UTAs, classmates, textbook, lectures, and reliable scientific literature. Consulting online tutoring services or other online “educational help” websites for any assignment is specifically forbidden and is an academic integrity violation.
 - Posting questions to internet websites or consulting the internet for solutions to any assignment is a violation of academic integrity.
 - Students are expected to exhibit appropriate Zoom behavior (see Zoom policies)
 - Use of any audio or video recording device is strictly prohibited without consent of the professor.
 - E-mailing your professor is considered an official communication. Dr. Damiani and Dr. D are appropriate. Ms. Damiani, Mrs. Damiani, Candice, and Candi are inappropriate.

COVID Statement

- This class may have times of remote instruction. This will be dependent on rates of COVID transmission in Allegheny County, the Pitt campus, the local community of Oakland, and the health of the instructor. We will follow guidelines and suggestions put forth by the University of Pittsburgh and Allegheny County.
 - As of today (8/27/2021), this class will begin in a remote fashion. Lectures will be delivered synchronously, from 9:00 pm – 9:50 pm, via Zoom. Zoom sessions will be recorded and posted. You are expected to attend class Zoom sessions just as you would normally attend in-person classes. If you desire, you may engage in these remote sessions while sitting in our classroom. You should bring your own laptop/tablet and a pair of headphones.
 - As per guidance from the University of Pittsburgh, remote instruction will end on September 13th.
 - Until COVID rates in the region decline, all instructor led office hours will be online.

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- Once in person office hours resume, office hours will shift to the times/places listed on the front page of this syllabus.

Automatic Drop Policy

For this class, 1 quiz, 3 homework assignments, and 1 application assignment will be automatically dropped. Before ANY other accommodations are made, you will need to use your drops. This means if you are ill, have a tech issue, forget to do an assignment, etc, that missed assignment/quiz will serve as your drop. The reason is irrelevant. Drops come first. Only after all drops are used will any consideration be given to specific personal situations.

Class Communication

All communication in this class will be via your University e-mail account or via Canvas announcements. Discussion boards will be posted on Canvas for general class and content questions. Questions regarding course content should NOT be e-mailed to Dr. Damiani. They should be posted on the discussion board so all students will benefit from the answer.

Zoom Policies

The University of Pittsburgh Student Conduct Code applies to online behavior as well as in-person or classroom behavior. You are expected to be professional and respectful when attending class on Zoom. The following are class policies for our meetings with Zoom. Please read carefully, these policies are effective immediately and apply for the remainder of the semester. All students are expected to adhere to the policies.

General

1. Sign in with your full first name and last name as listed on the class roster. Do not use a nickname or other pseudonym when you log in. It makes it impossible to know who is in attendance. Using your full name quickly sorts students into their groups when needed. Users who do not provide their full names and do not log in with their authenticated Pitt account will NOT be admitted to class.

Exceptions:

Since enrolling in class, some students have changed their names to better reflect their gender identity. If you currently use a different name than what is listed on the official roster, please send a private email so this can be noted on the roster and you can use your current name on Zoom.

If you do not have access to a computer or smartphone with internet access, call into class using a landline phone. This is not optimal; please try to locate an internet-enabled device to use for class.

2. Stay focused. Please stay engaged in class activities. Close any apps on your device that are not relevant and turn off notifications.

Video

1. Turn on your video when possible. It is helpful to be able to see each other

Exceptions:

If you have limited internet bandwidth or no webcam, it is ok to not use video.

If you're unable to find an environment without a lot of visual distractions, it is also ok to turn off your video.

2. Keep it clean. Don't share anything you would not put up on the projector in class!

Audio

1. Mute your microphone when you are not talking. This helps eliminate background noise.

2. Use a headset when possible. If you own headphones with a microphone, please use them

3. Be in a quiet place when possible. Find a quiet, distraction-free spot to log in. Turn off any music, videos, etc. in the background.

Chat

1. Stay on topic. Use the chat window for questions and comments that are relevant to class. The chat window is not a place for socializing or posting comments that distract from the course activities.

ABSOLUTELY NO disrespect or hate speech. Respectful behavior is expected. Consider Zoom a professional environment, and act like you're at a job interview, even when you are typing in the chat

University Policies

Disability Resources and Services

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and Disabilities Resources and Services, 216 William Pitt Union, (412) 648-7890/(412) 383-7355 (TTY), as early as possible in the term. DRS will verify your disability and determine reasonable accommodations for this course.

E-mail Communication

Each student is issued a University e-mail address (username@pitt.edu) upon admittance. This e-mail address may be used by the University for official communication with students. Students are expected to read e-mail sent to this account on a regular basis. Failure to read and react to University communications in a timely manner does not absolve the student from knowing and complying with the content of the communications. The University provides an e-mail forwarding service that allows students to read their e-mail via other service providers (e.g., Hotmail, AOL, Yahoo). Students that choose to forward their e-mail from their pitt.edu address to another address do so at their own risk. If e-mail is lost as a result of forwarding, it does not absolve the student from responding to official communications sent to their University e-mail address. To forward e-mail sent to your University account, go to <http://accounts.pitt.edu>, log into your account, click on Edit Forwarding Addresses, and follow the instructions on the page. Be sure to log out of your account when you have finished. (For the full E-mail Communication Policy, go to www.bc.pitt.edu/policies/policy/09/09-10-01.html.)

Accessibility

The Canvas LMS platform was built using the most modern HTML and CSS technologies, and is committed to W3C's Web Accessibility Initiative and Section 508 guidelines. Specific details regarding individual feature compliance are documented and updated regularly.

Academic Integrity

If you are caught cheating on a graded assignment, you will (AT MINIMUM) receive a 0 on the assignment. If you are caught cheating on a quiz, you will receive a 0 on the quiz and an Academic Integrity Violation Report will be filed.

Materials made available to you in this class are my intellectual property. They are for your private use only. Posting or sharing my materials (lecture notes, slides, quizzes, homework,

exams, recitation assignments, etc) to any website or with any student not currently enrolled in this course, without my express written permission, is a violation of the academic integrity code.

Below is the **University's Policy on Academic Integrity**:

Students in this course are expected to comply with the University of Pittsburgh School of Arts and Sciences Academic Integrity Code located at <http://www.as.pitt.edu/faculty/policy/integrity.html>. Any student suspected of failing to meet the student obligations of the code during the semester will be required to participate in the procedures for adjudication, initiated at the instructor level. This may include, but is not limited to, confiscation of the assignment of any individual suspected of violating the code. A minimum sanction of a zero score for the assignment will be imposed. Violation of the Academic Integrity Code requires the instructor to submit an Academic Integrity Violation Report to the Dean.

Health and Safety Statement

In the midst of this pandemic, it is extremely important that you abide by public health regulations and University of Pittsburgh health standards and guidelines. While in class, at a minimum this means that you must wear a face covering and comply with physical distancing requirements; other requirements may be added by the University during the semester. These rules have been developed to protect the health and safety of all community members. Failure to comply with these requirements will result in you not being permitted to attend class in person and could result in a Student Conduct violation. For the most up-to-date information and guidance, please visit coronavirus.pitt.edu and check your Pitt email for updates before each class.

Diversity and Inclusion

The University of Pittsburgh does not tolerate any form of discrimination, harassment, or retaliation based on disability, race, color, religion, national origin, ancestry, genetic information, marital status, familial status, sex, age, sexual orientation, veteran status or gender identity or other factors as stated in the University's Title IX policy. The University is committed to taking prompt action to end a hostile environment that interferes with the University's mission. For more information about policies, procedures, and practices, see: <https://www.diversity.pitt.edu/civil-rights-title-ix-compliance/policies-procedures-and-practices>.

I ask that everyone in the class strive to help ensure that other members of this class can learn in a supportive and respectful environment. If there are instances of the aforementioned issues, please contact the Title IX Coordinator, by calling 412-648-7860, or e-mailing titleixcoordinator@pitt.edu. Reports can also be filed online: <https://www.diversity.pitt.edu/make-report/report-form>.

You may also choose to report this to a faculty/staff member; they are required to communicate this to the University's Office of Diversity and Inclusion. If you wish to maintain

complete confidentiality, you may also contact the University Counseling Center (412-648-7930)

Dr. Damiani reserves the right to alter the syllabus and the course schedule as necessary. If changes occur, they will be clearly communicated in class and a revised syllabus and course schedule will be provided.

Course Schedule

Date	Topics Covered
Week 1-2	Introduction to Microbiology and Online Learning Module 1: Bacterial and Archaeal Structure and Function Quiz Monday of Week 3
Weeks 3-4	Module 2: Bacterial Growth Quiz Monday of Week 5
Weeks 5-6	Module 3: Bacterial Metabolism Quiz Monday of Week 7
Weeks 7-8	Module 4: Bacterial Genetics Quiz Monday of Week 9
Weeks 9-11	Module 5: Viruses Quiz Monday of Week 12
Weeks 12-14	Module 6: Pathogens and Human Responses Quiz During Finals Week

Course Outline

Date	Topic
Module 1: Introduction and History Bacterial and Archaeal Structure and Function	
W0 Friday	Introduction to Microbiology
W1 Monday	History of Microbiology
W1 Wednesday	Classification and Cellular Morphology
W1 Friday	Cell Wall Structure Module 1 Application Activity
W2 Monday	No Class
W2 Wednesday	Antibiotic Therapy Staining Procedures
W2 Friday	Cell membrane and other structures
Module 2: Bacterial Growth	
W3 Monday	Module 1 Quiz Intro to Bacterial Nutrition
W3 Wednesday	Bacterial Transport Systems
W3 Friday	Cultivation of Microbes and Growth Media
W3 Monday	Environmental Impacts on Growth Module 2 Application Activity
W4 Wednesday	Bacterial Growth Curve
W4 Friday	Control of Microorganisms
Module 4: Bacterial Genetics	
W4 Monday	Module 2 Quiz Intro to Genetics

W5 Wednesday	Bacterial DNA Replication
W5 Friday	Bacterial Cytoskeleton and Plasmids Transcription
W5 Monday	Translation Trp Operon
W6 Wednesday	Lac Operon Module 4 Application Activity
W6 Friday	Ara Operon Lux Operon
Module 3: Bacterial Metabolism	
W6 Monday	Module 4 Quiz Intro to Metabolism
W7 Wednesday	Catabolism
W7 Friday	Fall Break No Class
W7 Monday	Fermentation
W8 Wednesday	ETS Intro to Gut Microbiota
W8 Friday	Module 3 Application Activity Metabolism Wrap Up
Module 5: Viruses	
W8 Monday	Module 3 Quiz Intro to Viruses
W9 Wednesday	Baltimore Classification
W9 Friday	Viral Shape and Viral Lifecycle
W9 Monday	Bacteriophages; Viral Like Particles
W10 Wednesday	Ebola
W10 Friday	Influenza

W10 Monday	HIV Module 6 Application Activity
W11 Wednesday	HIV Coronavirus
W11 Friday	Coronavirus
Module 6: Pathogens and Human Responses	
W11 Monday	Module 5 Quiz Blood Cells
W12 Wednesday	Innate Immunity
W12 Friday	Innate Immunity
W13	NO CLASS - Thanksgiving Break
W14 Monday	Intro to Adaptive Immunity
W14 Wednesday	B cell Immunity Module 6 Application Activity
W14 Friday	T cell Immunity
W15 Monday	Infectious Disease
W15 Wednesday	Infectious Disease
W15 Friday	Infectious Disease