

Foundations of Biology II

(BIOSC 0160)

Fall 2021 (Term 2221)
MWF 2:00 PM
Clapp L9
University of Pittsburgh

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Foundations of Biology II

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

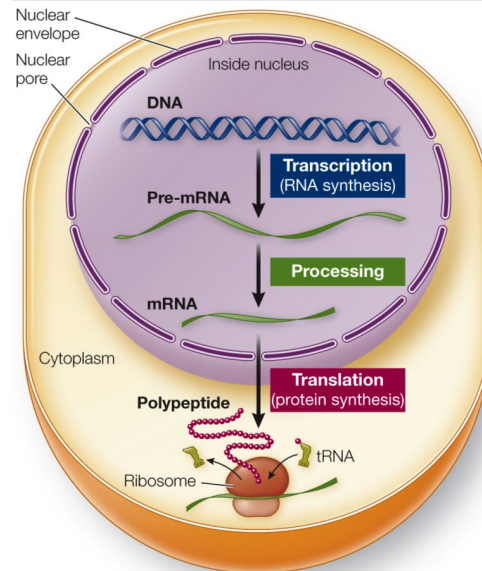
Office hours will be online until COVID rates in the region decrease (see COVID statement).

In-person office hours:

W 3:00 pm – 4:00 pm

Note: Office hours will not be held at this time on the first Wednesday of each month. An alternative time will be announced.

F 3:00 pm – 4:00 pm



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

Skill Focus

Higher Order Thinking
Quantitative Reasoning
Figure Analysis
Communication and Collaboration
Process of Learning
Metacognition

Content Focus

Molecular Genetics
Central Dogma
Genomics
Biotechnology
Evolution
Ecology

Required Materials

Textbook

LIFE, 12th edition, Sadava
Available via Inclusive Access in
Canvas

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

A 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>

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

Technology in the Class

While web-enabled devices are
required for this course (for TopHat),
you need to stay **FOCUSED** on the
class content. If you use the device
for extraneous activities (texting,
surfing, shopping!) then your learning
will be impacted.

FYI...There is strong evidence that
writing (not typing) notes is the most
effective way to retain new
information.

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 the weekly recitation
- 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

Homework Assignments?

TopHat/Canvas

Assessments Dates?

Canv

Learning Objectives?

First slides of lecture notes

Exam Grades?

Canvas

Announcements?

Canvas

Classroom Discussion?

Canvas Discussion Board

Practice Worksheets?

UTA Discussion Hours

UTAs?

Canvas

UTA Discussion Hours

Recitations

Discussion Hour Times?

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 UTAs. Dr. Damiani will not be available during these sessions.

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

What happens in Recitations?

- Recitations are required.
- You may have a pre-recitation assignment due. Carefully check the due dates.
- You may only attend your assigned recitation section. In rare cases and with a valid excuse, I may provide you a one-time pass to attend a recitation other than your own.
- Material presented in recitation is testable.
- Recitation assignments are worth 10 points each. This can be a mix of accuracy and participation.

Your lowest recitation grade will be dropped
If you miss a recitation activity, that will count as your lowest grade and will be the recitation activity that is dropped.

How can I be successful? PAAADD your grade!

PREPARE for class with pre-class readings and assignments.

ACTIVELY engage with the material. Review, Review, Review

ATTEND UTA discussion hours and Dr D's
ASK for help when you need it. Do not fall behind

DAILY spend time with the material.

DRAW figures and experiments in a sketchpad.

outside of class for review and study

DO NOT underestimate the difficulty of the class!



Quizzes

6 (six) 50-minute 30-point quizzes

In-class unless a verified, valid medical excuse is provided

1 (one) OPTIONAL cumulative final examination

30 points

Given in accordance with Pitt's Final Examination Schedule

50-minute exam period

Only used for +/- grading

- **NO** make-up quizzes will be given. If you miss a quiz, that quiz will serve as your dropped quiz. If you miss more than one quiz, you will receive a 0 on those quizzes.
- If you do not miss a quiz, your lowest quiz score will be automatically dropped.
- Only **ONE** quiz can be dropped regardless of circumstances.
- All quizzes will be cumulative in nature. You can expect to see at least one question focused on a concept from the previous modules.
- The final exam is completely optional. It will only serve to add a +/- to your grade if you choose to take it. It will not alter your final quiz score or your letter grade. Opting out of the final exam will not hurt your grade.
- You may not reproduce (electronically or mechanically) any part of any quiz/exam in any way.
- Quizzes will NOT be returned. You will have an opportunity to rework the most missed questions from each quiz and ask questions in the recitation following the quiz.

Grade Calculation

This class will rely on a standards-based 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/module activities. **Each homework is worth 10 points; 3 can be dropped. The module activities are worth 20 points and will be calculated in with the homework assignments. There are no drops for module activities.**

≥ **88%** average on all module quizzes (each quiz is worth 20 points; your lowest quiz will be automatically dropped)

≥ **90%** average on all recitation activities (each recitation is worth 10 points; 1 can be dropped)

For a B in this class:

≥ **80%** average on all homework assignments

≥ **78%** average on all module quizzes

≥ **80%** average on all recitation activities

For C in this class:

≥ **70%** average on all homework assignments

≥ **70%** average on all module quizzes

≥ **70%** average on all recitation activities

For a D in this class:

≥ **60%** average on all homework assignments

≥ **60%** average on all module quizzes

≥ **60%** average on all recitation activities

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

+/- in this class will be determined by the OPTIONAL final exam.

Students receiving ≥ 27 on the final will receive a + on their earned grade.

Students receiving ≤ 19 on the final will receive a – on their earned grade.

The final quiz will NOT be averaged in with the 6 module quizzes; it is for +/- grading only.

TopHat Activities

- ❖ TopHat will be used for homework, activities, in class questions and some assessments.
- ❖ You are responsible for all assignments. **Once an assignment closes, it will not reopen.**
- ❖ You are expected to have access to a charged, functional TopHat compatible device and a reliable internet connection.
- ❖ If you are caught answering TopHat questions for another student, both of you will receive a 0 for all Top Hat related activities for the semester.
- ❖ Your lowest three 10-point homework assignments will be dropped.

Technology Used

- ❖ Technology used in this class will include:
 - ❖ Learning Management System: Canvas
 - ❖ Homework Platform: TopHat
 - ❖ Lecture Recordings: Canvas and Panopto
 - ❖ Synchronous Discussions: Zoom
 - ❖ Assessments: TopHat and Canvas

Grade Calculation

- 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 the assignment closes.
- I will not give extra credit to any individual student

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 questions 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.

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 2:00 pm – 2:50 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.
 - Recitations will also be delivered synchronously during your scheduled recitation time. Again, you are expected to attend recitations just as you would normally attend in-person recitations. 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. Recitations will not be recorded.
 - As per guidance from the University of Pittsburgh, remote instruction will end on September 13th. However, September 13th is the date of Quiz 1. Guidance on where/how to take Quiz 1 will be provided by your instructor.
 - Until COVID rates in the region decline, all instructor led office hours will be online. The office hour schedule for all online office hours is below. This schedule will change once we resume in person office hours.
 - Wednesdays 11:00 am – 12:00 noon
 - Fridays 11:00 am – 12:00 noon
 - 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 and 3 homework assignments 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.

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

Inclusive Access

This course is enrolled in the Inclusive Access program, which provides all students with discounted digital course materials through Canvas. Students are automatically enrolled in the program and have access to their course content on Canvas.

The cost of Inclusive Access materials is posted to students' accounts in PittPAY and appears as a course materials fee on the Account Activity tab. Students are able to [opt out](#) of the program during the add/drop period. If a student chooses to opt out of the program, the fee is reversed, and the student becomes responsible for acquiring physical copies of any necessary course materials. For more information, visit the [University Bookstore Website](#).

University Policies

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 an exam, you will receive a 0 on the exam, an F in the course, and an Academic Integrity Violation Report will be filed.
 - Use of unauthorized material during an exam or quiz, including notes, dictionaries, calculators, telephones, smart watches/devices, or any material that would give you an unfair advantage over other students in the class, are forbidden.
 - 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.

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.)

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.

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.

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)

Natural Science General Education Requirement

This course fulfills one Dietrich School of Arts and Sciences Natural Science General Education Requirement (GER) as described for the GERs starting Fall 2018 (term 2191). That GER reads as follows:

Three Courses in the Natural Sciences

These will be courses that introduce students to scientific principles and concepts rather than offering a simple codification of facts in a discipline or a history of a discipline. The courses may be interdisciplinary, and no more than two courses may have the same primary departmental sponsor.

The instructor 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	Textbook/Paper Readings
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W0 Friday	Introduction to Foundations of Biology 2	
Module 7: Human Health		
W1 Monday	Intro to Symbiotic Relationships	E-book: 54, 54.1
Tuesday Recitation		
Wednesday	Parasitic Relationships Blood Cells	E-book: 54.2, 40, 40.1,
Friday	Innate Immunity	E-book: 40.2
W2 Monday	No Class	
Tuesday Recitation	Boyle Module	
Wednesday	Humoral Immunity	E-book: 40.3, 40.4, 40.5
Friday	Cell Mediated Immunity	E-book: 40.3, 40.4, 40.5
Module 1: DNA Structure and Function, Replication, Central Dogma		
W3 Monday	Module 7 Quiz Return to In-Person Learning	
Tuesday Recitation	Module 7 Quiz Rework Quiz Reflection	
Wednesday	Hershey Chase/DNA	E-book: 13, 13.1
Friday	Meselson Stahl Experiment	E-book: 13.2, 13.3
W4 Monday	DNA Replication Activity Posted	E-book: 13.3
Tuesday Recitation	DNA Replication Questions	SOL: 47-63
Wednesday	DNA Replication Telomeres/ Proofreading	E-book: 13.3, 13.4
Friday	Central Dogma	E-book: 14, 14.1, 14.2, 14.5

Module 2: Transcription and Translation

W5 Monday	Module 1 Quiz Transcription in Eukaryotes (Online)	E-book: 14.3
Tuesday Recitation	Exam Rework and Reflection	
Wednesday	Transcription in Prokaryotes mRNA Processing	E-book:14.3 Prokaryotic/Eukaryotic Transcription Comparison
Friday	Translation Protein Processing/ Mutations	E-book: 14.6, 14.7, 15, 15.1
W6 Monday	Berman Translation Module	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5419741/
Tuesday Recitation	Gene Expression: From DNA to Protein	
Wednesday	DNA Problems (SMA)	
Friday	Module Wrap-Up Module 2 Assessment Prep	

Module 3: Gene Regulation and Biotechnology

W7 Monday	Module 2 Quiz Vampire Murder/STR/PCR (online)	E-book: 13.5, 15.3
Tuesday Recitation	PCR Primer Design/Druid Dracula	
Wednesday	Prokaryotic Gene Regulation	E-book: 16, 16.1, 18.4
Friday	NO CLASS-FALL BREAK	
W8 Monday	Eukaryotic Gene Regulation	E-book: 16.2
Tuesday Recitation	TAS2R38	
Wednesday	Eukaryotic Gene Expression	E-book: 16.4,16.5
Friday	Sequencing and Restriction Enzymes	E-book: 18.1, 18.2, 18.3

Module 4: Evolution

W9 Monday	Module 3 Quiz Introduction to Evolution (online)	E-book: 19, 19.1
Tuesday Recitation	Hardy Weinberg	E-book: 19.3
Wednesday	Natural Selection and Mutations	E-book: 19.2, 19.4, 19.5
Friday	Selection Genetic Drift and Gene Flow	E-book: 19.2, 19.4, 19.5
W10 Monday	Non-random mating	E-book: 19.2, 19.4, 19.5
Tuesday Recitation	H-W Problems Scenario Questions	
Wednesday	Phylogenies	E-book: 20, 20.1, 20.2
Friday	Phylogenies/Phylogenetic Tree Problems	E-book: 20, 20.1, 20.2

Module 5: Ecology

W11 Monday	Module 4 Quiz	
Tuesday Recitation		
Wednesday	Species Concepts	E-book: 22, 22.1
Friday	Allopatric and Sympatric Speciation	E-book: 22.3, 22.4
W12 Monday	Behavior	E-book: 51, 51.1, 51.2, 51.4, 51.5
Tuesday Recitation	Richards-Zawacki Module	
Wednesday	Species Interactions	E-book: 51, 51.1, 51.2, 51.4, 51.5
Friday	Module Wrap-Up	E-book: Revisit Chapter 54
W13	NO CLASS THANKSGIVING BREAK	

Module 6: Humans and Microbes

W14 Monday	Introduction to Microbiology	E-book: 24, 24.1
Tuesday Recitation	H. pylori (online lecture) H. pylori RpoB	
Wednesday	Gram Stain Introduction to Viruses	E-book: 24.4
Friday	Viral Lifecycle	Viral Lifecycle
W15 Monday	Coronavirus	
Tuesday Recitation	Viruses	
Wednesday	Coronavirus	
Friday	HIV	
TBD	Modules 5 and 6 Quiz FINAL EXAM (OPTIONAL)	