
Immunology

Spring 2022 (Term 2224)
MWF 1:00 PM
324 Cathedral of Learning
University of Pittsburgh

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IMMUNOLOGY

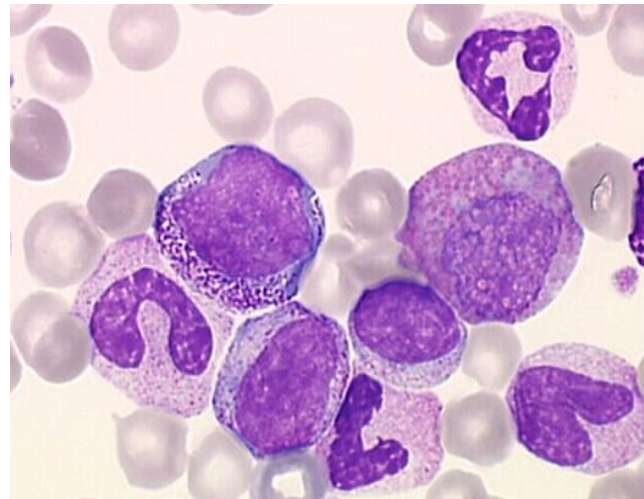
MASKS ARE REQUIRED

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.

Office Hours

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



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

Historical Perspective of Immunology
Cells and Organs of the Immune System
Innate and Adaptive Immunity
MHC and Antigen Presentation
Development and Activation of B and T cells
Allergy and Hypersensitivity
Competing Theories

Required Materials

Textbook

Kuby Immunology, 8th Edition
Punt, Stranford, Jones, and Owen
Available via Inclusive Access in
Canvas

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

A functional and reliable internet connection

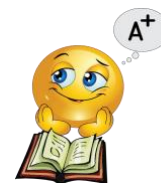
If you do not have access to a reliable internet connection and a PC that meets the recommended minimum standards, including a current operating system, a limited number of mobile hotspots and/or laptops are available for temporary loan. Please visit

<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 regularly attend class
- You will actively engage in the presented material by taking notes, asking questions, and being free from distraction.
- You will bring pre-requisite knowledge from previous courses (or you will seek to find the pre-requisite knowledge).
- You will invest appropriate time and effort into the course (for every 1 hour in class, science students should spend at minimum 3 more hours outside of class working with the material).
- You will regularly attend professor office hours and engage with the class discussion board.
- You will bring a charged, TopHat compatible device to each class

What happens in lecture?

- Depending on COVID cases and specific guidance provided by the University, lectures may be prerecorded or may occur live. They may be on Zoom, TopHat, or in a physical classroom. Modality will be clearly communicated to the class and may change for each class as necessary. A combination of synchronous and asynchronous discussion techniques will be utilized. You will be expected to complete asynchronous material on your own in an appropriate time frame.
- 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)

Quiz Dates?
Canvas (Readings and Assignments)

Quiz Grades?
Canvas

Announcements?
Canvas

Classroom Discussion?
Canvas

What happens in Office Hours and Discussion Sections?

- Dr. Damiani will hold weekly **Office Hours**. This time is 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. Dr. Damiani is not readily available for individual meetings due to the number of students in the course. 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 or on the Canvas discussion board. Individual e-mails regarding content questions or study techniques will not be addressed.

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 immunology.
- You will be introduced to the basic biology of the innate and the adaptive immune system
- Competing theories regarding the immune system will be explored including the self/non-self theory, the infectious non-self theory, and the danger theory. Relevance to human disease will be emphasized.
- This course will help students make knowledgeable decisions when immunology impacts everyday life (for example, vaccinations, allergies, and transplants).
- The course will prepare students for advanced study in immunology.

How can I be successful? PAAAD Your Grade!

1. **PREPARE** for class with pre-class 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!!



Quizzes

Module Quizzes

This course will consist of synchronous, 50-minute quizzes during class time on the Monday following completion of each Module for a total of 6 required quizzes.

- Quizzes will be worth 21 points but only 20 points will count towards your grade. The buffer point is to provide flexibility.
- Quizzes are upper level, critical thinking questions. There may be mixed question types (multiple choice, drawing, etc).
- If you miss a quiz for a verifiable, documented medical excuse, a university-sponsored athletic event, a military commitment, or a religious holiday there are two options: 1. Request an oral make-up quiz. Oral make-ups must be taken no later than 3 days after the original quiz (ie, Thursday for a Monday exam) and requested at least 1 hour prior to the start of the quiz. 2. Substitute your final quiz score for the missed quiz (default).
- Outside the reasons listed above, there are NO make-ups for missed quizzes. If you miss a quiz, you can substitute the grade of your cumulative final quiz.
- Regrades will only be done because of instructor error or if there was a problem with a specific question. Regrades will not be conducted at student request.
- You may not reproduce any part of any quiz in any way.
- Quizzes will not be returned. We will discuss most missed questions.

Final Quiz

- * A cumulative 20-point final quiz will be given during finals week in accordance with the University's Final Exam Schedule.
- * This is a required quiz.
- * You cannot make up the final quiz.
- * Final quiz grade cannot be replaced.
- * If you have 3 finals scheduled on the same day, you must speak to me one month prior to finals.
- * Students missing the final quiz due to a documented emergency should contact me ASAP. Oversleeping, travel plans, family vacations, incorrect date, and minor illnesses are not emergencies.

Grade Calculations

Grade Breakdown in this course is as follows:

Assignment	Points Possible	My Earned Points
Module 1 Quiz	21	
Module 2 Quiz	21	
Module 3 Quiz	21	
Module 4 Quiz	21	
Module 5 Quiz	21	
Module 6 Quiz	21	
Final Quiz	20	
Paper	20	
Homework Assignments	1	
Discussion Prep/Case Studies/Reflection Assignments	1	
Total Points Possible	160 (+ 8 extra) Grades calculated out of 160 points	
Percentage Earned	Total Earned Points/160	

Grading Scheme:

A	100%	to 94%
A-	< 94%	to 90%
B+	< 90%	to 87%
B	< 87%	to 84%
B-	< 84%	to 80%
C+	< 80%	to 77%
C	< 77%	to 74%
C-	< 74%	to 70%
D+	< 70%	to 67%
D	< 67%	to 64%
D-	< 64%	to 61%
F	< 60%	to 0%

0.5% and greater will round up; 0.4% and lower will round down.

Homework

- ❖ TopHat and/or Canvas will be used for class engagement, homework, and other assignments.
- ❖ Homework is given for your 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 due date is not valuable.
- ❖ If you complete and earn 85% of the points possible on the homework for the course, you will earn 1 point.

Paper/Case Study Discussions

- ❖ Periodically, we will have group discussion focused on case studies and primary literature in this class.
- ❖ Dates for these discussions will be in the Readings and Assignments area although extra assignments may be added without advanced notice. These sessions will not be recorded due to the small group discussion format.
- ❖ A preparatory or reflection assignment will accompany most papers/cases. These may be graded for completion, accuracy, or both. They will remain open for 24 hours. If you complete and earn 85% of the points possible on these assignment for the course, you will earn 1 point.
- ❖ These activities are designed and provided for your benefit. They help you apply information and prepare you for upper-level, critical thinking, application-based exam questions. It is in your best interest to put forth your best effort on these assignments.

Grade Calculations

- * 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. There are 8 points of extra credit built into the course which can result in a 5% grade increase. This is equally available to all students.

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-exam 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 and of our class materials, questions, etc 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 (1/10/2022), this class will begin in a remote fashion. Lectures will be delivered both synchronously and asynchronously depending on the specific material. Synchronous lectures will be from 1:00 pm – 11:50 pm, via Zoom. You are expected to attend class Zoom sessions just as you would normally attend in-person classes. The modality for each session will be clearly communicated.
- * As per current guidance from the University of Pittsburgh, remote instruction is expected to end on January 28th. This is subject to change.
- * Until COVID rates in the region decline, all instructor led office hours will be online. Depending on room/space availability, office hours may remain online for the duration of the term.

Automatic Exam Replacement Policy

For this class, make-up exams are only considered in the following situations:

1. A verifiable, documented medical excuse
2. A university-sponsored athletic event (generally this is handled through an athletic department proctor rather than via a make-up exam)
3. A verifiable, documented military commitment
4. A University recognized religious holiday

As stated in the “Assessment” section of the syllabus, all make-up exams will be administered orally. Outside the reasons listed above, there are no make-ups for missed exams. If you miss an exam, you can substitute the grade of your cumulative final for your missed exam.

Only **one** substitution will be made; other missed exams will receive a 0.

If you do not miss an exam, your cumulative final exam score will replace your lowest exam score.

You **cannot** make up the final exam. The final exam grade cannot be replaced.

***** Please take note: you should schedule your travel home AFTER the Registrar releases final exam schedules. Travel plans are NOT a valid reason to miss the final exam. Travel plans will NOT be accommodated. *****

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 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

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 OUTLINE

Date	Topic
Module 1	
W1 Monday	Introduction to Class History of Immunology
W1 Wednesday	3 Modules of the Immune System
W1 Friday	Overview of the Immune System (Module 1 Lecture 2)
W2 Monday	No Class

W2 Wednesday	Overview of the Immune System vonBehring/Kitasato Paper discussion
W2 Friday	Instructional/Selective Theory (online recording) (Module 1 Lecture 4a)
W3 Monday	Blood Cells (online recording) (Module 1 Lecture 4b)
W3 Wednesday	Hematopoiesis/Stem Cells (Module 1 Lecture 5) Till and McCulloch Discussion
W3 Friday	Hematopoiesis/Stem Cells (Module 1 Lecture 6)
Module 2	
W4 Monday (January 31, 2022)	Quiz 1 Primary and Secondary Immune Organs (online recording) (Module 2 Lecture 1)
W4 Wednesday	Lymph Intro to Innate Immunity (Module 2 Lecture 2)
W4 Friday	Antimicrobial Proteins (Module 2 Lecture 3)
W5 Monday	Phagocytosis Inflammation (Module 2 Lecture 4)
W5 Wednesday	Pattern Recognition Receptors (TLRs) (Module 2 Lecture 5)
W5 Friday	Cytokines (Module 2 Lecture 6)
Module 3	
W6 Monday (February 14, 2022)	Quiz 2 Complement (Module 3 Lecture 1) (online recording)
W6 Wednesday	Complement (Module 3 Lecture 2)
W6 Friday	Complement Deficiencies (Module 3 Lecture 3)
W7 Monday	T cell and B cell Receptors Ig Gene Structure (Module 3 Lecture 4)
W7 Wednesday	Ig Gene Rearrangement (Module 3 Lecture 5)
W7 Friday	Ig Gene Rearrangement (Module 3 Lecture 6)
Module 4	
W8 Monday (February 28, 2022)	Quiz 3 MHC I and MHC II Structure (Module 4 Lecture 2) (online lecture)

W8 Wednesday	Antigen Processing (Module 4 Lecture 2)
W8 Friday	Inheritance of MHC Self-restriction (Module 4 Lecture 3)
W9	NO CLASS - SPRING BREAK
W10 Monday	T cell Development (Module 4 Lecture 4)
W10 Wednesday	T cell development (Module 4 Lecture 5)
W10 Friday	T cell development (Module 4 Lecture 6)
Module 5	
W11 Monday (March 21, 2022)	Quiz 4 T cell activation (Module 5 Lecture 1a) (online lecture)
W11 Wednesday	Effector T cell populations (Module 5 Lecture 1b/2)
W11 Friday	T cell case study Effector T cell populations
W12 Monday	B cell development (Module 5 Lecture 3)
W12 Wednesday	B cell development (Module 5 Lecture 4)
W12 Friday	B cell development (Module 5 Lecture 5)
Module 6	
W13 Monday (April 4, 2022)	Quiz 5
W13 Wednesday	B cell activation (Module 6 Lecture 1)
W13 Friday	Type I Hypersensitivities (Module 6 Lecture 2)
W14 Monday	Types II, III, and IV Hypersensitivities (Module 6 Lecture 3)
W14 Wednesday	CAR T cells
W14 Friday	Polly Matzinger Lecture
W15 Monday	Autoimmunity (Module 6 Lecture 4)
W15 Wednesday	Class Wrap Up
W15 Friday (April 22, 2022)	Quiz 6

Final Exam Week
TBD

Cumulative Final Exam
Given in accordance with the Registrar's Final Exam Schedule