



EAST TENNESSEE STATE
UNIVERSITY

College of Public Health
Department of Health Sciences

HSCI 3540 -Immunology
Spring 2021

Syllabus

Contact Information

Instructor: Erik Petersen
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Office: 65A Lamb Hall

Instructor Availability

I will plan for time after each lecture to be available for questions, including any questions on previous or upcoming material. I'm also free to Zoom at other times on a scheduled basis. Contact me by email (preferred) or text to setup a time to meet or with any other questions. Emails/texts **after 5pm likely won't be answered until the next day**, and anything after 5pm on Friday likely won't be answered until Monday (with exceptions for emergencies).

Meetings and Location

Classroom: Online Zoom lectures through D2L
Class Meeting Schedule: Tuesdays and Thursdays, 2:15-3:35

Credit Hours

3 credits

Course Description and Purpose

A beginner course in immunology dealing with the cellular and molecular mechanisms involved in induction and regulation of cellular and humoral immune responses.

Course Goals

Students in this course should leave with a full understanding of **innate, cellular, and humoral immunity**, and how each factor interacts with the others. This will include an understanding of immunological responses to bacteria, viruses, and other pathogens, as well as the consequences of dysregulation of the immune system.

Course Objectives

1. Understand the innate immune system in regards to its mechanisms of recognition and prevention of pathogen infections.
2. Understand the process of humoral and cellular-mediated immunological responses from development through activation to differentiation and memory.
3. Understand the balance between response to pathogens and host tolerance, autoimmune disorders, and the broader scale of human biology.

Major Topics

Innate Immunity – The cellular and antimicrobial response to invading pathogens that doesn't change over a lifetime. This includes the production of cytokines/chemokines and the complement system, and can then lead to the initiation of an adaptive immune response.

Humoral and Cellular-Mediated Immunity – The adaptive components of immunity that respond to specific infections and generate immunological memory. These include both T-cell-mediated responses (cellular) and B-cell-mediated antibody responses (humoral).

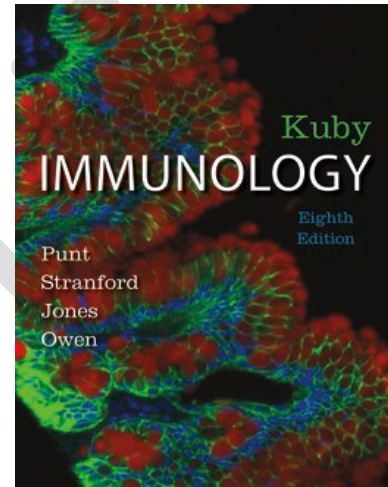
Tolerance and Autoimmunity – The system by which the immune system differentiates between foreign and host signals, how this system is used in the course of human disease, and the consequences of failures within this system.

Course Requirements

Textbooks and Readings

Recommended textbook – Kuby Immunology 8th edition
(ISBN 978-1464189784)

Both ebook and paperback versions are available at a variety of outlets. The 7th edition is out of print, but used versions are readily available. While a majority of topics are conserved between the 7th and 8th editions, there are differences between them so care should be taken to confirm information if the 7th edition is used. Other immunology textbooks likely cover these same topics, but I can't vouch for their accuracy.



Technical Requirements

Internet access is obviously required. Everything will be conducted through D2L, so otherwise requirements should be minimal.

Course Policies and Expectations

Classroom and Communication Policies

Email Communication

Email communication must be via **official ETSU email address**. Any communication through other email addresses will be returned with an instruction to re-email with the student's ETSU account.

Attendance and Participation

Attendance is expected at all lectures unless illness or other extenuating circumstances occur. Lectures will be recorded through Zoom so that students can catch up if they are forced to miss a class. If a number of lectures are missed to the point that I'm concerned about the ability of the student to follow along and progress successfully through the class, we will schedule a time to discuss potential options. Slides for upcoming lectures will be posted ahead of time so that students can familiarize themselves with the material.

Students will also be expected to **participate during class discussions**. This will primarily occur through answering questions about the lecture material using **Zoom polls** to determine the current level of understanding. The purpose of these questions isn't to grade your knowledge but to measure the understanding of the class as a whole so that the lectures can be directed appropriately. Other than using these questions to **monitor class attendance**, these questions aren't graded and there is **no penalty for incorrect answers**. Students with exemplary attendance and final scores on the margin between grades (<1%) will be bumped to the higher grade.

Assignments and Submission Guidelines

Quizzes prior to each class will be provided through D2L that will consist of a few questions covering the previous lecture and a few about the upcoming lecture. These quizzes will help me to measure the comprehension of the previous lecture and ensure that each student comes into the upcoming lecture with a few known facts. While these quizzes will be graded, answers can be looked up in the book, online, with a friend, etc, and two attempts will be allowed for each quiz. There will be 20 quizzes and 6 points per quiz for a **potential total 120 points out of 100**.

As an additional opportunity to expand your ability to apply these findings and gain a few easy points, I've selected 5 different online labs through the Labster portal. These can be accessed through the D2L site, and each will be worth 10 bonus points, **for a total of 50 bonus points**. I'll make these available at the start of the course and leave them up until we review them at the end of the course (4/20).

Testing Policy

The testing schedule will consist of **four midterms (150 points each)** taken over D2L. Review sessions will be held on the class day prior to the exam, and the exam will be available until midnight the next day (Thurs->Fri midnight). Midterms will be automatically graded, and full answer sets will become available at the conclusion of the testing period. At the end of the course, a **final exam (300 points)** will be completed that will cover the entirety of the course. The final exam will be available beginning on Monday of finals week (5/3) and will remain open until Thursday at midnight. Both midterm and final exams will consist of **multiple choice, multi-answer multiple choice, ordering, and matching** questions.

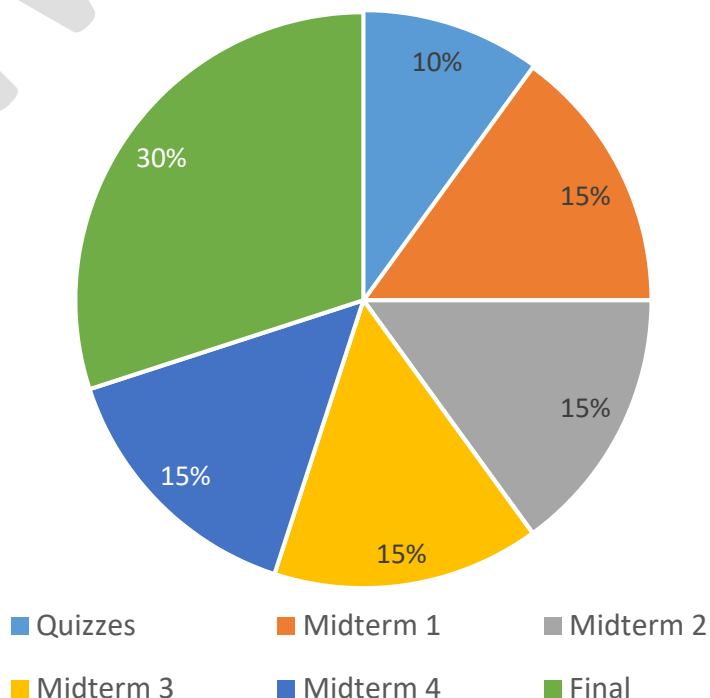
Late and Missing Submission Policy

Pre-class quizzes will be conducted online outside of class periods, although sufficient points are available to miss a few and still get 100%. Quizzes must be submitted **prior to the start of that day's lecture**. If a student is for whatever reason unable to take a scheduled exam, the student should **contact me via the above mechanisms** as soon as they know they will be absent. Failure to alert me prior to expiration of the testing period will result in a zero grade. Only in emergency situations will an extension of the testing period be granted so that graded exams can be opened to the other students. If multiple exams are missed, I will schedule to meet with the student so that we can discuss whether they will be able to continue their successful completion of the class.

Grading Policy

As described above, the pre-class quizzes will total 120 points out of a possible 100 points (10% of grade) and online labs can provide an additional 50 bonus points. This means that a potential **70 extra points (7%)** can be gained and applied to the students' overall grade. Each midterm exam will be worth 150 points (15% of grade each). The final exam is worth 300 points and will constitute 30% of the student's grade. Grades will be rounded to the nearest percentage and determined as follows:

B+:89-87	A:100-93	A-:92-90
C+:79-77	B:86-83	B-:82-80
D+:69-67	C:76-73	C-:72-70
	D:66-60	F:<60



Course Schedule (Chapter = 8th ed/7th ed)

1/19	Syllabus/Introduction	(Chapter 1/1)
1/21	Cells of the Immune System	(Chapter 2/2)
1/26	Receptors and Cytokines	(Chapter 3/3-4)
1/28	Innate Immunity	(Chapter 4/5)
2/2	Complement	(Chapter 5/6)
<u>2/4</u>	<u>Midterm 1 Review</u>	
2/9	Lymphocyte Receptors	(Chapter 6/7)
2/11	MHC and Antigens	(Chapter 7/8)
2/16	T-Cell Development	(Chapter 8/9)
2/18	Break Day	
2/23	T-Cell Activation	(Chapter 10/11)
2/25	T-Cell Response to Antigen	(Chapter 12/13)
<u>3/2</u>	<u>Midterm 2 Review</u>	
3/4	B-Cell Development	(Chapter 9/10)
3/9	B-Cell Activation	(Chapter 11/12)
3/11	B-Cell Response to Antigen	(Chapter 12/13)
3/16	Break Day	
3/18	Immunological Techniques	(Chapter 20/20)
3/23	Visualizing the Immune Response	(Chapter 14/14)
<u>3/25</u>	<u>Midterm 3 Review</u>	
3/30	Vaccines and Immunological Memory	(Chapter 17/17)
4/1	Immune Response to Cancer	(Chapter 19/19)
4/6	Microbiota and Barrier Immunity	(Chapter 13/none)
4/8	Tolerance and Autoimmunity	(Chapter 16/16)
4/13	Allergies and Hypersensitivity	(Chapter 15/15)
4/15	Immunodeficiencies	(Chapter 18/18)
4/20	Labster Review and Active Learning	
<u>4/22</u>	<u>Midterm 4 Review</u>	
4/27	Flex-Day	
4/29	Review/Proficiency Exam	
<u>5/3-6</u>	<u>Final</u>	

Student Services and Technical Resources

Student Services

The [ETSU Services webpage](#) includes a comprehensive list of services available to all ETSU students.

Academic Accommodations for Students with Disabilities

It is the policy of ETSU to accommodate students with disabilities, pursuant to federal law, state law and the University's commitment to equal educational access. Any student with a disability who needs accommodations, for example arrangement for examinations or seating placement, should inform the instructor at the beginning of the course. Faculty accommodation forms are provided to students through Disability Services in the D.P. Culp Center, Room 326, telephone 423-439-8346. [Visit the Disability Services webpage for more information.](#)

Technical Resources

Help Desk

The Information Technology Services (ITS) Help Desk is the best resource for most technical problems. Find answers to common questions on the [Help Desk website](#), call, email, or stop in to see them on the first floor of the Sherrod Library. Phone: 423-439-4648 Email: itshelp@etsu.edu

Desire2Learn (D2L) Online Help

Many answers to D2L related questions can be found on the [D2L Help Student Home](#). If you are still having trouble finding what you need, contact the Help Desk.

Microsoft Office Software

Microsoft Office productivity applications, including Word, PowerPoint, Excel, OneNote, and more, are available free for students through the University's Office 365 campus agreement. For instructions on how to obtain the software, see the [Office 365 page of the ITS Help Desk website](#).

ETSU Technical Resources

Many other technical resources can be found on the [Online Help webpage](#).

University Information

Syllabus Attachment

The [ETSU syllabus attachment](#) includes important material such as permits and overrides, advisement, hours, dates and other ETSU information.

ETSU Catalogs

[Current Undergraduate Catalog](#)

[Current Graduate Catalog](#)