

## **Biology 357: Immunology**

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### **Course Materials:**

#### *Required Text:*

Abbas, A., Lichtman, A., and Pillai, S. 2020. Basic Immunology. 6<sup>th</sup> edition. Saunders Elsevier, Philadelphia, PA.

### **Course Description:**

An overview of the innate and adaptive immune systems of humans, including non-specific defenses, complement, antigen presentation and recognition, humoral immunity, cell-mediated immunity, and immunologic tolerance. Immune responses to bacterial, viral, and protozoal infections will be discussed, as will disorders caused by hypersensitivity, autoimmunity, and immunodeficiency.

### **Course Objectives:**

Explore how the human body prevents and eliminates infection:

- Gain an understanding of the innate immune system

- Gain an understanding of the adaptive immune system

- Determine how the body decides between cell-mediated and humoral immune responses

- Examine how the innate and adaptive immune systems work together

- Examine how vaccines stimulate immunity

Explore how the immune system can malfunction

- Gain insight into autoimmune disorders

- Understand allergic reactions

- Understand inherited and acquired immunodeficiencies

Prepare for more advanced study of immunology in med/vet/grad school

### **Course Policies:**

#### ***Grading:***

Exams (4):	45 % (15 % each, lowest is dropped)
Quizzes (~12):	25 % (first 10 graded)
Presentation to non-majors:	15 %
Attendance:	5 %
Class participation/ Homework:	10 %

*Exams:* closed book; in class; may include multiple choice, short answer, and other question styles. Final exam is cumulative.

*Quizzes:* will be given most lecture days. They will be short (1 – 10 questions) and most will use clickers (although some may be short answer or ask you to draw something).

Quizzes will cover material from the previous class and any assigned reading.

*Presentation to non-majors:* You will deliver a presentation addressing an important topic in immunology on November 20 or 22 at noon. You will work in pairs for this assignment. Additional information will be provided on the Tartan.

*Attendance:* 3 or fewer regular class absences = 100, 4 = 80, 5 = 60, 6 = 40, 7 = 20, 8 or more = 0. Absences on exam days or presentations outside of normal class time do not count toward this total.

*Class participation/Homework:* You will frequently be asked to perform activities in small groups to facilitate learning concepts and applications of immunology. Your homework/class participation grade will reflect the performance of your group in these exercises, and your completion of homework assignments.

### **Grade Scale:**

97-100 A+ 87-89.99 B+ 77-79.99 C+ 67-69.99 D+ Below 60 = F

93-96.99 A 83-86.99 B 73-76.99 C 63-66.99 D

90-92.99 A- 80-82.99 B- 70-72.99 C- 60-62.99 D-

**Final grades are non-negotiable.** The material covered in this class is conceptually difficult. If you are struggling please see me for help ASAP!

### ***Attendance/Make ups:***

**There are no make-up assignments or quizzes;** only the first 10 quizzes completed will count toward your grade, and you may miss up to three regular class meetings without any penalty in your participation/homework grade. If you are absent on the day a homework assignment is due, you do not need to hand in the assignment as they are typically the basis for in-class activities, however **you are responsible for handing in any homework due the class session after the one you miss.** You are responsible for checking with a classmate to see if any homework was assigned on the day that you missed. This is in accordance with the guidelines released by the Academic Dean on how to handle absences for athletes and others involved in school-sponsored activities, as well as absences due to illness. Should a student want an absence due to medical issues to **NOT** apply to the standard absence policy for this class, they must see Kim Ochsenbein in the Academic Support Center. She will determine if any accommodation for attendance is warranted beyond the faculty members stated policy. **Homework assignments will not be accepted late.**

**Policies for missed exams:** If you need to miss an exam due to participation in a school-sponsored activity you must see me at least 1 week prior to your anticipated absence so that arrangements can be made for you to take the exam with a certified proctor. The only other circumstances under which a make-up exam will be given are if you (1) are ill the day of the exam and provide a doctor's note indicating that you are excused from classes that day and contact me to let me know about this circumstance the day of the

exam or (2) the Academic Dean or Dean of Students contacts me to let me know that some extreme circumstance warrants a make-up exam. If you miss an exam for any other reason or do poorly on one of the first three exams, the cumulative final exam will count as one of the three exams used in calculating your grade.

**Policy for missed presentation:** If you are ill on the day of your scheduled presentation you will need to contact me PRIOR to missing your presentation and provide me with your complete PowerPoint and speaking notes (also PRIOR to missing the presentation), and bring a doctor's note when you return. Athletes and students in Choir should schedule their presentations for a day that doesn't conflict with their activity schedule. Material covered in presentations is fair game for the final examination, so if you cannot attend all of the presentation sessions you will need to get notes from a classmate.

**While this attendance policy is quite lenient, you need to be aware that students that don't attend class regularly generally do poorly on exams and quizzes. The fact that there is no direct grade penalty for every absence does not mean that absences won't hurt your grade!**

***Cheating/Plagiarism:***

I have no tolerance for cheating or plagiarism. **Using another student's clicker is cheating.** If you are unsure if what you are about to do constitutes cheating or plagiarism, ask me. The first offense of cheating or plagiarism will result in a zero on the assignment, and a letter to the registrar. This zero cannot be dropped or replaced. A second offense will result in a failing grade (F) in the course.

***Disabilities:***

Students with a disability requiring accommodations or any student who believes that he or she will require accommodations should contact Kim Ochsenbein in the Academic Support Center located in the lower level of Thaw Hall (865) 981-8124. Students are encouraged to make contact before or during the first week of classes.

## TENTATIVE LECTURE SCHEDULE

Date	Topic	Text Chapter/Pages
Th Aug 22	Introduction	
Tu Aug 27	Intro to the immune system	Ch 1
Th Aug 29	Innate Immunity	Ch 2
Tu Sep 3	Antigen Presentation	Ch 3
Th Sep 5	Antigen Presentation	Ch 3
Tu Sep 10	Antigen Recognition	Ch 4
Th Sep 12	Antigen recognition	Ch 4
Tu Sep 17	<b>EXAM I</b>	
Th Sep 19	T-Cell Mediated Immunity	Ch 5
Tu Sep 24	T-Cell Mediated Immunity	Ch 6
Th Sep 26	T-Cell Mediated Immunity	Ch 5/6
Tu Oct 1	Humoral Immunity	Ch 7
Th Oct 3	<i>Fall Break – no class</i>	
Tu Oct 8	Humoral Immunity	Ch 8
Th Oct 10	Complement	Ch 8
Tu Oct 15	<b>EXAM II</b>	
Th Oct 17	Regulation and Tolerance	Ch 9
Tu Oct 22	Autoimmunity	Ch 9
Th Oct 24	Tumors & Transplants	Ch 10
Tu Oct 29	Hypersensitivity	Ch 11
Th Oct 31	Hypersensitivity	Ch 11
Tu Nov 5	Immunodeficiency	Ch 12
Th Nov 7	Immunodeficiency	Ch 12
Tu Nov 12	Vaccination	See Tartan
Th Nov 14	<b>EXAM III</b>	
Tu Nov 19	Current Literature / Methods	See Tartan
<b>W Nov 20 12 – 12:50</b>	<b>Presentations, SSC113</b>	
Th Nov 21	Current Literature / Methods	See Tartan
<b>M Nov 25 12 – 12:50</b>	<b>Presentations, SSC113</b>	
Tu Nov 26	Current literature / Methods	See Tartan
Th Nov 28	<i>Thanksgiving – no class</i>	
Tu Dec 3	Current literature / Methods	See Tartan
<b>M Dec 9 3:30 pm</b>	<b>CUMULATIVE FINAL EXAM</b>	