

**Greetings:**

What an exciting time to be learning about Immunology.

This course will be an intellectually rigorous adventure that will challenge you, require active participation, necessitate curiosity, time management, and self-motivation. This course is constructed to be at the level necessary for pre-health occupations and graduate programs. If you are unprepared to work hard and contribute to the class community, this is not a course for you. If, however, you are willing to fulfill expectations, you can expect to leave this course with a solid foundation of immunology equivalent to what many acquire in a first-year medical or graduate school course.

**Learning Objectives:** The objective of this course is to enable students to understand the fundamental principles of immunology and to develop an appreciation of synthesizing key concepts from a vast amount of experimental data that is rapidly emerging in this field.

**Course Overview:** The course will focus on the organization of the immune system, evolution of the immune system, and cellular and molecular mechanisms used by the immune system to protect organisms from both self and disease. Case studies will be used as practical application of immunological experimental advances in basic and medical science.

**Expectations:** Students should have a desire to learn more about the field of immunology and take ownership in their learning experiences. Students are encouraged to share their thoughts in class discussions, ask questions, have fun, and generally contribute to a cooperative learning environment.

**Prerequisites:**

BIOL111/111L: Introduction to Cell and Molecular Biology

BIOL 112/112L: Evolution, Form and Function of Organisms

BIOL212: Genetics (this course builds on a strong background of genetics concepts and terminology)

**Required Text:**

Basic Immunology. By Abul Abbas and Andrew Lichtman.

Online Link to text posted in OAKS.

**Instructor:**

Ana Zimmerman PhD

Office: Rita Hollings Science Center Room 125 (first floor)

Lab: Rita Hollings Science Center Room 128 (first floor)

Email: [zimmermana@cofc.edu](mailto:zimmermana@cofc.edu).

**Office hours:**

I will have both on campus and virtual office hours (listed below). Please feel free to set up additional times to meet as well either in person or virtually if the hours listed are not feasible for you.

**On Campus:**

Tuesdays and Thursdays **TO BE POSTED AS CAMPUS OPENS.**

**Virtual (via Zoom):**

Tuesdays and Thursdays 3-4 pm.

**Synchronous Class Meetings:**

We will meet virtually as a class on Wednesdays during our normal class time via Zoom as a recurring meeting which can be accessed through class OAKS homepage. No new additional material (above online lectures or readings) will be introduced, yet it is a great time for questions, discussions, et cetera. Zoom meetings are OPTIONAL yet highly recommended.

**Course Format:**

This course will occur primarily online, using OAKS with course material divided into weekly modules. Within each module, there will be readings, video lectures, discussion board prompts, and a homework assignment. Tasks and due dates must be met before you will be permitted to move ahead. Each module can be found under the “Content” section in OAKS.

**Readings:**

Textbook sections and Supplemental Readings will be posted weekly for each module. Each Supplemental Reading posted is considered required reading unless noted otherwise.

**Video Lectures:**

Video lectures will be posted weekly (via OAKS). In addition, a pdf of the slides from each lecture will be posted in OAKS.

**Discussion Board:**

On OAKS our course will have a Discussion Board. This is a great place to post questions, concerns, et cetera.

**Assignments:**

All written assignments should be submitted electronically to OAKS Drop Box. Each assignment should be saved in pdf format with your first and last name included in the file name.

**Exams:**

Three lecture exams and a comprehensive final exam (see syllabus for dates). Exams will cover material from lectures, assigned readings and online discussions.

**Grading:**

Grades will be posted for all assignments and tests online on OAKS.

		A	93-100
Exam I	75 points	A-	90-92.5
Exam II	75 points	B+	87-89.5
Exam III	75 points	B	83-86.5
Final Exam	100 points	B-	80-82.5
Assignments/Quizzes	175 points	C	73-76.5
		C-	70-72.5
		D	60-69.5
TOTAL	500 points	F	Below 60

**Study Teams:**

You are strongly encouraged to work with other students to discuss lecture topics, study for exams, and discuss class material. Such interactions with your peers often constitute the most effective manner to master the subject matter. The class will be partitioned into several different “teams” as chosen by the instructor for group assignments and discussions.

**News and Noteworthy:**

Many of the topics covered in this course directly relate to areas of current emphasis including preventive medicine, individual healthcare, gene therapies, and public health. These issues are routinely covered in the media and popular press. It is my hope you will find many instances during the semester to integrate material covered in class to issues covered elsewhere. If you encounter an interesting story that connects well to course material, please provide me with the source so this information can be shared with the rest of the class.

**Academic Integrity:**

Students are responsible for understanding and adhering to College policies regarding academic honesty, as specified in the current Student Handbook <http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php>

**SNAP Accommodation:**

Students with SNAP accommodations must email me the Professor Notification Letter and discuss your needs during the first week of class via email or a phone call. I want you to be successful, so please talk with me!

### **Class Climate and “Netiquette”:**

To maintain a respectful and supportive environment, please uphold these rules of netiquette. Netiquette is network etiquette, the do's and don'ts of online communication.

- **Be kind and ethical.** Avoid using sexist, racist, and homophobic language in your writing and speaking; it will not be tolerated. Ask yourself, "Would I say this to the person's face?" If the answer is no, rewrite.
- **Be aware** of how your communication may be perceived by others. For example, if you use ALL CAPITAL LETTERS, will folks feel like you are angry or shouting? Or, if you have a dry sense of humor, will your sarcasm be evident, or might folks misinterpret your message?
- **Be forgiving.** We all make communication faux pas, so ask clarifying questions rather than attacking. But if you experience any questionable or inappropriate behavior from your colleagues, please let me know.
- **Respect disagreement.** Debate is a valuable component of a learning community. However, I expect you to be respectful of me and of your colleagues.
- **Share your knowledge.** No one knows everything - we all have something to teach each other.
- **Help each other.** If you notice a colleague has asked a question or written about a problem, jump in to help. This is especially true in the Course discussion board.

### **Software:**

We will utilize a variety of software programs and websites in this course. All media and programs utilized will be either integrated in OAKS or free ware at no additional cost to students.

Programs integrated in OAKS: VoiceThread and Zoom

How to access VoiceThread Tutorial:

<https://cpb-us-w2.wpmucdn.com/blogs.cofc.edu/dist/1/930/files/2019/07/How-to-Access-VoiceThread.pdf>

Zoom Conferencing Tutorial:

[https://www.youtube.com/embed/vFhAEoCF7jg?rel=0&autoplay=1&cc\\_load\\_policy=1](https://www.youtube.com/embed/vFhAEoCF7jg?rel=0&autoplay=1&cc_load_policy=1)

### **Finally:**

Most importantly, please be assured I want every single student to reach the goals they set for themselves. If you find yourself having undue difficulty with any portion of material in our course, please make an appointment with me for additional help.

**Tentative Schedule:**

<b>Date</b>	<b>Topic</b>	<b>Text Chapter</b>	<b>Supplemental Readings</b>
<b>WEEK ONE</b>	<b>Cells and Tissues of the Immune System</b>	Download Text	National Institutes of Health (NIH) booklets on Immunology, Microbes, and Vaccines.
August 26 (W)	Zoom Drop-in 9 am - 9:50 am Video Lectures Posted		
August 28 (F)	Module One Posted (Assignment and Links) (Due Following Wednesday by 11:59 pm)		
<b>WEEK TWO</b>	<b>Innate Immunity</b>	1, 2	NIH booklet on Food Allergies
August 31 (M)	Video Lectures Posted		
Sept. 2 (W)	Zoom Drop-in 9 am - 9:50 am		
Sept. 4 (F)	Module 2 Posted (Assignment and Links) (Due Following Wednesday by 11:59 pm)		
<b>WEEK THREE</b>	<b>Antibody Structure</b>	3, 4	NIH publication "Malaria, fighting an ancient scourge"
Sept. 7 (M)	Video Lectures Posted		
Sept. 9 (W)	Zoom Drop-in 9 am - 9:50 am		
Sept. 11 (F)	Module 3 Posted Sample Exams and Review Sheets (For your review, do not turn in)		
<b>WEEK FOUR</b>	<b>Review and Exam</b>		
Sept. 14 (M)	Zoom Review Session 9 am – 9:50 am		
Sept. 16 (W)	Zoom Drop-in 9 am - 9:50 am		
Sept. 18 (F)	<b>EXAM ONE</b>  Module 4 Posted (Assignment and Links) (Due Following Wednesday by 11:59 pm)		
<b>WEEK FIVE</b>	<b>MHC structure and antigen presentation</b>	5	HIV Readings
Sept. 21 (M)	Video Lectures Posted		
Sept. 23 (W)	Zoom Drop-in 9 am - 9:50 am		
Sept. 25 (F)	Module 5 Posted (Assignment and Links) (Due Following Wednesday by 11:59 pm)		
<b>WEEK SIX</b>	<b>Antigen receptors and accessory molecules</b>	6	Emerging Infectious Diseases Readings
Sept. 28 (M)	Video Lectures Posted		

Sept. 30 (W)	Zoom Drop-in 9 am - 9:50 am		
Oct. 2 (F)	Module 6 Posted (Assignment and Links) (Due Following Wednesday by 11:59 pm)		
<b>WEEK SEVEN</b>	<b>Lymphocyte Development, Expression of antigen receptors, (BCR/TCR) Regulation of the Immune Response</b>	7	
Oct. 5 (M)	Video Lectures Posted		
Oct. 7 (W)	Zoom Drop-in 9 am - 9:50 am		
Oct. 9 (F)	Module 7 Posted Sample Exams and Review Sheets (For your review, do not turn in)		
<b>WEEK EIGHT</b>	<b>Review and Exam</b>		
Oct. 12 (M)	Zoom Review Session 9 am – 9:50 am		
Oct. 14 (W)	Zoom Drop-in 9 am - 9:50 am		
Oct. 16 (F)	<b>EXAM TWO</b>  Module 8 Posted (Assignment and Links) (Due Following Wednesday by 11:59 pm)		
<b>WEEK NINE</b>	<b>Cytokines</b>		
Oct. 19 (M)	Video Lectures Posted		
Oct. 21 (W)	Zoom Drop-in 9 am - 9:50 am		
Oct. 23 (F)	Module 9 Posted (Assignment and Links) (Due Following Wednesday by 11:59 pm)		
<b>WEEK TEN</b>	<b>Immunotolerance</b>	8, 9	NIH publication “Allergies”
Oct. 26 (M)	Video Lectures Posted		
Oct. 28 (W)	Zoom Drop-in 9 am - 9:50 am		
Oct. 30 (F)	Module 10 Posted (Assignment and Links) (Due Following Wednesday by 11:59 pm)		
<b>WEEK ELEVEN</b>	<b>Tumors and Transplants</b>	10	NIH publication “Cancer”
Nov. 2 (M)	Video Lectures Posted		
Nov. 4 (W)	Zoom Drop-in 9 am - 9:50 am		
Nov. 6 (F)	Module 11 Posted (Assignment and Links) (Due Following Wednesday by 11:59 pm)		
<b>WEEK TWELVE</b>	<b>Autoimmunity and Hypersensitivities</b>	11	

Nov. 9 (M)	Video Lectures Posted		
Nov. 11 (W)	Zoom Drop-in 9 am - 9:50 am		
Nov. 13 (F)	Module 12 Posted (Assignment and Links) (Due Following Wednesday by 11:59 pm)		
<b>WEEK THIRTEEN</b>	<b>Immune Deficiencies</b>	12	
Nov. 16 (M)	Video Lectures Posted		
Nov. 18 (W)	Zoom Drop-in 9 am - 9:50 am		
Nov. 20 (F)	Module 13 Posted Sample Exams and Review Sheets (For your review, do not turn in)		
<b>WEEK FOURTEEN</b>	<b>Review</b>		
Nov. 23 (M)	Zoom Review Session 9 am – 9:50 am		
Nov. 25 (W)	Thanksgiving Holiday		
Nov. 27 (F)	Thanksgiving Holiday		
<b>WEEK FIFTEEN</b>	<b>COVID-19: Where are we now?</b>		
Nov. 30 (M)	Video Lectures Posted		
Dec. 2 (W)	Zoom Drop-in 9 am - 9:50 am		
Dec. 4 (F)	<b>EXAM THREE</b> (Last Day of Classes)		
<b>FINALS</b>			
Dec. 7 (M)	Optional Zoom Drop-in Review Session 4 pm – 6 pm		
Dec. 9 (W)	Optional Zoom Drop-in Review Session 6 pm – 8 pm		
Dec. 11 (F)	<b>FINAL EXAM 8 am – 10 am</b>		