

Topics in Biology: Immunology

BIOL 377 - Spring Semester 2025

Instructor information

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Office hours

To be determined

Learning outcomes

1. Explain the experimental foundations that support the biomedical understanding of immune function.
2. Describe the roles of innate and adaptive immunity in a mixed response to pathogens.
3. Describe the overlapping and the unique roles of humoral and cell-mediated immunity in response to pathogens and commensal organisms.
4. Explain how the molecular and cellular basis of immunity affects immune responses in transplantation, autoimmune disease and cancer.
5. Participate in class by communicating with classmates to explore and respond to questions.

Required materials

The textbook required for this course can be purchased as an e-book alone. Regardless of if you purchase textbook access you should purchase access to the digital resource, Inquizitive, part of Janeway's immunobiology 10th edition digital resources. Inquizitive access gives you access to the online homework required for the course.

Janeway's Immunobiology, 10e 3-hole punch with Registration Card 978-0-393-88490-6 is an estimated retail price is \$171.50 vs the bound version and retails for \$183.75 at the Geneseo Barnes & Noble Bookstore.

You can purchase the eBook including Inquizitive directly from W. W. Norton for \$91.95.

<https://digital.wwnorton.com/janeway10>

Inquizitive alone (if you already have a copy of the textbook) can be purchased without the eBook for \$35.00.

Do not attempt to register for the homework at the Norton website. Rather, please use the course management system to set up your account with Norton.

How will you know that you are learning?

You will receive feedback on your progress with frequent assignments, including quizzes, as well as midterms, and a final exam. Each exam builds on previous concepts to some extent and so is cumulative. This is especially true of the final.

You can use the provided assignments to prepare for the midterms and the final exam. Please expect mistakes to be a natural part of the learning process. Midterms and the final exam are cumulative to provide you with multiple opportunities to improve your understanding of difficult concepts. Each exam will stress concepts covered during that quarter of the semester. Midterms and the final exam will contain a variety of questions, including multiple choice, fill-in-the-blank, and mini essay format, and ask you to recall, apply, and synthesize your knowledge. Midterm exams are designed to take 45 minutes.

Your grades are primarily determined by your work as an individual. In addition, a portion of your grade will be calculated by your work in a team. For each midterm, during the first 45 minutes you will first answer questions on your own. Then, you will immediately have 30 minutes to retake the midterm exam with your teammates. Working with your team will benefit you, because a portion of your team effort will be added to your individual score, as follows:

Your exam score = your initial score points + $\frac{1}{2}$ (team retake midterm points - your team's average initial midterm points)

For example.

You earn a score of 90 points.

1st groupmate earns 70 points

2nd groupmate earns 80 points. Thus: Initial Group Average = 80 points or 240/3

Team retake score is 85 points. $\rightarrow \frac{1}{2}(\text{Team Retake} - \text{Initial Group Average}) = \frac{1}{2}(85-80)$
= 2.5 points

You earn 92.5 points (90 initial points + 2.5 retake points)

1st groupmate earns 72.5 points

2nd groupmate earns 82.5 points

The instructor exercises the right to deny any student this team midterm benefit if there is evidence that a student is not contributing fairly to the team effort. In the event of an excused absence on a midterm date, group points on the make-up midterm will be determined by taking the average of group points over the whole semester.

Grading

Roughly 30% of course credit comes from homework assignments. The remaining credit comes from individual and group exams. Find instructions rubrics for individual assignments in the course learning management system online.

Grading scale:

93 – 100%	A	83 – 86.9%	B	73 – 76.9%	C
90 – 92.9%	A-	80 – 82.9%	B-	70 – 72.9%	C-
87 – 89.9%	B+	77 – 79.9%	C+	60 – 69.9%	D

Midterm Exams 1-3	240 points (80 points each)
Final Exam (comprehensive)	100 points
InQuizitive Homework (online)	60 points
Individual and Group Homework	80 points
Written report	<u>20 points</u>
Total	500 points

Schedule of Exams

EXAM 1: 12 February, Wednesday

Basic Concepts, Innate Immunity, Cellular Mechanisms of Immunity, and Toolbox

EXAM 2: 12 March, Wednesday

B and T cells and receptors, Antigen Presentation, Lymphocyte Signaling and Maturation.

EXAM 3: 14 April, Monday

T Cell-mediated Immunity, Humoral Immune Response, Integration of Responses, Barriers

Comprehensive Final: Tuesday, May 13, 3:30 pm

Failures of Immunity, Allergies, Autoimmunity, Manipulation of Immune Response

Assignments

In-class activities, homework assignments, and quizzes will combine for your final “Assignments” grade. To receive in-class activities, you must be present for the exercise. Homework is designed to help you demonstrate different skills necessary in the workplace. Homework is designed to help you understand if you are learning the material necessary to do well on an exam. It is also designed to demonstrate your interpersonal skill with a group. It also facilitates study with your classmates before you take the test. Take some time in your homework sessions to evaluate who can most be trusted to answer questions correctly, not merely who is most confident. Many homework assignments will be graded only once they are completed by your group.

Homework is due at 5 pm on the due date. Two to three days before the group homework assignments are due, each person will submit the assignment online. You need not wait until close to the due date to begin the homework nor must you work on the individual homework alone. However, you should give it your best effort so that you can evaluate your own learning. Individual homework will be graded for effort not accuracy. There will be a 50% penalty per day

for late individual homework. You may find it wise to turn in partially completed homework versus turning in late. I have found that some students prepare for the group meeting because of this earlier due date.

The group will submit a consensus document to be graded for accuracy. Group homework is also due at 5 pm on the due date. Your score may be penalized if your peers agree you failed to contribute to the group work (see *Evaluating Self and Group Peers*). There will be a 15%/day penalty for late group homework. I would like to give you feedback on the homework before you take the exams so, please, turn in the homework on time. Upload a legible scanned copy .pdf file to the course management software. Adobe Scan is one free option for smartphones to scan pdfs. Please see me if I can help you scan.

Evaluating Self and Group Peers

Frequently, in interviews with steering committees and employers, I am asked how well a student works with others. This is an important skill that does not show on academic transcripts. To practice and assess your interpersonal skills, you will evaluate how you and your groupmates contribute to assignments. The kind of partner you are judged to be by your peers you will factor into your *Assignments* grade and has the potential to alter your grade up to half of a grade. There will be up to four people in each group. You will evaluate yourself and the others in your group regarding professional integrity. Comprehension questions show up frequently on the exams. Please prepare for your group interactions so I can credit you for group assignments.

Wireless Policy:

Laptop and hand-held computers are fine tools for learning, but can easily become a great distraction. Don't allow the tool to become a disruption. I use TopHat, which will use your smart phones or laptops to quiz your knowledge in class. Please keep them charged and handy.

Plagiarism:

Please refer to the material in the "Plagiarism" pages on Geneseo.edu library website, which describes various types of plagiarism. Assignments containing plagiarism will receive no points.

Library Research Help:

If you need assistance finding external information for an assignment, Milne Librarians can help. You can speak with the reference librarian on duty between 10 am and closing time most days (ask for help at the service desk) or with a librarian online (<https://library.geneseo.edu/research-help>).

Technology Support

[CIT provides a range of technology support resources](#). For assistance with your computer or mobile device, visit the CIT Helpdesk in Fraser. Geneseo students, faculty and staff have free access to the entire [LinkedIn Learning training library](#) (over 7,500 courses, including tutorials for software, digital tools, web development, programming, and design) through Geneseo's site license.

Course Schedule and Considerations

The lecture portion of this course is divided into four sections according to exams. I will provide more detailed learning objectives outside of the syllabus for each section. The following pages have a table of the expected timeline. I may have to alter this plan. For the most up-to-date scheduling, please consult the course management system.

Plan to be flexible with your schedule. Group work demands the negotiating of time commitments. Let me know if there are religious observances and interviews that we need to work around.

General Schedule

Class	Day	Date	Chapter	Topic
1	W	22-Jan	1	Basic Concepts in Immunology
2	M	27-Jan	1,2	Innate Immunity: The First Lines of Defense
3	W	29-Jan	2	Cellular Mechanisms of Innate Immunity
4	M	3-Feb	3	
5	W	5-Feb	3,A1	The Immunologist's Toolbox
6	M	10-Feb	A1	
	W	12-Feb	Test 1	Chapters 1-3 and Appendix 1
7	M	17-Feb	4	Antigen Recognition by B-Cell and T-Cell Receptors
8	W	19-Feb	4,5	Generation of Lymphocyte Antigen Receptors
9	M	24-Feb	5,6	Antigen Presentation to T Lymphocytes
	Tu	25-Feb		Diversity Summit
10	W	26-Feb	6	
11	M	3-Mar	6,7	Lymphocyte Receptor Signaling
12	W	5-Mar	7,8	Development of B and T Lymphocytes
13	M	10-Mar	8	
	W	12-Mar	Test 2	Chapters 4-8
		17-21-Mar		Spring Break
14	M	24-Mar	9	T Cell-mediated Immunity
15	W	26-Mar	9,10	Humoral Immune Response
16	M	31-Mar	10,11	Integrated Dynamics of Innate and Adaptive Immunity
17	W	2-Apr	11	

Class	Day	Date	Chapter	Topic
18	M	7-Apr	11,12	The Barrier Immune System
19	W	9-Apr	12	
	M	14-Apr	Test 3	Chapters 9-12
20	W	16-Apr	13	Failures of Host Defense Mechanisms
21	M	21-Apr	13,14	Allergic Diseases and Hypersensitivity Reactions
	W	23-Apr		GREAT Day – No Classes
22	M	28-Apr	14	
23	W	30-Apr	15	Autoimmunity and Transplantation
24	M	5-May	15,16	Manipulation of the Immune Response
25	W	7-May	16	Final Written Report
	Th	8-May		Reading Day
	Tu	13-May	Final	Comprehensive

Homework Schedule

Homework will be due at 5 pm on the date indicated in the assignment. Please note this time of day is likely different from most of your courses. This deadline helps me help you. Using other online homework, I received many questions just before the deadline, and because it was set at midnight, I could not resolve their questions.

Individual homework will be due: Feb 7, Mar 7, Apr 7, and May 5.

Group homework will be due: Feb 10, Mar 10, Apr 9, and May 7.

InQuizitive™ online assignments are chapter-based and so more frequent. Deadlines will be indicated in the learning management system (LMS). InQuizitive™ assignments are scheduled one to two days following the last lecture on the chapter. There is no need to wait until I have lectured on the material as the system saves your progress.

Accommodations:

I will make reasonable accommodations for persons with documented physical, emotional, or cognitive disabilities. Accommodations will be made for medical conditions related to pregnancy or parenting. Students with approved accommodations may submit a [Semester Request](#) to renew their academic accommodations. Please visit the OAS website for information on the process for [requesting](#) academic accommodations. Students should contact the Office of Disability Services in Erwin Hall 22 or 585-245-5112 or disabilityservices@geneseo.edu to discuss needed accommodations as early as possible in the semester.

Please meet with me about how I can work with you to make sure you can participate in the group tests and receive accommodations. “Things” happen sometimes that aren’t welcome. Please discuss any that arise in your life so we can work things out.