

Immunology: BIOL 4050-001

Crosslisted: BIOL 7050-001

The University of Toledo

College of Natural Sciences & Mathematics

Department of Biological Sciences

CRN: 31296

Credit Hours: 3

Spring 2017 MWF 9-9:50am Wolfe Hall 3246

Instructor: Heather Conti Wolfe Hall 3235

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Office Hrs: Wednesdays 10am-12pm, or by appointment

Prerequisites: BIOL 3030 (BIOL 3070 recommended)

Course

Description: Lectures on the chemical, genetic and cellular basis of the immune response, with an emphasis on how it relates to human health and disease.

Learning

Outcomes: Students who successfully complete this course will be able to:
Define and describe the cells and organs of the immune system
Distinguish between innate and adaptive immunity
Explain the molecular basis for antigen recognition/specificity
Recognize the influence of genetic inheritance on the immune response
Define the characteristics of allergy, autoimmunity and tissue organ/organ rejection, mucosal immunity and immunizations

Textbook: *The Immune System, 4th Edition* Peter Parham, Garland Sciences Publishers, 2015. ISBN:978-0-8153-4466-7.

Technology

Requirements: Tophat will be used for quizzes and in-class polls and assessments

University

Policies: **Policy Statement on Non-Discrimination on the basis of Disability (ADA)** The University is an equal opportunity educational institution. **Please read The University's Policy Statement on Nondiscrimination on the Basis of Disability Americans with Disability Act Compliance.**

Academic Accommodations The University of Toledo is committed to providing equal access to education for all students. If you have a documented disability or you believe you have a disability and would like information regarding academic accommodations/adjustments in this course please contact the Student Disability Services Office.

Academic Policies:

Undergraduate and Graduate Students As a student in my course and enrolled at The University of Toledo you should be familiar with the policies that govern the institution's academic processes, for example, Academic Dishonesty, Enrollment Status, and Grades and Grading. Please read Undergraduate Academic Policies or Graduate Academic Policies.

Course

Expectations: Reading assignments should be completed prior to the lecture. Students are expected to attend all lectures. The use of cell phones or other communication devices for anything other than classroom activities is disruptive and prohibited during class.

Grading:

Grading for this course will be based on homework assignments (including a group presentation), Tophat quizzes and participation, 4 in-class examinations and a final. The homework assignments will be *take-home* assignments to be given without prior notice and will constitute 10 % of the final grade. Quizzes will account for 10% of the final grade and will also serve as knowledge checks in between exams. In-class exams and the final are equally weighted and make up 80% of your final grade. Examinations are to be taken on the scheduled day, at the scheduled time, with no exceptions unless with a verifiable excuse. A total of 50 min and no more will be given to complete the in-class exams, and the final will be for 2 hours. The in-class exams will cover material following the previous exam to that exam. The final is not strictly comprehensive since it will cover material since the 4th in-class exam, but will also build on concepts covered earlier in the semester. If you think that your examination has been graded unfairly, you have one week following its return to bring this to the instructor's attention, otherwise your grade will stand as is.

Homework	10%
Quizzes	10%
Exams	80% (16% each)

Approximate Grading scale:

A :	100-90	C+:	75-73	D+:	59-57	F:	<50
A-:	89-86	C:	72-62	D:	56-52		
		C-:	61-60	D-:	51-50		
B+:	85-84						
B:	83-78						
B-:	77-76						

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Tentative List of topics (content covered and exam dates to change at Instructor's discretion):

		<u>Book Chapter</u>
Jan 9	Overview of Immunology, WBC, lymphoid organs	1
Jan 11	Innate Immunity	2,3
Jan 13	Innate Immunity, <i>Special Topic#1</i>	2,3
Jan 16	<i>Holiday, No Class</i>	
Jan 18	Antibodies	
Jan 20	Antibodies Structure	4
Jan 23	Antibody Structure	4
	In-class Quiz	1,2,3
Jan 25	Antibody Structure, B cells	6
Jan 27	Development of B cells, <i>Special Topic#2</i>	6
Jan 30	Development of B cells	6
Feb 1	Exam I (Chapter 4 and 6)	
Feb 3	TCR diversity	5
Feb 6	Antigen Processing	5
Feb 8	Antigen Processing	5
Feb 10	MHC	5
Feb 13	Development of T cells	5
Feb 15	Positive & Negative Selection, <i>Special Topic#3</i>	7
Feb 17	T cell Immunity	8
Feb 20	T cell Immunity	8
Feb 22	T cell Immunity	8
Feb 24	Exam II	
Feb 27	B cell Immunity	9
Mar 1	B cell Immunity	9
Mar 3	B cell Immunity	9
Mar 6-10	<i>Spring Break, No Class</i>	
Mar 13	Preventing infection at Mucosal Surfaces	9
Mar 15	Preventing infection at Mucosal Surfaces	10
Mar 17	Preventing infection at Mucosal Surfaces	10
Mar 20	Exam III	
Mar 22	Failure of the Body's Defenses	

Mar 24	Failure of the Body's Defenses	13
Mar 27	Immunodeficiency, <i>Special Topic #4</i>	13
Mar 29	Student Presentations/Discussions	
Mar 31	Student Presentations/Discussions	
April 3	Student Presentations/Discussions, Acq. Immunodeficiency	13
April 5	Acquired Immunodeficiency	13
April 6	Biological Sciences Career Fair-Extra Credit available	
April 7	Exam IV	
Apr 10	Hypersensitivity	14
Apr 12	Hypersensitivity	14
Apr 14	Autoimmunity	16
Apr 17	Autoimmunity	16
Apr 19	Vaccines	11
Apr 21	Vaccines	11
Apr 24	Transplantation, Graduate Student Lecture	15
Apr 26	Cancer and Immune System, Graduate Student Lecture	17
Apr 28	Review	
May 2	Final Exam 10:15am-12:15pm	

For BIOL 5050 and 7050: Exams are modified to include essay questions. Homework assignments are the same as for BIOL 4050. Graduate students will present lecture on date noted above. See me for potential topics.

NOTE: Undergraduates are responsible for the topics covered by graduate students, and will be tested on this material

Top Hat

We will be using the Top Hat (www.tophat.com) classroom response system in class. You will be able to submit answers to in-class questions using Apple or Android smartphones and tablets, laptops, or through text message.

You can visit the Top Hat Overview (<https://success.tophat.com/s/article/Student-Top-Hat-Overview-and-Getting-Started-Guide>) within the Top Hat Success Center which outlines how you will register for a Top Hat account, as well as providing a brief overview to get you up and running on the system.

An email invitation will be sent to you by email, but if don't receive this email, you can register by simply visiting our course website: <https://app.tophat.com/e/510930> Note: our Course Join Code is **510930**

Top Hat will require a paid subscription, and a full breakdown of all subscription options available can be found here: www.tophat.com/pricing.

Should you require assistance with Top Hat at any time, due to the fact that they require specific user information to troubleshoot these issues, please contact their Support Team directly by way of email (support@tophat.com), the in app support button, or by calling 1-888-663-5491