

Immunology (BIOB 410) Syllabus: Fall 2015

Class Meeting Time and Location: 9:10 – 10:00 am; MWF HS 411

Prof: Dr. Scott Wetzel (CHCB 216, ph: 243-2168, scott.wetzel@umontana.edu)

Textbook: The Immune System by Peter Parham - 4th Edition

Date	Lecture Topic	Chapters (& Pages)
AUGUST		
31	General Introduction/Intro to the Immune Response	Ch. 1, pgs. 272-282, 295-307
SEPTEMBER		
2, 4	Cells & Organs of the Immune System	Ch. 1, pgs. 272-282, 295-307
7	Holiday – No Class	
9, 11	Cells & Organs of the Immune System	pgs. 66-70
14, 16	Inflammation	Ch. 3
18	Phagocytosis and the Respiratory Burst	pgs. 49-52, 59-62
21	Exam #1*	
23, 25	Complement Cascade	pgs. 31-41, 63-66, 381-382
28	Cytokines and Chemokines	Ch.3
30	Antigens & Immunoglobulins – Structure and Subclasses, Effector Functions	pgs. 81-91, 245-263, 282-291
OCTOBER		
2	Antigens & Immunoglobulins – Structure and Subclasses, Effector Functions	pgs. 81-91, 245-263, 282-291
5	Exam #2*	
7, 9	Immunoglobulins - Genetic Rearrangements	pgs. 91-109, Ch. 6
12	B Cell Biology: Germinal Centers and Humoral Responses	Ch. 9
14	T Cell Receptor (TCR) Generation and Structure/Ag Recognition	pgs. 113-121
16	Major Histocompatibility Complex (MHC)	pgs. 122-145
19	EXAM #3*	
21, 23	Antigen Processing and Presentation	pgs. 122-135
26, 28	Lymphocyte Development - B and T Cells	Ch.6, Ch.7
30	CD4 ⁺ T Cell Differentiation: T _H 1, T _H 2, T _H 17, T _{FH} , T _{Reg}	Ch. 8
NOVEMBER		
2	CD4 ⁺ T Cell Differentiation: T _H 1, T _H 2, T _H 17, T _{FH} , T _{Reg}	Ch. 8
4, 6	Immunological Synapse, T Cell Effector Functions	Ch. 8
9	Exam #4*	
13	Immunity to Viral Infections	pgs. 365-375
16	Immunity to Bacterial Infections	
18-20	Allergy and Hypersensitivity Diseases (I, II, III, IV)	Ch. 14, Ch. 16
23	Exam #5*	
25, 27	Holiday – NO CLASS	HOLIDAY
30	Immunodeficiencies and HIV	pgs. 375-389
DECEMBER		
2,4	Vaccine and Immunotherapy	pgs. 308-326
7	Immunological Tolerance and Autoimmunity	Ch. 16
9	Transplantation Immunology	Ch. 15
11	Tumor Immunology	Ch. 17
15	Final Exam 8-10 am	

*** Due to the large size of this class, exams will be given in Natural Science room 307 (NS307 instead of HS411).**

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COURSE OVERVIEW: This course is designed as a general introductory course in Immunology. We will cover aspects of innate immunity, acquired immunity, and will conclude the course talking about the role of the immune system in human disease processes. This course is a 1/3 W course and includes a significant writing component.

STUDY TIPS: Immunology is an exciting and dynamic field that is, unfortunately, filled with jargon. It is HIGHLY RECOMMENDED that students make a glossary and include immunologically related terms with a definition in your own words. *Immunology has a unique language* and to understand this subject and succeed in this course, you will have to master this new language. Every exam will have a vocabulary section where you will define “immunologese” in your own words.

To succeed in this course, it is suggested that students take the time to read relevant material BEFORE each class session and that after each class, integrate lecture materials and material from the book by re-writing notes in your own words. These notes can serve as the study materials for the exams. *Lecture PowerPoints will be posted on Moodle before each lecture.*

GRADING will be based on the following:

500 points – 5 Exams (100 points each)

150 points – Final Exam. Semi-cumulative 50 pts from material after 5th exam, 100 points comprehensive

100 points – Research Article Review

Total Points Possible = 750 points

Final grades will be based upon a straight 10% grading scale based upon the total number of points (90% for A, 80% for B, 70% for C, 60% for D, below 60% = F). Late policy is outlined below.

LATE WORK:

Late work is strongly discouraged. **For assignments with a specified due date, a late penalty of 10% per day of tardiness will be subtracted from the grade.**

EXAMS: Excuses for rescheduling or missing an exam must be approved BEFORE the exam. If not pre-approved, no makeup exam will be given and an F will be recorded for the exam. **Anyone missing the final exam will receive a grade of F for the entire course.**
Important Note: Cheating on an exam will result in a grade of ZERO for that exam and referral for disciplinary action by the University of Montana.

ONLINE SUPPLEMENTAL MATERIALS: There is an online Moodle supplement with all PowerPoints in PDF format at 1/page, 2/page and 4/page.

RESEARCH ARTICLE REVIEW:

DUE DATES- Paper #1- Fri., November 20; 5:00 pm

Directions: Choose a 2011-2015 **research** article in **IMMUNOLOGY** that interests you, read it thoroughly, and write a synopsis. The synopsis is basically a condensed summary

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of the article **in your own words**. **Do not write a synopsis on a review article or a general topic**. You must include a copy of the original research article when you submit your colloquy or your paper will NOT be graded. The paper is to be turned in by email ONLY. Your emailed paper MUST be submitted as a Microsoft Word or a Pages document.

You are highly encouraged to begin searching for your paper early. If you have any questions or would like to discuss your chosen paper, please come by my office and we can go through it.

Feedback: Students are strongly encouraged to turn in your writing assignment 1 week before the deadline to get feedback so that you can revise the document before you turn it in for grading.

Access: Please limit yourself to a top-tier Immunology related journal for your article: *The Journal of Immunology*, *Nature Immunology*, *Immunity*, *European Journal of Immunology*, *Journal of Experimental Medicine or Infection and Immunity*, or the general journals *Cell*, *Science* or *Nature*, available in the Mansfield Library. **NO OTHERS WILL BE ACCEPTED WITHOUT PRIOR APPROVAL**. You may scan articles in the journals or search online at the PubMed database (<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi>) for particular key words or subjects that interest you. Remember, if there is no immunology in the article, it is **not** suitable for this assignment.

Purpose: To introduce prospective scientists to literature-searching and contemporary research in immunology and to read and write the “language of science”. Every exam will also include a significant writing component (>30% of total points), but this will be your opportunity to write a formal paper and demonstrate your scientific writing literacy. This also fulfills the writing requirements as this is a 1/3 W course.

Format:

- 4 full pages double-spaced and typed. Page 5 and above will not be read
- Begin with a brief introduction of the topic, goals of the research, etc.
- Follow this section with a discussion of the experimental approach, and justification (rationale), but don't go into excessive detail on methodology. Why did they use immunofluorescence? Why did they do a mixed lymphocyte reaction? etc. What did they find and how did they follow up with the next experiment? If there are any flaws or missing data (e.g. controls), note them.
- Finally, discuss the authors' conclusions. Do the data presented support their conclusions? If you do not agree with the authors, explain. How could the paper be improved?
- Discuss the significance of the paper to immunology. DO NOT start the sentence with “The significance to immunology is...”

The idea is to provide the reader with the background, rationale and data, and the conclusions (take home message) so that they can understand the “story” of the paper without reading the original article. Approach it like you were telling someone the key information in the paper. I will post several examples of excellent summaries on Moodle.

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Grading: 100 pts will be given based upon writing clarity, grammar, conforming to format, the overall flow of logic and how well the article is summarized. A 10% reduction in points per day will be penalized for late colloquies. Plagiarism will result in an automatic ZERO for the assignment and referral for academic discipline according the University of Montana Student Conduct code.

I recommend a new book available in the bookstore or online called “Writing Science in Plain English” by Anne Greene. It is a short, \$13 book and is an easy read that will be very helpful to improve your writing for this and your other science classes.

LEARNING OUTCOMES: An detailed official “Learning Outcomes” document for this course is posted on the Moodle site.

OFFICE HOURS: Because I am required by the university to set formal office hours, I will be available after class on Mondays and Wednesdays from 10 – 11 am to meet with you. However, I do not believe in restricting your access to formal office hours and I am available to meet and discuss the class with students pretty much anytime. Please stop by my office or lab whenever it is convenient for you. If I am not available at that particular time, we will make an appointment to meet within 2-3 days. To make sure will be there and available to talk with you, you can email, call, or talk with me before or after class to set up an appointment.

DSS ACCOMMODATIONS: The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students (DSS <http://www.umt.edu/dss>). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with DSS, please contact DSS in Lommasson 154. I will work with you and DSS to provide appropriate accommodation.

FINANCIAL AID RAMIFICATIONS OF ATTENDANCE: ***This is an issue ONLY if you withdraw from the course before the end of the semester.*** To be eligible to receive federal aid students must participate verifiably at least once in the course, and to be eligible to receive the full amount (whether loans or grants), must have participated through 60% of the course, or roughly the 45th day of classes. We will have an exam on November 9, which will allow me to confirm your participation through the 45th day of classes. Another way is to log into Moodle on or after November 4.

PLEASE NOTE: *You are bound by the University of Montana student conduct code. All work will be performed solely by the student. Plagiarism and cheating of any kind will result in referral for disciplinary action and you will receive a zero on the assignment. This will significantly impact your final course grade. All electronic devices (phone, iPod, etc.) are to be POWERED OFF and stored in bags during examination periods. If your phone or other electronic device disrupts the exam in any way, your will lose 25 points from your total grade on that exam – TURN IT OFF!*