

## SYLLABUS

### Biology 389: Immunology, 3 Credits, Fall 2016

**Instructor:** Dr. Sol Seipsenwol, TNR 439, ext. 4256; appointments by sign-up sheet outside office door.

**Class Meetings:** Mon & Weds, 2:00-3:15 pm, Science A-208. **Attendance is required.**

**Textbook:** "The Immune System," Peter Parham, MD, Garland Science Press, 4th edition, 2014.

**[PowerPoints based on textbook may be edited for presentation and other figures used as well.]**

**Objectives:** In the first part of the course, we will cover the basics of the several systems used to protect the body from pathogens, including the cell biology and genetics of immunity. We will also cover some of the potentially destructive aspects of immunity, including immune-deficiency diseases, autoimmunity, allergic reactions and transplant rejection. The second part of the course will cover the application of what we know about the immune system to clinical technology – creation of custom antibodies, use of antibodies for super-sensitive detection of molecules (immunoassays), use of antibodies for clinical therapy, principles of vaccination and transplantation. Some parts of the course, especially the applied immunology, are not thoroughly covered in the textbook and will be supplemented with handouts and material presented in lecture.

**Presentations:** lectures will be presented mostly in PowerPoint format.

**Examinations:** exams will be in-class, spaced 6 or 7 lectures apart through the semester:

**Exam #1: Weds., September 28, 2:00-3:15 pm. Covers lectures #1-6**

**Exam #2: Weds., October 26, 2:00-3:15 pm. Covers lectures #7-13**

**Exam #3: Mon., November 21, 2:00-3:15 pm. Covers lectures #14-19**

**Exam #4: Fri., December 16, 2:45-4:45 pm. Covers lectures #20-26 (not cumulative)**

Format of exams consist of multiple-choice, matching, short answer and essay questions. There will be several extra-credit questions on each exam. Each question is assigned a raw point value and all raw points are converted to 100%. The grade scale follows on the next page.

**Make-up examinations:** Make-up examinations will be given only if the reason for missing the scheduled examination is fully justified and verified.

**Cheating:** Any form of *cheating* on quizzes or exams will earn a grade of **F**. Student grievances are handled per the University of Wisconsin's administrative code, "**Student Academic Standards and Disciplinary Procedures**," found at <http://www.uwsp.edu/stuaffairs/Documents/RightsRespons/SRR-2010/rightsChap14.pdf>.

**Lecture recordings:** We will try to record all lectures and put the audio files on D2L. We do not object if you want to record your own lectures. Powerpoint PDF's will be put on D2L.

**Grade Scale:** Your grade will be based on a straight scale as shown below. There will be numerous extra-credit opportunities on exams and essays outside of class [more later]. Grading decisions on borderline percentages will be made based on in-class participation and attendance. There will be no negotiation of grades between instructor and students.

GRADE	MINIMUM PERCENT FOR GRADE
A+	97.0%
A	90.0%
A-	86.7%
B+	83.3%
B	80.0%
B-	76.7%
C+	73.3%
C	70.0%
C-	66.7%
D+	63.3%
D	60.0%
F	0.0%

The **A+** designation is called "honorary honors," which does not appear on your transcript, but which will be noted in letters of recommendation.

				Parham Readings
Lecture #	Date	Day	Tentative Topic	4th ed
1	9/7	Wed	Overview of immunity 1	Ch. 1
2	9/12	Mon	Overview of immunity 2	Ch. 1
3	9/14	Wed	Innate Immunity 1: barriers and effector cells	Ch. 2 & 3
4	9/19	Mon	Innate Immunity 2: plasma protein defenses – the complement system	Ch. 2 & 3
5	9/21	Wed	Adaptive Immunity Introduction: the lymphocytes	Ch 4
6	9/26	Mon	Adaptive Immunity: Antibodies & Somatic DNA recombination 1	Ch. 4
	9/28	Wed	<b><i>In-Class Exam 1 (covers lectures 1-6)</i></b>	
7	10/3	Mon	Adaptive Immunity: Antibodies & Somatic DNA recombination 2	Ch. 4
8	10/5	Wed	T Cell Receptors, Somatic DNA recombination & MHC I	Ch. 5
9	10/10	Mon	T Cell Receptors, Somatic DNA recombination & MHC II	Ch. 5
10	10/12	Wed	B Cell Development and maturation	Ch. 6
11	10/17	Mon	T cell maturation, selection, & restriction	Ch. 7
12	10/19	Wed	T cell immune response	Ch. 8
13	10/24	Mon	B cell immune response	Ch. 9
	10/26	Wed	<b><i>In-Class Exam 2 (covers lectures 7-13)</i></b>	
14	10/31	Mon	Mucosal Defenses (Gut, etc.)	Ch. 10
15	11/2	Wed	Immune-system dysregulation by allergens	Ch. 14
16	11/7	Mon	Immune-system defeat by pathogens	Ch. 13
17	11/9	Wed	autoimmune disease	Ch. 16
18	11/14	Mon	vaccination and vaccines	Ch. 11
19	11/16	Wed	transplantation immunology	Ch. 15
	11/21	Wed	<b><i>In-Class Exam 3 (covers lectures 14-19)</i></b>	
20	11/23	Mon	Immunotherapy: using antibodies as drugs	Handouts
21	11/28	Wed	Immunoassays – Part 1	Handouts
22	11/30	Mon	Immunoassays Part 2	Handouts
23	12/5	Wed	Flow Cytometry and cell sorting	Handouts
24	12/7	Mon	Manufacturing Polyclonal antibodies	Handouts
25	12/12	Wed	Manufacturing Monoclonal antibodies	Handouts
26	12/14	Mon	Manufacturing antibody-like proteins in viruses: svFab	Handouts
	12/16	Fri	<b><i>“Final” Exam 4 (Science A-208, 2:45-4:45 pm; covers lectures 20-26)</i></b>	