

BIOLOGY 485

PRINCIPLES OF CELLULAR AND MOLECULAR IMMUNOLOGY

COURSE SYLLABUS

San Diego State University
Fall 2007
Tuesday & Thursday 2:00 to 3:15 PM
Room LS 134

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Purpose of the course

In this course we will study the principles of modern Immunology, both at the molecular and cellular levels. The course is designed for students who take immunology for the first time. Discussions on experimental and technical details will be minimized for the benefit of emphasizing the overall principles under study. The prerequisites for this course is a good understanding of basic concepts of biochemistry and cellular and molecular biology as those studied in Bio 202, Chem 365, and Bio 366 or other equivalent courses. Success in this course, both in terms of understanding the material and obtaining a passing grade, will be greatly dependent on a good understanding of such concepts. Examples of such concepts can be found in the 'Study Guide'. Basic concepts you need to understand are not limited to those in the examples.

The expected learning outcomes of this course is to attain a working knowledge of current immunological principles as they relate to the cells and molecules of the immune system, how they interact in defending the body against invading microorganisms, how they develop and acquire the ability to recognize antigens, and finally how they malfunction in autoimmune diseases and how they become inadequate in immune deficiency states.

Textbook

"The Immune System" Second Edition by Peter Parham, will be the textbook utilized in this class. Required reading assignments are listed at the end of the syllabus.

Exams

There are going to be **two midterm** and **one final** examinations. The questions will be multiple choice, but the instructor reserves the option to change the format at any time. Questions in the exams will be derived from material covered in the lectures and in the reading assignments, the latter regardless whether they were discussed in class or not. The provided 'Study Guide' includes questions on all the material that exam questions will be drawn from. Additional questions on specific topics to be covered in the midterm will be posted on BB the week before each exam.

The first midterm will include the material covered up to the time of the exam. The second midterm will include the material covered after the first midterm. The **final exam** will include **all material** covered in the course. Part of the session following each midterm will be devoted to an interactive review of the exam questions. Participation will earn extra points.

Exam Dates: 1st midterm on **September 25**, second midterm on **October 23**, final exam on **December 11**.

No make up exams will be given. Situations beyond an individual's control (critical illness, emergencies etc) will be dealt with on an individual basis. It is the student's responsibility to justify such situations. Having to take more than one midterm on the same day or having an interview or an appointment of a non-emergency nature do not constitute justifiable reasons. Please arrange such commitment so they do not coincide with the midterm dates. The final will not be given earlier or later than its scheduled day unless there is a very important reason (critical illness, family emergency etc).

Extra credit: It can be earned by participation in the exam review sessions and in the review before the final. In addition, due to time limitations there will be several topics that will not be covered in class. Students wishing to obtain extra credit can read the assigned pages and answer additional questions in the final exam. Points earned in this additional exam will be considered bonus points. See below for the Extra Credit Reading Assignments.

Grading

The following will be an approximate grade distribution: First midterm ~22% (~55 points), second midterm ~30% (~75 points), final exam ~48% (~120 points). The actual distribution may vary.

Letter grading will be assigned as follows:

A = 92-100%	B+ = 88-89%	C+ = 78-79%	D = 60-69%
A- = 90-91%	B = 82-87%	C = 72-77%	F < 60%
	B- = 80-81%	C- = 70-71%	

You will have the opportunity to improve your grade by gaining bonus points (Extra reading and review participation)

Outline of Topics and Reading Assignments

Topic	Required Reading (pgs)	Approximate # of Lectures
Course Business Matters		
Cells and Organs of the Immune System	1-6, 11-20,	1
Innate and Adaptive Immunity	7-11, 24-34, 205-212, 215	2
Cellular Interactions in the Immune System	21-24, 45-47, 75, 145-154, 286, 169-175, 237-239	2
Antibody Structure and Antigens	37-44, 194-205	2
1st Midterm	Pages above	September 25
Antigen Processing and MHC	73-96	2.5
T Cell Development and Activation	67-69, 123-126, 131-137, 155-158	3
Cytokines	158-162, 164-165, 169-174, 250-252	2
2nd Midterm	Pages above	October 23
Development and Activation of B cells	45-47, 99-108, 110-120, 181-194	2.5
Genetic Basis of Antigen Recognition	47-64, 67-73, 126-131	3
Complement	205-212, 215, 233-237	1
Cytotoxic Cells	160-169, 252-259	1
Hypersensitivity Reactions; Autoimmunity	311-314, 331-338, 343-355	2
Immunological Deficiencies; AIDS	296-306	2
Review before the final exam	All pgs above	1
Final Exam	All pages above	December 11 1:00 – 3:00 PM

Extra Credit Reading Assignments

Extra Bonus Credit can be gained by answering additional questions during the final exam.
Bonus questions will be obtained from the following reading assignments

Topic	Reading Assignment (pgs)
Complement Receptors and proteins regulating the activation of complement	212-222
Cytokines and Inflammation	239-243, 247-252
Adaptive Immune Response to Infection	260-268
Immunological Memory	268-274
Immunological Deficiencies	279-296
Hypersensitivity Reactions	314-331
Autoimmunity	355-374
Vaccines	379-390
Transplantation	391-412
Cancer	412-429