IMMUNOLOGY BICD140
SPRING 2012

Course Organizer, Professor Elina Zuniga

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COURSE WEBSITE:

http://classes.biology.ucsd.edu/bicd140.SP12

Username: bicd140sp12

Password: immunity

OFFICE HOURS WITH DR ZUNIGA: Thursday from 2-3pm in 3146 on the 3rd floor of Bonner Hall of Bonner Hall, except the first week of class and when there has been an exam that day. I would be happy to talk with you about the class, Immunology in general, science and your studies. I am a wasted resource if you do not take advantage of my office hours!

TEXT BOOK: The Immune System, Garland publishing, Third Edition by Parham. The textbook is mandatory, there will be reading in it associated with every lecture. The lectures will make extensive use of the figures in the text, as well as other material. There are a limited number of texts on reserve at the Biomedical Library along with a somewhat more detailed book, Immunobiology -- by Charles Janeway, Jr. and Paul Travers. Immunobiology is available online (http://www.ncbi.nlm.nih.gov/books/bv.fcgi?call=bv.View..ShowTOC&rid=imm.TOC&depth=2) and the link is also on the class website.

LECTURES: Tuesdays and Thursdays 11-12:20 LEDDN AUD. Lectures will provide much information not contained in the reading, please come to lecture!

i-clicker: To enrich your learning experience through class participation I will use i-clicker in lectures beginning on the third lecture (APRIL 10TH). You are required to purchase an i>clicker remote (available in bookstore) for in-class participation. I>clicker is a response system that allows you to respond to questions I pose during class.

You will be graded on participation. You will earn one point per lecture only if you respond to ALL BUT ONE QUESTION, regardless of how they are responded (correct and incorrect answers will count the same). THE POINT IS EARNED FOR THE OVERAL LECTURE NOT INDIVIDUAL QUESTIONS. **You will get NO point if you miss more than one question during the lecture.** The maximum number of points during the course will count for 5% of extra credit in your final grade.

Each clicker has a unique serial number on the back of the remote. Write down the number and place a piece of scotch tape over that bar code and ID to preserve it. In order to receive credit for your votes, YOU WILL NEED TO REGISTER YOUR I>CLICKER REMOTE ONLINE BY APRIL 10TH. You must have come to class at least once and voted on at least one question in order to complete this registration properly. Once you have voted in a question in my class, go to www.iclicker.com/registration. Complete the fields with your first name, last name, student ID and remote ID. **Your student ID should be your ucsd email username** (this is the portion of your ucsd email before the@). The remote ID is the series of numbers and sometimes letters found on the bottom of the back of your i>clicker remote. YOU ARE RESPONSIBLE FOR BRINGING YOUR REMOTE TO EVERY LECTURE BEGINNING ON THE THIRD LECTURE.

PREREQUISITES: BICD100 (Genetics) and BIMM100 (Molecular Biology), and their prerequisites. If a prerequisite has been waived to allow you to take this class, it is your personal responsibility to make up any deficiencies that you may have.

TEACHING ASSISTANTS: **OFFICE HOURS:**

WILL BE ANOUNCED IN WEBSITE AND FIRST WEEK OF LECTURE

Dolgoter, Aleksandr	adolgote@ucsd.edu
Metz, Patrick John	pmetz@ucsd.edu
Bangs, Derek Jordan	djbangs@ucsd.edu
Langiewicz, Magda T.	mtlangie@ucsd.edu
Rizk, Maryan Girgis Soliman	mgrizk@ucsd.edu

DISCUSSION SECTIONS: (SPECIFIC TAS WILL BE ANNOUNCED IN WEBSITE AND FIRST WEEK OF LECTURE)

SECTION	DAY & TIME		LOCATION		TA
A01	M	2:00p - 2:50p	CENTR	201	
A02	M	3:00p - 3:50p	CENTR	201	
A03	W	2:00p - 2:50p	CENTR	201	
A04	W	3:00p - 3:50p	CENTR	201	
A05	F	2:00p - 2:50p	CENTR	201	
A06	F	3:00p - 3:50p	CENTR	201	

A07	F	4:00p - 4:50p	CENTR	201	

Discussion sections are a valuable part of this course, and although discussion sections are not mandatory, I highly recommend that you take part in them. These sections serve to clarify, emphasize and expand points that have been introduced in lecture. The answers to problem sets will be available during discussion, **but will not be posted**, so attendance will be highly valuable in preparation for exams. The section leaders craft each meeting to include opportunities for problem-solving, discussion, and expansion on particularly timely topics.

There are three discussion sections touching Special Topics, which are scheduled as follows:

Week April 10th -April 12th : Flow Cytometry

Week May 1st –May 3rd : Transgenic mice

Week May 22nd -May 24th : Antobodies: measurement, characterization and applications.

PDF files for the aforementioned discussion sections are in the website under "Downloads"

There will be no sections or office hours the first week of class. Sections will begin the second week of class, you may chose to attend any section you like.

PROBLEM SETS: Three Problem Sets will be assigned through the website. Problem sets will not be graded, but the material covered will be central to the exams and a very valuable study guide. Written answers will NOT be provided but will be addressed in the discussion sections.

REVIEW SESSIONS:

The TAs will hold 2 h review sessions before each midterm and the final on the Saturdays before the Exams. Final times and locations to be announced in class and on the website.

EXAMS: Your performance in the course will be evaluated by 2 midterm exams and the final exam. Exam and grading policies are as follows: Exams will consist of fill in the blank, short answer, multiple choice, and short essay questions. Pens, a #2 pencil and an ID card (student ID or driver's license) will be required at every exam. There are no scheduled make-up exams. Failure to take the exam will result in a zero. Extraordinary circumstances preventing you from taking an exam must be discussed in advance with the Student Affairs Office (1128 Pacific Hall) and Dr. Zuniga. IF exceptions are made for these special circumstances, the make-up will be an ORAL exam given by Dr. Zuniga. There

will be only one final given. Unfortunately it is impossible to accommodate those with multiple finals on the same day.

Midterms: 2 each worth 25% of your grade. Exam 1, covering all material covered and reading material assigned for lectures 1-6. Exam 2, covering all material covered and reading material assigned for lectures 8-13.

Final: 50% of grade. Covering all lecture and reading material assigned the entire class with emphasis on material and reading assigned for lectures 15-20.

i>clicker: you can add up to 5% extra-credit to your final grade if you earned one point in every lecture i>clicker was used.

GRADING: The grading is normalized to the highest score. 60-70% of that score will be a D, 70-80% will be a C, 80-90% will be a B and 90-105% of that an A.

We count the number of exams handed out, the number of exams turned in…and the number we hand back…and copy the exams.

REGRADE POLICY: Exams must be written in pen ONLY (no pencil) or will not be accepted for regrade. Exams written in pen but having writing masked by any form of white-out or correction tape will not be accepted for regrade. To submit a request for a regrade, you must:

1. Write a cover letter specifying which specific problem should be looked at and fully describe why you think the problem was wrongly graded.

2. Include your email address in your cover letter so that I can contact you regarding the decision on the regrade.

3. Attach the cover letter to the exam and deliver to Dr. Zuniga. The regrade request must be delivered within 1 week after the graded exams are returned.

4. Please be advised that a random sampling of exams will be photocopied. If exams submitted for regrade are found to be altered, this will be considered a breach in academic honesty and will result in failure of the course.

EMAIL COMMUNICATION: eizuniga@ucsd.edu is the appropriate email for all correspondence. Please remember to include your first and last name in the body of the email and WRITE BICD140 IN E-MAIL SUBJECT (your e-mail will not be read if you do not write that). I will not respond to any questions regarding the content of the exams by email or answer lengthy questions on course material, or schedule a meeting with `you or anything else that can be done in person before/after class or during office hours. I will address questions about the course material during office hours. Please come talk to me in person.

LECTURE NOTES: The lecture slides will be posted on the website the day before the lecture. It is your responsibility to keep track of last minutes changes in the slides. Students are required to have access to the internet in order to obtain class information (syllabus, TA sections) and materials (problem sets). Information available on the website will not be handed out in class.

GOALS OF THE COURSE:

Immunology is the study of the physiological mechanisms that organisms use to defend their bodies from invasion by other organisms. The origins of the subject lie in the practice of medicine and in historical observations that people who survived the ravages of epidemic disease were untouched when faced with the same disease again—they had become immune to infection. Infectious diseases are caused by microorganisms, which have the advantage of reproducing and evolving much more rapidly than do their human hosts. During the course of an infection, the microorganism can pit enormous populations of its species against an individual. In response, the human body invests heavily in cells dedicated to defense, which collectively form the immune system. Parham 3rd Edition.

During this quarter, we will explore the complex biology of the many cell types that defend the human body from infectious agents with the final goal of understanding how the immune system unites molecular, cellular, evolutionary and genetic principles to fight the war against pathogens.

ACHIEVING THE COURSE GOALS:

Learning Immunology: Immunology is not a linear discipline. You have to bring together several concepts simultaneously in order to understand each aspect of immunity. As you read and review, you will find that you have to look up terms and definitions, and it is an iteractive process. You learn subjects 1, 2, and 3, and then you can go back and understand subject 1 with more clarity. **You cannot learn immunology in one pass and you cannot learn it quickly before the exam.** Start studying from the first week, and do not fall behind.

Lecture: Lectures are held twice a week and cover the major concepts indicated on the schedule. Please note that the indicated schedule and readings may be modified somewhat during the quarter, and any changes will be announced in lecture. While lecture slides will be posted on the class website before the class, these notes are **not** intended to replace lecture, and there will be material presented in class that does not appear in the lecture slides. You will be responsible for information provided in lecture in addition to the material assigned in the text.

Reading: Reading assignments are noted on the schedule. Any additional reading will be announced in lecture and on the web site. **You are strongly encouraged to read text material *before* lectures.** You will note that at the end of each chapter, problems and lists of key concepts are given. You are encouraged to try solving these problems and make use of supplementary material before lecture.

Problem Solving: In addition to problems given at the end of the chapter, three problem sets will be assigned. They will be posted on the website under "downloads" and announced in class. You are encouraged to work these problems before section and to be prepared to discuss the answers during section. The answers will **not** be posted, but they will be discussed during discussion sections. The exam questions will reflect the homework assignments.

The Learning Environment: Participation in class (e.g. questions or responses to questions by the instructor) is strongly encouraged and contributes to a rich, interactive learning environment. Please refrain from eating, reading newspapers, scanning the web, and engaging in conversations during lectures and sections. Cell phones, pagers, and messaging devices should be turned off. If you must leave class early, please sit in the back in an aisle seat so that you do

not disturb others. Following these guidelines will help you, your colleagues, and instructors to stay focused on the material.

Academic integrity: Work on exams must be solely your own Cheating will not be tolerated and will result in an F in the course, as well as any additional disciplinary actions as indicated by the policy to maintain academic honesty. Please note, letting someone cheat off of your exam is cheating!!

Please review UCSD's Policy on Academic Integrity:

http://www-senate.ucsd.edu/manual/appendices/app2.htm#AP14

On each of your midterms I will ask you to sign an honor code stating:

I pledge not to cheat, plagiarize, steal, or lie in matters related to academic work.

There will be NO written material allowed for reference during any of the exams.

SCHEDULE FOR LECTURES & EXAMS AND READING MATERIAL

Lecture 1: April 3. Overview of the Immune System. Adaptive vs. Innate Immunity. Read Chapter 1, 3rd Edition (PDF on website).

Lecture 2: April 5. Innate Immunity. Read Chapter 2, 3rd Edition (PDF on website).

Lecture 3. April 10. Innate Immunity cont- Adaptive Immunity. Read Chapter 3, 3rd Edition.

Lecture 4: April 12. Adaptive Immunity cont. Read Chapter 3 & Chapter 10, 3rd Edition.

Lecture 5: April 17. Antibodies: What are they, what do they do and how do they come to be?. Read Chapter 4, 3rd Edition. This lecture will be taught by Dr. Ananda Goldrath.

Lecture 6: April 19. B cell development and rearrangement of antibody genes. Read chapter 6, 3rd Edition.

Lecture 7: April 24. EXAM# 1, including all material covered and reading material assigned for lectures 1-6.

Lecture 8: April 26. T cell recognition of antigen: T Cell Receptor. Read chapter 5, 3rd Edition.

Lecture 9: May 1. T cell recognition of antigen: Antigen presentation by the Major Histocompatibility Complex molecules. Read chapter 5, 3rd Edition.

Lecture 10: May 3. The genetics of MHC/Intro to lymphocyte development. Read Chapter 5, 3rd Edition.

Lecture 11: May 8. T cell development cont. Read Chapter 7, 3rd Edition.

Lecture 12: May 10. T cell development cont. Read Chapter 7, 3rd Edition.

Lecture 13: May 15. T cell activation. Read Chapter 8, 3rd Edition.

Lecture 14: May 17. EXAM #2, including all material covered and reading material assigned for lectures 8-13.

Lecture 15: May 22. T cell activation cont. B and T cell collaboration. Read Chapter 8 and 9, 3rd Edition.

Lecture 16: May 24. B cell activation and antibody mediated immunity. Read Chapter 9, 3rd Edition. This lecture will be taught by Dr. Shane Crotty.

Lecture 17: May 29. Autoimmunity. Read Chapter 13, 3rd Edition. This lecture will be taught by Dr. Ye Zheng.

Lecture 18: May 31. Hypersensitivity. Read Chapter 12, 3rd Edition.

Lecture 19: June 5. Vaccines and infectious disease. Read Chapter 14, 3rd Edition.

Lecture 20: June 7. The three big killers: Malaria, Tuberculosis and HIV. Review Chapter 10, 3rd Edition.

FINAL EXAM: June 12th. 11:30a - 2:29p including all lecture and reading material assigned for the entire course with emphasis on material and reading assigned for lectures 15-20.