Welcome to summer BICD140 – Immunology!

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OVERVIEW This summer, we will venture together into an accelerated educational experience to study immunology! We will explore the human immune system by looking at the components of the innate and adaptive immune systems and the various mechanisms governing the development and activation of the immune system.

University Course Catalog - BICD140:
"Formation and function of the mammalian immune system, molecular and cellular basis of the immune response, infectious diseases and autoimmunity."
http://www.ucsd.edu/catalog/front/courses.html

Term: Summer Session I - 2018

Class Meeting Days: Mondays and Wednesdays
Class Meeting Hours: 8:00AM - 10:50AM (2 July – 4 August, 2018)
Class Location: Peterson Hall, Room 103

Final Exam: Friday, 3 August 2018
Hours: 8:00AM – 10:59AM

Dr. Rizk's Office Hours: If you need to meet with me outside of class for urgent matters, please email me your availability for Tuesdays, Thursdays, and Fridays between 8AM – 11AM. Otherwise, I will be more than happy to answer your questions on course material through email and TritonEd.

Discussion sections:
A01: 940471 – Mon/Wed – 11:00AM to 11:50AM (WLH 2206)
A02: 940472 – Tues/Thurs – 11:00AM to 11:50AM (WLH 2206)

Instructional Assistants:
Name: Shannon Kee
Email: skee@ucsd.edu

Important University Dates (http://summer.ucsd.edu/calendar/):
Holiday (no class): **Wednesday, July 4th, 2018**
Automatic wait-lists officially end: **Wednesday, July 4th, 2018**
Deadline to late add a course on WebReg: **Friday, July 6th, 2018**
Change grade option deadline: **July 13th, 2018**
Drop course without "W" deadline (no refund): **July 13th, 2018**
Drop course with "W" deadline (no refund): **July 31, 2018**
Student may no longer drop courses: **August 1st, 2018**
Last day to file an Incomplete: **August 6th, 2018**
Grades available on TritonLink: **One week after the end of classes.**

COURSE PREREQUISITES:

Required: BICD 100 - Genetics, BIMM 100 – Molecular Biology.
Recommended: BIBC 100 – Structural Biochemistry.

Course Credits: 4-units (quarter units)

REQUIRED LEARNING MATERIAL:

iClickers
You will be using iClickers during every lecture, where I will present you with 2-3 questions/lecture. You need to answer at least 2 questions in order to receive credit for that day. There will be 9 sets of clicker questions 1 set/lecture; you will need to respond to at least 7 sets to receive full credit.

Optional Learning Material:
Textbooks:

1) The Immune System by Peter Parham (4th edition). ISBN-10: 0-815-34526-7.
2) Case Studies in Immunology: A clinical companion by Geha and Notarangelo (7th edition).
3) Cellular and Molecular Immunology by Abbas et al. (6th edition).

Free Online Textbook: Janeway's Immunology (the source book for the Parham text); search on PubMed

LEARNING OUTCOMES

At the end of this course, you will be able to…

- **Solve** immunological problems using the various concepts and tools learned during the course.
- **Communicate** using scientific terminology to explain processes and functions of the immune system.
- **Think critically** about complex immunological problems.

CLASS WEBSITE

TritonEd (tritoned.ucsd.edu)

ASSIGNMENTS AND GRADING

Basis for final grade:
The final grade of the course will be based on the following:

4 Quizzes (20 points each)	→ 80 points
3 HW assignments (10 points each)	→ 30 points
7 Sets of iClicker Questions (2 points each)	→ 14 points
1 Final Exam (140 points)	→ 140 points
Total	**→ 264 points**

Grading Scale:

90 – 100%	A
80 – 89%	B
70 – 79%	C
60 – 69%	D
0 – 59%	F

Grades Report:
TritonEd. No grades will be distributed by email.

Quizzes: There will be four in-class 45-min quizzes. The quizzes will include the material covered during the previous lecture/s. The format of the quizzes will include: multiple-choice questions, short-answer free-response, and match-label images. No make-up quizzes available. Failure to attend a quiz will result in a grade of "zero".

Homework: There will be 3 homework assignments. The goal of these assignments will be to help you prepare for the quizzes and final exam. These will not be graded on correctness, but rather completion. I expect honest effort exerted to respond to these. Answer keys will be available online after due date.

iClickers: See note under "Required Learning Material" above. Additionally, cach iClicker 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 iCLICKER REMOTE ONLINE. 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 **MONDAY OF 2ND WEEK.**

Final Exam: One comprehensive final exam will be administered on Friday, 3 August 2018 starting at 8AM and lasting 3 hours. The exam format will include multiple-choice questions, short-answer free-response, and match-label images. There is no make-up final exam scheduled. IF there are extenuating circumstances preventing you from taking the exam, this must be discussed in advance with the Student Affairs Office (1128 Pacific Hall) and Dr. Rizk.

REGRADE POLICY: Quizzes and final exam must be written in pen ONLY (no pencil) or will not be accepted for re-grade. Quizzes and exams written in pen but have writing masked by any form of whiteout or correction tape will not be accepted for re-grade. 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. Rizk. The regrade request must be delivered within 1 week after the graded exam or quiz is 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 an "F" in the course.

Extra Credit Opportunities: At the end of each lecture, you will have an opportunity to turn in a 3x5 reflection card to share your thoughts for the day, points of confusion, things that sparked your interest, or anything that you feel I need to know about that day. You MUST WRITE YOUR NAME on the card in order to receive the EC points; each card will count for 1 point added to your final grade. Additional EC opportunities will be announced through TritonEd.ucsd.edu.

LECTURES: Lectures will consist of a combination of PowerPoint slides and board notes. Copies of these notes will be posted online after lectures. PowerPoint slides will include relevant graphics and iClicker questions.

DISCUSSION SECTIONS: Attendance in discussion section is **HIGHLY recommended**. During discussions, you will be able to ask questions on the homework assignments, review quiz questions and answers, and work in groups to solve problems that your TA might present to you. There will be no review sessions for this course; instead, please attend section. Sections will begin on WEEK 2.

ACADEMIC INTEGRITY: Work on exam, quizzes, and homework must be solely your own. Any form of cheating or plagiarism will not be tolerated and will result in an "F - Fail" grade in the course, as well as any additional disciplinary actions as indicated by UCSD to maintain academic honesty (visit the UCSD Office of Academic Integrity for more information https://academicintegrity.ucsd.edu/about/index.html).

STUDENTS WITH DISABILITIES: The webpage of the UCSD Office for Students with Disabilities provides many useful resources on how to register and obtain accommodations for students with disabilities. Visit their page here: http://disabilities.ucsd.edu/students/index.html. Also, please speak with me as **early** in the course as possible if you need special accommodations AND have registered with the office.

LATE WORK POLICY: I do not accept late work. I will share complete information on assignments to allow ample time for completion if you do not procrastinate. Please respect my time, the time of your TA, and your colleagues; plan ahead and submit on time. Contact me ASAP for any extenuating circumstances.

GRADES OF "INCOMPLETE - I": The current university policy concerning incomplete grades will be followed in this course. Incomplete grades are given only in situations where unexpected emergencies prevent a student from completing the course and the remaining work can be completed the next quarter. Your instructor is the final authority on whether you qualify for an incomplete. Please see the UCSD policy on incomplete grades here: https://students.ucsd.edu/academics/exams-grades-transcripts/grades/request-remove-incomplete.html.

LECTURE TOPICS AND SCHEDULE

Date	Topics	Assignment
Monday 2 July 2018	LECTURE 1 **Introductions** - Pathogens - Innate Immune system - Adaptive Immune system - Immune cells - Anatomy of immune system	– 3 x 5 cards
4 July 2018	Holiday - NO CLASS	– n/a
Monday 9 July 2018	LECTURE 2 **Innate immunity** Complement System: - Alternative Complement Activation - Lectin Pathway - Classical Pathway Phagocytes: - Macrophages - Neutrophils	– HW 1 available – 3 x 5 cards – Register iClickers
Wednesday 11 July 2018	LECTURE 3 **Innate immunity** Receptor Signaling: - TLRs - NOD-like Receptors Inflammatory cytokines: - Examples - Functions Inflammasome: - Signaling pathway	– Quiz 1 [covers lectures 1 + 2] – 3 x 5 cards
Monday 16 July 2018	LECTURE 4 **B-cells (adaptive immunity):** Development: - Origin - Maturation and Selection - Gene rearrangement - Regulatory proteins Antibodies: - Structure - Pre-exposure to antigen - Post-exposure	– HW 1 DUE in class – HW 2 available online – 3 x 5 cards

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Date	Topics	Assignment
Wednesday 18 July 2018	LECTURE 5 **<u>T-cells (adaptive immunity):</u>** Development: - Origin; Positive and Negative Selection T-cell receptor: - Structure; Gene rearrangement - Co-receptors	– Quiz 2 [covers lecture 3 + 4] – 3 x 5 cards
Monday 23 July 2018	LECTURE 6 **<u>T-cells (adaptive immunity):</u>** Antigen Recognition: – Antigen processing – MHC I and II presentation MHC diversity: – HLA classes – Genetic basis – Transplant organ rejection	– HW 2 DUE in class – HW 3 available online – 3 x 5 cards
Wednesday 25 July 2018	LECTURE 7 **<u>T-cells (adaptive immunity):</u>** Human Immunodeficiency virus Activation: – Dendritic cells; Lymphoid organs Proliferation and Differentiation: – Naïve vs. effector CD4 T-cells Cytotoxic CD8 T-cells: – Activation; Mechanism of killing	– Quiz 3 [covers lecture 5 + 6] – 3 x 5 cards
Monday 30 July 2018	LECTURE 8 **<u>Interplay of T-Cells and B-cells</u>** Activation of B-cells: – Surface immunoglobulins – Co-receptor – Help from CD4 cells – Clonal Expansion – Somatic hypermutation; Affinity maturation – Differentiation	– HW 3 DUE in class – 3 x 5 cards
Wednesday 1 August 2018	LECTURE 9 **Antibodies:** Effector functions: – IgM, IgG, and IgA – Fc receptors and NK cells IgE-mediated immunity and allergies **Autoimmune diseases:** – Genetic factor**;** Mechanisms – Intravenous IgG treatment – Example diseases	– Quiz 4 [covers lecture 7 + 8] ← This material will be covered on final. - 3 x 5 cards
Friday 3 August 2018	**COMPREHENSIVE FINAL EXAM [8am – 11am]** **-** covers lecture 1 through 9.	– **Do really well on the final! =)**