

Syllabus: INTD 522: Infection and Host Defenses (Spring 2020)

Unit: 4

Course Sessions: Tuesdays and Thursdays

Time: 9:00 am – 10:50 am

Location of Lectures: McKibben Hall (MCH) 256

Location of Exams: McKibben Hall (MCH) 256

First Day of Classes: January 14, 2020

Course Director: Jie Li, PhD (jjeli@usc.edu)

Clinical Assistant Professor

Department of Molecular Microbiology and Immunology

Office: HMR 401

Course Description:

The main purpose of INTD 522 is to introduce the students to the general principles in Microbiology and Immunology. The course starts with Immunology, including the general principles of immune responses, components of the immune system and the details of immune responses in health and diseases. The modulation and manipulation of the immune system is also discussed, such as vaccination and cancer immunotherapy. This course also discusses infectious pathogens and their pathogenesis, the host immunity against these infections, including bacteria, viruses, parasites, fungi and prion, with an emphasis on viral pathogens.

This course is the prerequisite for the more advanced courses of MICB 542 “Animal Virology: Special Topics on Infectious Pathogens and Immunological Abnormalities” and MICB 502 “Cellular and Molecular Immunology”.

Course Goals:

The goal of this course is for the students to develop a basic understanding of infections and immune responses. As a result, they develop further interest, pursue further studies in this area, and are better prepared for future careers that are related to Microbiology and Immunology.

Course Correspondence:

All correspondence between instructors and the students will be made via email. All necessary information for the course is posted to Blackboard. Students are expected to regularly check

the Blackboard contents. The Blackboard website may be entered at <https://blackboard.usc.edu/webapps/login/>.

Course Recording Policy:

As per USC policies, recording of lecture material requires the express permission of the instructor and announcement to the class, and can only be used for individual or group study.

Resources:

Textbooks are on reserve in the library. There are also copies for sale in the bookstore. Some textbooks provide online resources for students who have purchased the books. Also, take advantage of the website <http://blackboard.usc.edu>, and check frequently.

Contacts:

Anytime during the course, feel free to contact me if you have any questions, or the lecturers if the questions are directly related to the lecture contents. If there is a need to discuss anything in person, we can make an appointment via email.

Recommended Textbooks:

Murphy, K. and Weaver C. **2017** *Janeway's Immunobiology* 9th ed., Garland Science: ISBN 978-0-8153-4505-3.

E-books are also available.

Abbas, A.K., Lichtman, A.H. and Shiv Pillai. **2015**. *Cellular and Molecular Immunology* 8th ed., W.B. Saunders: ISBN 978-0-323-22275-4

Knipe, D.M., Howley, P.M., Cohen, J.I., Griffin, D.E., Lamb, R.A., Malcom, M.A., Racaniello, V.R. and Roizman, B. **2013** *Field's Virology* 6th ed., Lippincott, Williams & Wilkins: ISBN 978-1-4511-0563-6

http://www.usc.edu/e_resources/hsl/gateways/7904.php

Flint, S.J., Enquist, L.W., Racaniello, V.R. and Skalka, A.M. **2015**. *Principles of Virology* 4th ed., American Society for Microbiology Press: ISBN 978-1-55581-951-4

Grading:

Final grade= First Exam 33.3% + Second Exam 29.6% + Third Exam 37.1% + extra credit 8%

There will be three in-class exams as noted in the schedule. These exams are NOT accumulative.

The first exam covers the lectures from Jan. 16 to Feb. 13, with 9 lectures total.

The second exam covers the lectures from Feb. 20 to March 24, with 8 lectures total.

The third exam covers the lectures from March 31 to April 30, with 10 lectures total.

There are 10 points of questions for each lecture (except for the first lecture on Jan. 14 which is not tested on) in the exams. Maximum total points from the three exams are 270, which is 100%.

To help students prepare for the exams, a study guide will be given shortly before each exam.

In addition, students have the opportunity to earn extra credits. Here is how:

During our lecture period, students are welcome to submit to me any interesting articles from magazines and newspapers (NOT professional journals) related to our lecture topics. E-mail them to me or drop them off to my mailbox at the department office located at HMR 401. The purpose is to see how our topics are reflected in the media and the interest of the general public. Up to 3 points will be given.

By the final exam, students may choose to submit to me a "wish list", a list of topics you would love to know, or know more. That will help me with the future organization of this course. On the same sheet, of all the lectures, tell me which topic(s) you like most and least, and why. This is extremely valuable to the continuous improvement of this course. Up to 10 points are given for it.

You will be given several papers during the course period, via the BLACKBOARD. Choose one of these papers and write a critique using the knowledge you've gained from the course: what you like and don't like about the paper, what can be done to improve, etc. A guideline will be given as to how to write a paper critique. Get up to 10 points for it.

If students choose to do all the extra work, they could get up to 23 extra points. Remember, it is NOT required to do any of the extra work.

The final grade is the total points of exams and extra credits, converting to percentile. I usually don't fit grades into a standard bell curve.

Lecture Schedule:**Tue. and Thur. 9-11 a.m.**

#	DATE	TITLE	LECTURER
1	01/14/2020	Course Orientation Introduction to Immunology	Dr. Jie Li Dr. Minnie McMillan
2	01/16/2020	Innate Immunity	Dr. Ebi Zandi
3	01/21/2020	Antigen Specific Receptors	Dr. Minnie McMillan
4	01/23/2020	MHC, Dendritic Cells, and Antigen Presentation	Dr. Minnie McMillan
5	01/28/2020	T-Cells and Cell-Mediated Immunity	Dr. Omid Akbari
6	01/30/2020	B-Cells in Adaptive Immunity	Dr. Minnie McMillan
7	02/04/2020	SCID, CVID and Other Immune Deficiencies	Dr. Patrick Whelan
8	02/06/2020	Autoimmunity and Infectious Diseases	Dr. Minnie McMillan
9	02/11/2020	Allergy and Asthma	Dr. Omid Akbari
10	02/13/2020	Tolerance	Dr. David Horwitz
11	02/18/2020	Exam 1	
12	02/20/2020	Bacterial Pathogenesis and Immune Responses against Bacterial Infections	Dr. Hyungjin Eoh
13	02/25/2020	Antibiotic Resistance	Dr. Brian Luna
14	02/27/2020	Tuberculosis	Dr. Hyungjin Eoh
15	03/03/2020	DNA Damage and Immune Responses	Dr. Lucio Comai
16	03/05/2020	Microbiome in Health and Disease	Dr. Ebi Zandi

#	DATE	TITLE	LECTURER
17	03/10/2020	Mucosal Immunity and Inflamed Bowels	Dr. Jie Li
18	03/12/2020	Fungal Virulence Factors, Infections, and Host Immunity	Dr. Kevin Nash
19	03/17/2020	Spring Break	—
20	03/19/2020	Spring Break	—
21	03/24/2020	Parasitic Infections and Host Immunity; Malaria	Dr. Kevin Nash
22	03/26/2020	Exam 2	—
23	03/31/2020	Introduction to Virology	Dr. James Ou
24	04/02/2020	RNA Viruses and Their Pathogenesis	Dr. I-Chueh Huang
25	04/07/2020	DNA Viruses and Their Pathogenesis	Dr. Lucio Comai
26	04/09/2020	Hepatitis Viruses	Dr. Keigo Machida
27	04/14/2020	Herpes Viruses	Dr. Chengyu Liang
28	04/16/2020	HIV	Dr. Paula Cannon
29	04/21/2020	Emerging Viruses	Dr. Jae Jung
30	04/23/2020	Vaccines	Dr. Minnie McMillan
31	04/28/2020	Cancer Immunotherapy	Dr. Siyi Chen
32	04/30/2020	Application of Systems Biology in Studying Infections	Dr. Hayoun Lee
33	05/07/2020	Exam 3	—

E-MAIL CONTACTS FOR LECTURERS

<i>Lecturer</i>	<i>Email Address</i>
Dr. Jie Li	jjeli@usc.edu
Dr. Minnie McMillan	mcmillan@med.usc.edu
Dr. Ebrahim Zandi	zandi@usc.edu
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Dr. David Horwitz	dhorwitz@usc.edu
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Dr. Patrick Whelan	jpatrickwhelan@gmail.com
Dr. Si-Yi Chen	siyichen@usc.edu
Dr. James Ou	jamesou@usc.edu
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Dr. Chengyu Liang	liang2@usc.edu
Dr. Keigo Machida	Keigo.Machida@med.usc.edu

USC Code of Honor:

https://blackboard.usc.edu/webapps/portal/frameset.jsp?tab_tab_group_id=_2_1&url=%2Fwebapps%2Fblackboard%2Fexecute%2Flauncher%3Ftype%3DCourse%26id%3D_130194_1%26url%3D

Statement on Academic Conduct and Support Systems

Academic Conduct

Plagiarism - presenting someone else's ideas as your own, either verbatim or recast in your own words - is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards* <https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions>. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* <http://equity.usc.edu/> or to the *Department of Public Safety* <http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>. This is important for the safety of the whole USC community. Another member of the university community - such as a friend, classmate, advisor, or faculty member - can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* <http://www.usc.edu/student-affairs/cwm> provides 24/7 confidential support, and the sexual assault resource center webpage <http://sarc.usc.edu/> describes reporting options and other resources.

Support Systems

A number of USC's schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* <http://emergency.usc.edu> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.