

## **Syllabus: INTD 522: Infection and Host Defenses (Spring 2023)**

**Unit: 4**

**Course Sessions: Tuesdays and Thursdays**

**Time: 9:00 am – 10:50 am Pacific Time**

**Location of Lectures: MCH 256**

**Location of Exams: MCH 256**

**First Day of Classes: January 10, 2023**

**Course Coordinator: Jie Li, PhD ([jieli@usc.edu](mailto:jieli@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 to the students the general principles of Microbiology and Immunology. The course starts with Immunology, including the mechanisms of innate and adaptive immune responses, components of the immune system and the detailed steps 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 infectious pathogens, including bacteria, viruses, parasites, fungi and prion, with an emphasis on viruses.

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 interests, pursue further studies in this area, and are better prepared for the future careers related to Microbiology and Immunology.

### **Course Correspondence:**

All correspondence between instructors and the students will be made via email and Blackboard. 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* 9<sup>th</sup> 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* 8<sup>th</sup> ed., W.B. Saunders: ISBN 978-0-323-22275-4

Knipe, D.M., Howley, P.M., Whelan, S., Cohen, J.I., Griffin, D.E., Lamb, R.A., Malcom, M.A., Racaniello, V.R. and Roizman, B. **2020** *Field's Virology* 7<sup>th</sup> ed., Lippincott, Williams & Wilkins:

ISBN 978-1-975112547

[http://www.usc.edu/e\\_resources/hsl/gateways/7904.php](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* 4<sup>th</sup> ed., American Society for Microbiology Press: ISBN 978-1-55581-951-4

## Grading:

Final grade= First Exam 33.3% + Second Exam 33.3% + Third Exam 33.3% + extra credit 4%

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. 10 to Feb. 9, with 9 lectures total.

The second exam covers the lectures from Feb. 16 to March 23, with 9 lectures total.

The third exam covers the lectures from Mar.30 to April 27, with 9 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:****Time and Location: Tue. and Thur. 9--10:50 a.m., MCH 256**

#	DATE	TITLE	LECTURER
1	01/10/2023	Course Orientation Introduction to Immunology	Dr. Jie Li Dr. Omid Akbari
2	01/12/2023	Innate Immunity	Dr. Ebi Zandi
3	01/17/2023	Antigen Specific Receptors	Dr. Weiming Yuan
4	01/19/2023	MHC, Dendritic Cells, and Antigen Presentation	Dr. Ebi Zandi
5	01/24/2023	T-Cells and Cell-Mediated Immunity, Allergy and Asthma	Dr. Omid Akbari
6	01/26/2023	B-Cells in Adaptive Immunity	Dr. Siyi Chen
7	01/31/2023	SCID, CVID and Other Immune Deficiencies	Dr. Patrick Whelan
8	02/02/2023	Autoimmunity and Infectious Diseases	Dr. Omid Akbari
9	02/07/2023	Immunometabolism in Health and Disease	Dr. Peter Mullen
10	02/09/2023	Tolerance	Dr. David Horwitz
11	02/14/2023	Exam 1	
12	02/16/2023	Bacterial Pathogenesis and Immune Responses against Bacterial Infections	Dr. Hyungjin Eoh
13	02/21/2023	Antibiotic Resistance	Dr. Brian Luna
14	02/23/2023	Tuberculosis	Dr. Hyungjin Eoh
15	02/28/2023	DNA Damage and Immune Responses	Dr. Lucio Comai

16	03/02/2023	Microbiome in Health and Disease	Dr. Ebi Zandi
17	03/07/2023	Mucosal Immunity and Inflamed Bowels	Dr. Jie Li
18	03/09/2023	Fungal Infections and Host Immunity	Dr. Kevin Nash
19	03/14/2023	Spring Break	—
20	03/16/2023	Spring Break	—
21	03/21/2023	Parasitic Infections and Host Immunity; Malaria	Dr. Kevin Nash
22	03/23/2023	Immunotherapy	Dr. Siyi Chen
23	03/28/2023	Exam 2	—
24	03/30/2023	Introduction to Virology	Dr. James Ou
25	04/04/2023	RNA Viruses and Their Pathogenesis	Dr. James Ou
26	04/06/2023	DNA Viruses and Their Pathogenesis	Dr. Lucio Comai
27	04/11/2023	Herpes Viruses, Pox Viruses and Their Pathogenesis	Dr. Pinghui Feng
28	04/13/2023	How HIV Subverts the Immune System	Dr. Paula Cannon
29	04/18/2023	Hepatitis Viruses and Their Pathogenesis	Dr. Keigo Machida
30	04/20/2023	Emerging Coronaviruses in Human	Dr. Jie Li
31	04/25/2023	Clinical Management and ER Perspectives of Covid	Dr. Christian McClung
32	04/27/2023	Vaccines	Dr. Jie Li
33	05/04/2023	Exam 3	—

## E-MAIL CONTACTS FOR LECTURERS

<b>Lecturer</b>	<b>Email Address</b>
Dr. Jie Li	jjeli@usc.edu
Dr. Ebrahim Zandi	zandi@usc.edu
Dr. Omid Akbari	akbari@usc.edu
Dr. Patrick Whelan	jpatrickwhelan@gmail.com
Dr. David Horwitz	dhorwitz@usc.edu
Dr. Hyungjin Eoh	heoh@usc.edu
Dr. Brian Luna	brianlun@usc.edu
Dr. Lucio Comai	comai@usc.edu
Dr. Christian McClung	cmclung@usc.edu
Dr. Kevin Nash	Kevin.Nash@med.usc.edu
Dr. James Ou	jamesou@usc.edu
Dr. Keigo Machida	Keigo.Machida@med.usc.edu
Dr. Paula Cannon	pcannon@usc.edu
Dr. Weiming Yuan	weiming.yuan@usc.edu
Dr. Si-Yi Chen	siyichen@usc.edu
Dr. Pinghui Feng	<a href="mailto:pinghuif@usc.edu">pinghuif@usc.edu</a>
Dr. Peter Mullen	petermul@usc.edu

## ACADEMIC CONDUCT AND ACADEMIC INTEGRITY STANDARDS

- Members of the USC community are expected to be honest and forthright in their academic endeavors.
- To falsify the results of one's research, to present the words, ideas, data, or work of another as one's own, or to cheat on an examination corrupts the essential process by which knowledge is advanced.
- When students accept their offer to USC they are also accepting to abide by the Student Conduct Code.
- This is a higher standard of conduct than expected in the general community because we are TROJANS.
- When USC confers a degree, it is acknowledging students' academic success and their ability to be a positive, honest, and outstanding citizen within society.
- In failing to uphold academic standards students cheat themselves and others out of learning, degrade the value of their education, and diminish the prestige of the USC education.
- Ignorance of these expectations is not an acceptable justification for violating the Student Conduct Code.

The University prides itself in maintaining high academic integrity standards. The entire academic community benefits from the adherence to such standards. Among the violations of integrity standards is plagiarism. Plagiarism has to be avoided. It is a serious academic offense with serious consequences. When it occurs, the consequences for the student can be severe. For example, credit for a course may be denied and a grade of F is given, permanent notation on transcript, suspension or expulsion from the University, or revocation of admission or degree.

### What is Plagiarism?

- Plagiarism is the appropriation of another person's ideas, processes, results, or words without giving appropriate credit.
- For example, if you use a sentence from somebody else's paper and insert it into your own paper without clearly marking the source, you are plagiarizing.

Further information, including a number of tutorials for students, can be found online at: <https://libraries.usc.edu/research/reference-tutorials>. This website has tutorials such as: how to avoid plagiarism, how to prevent academic dishonesty, how to manage your research, and other useful how-to tools and tutorials.

- [Understanding and Avoiding Plagiarism I: \(What is plagiarism?\)](https://libraries.usc.edu/tutorial/understanding-and-avoiding-plagiarism-module-1-what-plagiarism-what-citation)

<https://libraries.usc.edu/tutorial/understanding-and-avoiding-plagiarism-module-1-what-plagiarism-what-citation>

- [Understanding and Avoiding Plagiarism II: \(Citing to avoid plagiarism\)](https://libraries.usc.edu/tutorial/understanding-and-avoiding-plagiarism-module-2-citing-avoid-plagiarism)

<https://libraries.usc.edu/tutorial/understanding-and-avoiding-plagiarism-module-2-citing-avoid-plagiarism>

Students should expect that their work (such as term papers, research proposals, presentations, written theses, etc.) will be checked for plagiarism with the use of appropriate software (Turnitin; iThenticate; Copyscape; PaperRater; etc.).

## **BEYOND ACADEMIC CHALLENGES**

Balancing course work, midterms, finals, and laboratory research presents a challenge and at times can feel overwhelming. On top of that, many students are far away from home and family, perhaps even their country and their native language, which can feel quite depressing. Sometimes, relationship problems come up and make life miserable. But no matter the problem, USC offers resources to help students deal with depression, anxiety, and other types of distress. USC's services are not only geared toward helping students with academic challenges, but also with personal problems. Students in need should not hesitate to take advantage of the services that are listed above (and on the next page); there is no need to feel embarrassed or ashamed. USC is offering these services and resources so that students are in the best position to meet their academic and personal goals.

**Students and Disability Accommodations** (213) 740-0776, [osasfrontdesk@usc.edu](mailto:osasfrontdesk@usc.edu).

USC welcomes students with disabilities into all of the University's educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. DSP is located in GFS-120 (University Park Campus) and is open 8:30 a.m. – 4:30 p.m., Monday through Friday. More information can be found at [osas.usc.edu](http://osas.usc.edu)  
[http://sait.usc.edu/academicsupport/centerprograms/dsp/home\\_index.html](http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html)

**Stress Management** (323) 442-5631, <http://ecohenshc.usc.edu>

Students are under a lot of pressure. If you start to feel overwhelmed, it is important that you reach out for help. A good place to start is the Eric Cohen Student Health Center on Health Sciences Campus (HSC). The service is free and confidential.

**Student Counseling Services** (213) 740-9355 – 24/7, <https://engemannshc.usc.edu/counseling/>

Free and confidential mental health service for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

**988 Suicide and Crisis Lifeline** (formerly known as the [National Suicide Prevention Lifeline](https://www.988lifeline.org/))

988 for both calls and text messages – 24/7 on call [988lifeline.org](https://www.988lifeline.org/)

The 988 Suicide and Crisis Lifeline provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a national network of over 200 local crisis centers,

combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

**Relationship and Sexual Violence Prevention Services (RSVP)** - (213) 740-9355(WELL) – 24/7  
[sites.google.com/usc.edu/rsvpclientservices/home](https://sites.google.com/usc.edu/rsvpclientservices/home)

Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

**Office for Equity, Equal Opportunity, and Title IX (EEO-TIX)** - (213) 740-5086  
[eetix.usc.edu](http://eetix.usc.edu)

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

**Reporting Incidents of Bias or Harassment** - (213) 740-5086 or (213) 821-8298

[usc-advocate.symplicity.com/care\\_report](http://usc-advocate.symplicity.com/care_report)

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

**Diversity, Equity and Inclusion** - (213) 740-2101, [diversity.usc.edu](http://diversity.usc.edu)

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

**USC Campus Support and Intervention** - (213) 740-0411, [campussupport.usc.edu](http://campussupport.usc.edu)

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

**USC Emergency** - (213) 740-4321 (UPC) / (323) 442-1000 (HSC) – 24/7,  
[emergency.usc.edu](http://emergency.usc.edu)

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

**USC Department of Public Safety** - (213) 740-6000 (UPC) / (323) 442-1200 (HSC) –  
24/7, [dps.usc.edu](http://dps.usc.edu)

Non-emergency assistance or information.

**Office of the Ombuds** - (213) 821-9556 (UPC) / (323-442-0382 (HSC)  
[ombuds.usc.edu](http://ombuds.usc.edu)

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

**Occupational Therapy Faculty Practice** - (323) 442-2850 or [otfp@med.usc.edu](mailto:otfp@med.usc.edu)  
[chan.usc.edu/patient-care/faculty-practice](http://chan.usc.edu/patient-care/faculty-practice)

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.

### **OTHER SUPPORT SYSTEMS**

A number of USC 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.

If an officially declared emergency makes travel to campus infeasible, USC Emergency Information <http://emergency.usc.edu/> will provide safety and other updates.