Keck School of Medicine of USC

**MICB 560 — Recent Advances in
Molecular Microbiology and Immunology**

Credit: 1 unit
Meeting Time: Wednesdays from 12:00–12:50 p.m.
Location: MCH 156 (McKibben Hall)
First Day of Class: August 23th, 2023
Course Director: Dr. Weiming Yuan
Office: NRT 5504
Contact: weiming.yuan@usc.edu

Course Description

The main purpose of this course is to provide extensive exposure to the diverse research topics and interests by the faculty members in the Department of Molecular Microbiology and Immunology (MMI), accompanied by an overall introduction to the basic principles of microbiology and immunology. This course is very strongly recommended to all MMI master students and open to all graduate students on campus.

The topics and research interests are categorized in the following areas:

- Immunological Responses and Immune-based Therapies
- Virus-Host Interaction and Tumor Virology
- Fundamental Cellular and Molecular Pathways in Health and Diseases
- Emerging and Re-emerging Pathogens

The specific lecture titles might change along with the dynamics of the research. Each year, 2-4 lectures are offered per category, with 13 lectures in total. Each lecture is one academic hour.

The format of the course is flexible and can be in different forms of colloquiums, from formal lecturing to interactive question-driven discussions, or hands-on demonstrations on various facilities and equipment. Reading materials are sometimes assigned prior to lectures.

Course Goals

The main goal of this course is to provide the students an opportunity to realize the diversity of research options available in the MMI Department. By exposing the students to various cutting edge research projects and approaches, it is anticipated that the students are inspired to select and commit to a research topic for their graduate studies.

Learning Objectives

1. Understanding the research projects presented by participating faculty members.
2. Understand the research set up including the shared core facility in the molecular microbiology and immunology department.
3. Write summaries for three lectures most interesting to you

Course Correspondence

All correspondence between instructors and students will be made using email. All lecture slides will be posted on the Blackboard website for MICB 560. The Blackboard web site may be entered at https://blackboard.usc.edu/webapps/login/. The lecturers will make every effort to upload the lecture slides to the Blackboard website prior to class. Only students who are registered for the course will have access to the Blackboard website. If you cannot access the website, contact the course director (weiming.yuan@usc.edu).

Recommended Textbooks and Readings

- Murphy,K., Allan Mowat and Casey Weaver **2017.** *Janeway's Immunobiology* 9th ed., Garland Science: ISBN 0815345053 .

- Abbas,A.K., Lichtman,A.H. and Shiv Pillai. **2017**. Cellular and Molecular Immunology updated 9th ed., W.B.Saunders: ISBN 0323222757

- Knipe,D.M and Howley,P.M. **2021-2023.** *Field's Virology* 7th ed., Lippincott, Williams&Wilkins, ISBN 1975112547

Grading Policy

A total of three 2-page term papers (single-spaced, Ariel size 11 or Times New Roman size 12 font) will be required. The papers should be on three lectures of the greatest interest to the student, either summarizing the contents of the lectures and discussing the lecturers' current research, or a critical review of the lecturers' published paper(s) and research projects or the lecturer's research field. One term paper will be due by mid-term (Monday, October 9, 2023). The last two term papers are due by end of classes (Wednesday, November 29, 2023). The papers should be named as [Your Name]-Term paper 1/2/3-for Dr. [A/B/C] and emailed to the course director (weiming.yuan@usc.edu). If you submit your paper through Blackboard website, please notify the course director by email. Either Word or PDF file is acceptable, but Word file is preferred for reviewing. To learn about scientific writings, reading of the suggested books is encouraged.

Grading of the three term papers will comprise 90% of the final grade. Attendance to all lectures is required. Ten percent of the final grade is determined by the attendance and participation in the class.

Attendance

If a student misses more than 10% of the class sessions, a valid justification has to be submitted to the course director in person or by email. Examples of valid justifications include: (i) illness (*documented by*

a doctor's note), or (ii) attendance of a symposium (*documented by a copy of the registration, or by email from the student's P.I.*). Not acceptable excuses are, for example: (i) "*I have to run an experiment*", or (ii) "*I need to attend a wedding*" (unless it is your own, in which case you should invite the class).

If a student misses more than 1 session without a valid justification, or frequently arrives late, the final grade will be lowered. If a student misses three (or more) of the sessions, the student will receive a grade of IN (incomplete) if the absences were due to valid justifications, or a grade of F if there were no acceptable excuses.

Lecture Schedule

Aug 23	Weiming Yuan	Orientation / NKT cells in antiviral and anti-cancer immunity
Aug 30	Peter Mullen	General Principles of Immune Responses
Sep 6	Hyungjin Eoh	Metabolomics and Metabolome Mass Spectrometry Facility
Sep 13	Keigo Machida	HCV Pathogenesis and Available Therapies
Sep 20	Martin Kast	Tumor and Viral Vaccines / "Treeman disease"
Sep 27	Si-Yi Chen	Immunotherapy and Vaccines
Oct 4	Joe Landolph	Molecular Biology of Carcinogenesis Induced by NI(II) Compounds and Cr(VI) Compounds
Oct 11	Ha Youn Lee	Studying HIV Evolution and Immune Responses Using Next-Generation Sequencing
Oct 18	Zhiheng He	T cell differentiation and autoimmune/inflammatory diseases
Oct 25	Ebi Zandi	Mass Spectrometry-Based Proteomics Studies
Nov 1	Stan Tahara	SARS-CoV-2 and COVID-19
Nov 8	Lucio Comai	Biosafety Level 3 Containment Laboratories / Genome Instability Syndromes
Nov 15	Bingfei Yu	Immune recognition and Immunogenomics
Nov 22	No class	Thanksgiving holiday
Nov 29	No class	Final papers due

Additional Resources and Readings (available at USC library)

1. **Scientific writing [electronic resource]: thinking in words / David Lindsay.**
   Lindsay, D. R.
   Collingwood, Vic.: CSIRO Pub., 2011.

2. **Scientific writing and communication : papers, proposals, and presentations / Angelika H. Hofmann, Ph. D., Yale University.**
Hofmann, Angelika H., 1965- author
New York: Oxford University Press, 2017.

Academic Standards, Conduct, and Support Systems (provided by the University)

ACADEMIC INTEGRITY STANDARDS

The University prides itself in maintaining high academic integrity standards. The entire academic community benefits from the adherence to such standards. An academic integrity overview, including descriptions of dishonest acts and consequences for students found responsible, is available online at: https://sjacs.usc.edu/students/academic-integrity/.

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.

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 Section 11 of the *SCampus* publication (online at: https://policy.usc.edu/student/scampus).

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, HARASSMENT, ASSAULT

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://dps.usc.edu/. 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 Relationship and Sexual Violence Prevention (RSVP) Services at https://engemannshc.usc.edu/rsvp/ provide 24/7 confidential support, and the Sexual Assault Resource Center webpage https://sarc.usc.edu/ describes reporting options and other resources.

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. *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.