

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

**Credit: 1 unit**

**Meeting Time: Wednesdays from 12:00–12:50 p.m.**

**Location: MCH 256 (McKibben Hall)**

**First Day of Class: August 24<sup>th</sup>, 2022**

**Course Director: Dr. Weiming Yuan**

**Office: NRT 5504**

**Contact: [weiming.yuan@usc.edu](mailto:weiming.yuan@usc.edu)**

### **Course Description**

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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**

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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

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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

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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](mailto:weiming.yuan@usc.edu)).

## Recommended Textbooks and Readings

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- Murphy,K., Allan Mowat and Casey Weaver **2017**. *Janeway's Immunobiology* 9<sup>th</sup> ed., Garland Science: ISBN 0815345053 .
- Abbas,A.K., Lichtman,A.H. and Shiv Pillai. **2017**. *Cellular and Molecular Immunology* updated 9<sup>th</sup> ed., W.B.Saunders: ISBN 0323222757
- Knipe,D.M and Howley,P.M. **2013**. *Field's Virology* 6<sup>th</sup> ed., Lippincott, Williams&Wilkins, ISBN 1451105636

## Grading Policy

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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 10, 2022). The last two term papers are due by end of classes (Wednesday, November 30, 2022). The papers should be named as [Your Name]-Term paper 1/2/3-for Dr. [A/B/C] and emailed to the course director. 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

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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

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Aug 24	Weiming Yuan	Orientation / NKT cell-based immunotherapies
Aug 31	Peter Mullen	General Principles of Immune Responses
Sep 7	Stan Tahara	SARS-CoV-2 and COVID-19
Sep 14	Keigo Machida	HCV Pathogenesis and Available Therapies
Sep 21	Omid Akbari	Flow Cytometry Facility / Allergy and Asthma
Sep 28	Si-Yi Chen	Tumor Immunotherapy
Oct 5	Joe Landolph	Molecular Biology of Carcinogenesis Induced by Ni(II) Compounds and Cr(VI) Compounds
Oct 12	Ha Youn Lee	Studying HIV Evolution and Immune Responses Using Next-Generation Sequencing
Oct 19	Brian Luna	Antibiotic Resistance
Oct 26	Ebi Zandi	Mass Spectrometry-Based Proteomics Studies
Nov 2	Hyungjin Eoh	Metabolomics and Metabolome Mass Spectrometry Facility
Nov 9	Lucio Comai	Biosafety Level 3 Containment Laboratories / Genome Instability Syndromes
Nov 16	Martin Kast	Tumor and Viral Vaccines / "Treeman disease"
Nov 23	No class	Thanksgiving holiday
Nov 30	No class	Final term papers due

## Additional Resources and Readings (available at USC library)

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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)

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see next page

### ACADEMIC INTEGRITY STANDARDS

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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

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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

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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

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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](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.