

MICB 560 Recent Advances in Molecular Microbiology and Immunology

Unit: 1

Course sessions: Wednesday

Time: 12:00 pm – 12:50 pm

Location: McKibben 256

First Day of Class: August 28, 2019

Course Director: Dr. Weiming Yuan
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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, 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.

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

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

The specific lecture titles change along with the dynamics of the research. Each year, 2-4 lectures are offered per category, with 14 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 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.

Course Correspondence:

All correspondence between instructors and students will be made using email. All lecture slides will be posted on a Blackboard website for MICB560. 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 the Blackboard website prior to the class. Only students who are registered for the course will have access to the Blackboard web site. If you cannot access the web site, contact the course director (weiming.yuan@usc.edu).

Recommended Textbooks and Readings:

Murphy,K., Allan Mowat and Casey Weaver **2016** *Janeway's Immunobiology* 9th ed., Garland Science: ISBN 0815345053 .

Abbas,A.K., Lichtman,A.H. and Shiv Pillai. **2014**. *Cellular and Molecular Immunology* updated 8th ed., W.B.Saunders: ISBN 0323222757

Knipe,D.M and Howley,P.M. **2013** *Field's Virology* 6th ed., Lippincott, Williams&Wilkins, ISBN 1451105636

Grading Policy:

Total three 2-page term papers (single-spaced, Ariel, size 11 or Times New Roman, size 12 fonts) will be required. The papers should be on three lectures of 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 21, 2019). The last two term papers are due by end of the class (Wednesday, December 11, 2019). The papers can be emailed to or submitted through Blackboard to the course director. To learn about scientific writings, reading of the suggested books is encouraged.

Grading of the three term papers will comprise 85% of the final grade. Attendance to all lectures is required. Fifteen percent of the final grade is determined by the attendance and participation in the class.

Lectures Schedule:

Aug 28	Weiming Yuan	Orientation / Therapies with human NKT cells
Sep 4	Minnie McMillan	General Principles of Immune Responses
Sep 11	Chengyu Liang	Confocal Microscopy / Essential Roles of Autophagy
Sep 18	Keigo Machida	HCV Pathogenesis and Available Therapies
Sep 25	Omid Akbari	Flow Cytometry Facility / Allergy and Asthma
Oct 2	Joe Landolph	Molecular Biology of Chemical Carcinogenesis
Oct 9	Si-Yi Chen	Tumor Immunotherapy
Oct 16	Ha Youn Lee	Studying HIV evolution and immune responses using next-generation sequencing
Oct 23	I-Chueh Huang	Viral Vectors and Gene Therapies
Oct 30	Ebi Zandi	Mass Spectrometry-Based Proteomics Studies
Nov 6	Hyungjin Eoh	Metabolomics and Metabolome Mass Spectrometry Facility
Nov 13	Lucio Comai	Biosafety Level 3 containment laboratories / Genome instability syndromes
Nov 20	Jae U. Jung	Zika and Other Arthropod-borne Diseases
Nov 27	No class	Thanksgiving Holiday
Dec 4	Martin Kast	Tumor and Viral Vaccines / "Treeman disease"

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] ;©2017