IMUN 506 IMMUNE MECHANISMS | FALL 2019

Monday/Wednesday/Friday 1:00 – 3:00 pm, Monday 12:00 – 1:00 pm See schedule for locations

COURSE DIRECTORS: Michael May Bruce Freedman

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COURSE GOALS: There are several goals for this course. First, we will introduce you to basic principles, as well as current and emerging concepts in immunology. Second, we want you to think with considerable depth about how these principles and concepts were shaped through experiment, as well as their implications, limits and caveats. Third, the lectures, readings and exams should hone your ability to think clearly and critically about interpretation of data and design of experiments. Finally, we expect you to leave with a foundation that will enable you to keep abreast of the field through reading and critical appraisal of the literature.

COURSE DESCRIPTION: The course will be taught from an experimental standpoint and assume basic knowledge of the immune system. To the greatest extent possible, it will use the primary literature, with reference to texts for background information. We will begin with a brief overview of innate and adaptive immune processes, followed by in depth considerations of underlying cellular, molecular, and genetic events. Mechanisms governing immune activity and homeostasis at the organism level also will be considered.

BROWN BAGS: On several Mondays from 12:00–1:00 pm, there will be interactive presentations given by faculty on topics that students have found useful or requested in the past. The material presented in these Brown Bags will not be included in any of the exams. You may eat lunch during these presentations. Please make requests for additional topics you might want to be presented as Brown Bags.

JOURNAL CLUB DISCUSSIONS: The journal club discussions will involve group presentations and discussions of assigned primary literature papers on lectured topics. Faculty will randomly call on students to: introduce the paper, provide background, present and critique each figure, summarize the authors' conclusions, discuss to what extent the data support these conclusions, and relate these to the broader field.

EXAMS: There will be two exams, one mid-term and one final. Each will be a four hours long in-class exam, with students able to bring a one-page two-sided sheet of notes. Each exam will consist of four essay or brief answer questions based upon experimental data and/or concepts covered in lectures and assigned papers. Students will be able to choose any four questions out of the six assigned questions, which may come from any lecturer. Each exam will be marked based on a maximum possible score of 100.

WRITING ASSIGNMENT: Students will have a week off from class to work on a two-page grant proposal that will be written on any topic chosen by each student. Ideally, this topic would be from or relevant to research of the first rotation lab. Regardless, students should get advice from their rotation mentors on this proposal.

READINGS: Each lecturer will assign a review and up to three readings per lecture from the primary literature. Students are expected to have read these before the lecture. Some lecturers will provide a more extensive (but not requisite) list for your benefit, should you wish to expand your depth or background in certain areas. Background readings using the following recommended texts may also be suggested by individual lecturers, although it is each students' responsibility to ascertain how much background reading he/she needs and what specific readings would be beneficial. The recommended texts to be used for background reading are:

Janeway's Immunobiology (9th edition) by Murphy et al; Garland Press

Fundamental Immunology (7th edition) by Paul (ed); Raven Press

FINAL GRADES: Course grades will be based 45% on the mid-term exam, 10% on the writing assignment, and 45% on the final exam. Participation may be used as a factor for borderline grades.

CANVAS: You will need to download PDFs for assigned and suggested readings from the primary literature, as well as reading lists and outlines provided by individual lecturers, from a Canvas site (https://canvas.upenn.edu). To access this site you will need your PennKey and password.

Wednesday, August 28 An Overview of Conceptual Development in Immunology Michael Cancro Friday, August 30 NO CLASS Wednesday, September 2 NO CLASS Wednesday, September 6 Discussion: Hematopoeisis Warren Pear Friday, September 6 Discussion: Hematopoeisis Warren Pear Monday, September 9 Mechanism of Artigen Receptor Gene Assembly Craig Bassing Wednesday, September 9 Mechanism of Artigen Receptor Gene Assembly Craig Bassing Wednesday, September 13 Discussion: Ig/TCR Gene Rearrangements Craig Bassing Monday, September 18 NO CLASS: Witting Week Craig Bassing Wednesday, September 18 NO CLASS: Witting Week Craig Bassing Monday, September 20 NO CLASS: Witting Week Craig Bassing Monday, September 23 Signal Transduction in Immune Cells: Nucleus to Outcome Andrea May Wednesday, September 25 Signal Transduction in Immune Cells: Nucleus to Outcome Andrea May Wednesday, September 30 (12-1 pm) BROWN BAG: Genetic Manipulation of Mice, Part II Craig Bassing Monday, September 30 (12-1 pm) BROWN BAG: Genetic Manipulation of Mice, Part II Craig Ba	ROOM
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Wednesday, November 20 NK Cells Taku Kambayashi	JMB M100
	Hill 222
Friday, November 22 ILCs De'Broski Herbert	Hill 222
Monday, November 25 Leukocyte Trafficking Jorge Alvarez	Hill 222
Wednesday, November 27 NO CLASS: Thanksgiving Break	
Friday, November 29 NO CLASS: Thanksgiving Break	
Monday, December 2 The Role of the Microbiota in Immunity Joseph Zackular	Hill 222
Wednesday, December 4 Mucosal Immunity Michael Abt	Hill 222
Friday, December 6 NO CLASS	
Monday, December 9 FINAL EXAM	TBA