Syllabus

MVP Core
CAMB 706
Spring Semester 2021

Course Directors and Contact Info:

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Section Directors

Virology II : Matthew Weitzman/Jianxin You

Parasitology I & II: Sparky Lok/Boris Striepen

Description

The MVP Core class provides CAMB-MVP students with key fundamental knowledge of Bacteriology, Virology, and Parasitology. The course runs through the Fall and Spring for first year CAMB-MVP students. The course starts with 3 overview lectures and is then organized into three sections that cover principles of Bacteriology, Virology, and Parasitology.

Prerequisites

None

Enrollment criteria

Required for all first year CAMB-MVP students. Non-CAMB-MVP students by permission of course directors.

Schedule	Location
MWF, 2:30-3:30	Virtual (BlueJeans)

Bluejeans link (https://bluejeans.com/521305147).

Want to dial in from a phone?

Dial one of the following numbers:

- +1.408.419.1715 (United States(San Jose))
- +1.408.915.6290 (United States(San Jose))

SEE ALL NUMBERS

Enter the meeting ID and passcode followed by #

Syllabus

Format

- Lecture
- Discussion - Themed lecture sets with intermittent journal article discussion groups

Student assignments

Midterm/final exam for each subsection

Journal article presentation within each subsection

Grading Criteria:

50% Exam-based (in class or take home, varies by section leaders)

40% presentation-based

10% participation-based (participation in discussions, asking questions during lecture, etc.)

Course Goals

Students who complete this course successfully will have gained:

- A broad introduction to host-pathogen interactions
- A survey of bacteriology, virology and parasitology with emphasis on common and distinct themes
- Ability to analyze relevant primary articles in-depth

Guidelines/Expectations for Student Paper Presentations (modified for virtual presentation)

Students not assigned to present:

1. Read the paper well in advance of the presentation day.
2. Email to the assigned faculty member a specific question about the science presented in the paper that can become part of the discussion
3. Come prepared to participate actively in the discussion with observations and answers to questions about approaches or interpretations by the authors.

Students (2-3 selected for each paper) assigned to present:

1. Meet the faculty mentor for the paper well in advance of the presentation to go over expectations and discuss the background for the paper. It is your responsibility to establish contact with the faculty member.
2. Format will be a journal club style presentation via PowerPoint and should contain the following elements:
    A. A brief presentation of the background of the research including rationale and key previous findings upon which it is based,
    B. A presentation of key findings in the *most important* figures (ie. not necessarily all of them!),
    C. A critical review of the major findings and interpretations and
    D. A critique of the significance of the paper overall.

3. Meet with the faculty mentor for the paper soon after your presentation for feedback.

Faculty Mentor:

1. The assigned faculty member will meet with presenters remotely prior to the presnetations.
2. Faculty members will collect emailed questions from non-presenting students and moderate the discussion on the day of presentation to ensure involvement of students in answering.
3. Faculty mentors are encouraged to give brief comments at the end of the presentation session about where the paper fits into the general thrust of research in their field.

Course Directors

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Virology Section II

Course Directors: **Jianxin You and Matthew Weitzman**

CAMB 706 – Virology Section II

DATE	DAY	TITLE	LECTURER	EMAIL
1/13/21	W	Antiviral therapeutics	Dr. Bates	pbates@pennmedicine.upenn.edu
1/15/21	F	Innate Recognition	Dr. Cherry	cherrys@pennmedicine.upenn.edu
1/18/21	M	Martin Luther King Day - NO CLASS		
1/20/21	W	Immune Evasion	Dr. Cherry	cherrys@pennmedicine.upenn.edu
1/22/21	F	Coronaviruses	Dr. Weiss	weisssr@pennmedicine.upenn.edu
1/25/21	M	Student Paper Presentation	Dr. You	Gui et al., Nature. 2019. 567, 262-266.
1/27/21	W	Student Paper Presentation	Dr. White	Zhang *et al.* Cell 2018;175, 1465–1476
1/29/21	F	Viral Transformation and Cancer I	Dr. You	jianyou@pennmedicine.upenn.edu
2/1/21	M	Viral Transformation and Cancer II	Dr. White	eawhite@pennmedicine.upenn.edu
2/3/21	W	Student Paper Presentation	Dr. Tempera	itempera@wistar.org Okabe et al., Nat Genet. 2020 Sep;52(9):919-930.
2/5/21	F	Viral DNA replication & repair	Dr. Weitzman	weitzmanm@email.chop.edu
2/8/21	M	Epigenetics and viral latency	Dr. Lieberman	lieberman@wistar.org
2/10/21	W	Student Paper Presentation	Dr. Lieberman	Roy *et al.* eLife 2019;8:e49500
2/17/21	M	Virology Final Due		

Syllabus

1/13/21 Antiviral Therapeutics (Bates)

- Overview of viral infections
- Antiviral drug development
- Therapeutic targets
- Challenges for drug development

1/15/21 Innate recognition (Cherry)

- Introduction:
- Pathways and mechanisms

1/18/21 Martin Luther King Day

1/20/21 Viral Immune Evasion (Cherry)

- Introduction:
- Pathways and mechanisms
- Viral examples of evasion

1/22/21 Student Paper Presentation and Discussion (You)

1/25/21 Coronavirus (Weiss)

- Introduction
- Virus structure and replication
- Host responses
- SARS-CoV-2 and COVID-19

1/27/21 Student Paper Presentation and Discussion (white)

1/29/21 Viral Transformation and Cancer I (You)

- Introduction to human cancer viruses
- Key features of tumor cells
- Overview of viral oncogenic mechanisms
- Tumor virus interactions with host immune system
- New technologies for studying cancer viruses

2/1/21 Viral Transformation and Cancer II (White)

- Features of oncogenic human viruses
- Human papillomaviruses
- Human transforming herpesviruses
- Systems approaches to virus-host interactions

2/3/21 Student Paper Presentation and Discussion (Tempera)

2/5/21 Viral DNA Replication and Repair (Weitzman)

- Viral DNA genomes and Virus DNA replication
- Small linear ssDNA – Parvoviruses
- Small circular dsDNA – Polyomaviruses
- Linear dsDNA – Adenoviruses

- Large circular dsDNA – Herpesviruses
- Virus Replication Compartments
- DNA repair and viruses

2/8/21 Epigenetics and Viral Latency (Lieberman)

- Introduction to viral latency
- Introduction to arboviruses

2/10/21 Student Paper Presentation and Discussion (Lieberman)

2/17/21 Virology Final Due

CAMB 706 Parasitology Section I & II

Course Directors: Sparky Lok & Boris Striepen

February 12