

# Syllabus



MVP Core  
CAMB 706  
Spring Semester 2022

## Course Directors and Contact Info:

**Sunny Shin**, Johnson Pavilion 201B, 215-746-8410, [sunshin@pennmedicine.upenn.edu](mailto:sunshin@pennmedicine.upenn.edu)

**Boris Striepen**, Hill Pavilion, 215-573-9167, [striepen@vet.upenn.edu](mailto:striepen@vet.upenn.edu)

**Jianxin You**, Johnson Pavilion 201C, 215-573-6781, [jianyou@vet.upenn.edu](mailto:jianyou@vet.upenn.edu)

## Section Directors

**Virology II** : Jianxin You/Elizabeth White

**Parasitology I & II**: Boris Striepen/ Michael Povelones

## 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

MWF, 1:45-2:45

### Location

Johnson Pavilion 209

## 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

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Additional assignments that will vary by 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

We ask that all members of the MVP core community – the instructors, lecturers, and students – work together to create a supportive, inclusive environment that welcomes all students, regardless of their race, ethnicity, gender identity, sexuality, religious beliefs, physical or mental health status, or socioeconomic status. Diversity, inclusion, and belonging are all core values of this course. All participants in this course deserve to and should expect to be treated with respect by other members of the community.

Our class should be a space where everyone feels welcome and safe. In order to facilitate a welcoming environment, all participants in this course are expected to :

- Exercise consideration and respect in their speech and actions.
- Attempt collaboration and consideration, including listening to opposing perspectives and authentically and respectfully raising concerns, before conflict.
- Refrain from demeaning, discriminatory, or harassing behavior and speech.

It is also important to us that everyone who participates in this class has the resources to do so. Please let us know if you need any special accommodations in the curriculum, instruction or assessments of this course to enable you to participate fully. We will make a full effort to maintain the confidentiality of any information that you share with us.

## Attendance Policy

Students are expected to attend all of the classes and paper discussions, as participation is an important aspect of the course. We understand that expected or unexpected things can happen during the semester that may prevent you from attending class. In that case, we ask that you contact us ahead of time to let us know if you are unable to attend.

## Guidelines/Expectations for Student Paper Presentations

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## **Students not assigned to present:**

1. Read the paper well in advance of the presentation day.
2. Come prepared to present some of the figures and 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. The assigned students will give a brief presentation of the background of the research including rationale and key previous findings upon which it is based,
  - B. The other students in the class will be asked to volunteer and present key findings in the figures.
  - C. The assigned students will be asked to give a critical review of the major findings and interpretations and the significance of the paper overall.
3. Meet with the faculty mentor for the paper immediately after your presentation for feedback.

## **Faculty Mentor:**

1. The assigned faculty member will meet with presenters prior to the presentations.
2. 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**

### **Sunny Shin, Ph.D.**

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## **Bacteriology Section**

### **Sunny Shin, Ph.D.**

### **Jay Zhu, Ph.D.**

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## Virology Section

**Elizabeth White, Ph.D.**

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## Parasitology Section

**Michael Povelones, Ph.D.**

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**Virology Section II****Course Directors: Jianxin You and Elizabeth White****CAMB 706 – Virology Section II**

DATE	DAY	TITLE	LECTURER	EMAIL
1/14/22	F	Antiviral therapeutics	Dr. Bates	<a href="mailto:pbates@penntestbed.org">pbates@penntestbed.org</a>
1/17/22	M	Martin Luther King Day - NO CLASS		
1/19/22	W	Viral Transformation and Cancer I	Dr. You	<a href="mailto:jianyou@penntestbed.org">jianyou@penntestbed.org</a>
1/21/22	F	Viral Transformation and Cancer II	Dr. White	<a href="mailto:eawhite@penntestbed.org">eawhite@penntestbed.org</a>
1/24/22	M	Coronaviruses	Dr. Weiss	<a href="mailto:weissr@penntestbed.org">weissr@penntestbed.org</a>
1/26/22	W	<a href="#">Student Paper Presentation</a>	Dr. White	<a href="mailto:eawhite@penntestbed.org">eawhite@penntestbed.org</a>
1/28/22	F	<a href="#">Student Paper Presentation</a>	Dr. Weitzman	<a href="mailto:weitzmanm@chop.edu">weitzmanm@chop.edu</a>
1/31/22	M	Innate Recognition	Dr. Cherry	<a href="mailto:cherrys@penntestbed.org">cherrys@penntestbed.org</a>
2/2/22	W	Immune Evasion	Dr. Cherry	<a href="mailto:cherrys@penntestbed.org">cherrys@penntestbed.org</a>
2/4/22	F	<a href="#">Student Paper Presentation</a>	Dr. Tempera	<a href="mailto:itempera@wistar.org">itempera@wistar.org</a>
2/7/22	M	<a href="#">Student Paper Presentation</a>	Dr. Lieberman	<a href="mailto:lieberman@Wistar.org">lieberman@Wistar.org</a>
2/9/22	W	Epigenetics and viral latency	Dr. Lieberman	<a href="mailto:lieberman@wistar.org">lieberman@wistar.org</a>
2/11/22	F	Viral DNA replication & repair	Dr. Weitzman	<a href="mailto:weitzmanm@email.chop.edu">weitzmanm@email.chop.edu</a>
2/18/22	F	Virology Final Due		

1/14/22

Antiviral Therapeutics (Bates)

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

1/17/22

Martin Luther King Day

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- 1/19/22      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
- 1/21/22      Viral Transformation and Cancer II (White)
- Features of oncogenic human viruses
  - Human papillomaviruses
  - Human transforming herpesviruses
  - Systems approaches to virus-host interactions
- 1/24/22      Coronavirus (Weiss)
- Introduction
  - Virus structure and replication
  - Host responses
  - SARS-CoV-2 and COVID-19
- 1/26/22      Student Paper Presentation and Discussion (White)
- 1/28/22      Student Paper Presentation and Discussion (Weitzman)
- 1/31/22      Innate recognition (Cherry)
- Introduction:
  - Pathways and mechanisms
- 2/2/22      Viral Immune Evasion (Cherry)
- Introduction:
  - Pathways and mechanisms
  - Viral examples of evasion
- 2/4/22      Student Paper Presentation and Discussion (Tempera)
- 2/7/22      Student Paper Presentation and Discussion (Lieberman)

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2/9/22

## Epigenetics and Viral Latency (Lieberman)

- Introduction to viral latency
- Importance of Epigenetics in Virology
- Introduction to Viral Epigenome
- Maintaining Viral Latency
- Epigenetic Controls of Viral Reactivation
- Epigenetic Modification of the Host Genomes by Virus  
(and cancer risk)
- Epigenetics and Viral Immune Response

2/11/22

## 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

2/18/22

## Virology Final Due