

Syllabus



MVP Core
CAMB 7060
Fall Semester 2025

Course Directors and Contact Info:

Sunny Shin, Johnson Pavilion 201B, 215-746-8410, sunshin@pennmedicine.upenn.edu
Jay Zhu, Johnson Pavilion 211A, 215-573-4104, junzhu@pennmedicine.upenn.edu
Kellie Jurado, Stemmler Hall 474A, 215-573-6378, kellie.jurado@pennmedicine.upenn.edu
Italo Tempera, Wistar Institute, 215-898-3912, itempera@wistar.org
Chris Hunter, Hill Pavilion 310F, 215-573-7772, chunter@vet.upenn.edu
Boris Striepen, Hill Pavilion, 215-573-9167, striepen@vet.upenn.edu

Section Directors for Fall 2024:

Bacteriology I & II : Sunny Shin/Jay Zhu
Virology I : Kellie Jurado/Italo Tempera

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 and other students interested in this topic. The course starts with 3 overview lectures and is then organized into three sections that cover principles of Bacteriology, Virology, and Parasitology throughout the Fall and Spring semesters.

Prerequisites

None

Enrollment criteria

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

Schedule

Monday, Wednesday, and Friday (MWF), 1:45-2:45

Location

Johnson Pavilion 209

Format

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

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Student assignments

One research proposal for each section (bacteriology, virology, parasitology)

Journal article presentations within each subsection

Quizzes within each subsection

Attendance at weekly Microbiology seminars and one other seminar of your choice (Prokaryotic, Virology, or Parasitology)

Additional assignments that will vary by subsection

Grading Criteria:

30% paper presentation

30% research proposal

15% quiz

15% participation (asking questions during lecture, participation in paper discussions, participating in study section, etc.)

10% seminar attendance

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
- Ability to design hypotheses to address a gap in knowledge and design experiments to test the hypothesis

Course Values

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.

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- 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 the section leaders ahead of time to let us know if you are unable to attend.

Guidelines/Expectations for Student Paper Presentations

Students not assigned to present:

1. Read the paper 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 assigned to present (2-3 students for each paper):

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.

Guidelines/Expectations for Student Research Proposals:

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The students will work together in groups of 2 or 3 to write or present a research proposal at the end of the bacteriology, virology, and parasitology sections. The proposals can be based on a topic related to one of the discussion papers, a seminar that the students attended, or another topic of the students' choosing. The proposal will be written or presented in a format similar to the NSF Graduate Research Fellowship Program research proposal, with relevant background, hypothesis, and two specific aims addressing different aspects of the hypothesis.

The proposals will be discussed and reviewed at the end of the bacteriology, virology, and parasitology sections.

Course Directors

Bacteriology Section

Sunny Shin, Ph.D.

Email: sunshin@pennmedicine.upenn.edu

Jay Zhu, Ph.D.

Email: junzhu@pennmedicine.upenn.edu

Virology Section

Italo Tempera, Ph.D.

Email: itempera@wistar.edu

Kellie Jurado, Ph.D.

Email: kellie.jurado@pennmedicine.upenn.edu

Parasitology Section

Chris Hunter, Ph.D.

Email: chunter@vet.upenn.edu

Boris Striepen, Ph.D.

Email: striepen@vet.upenn.edu

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CAMB 7060 – Bacteriology

Course Directors: Sunny Shin and Jay Zhu

Monday, Wednesday, and Friday (MWF), 1:45-2:45pm Johnson Pavilion 209

DATE	DAY	TITLE	LECTURER/ PRESENTER	EMAIL
9/3/2025	W	Intro: Course Layout Intro: Pathogen Genomes	Dr. Bushman	bushman@pennmedicine.upenn.edu
9/5/2025	F	Intro: Concepts of Host- Pathogen Interactions	Dr. Striepen	striepen@vet.upenn.edu
9/8/2025	M	Intro: Host Immune Responses to Pathogens	Dr. Scott	pscott@vet.upenn.edu
9/10/2025	W	Bacterial Basics, Global Microbiome, Nucleic Acid Management in Prokaryotes	Dr. Bushman	bushman@pennmedicine.upenn.edu
9/12/2025	F	Student Paper Presentation I	Dr. Bitteringer	bitteringerk@email.chop.edu
9/15/2025	M	Principles of Bacterial Pathogenesis	Dr. Brodsky	ibrodsky@vet.upenn.edu
9/17/2025	W	Strategies for Bacterial Adhesion and Invasion	Dr. Brodsky	ibrodsky@vet.upenn.edu
9/19/2025	F	Student Paper Presentation II	Dr. Brodsky	ibrodsky@vet.upenn.edu
9/22/2025	M	Signal transduction in bacteria	Dr. Goulian	goulian@sas.upenn.edu
9/24/2025	W	Signal transduction in bacteria	Dr. Goulian	goulian@sas.upenn.edu
9/26/2025	F	Antibiotic Resistance	Dr. Planet	planetp@email.chop.edu
9/29/2025	M	Student Paper Presentation III	Dr. Goulian	goulian@sas.upenn.edu
10/1/2025	W	Bacterial cell-cell interactions	Dr. Zhu	junzhu@pennmedicine.upenn.edu
10/3/2025	F	Student Paper Presentation IV	Dr. Zhu	junzhu@pennmedicine.upenn.edu
10/6/2025	M	Microbiome	Dr. Grice	egrice@pennmedicine.upenn.edu
10/8/2025	W	Student Paper Presentation V	Dr. Grice	egrice@pennmedicine.upenn.edu
10/10/2025	F	Intracellular bacteria	Dr. Shin	sunshin@pennmedicine.upenn.edu
10/13/2025	M	Intracellular bacteria	Dr. Shin	sunshin@pennmedicine.upenn.edu
10/15/2025	W	Student Paper Presentation VI	Dr. Shin	sunshin@pennmedicine.upenn.edu
10/17/2025	F	Clinical Microbiology	Dr. Rodino	Kyle.Rodino@Pennmedicine.upenn.edu
10/20/2025	M	Gram-positive pathogens	Dr. Zackular	Joseph.Zackular@pennmedicine.upenn.edu
10/22/2025	W	Immunity to bacteria	Dr. Abt	Michael.Abt@pennmedicine.upenn.edu
10/24/2025	F	Student Paper Presentation VII	Drs. Abt and Zackular	Michael.Abt@pennmedicine.upenn.edu

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				Joseph.Zackular@pennmedicine.upenn.edu
10/24/2025	F	Proposals due		
10/27/2025	M	Phage and CRISPR	Dr. Marino	ndmarino@vet.upenn.edu
10/29/2025	W	Student Paper Presentation VIII	Dr. Marino	ndmarino@vet.upenn.edu
10/31/2025	F	Bacteriology Study Section Note: 1:45-3:45pm	Drs. Shin & Zhu	sunshin@pennmedicine.upenn.edu junzhu@pennmedicine.upenn.edu

CAMB 7060 – Virology I

Course Directors: Kellie Jurado and Italo Tempera

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DATE	DAY	TITLE	LECTURER/ PRESENTER	EMAIL	Instructor
3-Nov	M	Viral Structure and Diversity I	Dr. Bushman	bushman@pennmedicine.upenn.edu	Italo and Kellie
5-Nov	W	Viral Structure and Diversity II	Dr. Bushman	bushman@pennmedicine.upenn.edu	Kellie
7-Nov	F	Virus Receptors	Dr. Bates	pbates@pennmedicine.upenn.edu	Italo
10-Nov	M	Student Paper Presentation I	Dr. Bushman	bushman@pennmedicine.upenn.edu	Italo
12-Nov	W	Virus Entry	Dr. Bates	pbates@pennmedicine.upenn.edu	Kellie
14-Nov	F	Student Paper Presentation II	Dr. Bates	pbates@pennmedicine.upenn.edu	Kellie
17-Nov	M	RNA Virus Replication Strategies	Dr. Cherry	cherrys@pennmedicine.upenn.edu	Kellie
19-Nov	W	Student Paper Presentation III	Dr. Bar	BarK@pennmedicine.upenn.edu	Kellie
21-Nov	F	Retrovirus Replication	Dr. Collman	collmanr@pennmedicine.upenn.edu	Italo
24-Nov	M	Retrovirus Pathogenesis	Dr. Collman	collmanr@pennmedicine.upenn.edu	Italo
26-Nov	W	Thanksgiving Break			
28-Nov	F	Thanksgiving Break			
1-Dec	M	Student Paper Presentation IV	Dr. Jurado	Kellie.jurado@pennmedicine.upenn.edu	Kellie

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3-Dec	W	Special Lecture on Grant Proposal	Dr. Jurado	Kellie.jurado@pennmedicine.upenn.edu	Kellie
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