Course Directors and Contact Info:

Sunny Shin, Johnson Pavilion 201B, 215-746-8410, sunshin@pennmedicine.upenn.edu
Boris Striepen, Hill Pavilion, 215-573-9167, striepen@vet.upenn.edu
Jianxin You, Johnson Pavilion 201C, 215-573-6781, jianyou@vet.upenn.edu

Section Directors

Bacteriology I & II : Sunny Shin/Jay Zhu
Virology I : Jianxin You/Elizabeth White

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.

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

One research proposal for each section (bacteriology, virology, parasitology)
Journal article presentations within each subsection
Additional assignments that will vary by subsection

Grading Criteria:

40% presentation-based
Syllabus

40% research proposal-based
20% participation-based (participation in paper discussions, asking questions during lecture, participating in study section, 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
- Ability to design hypotheses to address a gap in knowledge and design experiments to test the hypothesis

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

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:

The students will work in pairs to write a 2 page research proposal that is due approximately one and a half weeks before the end of the bacteriology, virology, and parasitology sections. The proposals be based on one of the discussion papers or another paper of the students’ choosing. The proposal will be written 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, along with approximately 5-10 references.

The research proposals will then be assigned to two different students, who will serve as the primary and secondary reviewer. The proposals will be discussed and reviewed at the end of the bacteriology, virology, and parasitology sections. Constructive feedback on the proposals will then be provided to the students.

Course Directors

**Sunny Shin, Ph.D.**  
Professor of Microbiology  
Perelman School of Medicine  
3610 Hamilton Walk  
201B Johnson Pavilion  
Philadelphia, PA 19104  
Office: 215-746-8410  
Email: sunshin@pennmedicine.upenn.edu

**Boris Striepen, Ph.D.**  
Professor of Pathobiology  
School of Veterinary Medicine  
380 South University Avenue  
Hill Pavilion  
Philadelphia, PA 19104  
Office: 215-573-4713  
Email: striepen@vet.upenn.edu

**Jianxin You, Ph.D.**
Syllabus

Professor of Microbiology
Perelman School of Medicine
3610 Hamilton Walk
201C Johnson Pavilion
Philadelphia, PA 19104
Office: 215-573-6781
Email: jianyou@pennmedicine.upenn.edu

**Bacteriology Section**
Sunny Shin, Ph.D.
Email: sunshin@pennmedicine.upenn.edu

Jay Zhu, Ph.D.
Email: junzhu@pennmedicine.upenn.edu

**Virology Section**
Elizabeth White, Ph.D.
Email: eawhite@pennmedicine.upenn.edu

Jianxin You, Ph.D.
Email: jianyou@pennmedicine.upenn.edu

**Parasitology Section**
Chris Hunter, Ph.D.
Email: chunter@vet.upenn.edu

Boris Striepen, Ph.D.
Email: striepen@vet.upenn.edu
# CAMB 7060 – Bacteriology

MWF, 1:45-2:45pm       Johnson Pavilion 209

<table>
<thead>
<tr>
<th>DATE</th>
<th>DAY</th>
<th>TITLE</th>
<th>LECTURER/PRESENTER</th>
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<tr>
<td>9/6/2023</td>
<td>W</td>
<td>Intro: Course Layout</td>
<td>Drs. Shin, Striepen, You</td>
<td><a href="mailto:sunshin@pennmedicine.upenn.edu">sunshin@pennmedicine.upenn.edu</a></td>
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<tr>
<td></td>
<td></td>
<td>Intro: Pathogen Genomes</td>
<td>Dr. Bushman</td>
<td><a href="mailto:striepen@vet.upenn.edu">striepen@vet.upenn.edu</a></td>
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<td><a href="mailto:bushman@pennmedicine.upenn.edu">bushman@pennmedicine.upenn.edu</a></td>
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<tr>
<td>9/8/2023</td>
<td>F</td>
<td>Intro: Concepts of Host-Pathogen Interactions</td>
<td>Dr. Striepen</td>
<td><a href="mailto:striepen@vet.upenn.edu">striepen@vet.upenn.edu</a></td>
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<td>9/11/2023</td>
<td>M</td>
<td>Intro: Host Immune Responses to Pathogens</td>
<td>Dr. Scott</td>
<td><a href="mailto:pscott@vet.upenn.edu">pscott@vet.upenn.edu</a></td>
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<td>Bacterial Basics, Global Microbiome, Nucleic Acid Management in Prokaryotes</td>
<td>Dr. Bushman</td>
<td><a href="mailto:bushman@pennmedicine.upenn.edu">bushman@pennmedicine.upenn.edu</a></td>
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<td>9/15/2023</td>
<td>F</td>
<td>Antibiotic Resistance</td>
<td>Dr. Planet</td>
<td><a href="mailto:planetp@email.chop.edu">planetp@email.chop.edu</a></td>
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<td>9/18/2023</td>
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<td>Student Paper Presentation</td>
<td>Dr. Bittinger</td>
<td><a href="mailto:bittingerk@email.chop.edu">bittingerk@email.chop.edu</a></td>
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<td>Dr. Zhu</td>
<td><a href="mailto:junzhu@pennmedicine.upenn.edu">junzhu@pennmedicine.upenn.edu</a></td>
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<td>Principles of Bacterial Pathogenesis</td>
<td>Dr. Brodsky</td>
<td><a href="mailto:ibrodsky@vet.upenn.edu">ibrodsky@vet.upenn.edu</a></td>
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<td>9/27/2023</td>
<td>W</td>
<td>Strategies for Bacterial Adhesion and Invasion</td>
<td>Dr. Brodsky</td>
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<td>10/2/2023</td>
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<td>Signal transduction in bacteria</td>
<td>Dr. Goulian</td>
<td><a href="mailto:goulian@sas.upenn.edu">goulian@sas.upenn.edu</a></td>
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<td>10/4/2023</td>
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<td>Intracellular bacteria</td>
<td>Dr. Shin</td>
<td><a href="mailto:sunshin@pennmedicine.upenn.edu">sunshin@pennmedicine.upenn.edu</a></td>
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<td>Student Paper Presentation</td>
<td>Dr. Shin</td>
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<td>Vertebrate microbial communities in health and disease</td>
<td>Dr. Levy</td>
<td><a href="mailto:maayanle@pennmedicine.upenn.edu">maayanle@pennmedicine.upenn.edu</a></td>
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<td>10/18/2023</td>
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<td>Vertebrate microbial communities in health and disease</td>
<td>Dr. Thaiss</td>
<td><a href="mailto:thaiss@pennmedicine.upenn.edu">thaiss@pennmedicine.upenn.edu</a></td>
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<td>10/25/2023</td>
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<td>Immunity to bacteria</td>
<td>Dr. Abt</td>
<td><a href="mailto:Michael.Abt@pennmedicine.upenn.edu">Michael.Abt@pennmedicine.upenn.edu</a></td>
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<td>10/27/2023</td>
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<td>Clinical Microbiology</td>
<td>Dr. Rodino</td>
<td><a href="mailto:Kyle.Rodino@Pennmedicine.upenn.edu">Kyle.Rodino@Pennmedicine.upenn.edu</a></td>
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<td>10/30/2023</td>
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<td>Student Paper Presentation</td>
<td>Dr. Abt</td>
<td><a href="mailto:Michael.Abt@pennmedicine.upenn.edu">Michael.Abt@pennmedicine.upenn.edu</a></td>
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## Syllabus

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<td>11/6/2022</td>
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<td>Drs. Zhu &amp; Shin</td>
<td><a href="mailto:junzhu@pennmedicine.upenn.edu">junzhu@pennmedicine.upenn.edu</a> <a href="mailto:sunshin@pennmedicine.upenn.edu">sunshin@pennmedicine.upenn.edu</a></td>
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<td>11/8/2022</td>
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