2025-2026 MCB Area of Interest Course Information

Microbiology, Infection, & Immunity

Please check the University of Washington Time Schedule for the most updated course information.

Area Directors

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FOUNDATIONAL COURSES

Note: This track is broadly divided into the related sub-tracks of immunology, virology, and bacteriology. The foundational courses include two courses focused on each sub-track, denoted as 1=Immunology, 2=Virology, and 3=Bacteriology. Interested students can focus on one sub-track or mix and match from these sub-tracks depending on their specific area of research. Area directors or more senior MCB students can discuss these sub-tracks with interested first-year students.

Foundational Course 1A:

Course Number: IMMUN 532
Course Title: Intersection of Innate and Adaptive Immunity in Disease
Instructor (s): Elia Tait Wojno
Location: SLU
Credits: 4.0
Quarter, Weeks, and Frequency course is offered: Winter, weeks 1-10, every year. *Will be offered in Winter 2026.*
Schedule for 2025-26: Mon, Wed, Fri. 1:00-2:20 p.m.
Attributes:
Sub Area (if applicable):
Synopsis: Examines the molecular and cellular basis of immune function. Topics include: hematopoiesis, innate immunity, antigen receptor structure, lymphocyte development, antigen presentation, effector T-cell functions, and immune-mediated diseases.
Prerequisite: Coursework in molecular genetics; intro to Immunology course; graduate standing in immunology; other graduate students with permission of instructor.

Foundational Course 1B:

Highly recommended by MCB students

Course Number: IMMUN 537
Course Title: Immunological Methods
Instructor (s): Andrew Oberst
Location (e.g., UW, FH, SLU): SLU
Credits: 1.5
Quarter, Weeks, and Frequency course is offered: Autumn, weeks 6-10, every year. *Will be offered in Autumn 2025.*
Schedule for 2025-26: Tues, Thurs. 11:00 a.m. – 12:20 p.m.
Attributes (e.g., graded, lecture-based): Lecture and literature review
Sub Area (if applicable):
Synopsis: Introduces whole animal, cellular, biochemical, and molecular techniques used in immunological research. Discusses strengths and limitations of each technique and emphasizes caveats in interpreting the resulting data.

Foundational Course 2A:

Course Number: MCB 532
Course Title: Human Pathogenic Viruses
Instructor (s): N/A
Location: N/A
Credits: 3.0
Quarter, Weeks, and Frequency course is offered: Autumn, weeks 1-10, odd years. ***Not currently offered***.
Schedule for 2025-26: N/A
Attributes: Graded, lecture based, extensive discussion of primary literature.
Sub Area (if applicable): Virology
Synopsis: Students will learn basic and advanced concepts in virology by focusing on major groups of human pathogenic viruses. The major emphasis will be on virus replication, evolution, and pathogenesis.

Foundational Course 2B:

Course Number: MICROM 540
Course Title: Virology
Instructor (s): Jason Smith, Patrick Mitchell
Location: SLU
Credits: 3.0
Quarter, Weeks, and Frequency course is offered: Autumn, weeks 1-10, even years. *Will be offered in Autumn 2026.*
Schedule for 2025-26: TBD
Attributes: Graded, lecture based, extensive discussion of primary literature.
Sub Area (if applicable): Virology
Synopsis: The molecular biology, transmission, and pathogenesis of human viruses will be explored. In addition to general principles of virology, lectures and paper discussions will focus on specific human pathogens including HIV, herpesviruses, ebolaviruses, alphaviruses, and adenoviruses, among others.

Foundational Course 3A:

Course Number: MICROM 412/512
Course Title: Prokaryotic Diversity
Instructor (s): Matthew Parsek, Alex Meeske
Location: UW & SLU
Credits: 4.0
Quarter, Weeks, and Frequency course is offered: *Will be offered in Spring 2027.*
Schedule for 2025-26: N/A
Attributes: Graded, lecture based, extensive discussion of primary literature.
Sub Area (if applicable): Bacteriology
Synopsis: MICROM 512 covers diverse aspects of metabolism, growth, behavior, and interspecies interactions that are specifically found in bacteria and archaea. The course integrates complex concepts from biochemistry, genetics, and ecology. There is a weekly discussion section covering primary research articles corresponding to the topics covered in lecture.

Foundational Course 3B:

Course Number: MICROM 553
Course Title: Molecular Mechanism in Bacterial Pathology
Instructor (s): David Sherman, Evgeni Sokurenko
Location: SLU
Credits: 3.0
Quarter, Weeks, and Frequency course is offered: Spring, weeks 1-10. *Will be offered in Spring 2026.* Will be offered in the **Autumn of odd years** in the future.
Schedule for 2025-26: TBD
Attributes: Graded, lecture based, extensive discussion of primary literature.
Sub Area (if applicable): Bacteriology
Synopsis: The processes bacterial pathogens employ to shape interactions with their hosts will be explored in molecular detail through selected examples in the literature.
Prerequisite: One year of undergraduate cellular and molecular biology. An introductory course in microbiology is recommended.

ELECTIVE COURSES

Elective Course One:

Course Number: CONJ 539
Course Title: Modern Approaches to Vaccines
Instructor (s): Deborah Fuller
Location: SLU
Credits: 1.5
Quarter, Weeks, and Frequency course is offered: Spring, weeks 6-10, every year. *Will be offered in Spring 2026.*

Schedule for 2025-26: TBD
Attributes: Lecture based, extensive use of primary literature
Sub Area (if applicable): Virology and Immunology
Synopsis: Covers selected topics based on recent publications in viral and bacterial vaccine research. Emphasizes understanding the latest advanced and issues in vaccine discovery, mechanisms of action, and special topics in viral vaccines.

Elective Course Two:

Course Number: CONJ 551
Course Title: Immunity
Instructor (s): N/A
Location: N/A
Credits: 1.5
Quarter, Weeks, and Frequency course is offered: Spring. ***Not currently offered.***
Schedule for 2025-26: N/A
Attributes:
Sub Area (if applicable): Immunology
Synopsis: Provides an understanding of the central cellular and molecular players in the mammalian immune system at a level appropriate for the non-specializing graduate student. Selected topics include the molecular basis of B and T cell activation and effector functions and the mechanisms of innate immunity.

Elective Course Three:

Course Number: GH 566 (offered jointly with PABIO 551)
Course Title: Biochemistry and Genetics of Pathogens and Their Hosts
Instructor (s): David Mukasa
Location: UW
Credits: 4.0
Quarter, Weeks, and Frequency course is offered: Autumn, weeks 1-10. ***Not currently offered.***
Schedule for 2025-26: N/A
Attributes: Lecture based, extensive use of primary literature
Sub Area (if applicable):
Synopsis: Provides a strong foundation in biochemistry, molecular biology, and genetics for students interested in disease. Principles illustrated through examples focusing on pathogens, and infectious and non-infectious disease.
Prerequisite: Undergraduate-level coursework in molecular biology or biochemistry, or permission of instructor.

Elective Course Four:

Course Number: IMMUN 441
Course Title: Introduction to Immunology
Instructor (s): Michael Gerner
Location: UW

Credits: 4.0
Quarter, Weeks, and Frequency course is offered: Autumn, weeks 1-10. ***Not currently offered.***
Schedule for 2025-26: N/A
Attributes: Lecture based
Sub Area (if applicable): Immunology
Synopsis: General properties of immune responses; cells and tissues of immune system; lymphocyte activation and specificity; effector mechanisms; immunity to microbes; immunodeficiency and AIDS; autoimmune diseases; transplantation.
Note: Students must obtain approval from the MCB Co-Directors for this 400-level class to count toward their 18 graded credits.
Prerequisite: BIOL 220

Elective Course Five:

Course Number: IMMUN 538
Course Title: Immunological Based Diseases and Treatments
Instructor (s): Ram Savan, Estelle Bettelli
Location: SLU
Credits: 2.0
Quarter, Weeks, and Frequency course is offered: Spring. *Will be offered in Spring 2026.*
Schedule for 2025-26: TBD
Attributes: Lecture based, extensive use of primary literature
Sub Area (if applicable): Immunology
Synopsis: Addresses the mechanisms leading to the development of immunologically based diseases. In particular, covers immunological basis and treatment of infection, autoimmunity, and cancer.