

MEDICAL MICROBIOLOGY AND IMMUNOLOGY (M M & I)

M M & I 301 – PATHOGENIC BACTERIOLOGY

2 credits.

Medically important bacteria, emphasizing the process of pathogenesis and host/parasite interactions, as well as intervention strategies, immunity and genetics as they apply to the pathogens.

Requisites: (BIOCORE 381 and 382), (ZOOLOGY/BIOLOGY 101 and 102), or ZOOLOGY/BIOLOGY/BOTANY 152

Course Designation: Breadth – Biological Sci. Counts toward the Natural Sci req

Level - Intermediate

L&S Credit – Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Fall 2022

M M & I 341 – IMMUNOLOGY

3 credits.

An introduction to the immune response to infectious disease. Examines the role of the host in host-parasite relationships using select microbial agents or antigens to illustrate the nonspecific and specific mechanisms of host defenses. Includes study of the nonspecific inflammatory response, the nature of microbial antigens, current concepts of antibody and cell-mediated immune reactions to infectious agents and the principles underlying the development of vaccines.

Requisites: ZOOLOGY/BIOLOGY 101 or ZOOLOGY/BIOLOGY/BOTANY 151 or BIOCORE 381

Course Designation: Breadth – Biological Sci. Counts toward the Natural Sci req

Level - Intermediate

L&S Credit – Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Spring 2022

M M & I/ENTOM/PATH-BIO/ZOOLOGY 350 – PARASITOLOGY

3 credits.

The biology of water-borne, food-borne, soil-borne and vector-borne parasites of animals including humans. Parasites are explored in the context of transmission, associated disease, diagnosis and treatment options, and environmental, cultural and socioeconomic drivers of disease epidemiology.

Requisites: ZOOLOGY/BIOLOGY 101 and 102, or ZOOLOGY/BIOLOGY/BOTANY 152 or ZOOLOGY 153, or BIOCORE 381

Course Designation: Breadth – Biological Sci. Counts toward the Natural Sci req

Level - Intermediate

L&S Credit – Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Spring 2024

M M & I/PATH-BIO 528 – IMMUNOLOGY

3 credits.

Development and functions of immune response in animals; a comprehensive study of experimental humoral and cellular immunity.

Requisites: (CHEM 104 or CHEM 109) and (ZOOLOGY/BIOLOGY 101, ZOOLOGY/BIOLOGY/BOTANY 151 or BIOCORE 383), or graduate/professional standing

Course Designation: Level - Intermediate

L&S Credit – Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Fall 2023

M M & I 554 – EMERGING INFECTIOUS DISEASES AND BIOTERRORISM

2 credits.

Identification of analysis and solution of emerging infectious disease problems and the problems of bioterrorism.

Requisites: ZOOLOGY/BIOLOGY/BOTANY 152, ZOOLOGY/BIOLOGY 101, (BIOCORE 383 and M M & I 301), MICROBIO 101, MICROBIO 303, or graduate/professional standing.

Course Designation: Level - Advanced

L&S Credit – Counts as Liberal Arts and Science credit in L&S

Grad 50% – Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2022

M M & I/BIOCHEM 575 – BIOLOGY OF VIRUSES

2 credits.

Broad coverage of animal virology taught at molecular level. Topics include virus structure, viral replication/lifecycle, aspects of pathogenesis and prevention.

Requisites: (BIOCORE 381 and 382), ZOOLOGY/BIOLOGY/BOTANY 151, M M & I 301, or graduate/professional standing

Course Designation: Grad 50% – Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2024

M M & I/BOTANY/GENETICS/PL PATH 655 – BIOLOGY AND GENETICS OF FUNGI

3 credits.

Fungal genetics, genomics, and physiology using plant pathogenic fungi and the genetic models *Aspergillus nidulans* and *Neurospora crassa* as model systems to explore the current knowledge of fungal genetics and plant/fungal interactions.

Requisites: Graduate/professional standing

Course Designation: Grad 50% – Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2022

M M & I 677 – ADVANCED TOPICS IN MEDICAL MICROBIOLOGY

1-3 credits.

Specialized topics of current interest in medical microbiology.

Requisites: Graduate/professional standing

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Fall 2023

M M & I 691 – FIRST SEMESTER SENIOR THESIS

3 credits.

First semester independent study with the goal to do the preliminary research to write a senior thesis in Medical Microbiology Immunology.

Requisites: Consent of instructor

Course Designation: Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Fall 2020

M M & I 692 – SECOND SEMESTER SENIOR THESIS

3 credits.

Second semester independent study with the goal to complete a senior thesis in Medical Microbiology Immunology.

Requisites: Consent of instructor

Course Designation: Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Spring 2021

M M & I 696 – CRITICAL THINKING IN MEDICAL MICROBIOLOGY AND IMMUNIOLOGY

3 credits.

Present assigned research papers from journals for critical evaluation.

Write critiques of each paper evaluating the paper's introduction, methods, results, and discussion sections.

Requisites: M M & I 301 and 341

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2022

M M & I 699 – DIRECTED STUDY

1-3 credits.

Independent research in medical microbiology and immunology for undergraduates under the supervision of MMI faculty. Carry out literature reviews and laboratory bench work on an independent project; participate in laboratory meetings; and produce some written presentation of the work, usually in the form of a poster presentation at a local or national meeting.

Requisites: Consent of instructor

Course Designation: Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Spring 2024

M M & I 704 – INFECTIOUS DISEASES OF HUMAN BEINGS

3 credits.

Pathogenesis, clinical descriptions, and prevention.

Requisites: Consent of instructor

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2023

M M & I/PATH-BIO 720 – ADVANCED IMMUNOLOGY: CRITICAL THINKING

3 credits.

Advanced focus on current questions in immunological research. Explores immunology topics including genetic, cellular, and molecular features of immune system fundamental to regulation of immune responses.

Requisites: PATH-BIO/M M & I 528 and graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2016

M M & I 740 – MECHANISMS OF MICROBIAL PATHOGENESIS

3 credits.

Host-pathogen relationships in microbial diseases.

Requisites: Consent of instructor

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2023

M M & I/PATH-BIO 750 – HOST-PARASITE RELATIONSHIPS IN VERTEBRATE VIRAL DISEASE

3 credits.

Detailed study of the pathogenesis of vertebrate viral disease, stressing viral invasion, dissemination, mechanisms of disease production and resistance, and transmission.

Requisites: (PL PATH/ONCOLOGY 640 or PATH-BIO 513), PATH-BIO/M M & I 528, and graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2023

M M & I 760 – QUANTITATIVE SYSTEMS BIOLOGY AND DISEASE

3 credits.

An overview of methods used in quantitative systems biology, with a focus on biochemical systems relevant to the study of host-pathogen interactions, disease and microbial communities.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

M M & I 901 – SEMINAR

1 credit.

Seminar series led by MMI faculty members.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Spring 2024

M M & I 902 – THE ROLE OF THE HUMAN MICROBIOME IN HEALTH AND DISEASE

2 credits.

The human microbiome can profoundly influence the balance between health and disease. Advances in next-generation sequencing technology and bioinformatics enabled the detailed study of the trillions of microorganisms living in us and on us and their associations with both healthy and disease conditions. Current state of the art approaches to study the microbiome through examples of human diseases with a known microbiome component. Critically assess the microbiome literature and design clinical studies aiming to include the microbiome as a variable. Bioinformatics tools required to study complex microbial communities by reproducing published datasets from human patients and learn ecological concepts to interpret results in a clinically meaningful way.

Requisites: MED SC-M 810, 811, 812, and 813

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2024

M M & I 911 – MICROBIOLOGY DIAGNOSTICS IN PUBLIC HEALTH

2 credits.

Learn firsthand how a public health lab handles testing. Learn about the different areas of testing in the lab from the experts and how we work with the CDC and clinical labs for surveillance, diagnostics, and outbreak response. Useful training for diagnostic testing and those that will order these tests in their practice.

Requisites: MED SC-M 810, 811, 812, and 813

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2024

M M & I/BIOCHEM/BMOLCHEM 914 – SEMINAR-MOLECULAR BIOSCIENCES (ADVANCED)

1 credit.

During the fall semester, molecular biosciences trainees who have not achieved dissertator status will present seminars based primarily on literature related to their projects. During the spring semester, molecular biosciences trainees with dissertator status will present seminars based upon their own research.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Fall 2020

M M & I 990 – RESEARCH AND THESIS

1-12 credits.

Carry out an independent research project that represents novel science in the chosen area under the guidance of an MMI faculty member. Evidence of success is measured by publication of results as first-authored papers in peer-reviewed papers.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Spring 2024