MEDICAL MICROBIOLOGY AND IMMUNOLOGY (M M & I)

M M & I 301 — PATHOGENIC BACTERIOLOGY
2 credits.

Lectures on 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. Open to non-majors. Enroll Info: MM&I 341 (or con reg), 2 sem intro biol w/lab or Biocore series 301-304; 1 sem org chem; or cons inst
Requisites: CHEM 341 and (MICROBIO 101 or MICROBIO 303)
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 2017

M M & I 302 — MEDICAL MICROBIOLOGY LABORATORY
3 credits.

Lab covering procedures and aseptic techniques for isolation and identification of pathogenic microorganisms (bacteria, fungi, and viruses). Enroll Info: 2 sem intro biol w/lab or Biocore series 301-304; prev or con reg in MM&I 301 or equiv
Requisites: None
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 2014

M M & I 341 — IMMUNOLOGY
3 credits.

Lecture, discussion. 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. Enroll Info: HS biol, chem, 1 sem of college biol; So st; to receive cr for both MM&I 341 & 528, MM&I 341 must be completed first
Requisites: Sophomore standing
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 2018

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. Enroll Info: None
Requisites: BIOLOGY/ZOOLOGY/BIOLOGY 101 and 102, or BIOLOGY/BOTANY/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 2018

M M & I/PATH-BIO/ZOOLOGY 351 — PARASITOLOGY LABORATORY
2 credits.

Optional laboratory component of Zoology/Med Micro/AHABS 350. Emphasis on experiments involving live animal parasites, including: trematodes, tapeworms, gregarious, hookworm, ascarids, trichina, filaria, trypanosomes, coccidia, and malaria. Enroll Info: None
Requisites: cons reg in Zoo/MMI/AHABS 350
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

M M & I 410 — MEDICAL MYCOLOGY
2 credits.

Lectures and discussions. Pathogenesis, molecular biology, host-parasite interactions, immunology, epidemiology, and diagnosis of systemic, subcutaneous, and superficial fungal infections. Enroll Info: 2 sem intro biol w/lab or Biocore series 301-304; a crse in immunology or cons inst
Requisites: None
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
Repeatable for Credit: No
Last Taught: Spring 2015

M M & I 412 — MEDICAL MYCOLOGY LABORATORY
1 credit.

Laboratories and discussions on the ecology, sample collection, culture techniques and identification of medically important mycotic microorganisms. This is a companion lab to MM&I 410. Priority given to MM&I majors. Enroll Info: None
Requisites: MMI 301 & 302 and con reg in MMI 410
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
Repeatable for Credit: No
Last Taught: Spring 2011
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
<th>Enroll Info</th>
<th>Requisites</th>
<th>Course Designation:</th>
<th>Repeatable for Credit:</th>
<th>Last Taught:</th>
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<tbody>
<tr>
<td>M M &amp; I 460</td>
<td>TECHNIQUES IN DNA SCIENCE FOR MICROBIOLOGISTS</td>
<td>3</td>
<td>Introduction to recombinant DNA techniques commonly used in prokaryotic research and clinical Microbiology laboratories. Topics include DNA isolation, agarose gel electrophoresis, restriction enzyme digestion of DNA, ligation, transformation, Southern blotting and PCR. Students are required to work independently. Enroll Info: Junior standing, CHEM 327 or CHEM 329 or CHEM 116, Microbiology lecture and lab, and consent of instructor.</td>
<td>Junior standing, CHEM 327 or CHEM 329 or CHEM 116, Microbiology lecture and lab, and consent of instructor.</td>
<td>None</td>
<td>Level - Intermediate</td>
<td>No</td>
<td>Summer 2013</td>
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<tr>
<td>M M &amp; I/MICROBIO/PATH-BIO 528</td>
<td>IMMUNOLOGY</td>
<td>3</td>
<td>Development and functions of immune response in animals; a comprehensive study of experimental humoral and cellular immunity. Enroll Info: Two sem chem and one sem zoology or gen biology.</td>
<td>Two sem chem and one sem zoology or gen biology.</td>
<td>None</td>
<td>Level - Intermediate</td>
<td>No</td>
<td>Fall 2017</td>
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<tr>
<td>M M &amp; I/PATH-BIO 529</td>
<td>IMMUNOLOGY LABORATORY</td>
<td>2</td>
<td>Selected techniques illustrating concepts of cellular and humoral immunity as a supplement to Immunology 528. Enroll Info: Two sem chem and one sem zoology or gen biology.</td>
<td>Two sem chem and one sem zoology or gen biology.</td>
<td>None</td>
<td>Level - Intermediate</td>
<td>No</td>
<td>Spring 2011</td>
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<tr>
<td>M M &amp; I 554</td>
<td>EMERGING INFECTIOUS DISEASES AND BIOTERRORISM</td>
<td>2</td>
<td>Identification of analysis and solution of emerging infectious disease problems and the problems of bioterrorism. Enroll Info: None.</td>
<td>None</td>
<td>Completion of BIOLOGY/BOTANY/ZOOLOGY 152 or ZOOLOGY/BIOLOGY 101 or BIOCORE 383 and MM&amp;I 301 or Microbiology 101 or Microbiology 303, or Grad standing; or consent of instructor.</td>
<td>Level - Intermediate</td>
<td>No</td>
<td>Fall 2017</td>
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<td>M M &amp; I 555</td>
<td>VACCINES: PRACTICAL ISSUES FOR A GLOBAL SOCIETY</td>
<td>3</td>
<td>Considers innovative approaches to the development and use of vaccines in the past, today and in the future, including the public health impact and the economic, ethical and safety issues associated with vaccine development, licensing and use. Enroll Info: Senior or Graduate standing; MM&amp;I 341 or MM&amp;I 528.</td>
<td>Senior or Graduate standing; MM&amp;I 341 or MM&amp;I 528.</td>
<td>None</td>
<td>Level - Advanced</td>
<td>No</td>
<td>Spring 2018</td>
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<td>M M &amp; I/BIOCHEM 575</td>
<td>BIOLOGY OF VIRUSES</td>
<td>2</td>
<td>Lecture-discussion. Broad coverage of animal virology taught at molecular level. Topics include virus structure, viral replication/lifecycle, aspects of pathogenesis and prevention. Enroll Info: Biocore 301/302, or AP score of 4 or 5 and ZOOLOGY/BIOLOGY/BOTANY 151 or 152; or MM&amp;I 301.</td>
<td>Biocore 301/302, or AP score of 4 or 5 and ZOOLOGY/BIOLOGY/BOTANY 151 or 152; or MM&amp;I 301.</td>
<td>None</td>
<td>Level - Advanced</td>
<td>No</td>
<td>Spring 2018</td>
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<td>M M &amp; I/POP HLTH 603</td>
<td>CLINICAL AND PUBLIC HEALTH MICROBIOLOGY</td>
<td>5</td>
<td>Lecture-seminar sessions. Lectures (44) describe microorganisms of clinical and public health significance. Seminar sessions (14) discuss issues and controversies of specimen receiving and processing, bacteremia, serodiagnosis of infectious agents, antimicrobial susceptibility testing, laboratory management, and novel approaches to detect infectious agents. Enroll Info: A course in microbiology.</td>
<td>A course in microbiology.</td>
<td>None</td>
<td>Level - Intermediate</td>
<td>No</td>
<td>Spring 2018</td>
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</tbody>
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M M & I 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. Enrollment open to graduate students, but undergraduates welcome to contact instructor for permission. All students should have some prior coursework in genetics (such as GENETICS 466 or 467) and microbiology (such as MICROBIO 303). It is also recommended that students take PL PATH 300 & 332 prior to this course. Enroll Info: Graduate or professional standing
Requisites: None
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 2016

M M & I 677 — ADVANCED TOPICS IN MEDICAL MICROBIOLOGY
1-3 credits.
Lectures on a specialized topic of current interest in medical microbiology. Course content will vary with instructor. Enroll Info: None
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 2017

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. Enroll Info: Senior Standing; Consent of Instructor
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 2017

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. Enroll Info: Senior Standing; Consent of Instructor, MM&I 691
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 2018

M M & I 696 — CRITICAL THINKING IN MEDICAL MICROBIOLOGY AND IMMUNOLOGY
3 credits.
Students will present assigned research papers from journals for critical evaluation by the class. In addition, students will write critiques of each paper evaluating the paper’s introduction, methods, results, and discussion sections. Enroll Info: MM&I 301 & 341, or cons inst
Requisites: None
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: Spring 2018

M M & I 699 — DIRECTED STUDY
1-3 credits.
Enroll Info: None
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

M M & I 701 — INFECTION AND IMMUNITY I
4 credits.
Part I of an integrated course of basic microbiology, immunology, and infectious diseases; includes bacteriology, virology, mycology, parasitology, basic and clinical immunology. Prereq> 2nd yr Med st only
Requisites: Declared in Medical program
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2008

M M & I 704 — INFECTIOUS DISEASES OF HUMAN BEINGS
3 credits.
Pathogenesis, clinical descriptions, and prevention. Primarily for Physician Assistant, Pharmacy, and Nursing students. Enroll Info: A course in microbiology
Requisites: MICROBIO 101 or MICROBIO 303; not open to students declared in Medical Microbiology and Immunology program
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017
M M & I/PATH-BIO 720 — ADVANCED IMMUNOLOGY: CRITICAL THINKING
3 credits.

Advanced course focusing on current questions in immunological research. Course explores immunology topics including genetic, cellular, and molecular features of immune system fundamental to regulation of immune responses. Course format: discussion of research articles and exposure to research seminars. Enroll Info: MM&I/AHABS/Bact 528 or equiv

Requisites: Graduate standing and MICROBIO/M M & I/PATH-BIO/M M & I/MICROBIO 528
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2016

M M & I/MICROBIO 740 — MECHANISMS OF MICROBIAL PATHOGENESIS
3 credits.

Lecture-discussion. Host-pathogen relationships in microbial diseases. Entry level course for infectious diseases sequence (see Med Micro 760, 790). Enroll Info: Cons inst, MM&I 301 or equiv & a course in immunology

Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

M M & I/PATH-BIO 750 — HOST-PARASITE RELATIONSHIPS IN VERTEBRATE VIRAL DISEASE
3 credits.

Lecture. Detailed study of the pathogenesis of vertebrate viral disease, stressing viral invasion, dissemination, mechanisms of disease production and resistance, and transmission. Enroll Info: Oncol/MICROBIO/ONCOLOGY/PL PATH 640 or PATH-BIO 513; and Microbio/MM&I/PATH-BIO/M M & I/MICROBIO 528; or consent of instructor

Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2018

M M & I/MED SC-M 755 — FOUNDATIONS OF MEDICINE 2
3 credits.

Addresses the basic principles of medical microbiology and the infectious diseases involving the cardiovascular, respiratory, renal and dermatologic systems and related any-microbial therapies. Prereq: Standing as med 2 student (completion of year 1 Medical School curriculum)

Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

M M & I/PATH-BIO 773 — EUKARYOTIC MICROBIAL PATHOGENESIS
3 credits.

An advanced course focusing on the molecular, cellular and biochemical mechanisms found in fungal and protozoan pathogens of humans. A combination of lectures and student presentations will be employed. Enroll Info: Cons inst. MM&I 740 & PATH 750 recommended

Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2012

M M & I/MICROBIO/PATH-BIO 790 — IMMUNOLOGY OF INFECTIOUS DISEASE
3 credits.

Immunobiology and immunogenetics of resistance to infectious disease agents of man and animals; immunoregulatory mechanisms associated with evasion of host immunity. Enroll Info: MM&I 720 or equiv, MM&I 740 or equiv, & cons inst

Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2015

M M & I 900 — JOURNAL CLUB
1 credit.

Enroll Info: None

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 2012

M M & I 901 — SEMINAR
1 credit.

Enroll Info: None

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 2018

M M & I/BIOCHEM/BMOLCHEM/MICROBIO 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. Enroll Info: None

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 2018
M M & I 990 – RESEARCH AND THESIS
1-12 credits.

Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions