

Microbiology and Molecular Genetics (M&MG)

Courses

M&MG 200A. Research in Microbiology and Molecular Genetics. 2-12 Units.

Individual research supervised by a particular professor.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

M&MG 200B. Research in Microbiology and Molecular Genetics. 2-12 Units.

Individual research supervised by a particular professor.

Prerequisite: M&MG 200A

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

M&MG 200C. Research in Microbiology and Molecular Genetics. 2-12 Units.

Individual research supervised by a particular professor.

Prerequisite: M&MG 200B

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

M&MG 200R. Research in Microbiology and Molecular Genetics for First-Year Students. 2-12 Units.

Independent research within the laboratories of graduate training faculty in the Department of Microbiology and Molecular Genetics for first-year Ph.D. students.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

M&MG 201A. Research topics in Microbiology and Molecular Genetics. 1 Unit.

Seminars presented by graduate students and faculty of the Department which explore research topics in specialized areas of microbiology and molecular genetics. Opportunity for students to gain experience in the organization, critical evaluation, and oral presentation of current research developments.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

M&MG 201B. Research topics in Microbiology and Molecular Genetics. 1 Unit.

Seminars presented by graduate students and faculty of the Department which explore research topics in specialized areas of microbiology and molecular genetics. Opportunity for students to gain experience in the organization, critical evaluation, and oral presentation of current research developments.

Prerequisite: M&MG 201A

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

M&MG 201C. Research topics in Microbiology and Molecular Genetics. 1 Unit.

Seminars presented by graduate students and faculty of the Department which explore research topics in specialized areas of microbiology and molecular genetics. Opportunity for students to gain experience in the organization, critical evaluation, and oral presentation of current research developments.

Prerequisite: M&MG 201B

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

M&MG 203A. Advanced Studies in Microbiology and Molecular Genetics. 1 Unit.

Organized within each laboratory group, one to four hours. Advanced study in areas related to faculty research interests. Involves small group study based on readings, discussions, and guest speakers. May be conducted as journal clubs.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

M&MG 203B. Advanced Studies in Microbiology and Molecular Genetics. 1 Unit.

Organized within each laboratory group, one to four hours. Advanced study in areas related to faculty research interests. Involves small group study based on readings, discussions, and guest speakers. May be conducted as journal clubs.

Prerequisite: M&MG 203B

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

M&MG 203C. Advanced Studies in Microbiology and Molecular Genetics. 1 Unit.

Organized within each laboratory group, one to four hours. Advanced study in areas related to faculty research interests. Involves small group study based on readings, discussions, and guest speakers. May be conducted as journal clubs.

Prerequisite: M&MG 203B

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

M&MG 205A. Basic Immunology Core Lectures. 1 Unit.

Basic concepts in human immunology including development of the immune system, innate immunity, immunoglobulin structure and genetics, antigen-antibody reactions, the major histocompatibility complex and antigen presentation, T cell and B cell development, initiation of the immune response, effector mechanisms.

Grading Option: Satisfactory/unsatisfactory only.

M&MG 205B. Basic Immunology Core Lectures. 1 Unit.

Basic concepts in human immunology including development of the immune system, innate immunity, immunoglobulin structure and genetics, antigen-antibody reactions, the major histocompatibility complex and antigen presentation, T cell and B cell development, initiation of the immune response, effector mechanisms.

Prerequisite: M&MG 205A

Grading Option: Satisfactory/unsatisfactory only.

M&MG 205C. Basic Immunology Core Lectures. 1 Unit.

Basic concepts in human immunology including development of the immune system, innate immunity, immunoglobulin structure and genetics, antigen-antibody reactions, the major histocompatibility complex and antigen presentation, T cell and B cell development, initiation of the immune response, effector mechanisms.

Prerequisite: M&MG 205C

Grading Option: Satisfactory/unsatisfactory only.

M&MG 206. Regulation of Gene Expression. 4 Units.

Aspects of gene expression including the organization of the eukaryotic nucleus in terms of protein-nucleic acid interaction (i.e., chromatin and chromosome structure); the enzymology and regulation of RNA transcription and pre-mRNA processing in eukaryotes; mechanisms of RNAi and translation.

M&MG 210A. Medical Microbiology. 4-6 Units.

Biology of microbial pathogens (viruses, bacteria, fungi, parasites) as foundation for subsequent study of infectious diseases. Topics: molecular basis of microbial pathogenesis; clinical presentation and epidemiology; diagnostic testing; antimicrobial therapy; prevention strategies. Format: lectures, laboratory, clinical cases, liveclasstech interactive questions.

M&MG 210B. Medical Immunology. 6 Units.

Cellular and molecular basis of immune response and roles of the immune system in both maintaining health and contributing to disease.

Prerequisite: M&MG 210A

Restriction: Medical students only.

M&MG 215B. Integrative Immunology II. 4 Units.

Lectures and student presentations of primary literature. Focuses on advanced topics and cutting edge technologies in modern immunology. Combination of didactic lectures and student-led journal article discussion.

Prerequisite: PHYSIO 215. PHYSIO 215 with a grade of B+ or better

Same as MOL BIO 215B, PHYSIO 215B.

Restriction: Graduate students only.

M&MG 216. Pathogenic Microbiology. 4 Units.

Biochemical and genetic properties of infectious agents; identification and behavior of pathogens; activities of toxins; the chemotherapy, biochemistry, and genetics of drug resistance; and epidemiology of infectious diseases.

M&MG 219. Medical Virology. 4 Units.

Animal viruses as disease causing agents, including mechanisms of infection at both the cellular and organismic levels. Topics include comparative studies of different groups of viruses, viral transformation, and mechanisms of viral gene expression.

M&MG 221. Immunopathogenic Mechanisms of Disease. 3 Units.

Examination of the mechanisms underlying disease states mediated by immune dysregulation. Topics include mechanisms of immune evasion by cancer, diseases mediated by cytokine dysregulation, role of the microbiome of the GI tract and other disease sites, and adoptive T-cell therapy.

Prerequisite: M&MG 215

Same as PATH 221.

Restriction: Graduate students only.

M&MG 222. Molecular Pathogenesis of Microbial Infections. 4 Units.

Features lectures by faculty on the molecular aspects of microbial pathogenesis, highlighting both microbe and cellular functions. In addition to lectures, students review papers and discuss them. There will be two written exams, one on viruses and one on microbes.

M&MG 225. Molecular Mechanisms of Human Disease. 3 Units.

Provides an overview of the molecular mechanisms of human diseases, including neurologic, hematologic, neoplastic, and infectious diseases. Students gain an understanding of these mechanisms, as well as models of human diseases.

Same as PATH 225.

M&MG 227. Immunology Journal Club. 2 Units.

Advanced topics in immunology as related to an understanding of human disease.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

M&MG 230. Topics in Stem Cells. 2-4 Units.

One-hour seminar presentation by participating faculty or guest lecturer and open to the science community, followed by one-hour discussion of the lecture topic or related topic. Students are responsible for presentations and readings.

M&MG 240. M.D./PH.D. Tutorial. 1 Unit.

Explores a variety of topics that impact careers of medical scientists (M.D./Ph.D students). Topics range from scientific, such as recent advances in particular research areas, to ethical problems brought on by increased technology and intervention in the disease process.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

M&MG 250. Responsible Conduct of Research. 2 Units.

Each session includes a formal presentation by faculty/invited speaker followed by a discussion of case studies related to the topic under consideration.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

M&MG 270. Career Development. 2 Units.

Topics include preparation of papers, grants and fellowships, scientific presentations, and curriculum vitae, and career opportunities.

Repeatability: May be repeated for credit unlimited times.

M&MG 280. Tutorial in Microbiology and Molecular Genetics. 2 Units.

Tutorial in Microbiology and Molecular Genetics. Presented by the department chair; relates current laboratory research to the literature.

Repeatability: May be repeated for credit unlimited times.

M&MG 292A. Scientific Communication. 2 Units.

Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

M&MG 292B. Scientific Communication. 2 Units.

Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

M&MG 292C. Scientific Communication. 2 Units.

Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

M&MG 298. Independent Study. 1-12 Units.

Provided for MSTP students to synthesize the basic science information learned during the basic science years of medical school and learn how to apply that knowledge toward graduate research directed at understanding the basis of human disease.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

M&MG 299. Dissertation—Microbiology and Molecular Genetics . 1-12 Units.

Course provided for Ph.D. students to prepare and complete the dissertation required for a Ph.D. degree.

Repeatability: May be repeated for credit unlimited times.