PH.260 (MOLECULAR MICROBIOLOGY AND IMMUNOLOGY)

PH.260.600. Introduction to the Biomedical Sciences. 4 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.601. Vector-Borne Disease Control. 3 Credits.
The course will address various vector-borne disease control strategies that target any of the complex interactions between the pathogen, vector and host. Emphasis is placed on malaria, dengue and other arboviral diseases, as well as Chagas, leishmaniasis and schistosomiasis. Current and future prophylactic, therapeutic and transmission-blocking vaccines and drugs, vector control, and vector-targeted pathogen transmission control are some examples of control strategies that will be discussed. Interactions between control methods and factors that influence efficacy will also be addressed.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.606. Major Global Infectious Diseases: Prospects for Control. 2 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.607. Methods in life sciences, literature and practice. 2 Credits.
Students read, present and participate in in-depth discussions of assigned papers each week. Papers for discussion are from the current scientific literature, cover a broad range of topics that are generally related to but not directly covered in their coursework. Student discussion leaders present background information and prepare written discussion questions.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.611. Principles of Immunology I. 4 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.612. Principles of Immunology II. 4 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.613. Techniques in Molecular Biology. 3 Credits.
During five days of intensive hands-on laboratory instruction, students develop skills in the use of modern laboratory investigative tools in the area of molecular biology. They learn how to perform polymerase chain reaction (PCR) DNA amplification, quantitative PCR, DNA and protein gel chromatography, Western blotting, transformation of bacteria, and expression of heterologous proteins by bacteria.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.615. Critically Reviewing the Scientific Literature. 2 Credits.
Unlike the typical literature review course, focuses specifically on literature that is flawed in the approach or methods used to examine a scientific question and examines how well the conclusions drawn are justified by the data. Oral discussions of assigned literature are accompanied by weekly 2-3 page written reviews, which provides opportunities for students to get feedback on their writing skills, as well as their critical reading skills.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.623. Fundamental Virology. 4 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.624. Advanced Virology. 4 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.625. Scientific Grant Writing. 2 Credits.
Covers the critical components of a scientific grant application, common errors in grantsmanship and how to avoid them, grant application review criteria, ethics related to grant writing and reviewing, and identification of funding sources. Students prepare a short (5-page) draft proposal and a revision of this proposal following review. Proposal topics are selected by the students and developed with the instructor. Students also prepare critiques of other students’ anonymous, instructor-edited proposals for discussion in class.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.627. Pathogenesis of Bacterial Infections. 4 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.631. Immunology, Infection and Disease. 3 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.633. Autoimmune Diseases of the Endocrine Glands. 4 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.635. Biology of Parasitism. 5 Credits.
Presents a biological basis of parasitic lifestyles including host responses and parasite evasion of host defense mechanisms, transmission, epidemiology, diagnosis, clinical manifestations, pathology, treatment, and control of the major helminthic and protozoan infections of man.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.636. Evolution of Infectious Disease. 3 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.650. Vector Biology and Vector-Borne Diseases. 3 Credits.
Presents the principles of transmission of human and animal pathogens by insects, mites and ticks. Covers basic arthropod biology with special attention to biological properties of vectors and their interactions with pathogens, basic components of arbovirus transmission dynamics. Special topics include emerging pathogens, vector genetics, traditional and next generation control strategies and venomous arthropods.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).
PH.260.656. Malariaiology. 4 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsphs.edu/courses/).

PH.260.657. Vector Biology and Disease Ecology Literature. 1 Credit.
Course location and modality is found on the JHSPH website (https://www.jhsphs.edu/courses/).

PH.260.663. Biological Response to Biomaterials. 3 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsphs.edu/courses/).

PH.260.665. Biological Basis of Aging. 3 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsphs.edu/courses/).

PH.260.700. How Do We Know? - Theory and Practice of Science. 3 Credits.
Examines the nature and philosophical foundations of science using an interdisciplinary approach that emphasizes critical thinking and storytelling; discusses the principles of good scientific practice—rigor, reproducibility and responsibility (the 3Rs)—by exploring revolutionary discoveries in the life, public health and natural sciences; elaborates the relationship between theory, practice and serendipity in scientific discovery, and concludes with a discussion of the role of scientists in society.
Course location and modality is found on the JHSPH website (https://www.jhsphs.edu/courses/).

PH.260.701. Anatomy of Scientific Error. 3 Credits.
Examines sources of error in scientific practice (misconduct or honest mistakes, methodological or systematic errors). Presents real-world examples to analyze errors that cause problems in science across the disciplines. Introduces methodological and mathematical approaches to error reduction. Explores the review- and retraction mechanisms for journal articles and grants as methods of science self-correction. Discusses historic and contemporary cases where errors constitute sources of innovation.
Course location and modality is found on the JHSPH website (https://www.jhsphs.edu/courses/).

PH.260.704. Critical Dissection of the Scientific Literature: Taking the Scalpel to Journal Articles. 3 Credits.
Challenges the classical format of a journal club by preparing students to critically evaluate literature across the science disciplines. Acquaints students with concrete applications of the 3 R's of good scientific practice—rigor, responsibility, and reproducibility. Discusses techniques for effective research literature analysis and evaluation. Emphasizes in-depth understanding of journal article preparation, data evaluation, and the context of conclusions and discussion points within a given research field.
Course location and modality is found on the JHSPH website (https://www.jhsphs.edu/courses/).

PH.260.705. Fundamentals of Quantitative Reasoning in the Biomedical and Health Sciences. 3 Credits.
Provides a broad introduction to interdisciplinary, scientific reasoning using current problems from science and society. Explores the fundamentals of basic probability and statistics using real-world datasets from a variety of basic science disciplines. Introduces data analysis and visualization in the natural and biomedical sciences. Explains the importance of computational and quantitative methods for hypothesis testing in science, technology, and daily life.
Course location and modality is found on the JHSPH website (https://www.jhsphs.edu/courses/).

PH.260.707. Evidence-Based Teaching in the Biomedical and Health Sciences: Foundations. 3 Credits.
Acquaints students interested in teaching in biomedical and health professional settings with the foundations of how adults learn as well as the science of learning. Explores practical applications of evidence-based teaching techniques most relevant to the biomedical and public health professions. Discusses a variety of assessment techniques, and their alignment with learning objectives and educational strategies using state of the art course design.
Course location and modality is found on the JHSPH website (https://www.jhsphs.edu/courses/).

PH.260.708. Evidence-Based Teaching in the Biomedical and Health Sciences – Practice. 3 Credits.
Provides students interested in gaining hands-on teaching experience with opportunities to plan and develop classroom materials on self-selected topics and deliver them in an interdisciplinary classroom setting, mentored by professional educators. Explores evidence-based instructional and assessment strategies to meet identified learner needs in the life and health sciences. Introduces students to a growing community of educational practitioners and scholars across the JHBSPH departments and JH divisions.
Course location and modality is found on the JHSPH website (https://www.jhsphs.edu/courses/).

PH.260.710. Communication Practice for Health Science Professionals. 3 Credits.
Introduces students to current trends in presentation design and delivery. Focuses on narrative-oriented thinking to improve information dissemination. Emphasizes clarity and simplicity in communication practice in multiple settings, targeting both lay and interdisciplinary expert audiences.
Course location and modality is found on the JHSPH website (https://www.jhsphs.edu/courses/).

PH.260.711. Principles of Neuroimmunology. 3 Credits.
Briefly covers the role of specific cells of the central nervous system (CNS), immune functions of CNS cells, and trafficking of leukocytes into the CNS, both in health and disease. Subsequently, it discusses various immune cells, e.g. monocytes, T cells, B cells, inflammatory molecules such as cytokines, chemokines, metalloproteinases, and prostaglandins in more detail, focusing on their role in either protecting from neurological disease or in causing CNS disease pathologies, including cognitive dysfunction. Presentations from experts in the field address topics and diseases, such as multiple sclerosis (MS), the blood brain barrier (BBB), HIV and other neurotropic microbes in eliciting neurological disease and emerging neurotropic infections.
Course location and modality is found on the JHSPH website (https://www.jhsphs.edu/courses/).

PH.260.712. Clinical Immunology. 3 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsphs.edu/courses/).

PH.260.713. R3 Writing Seminar for Graduate Students. 1 Credit.
Course location and modality is found on the JHSPH website (https://www.jhsphs.edu/courses/).
PH.260.813. SURVIVAL SKILLS FOR ACADEMIA IN THE LAB SCIENCES. 2 Credits.
Aimed at providing MMI and other lab sciences with the skills necessary to present and publish data and to find post-docs and/or jobs in the laboratory sciences. Topics include time management and organization, preparing effective conference presentations, manuscripts, and curriculum vitae, networking, interviewing, and getting hired.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.815. The Business of Academic Biomedical Research. 1 Credit.
Addresses topics related to business aspects of academic biomedical research, and focuses specifically on organizational, managerial, political, strategic and economical characteristics of academic biomedical research. Prepares students for a career in academic biomedical research by discussing essential features for success, other than the actual science.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.820. Thesis Research Molecular Microbiology and Immunology. 1 - 22 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.821. Research Forum in Molecular Microbiology and Immunology. 1 Credit.
Departmental students organize and present research findings, resulting from laboratory investigations or literature review, to faculty and fellow students. These oral reports consist of rationale and background of the working hypothesis, experimental design, presentation of results, and analysis in the context of the hypothesis. Usually, each student presents twice a year and weekly attendance is required.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.822. Seminars in Research in Molecular Microbiology and Immunology. 1 Credit.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.829. Summer Thesis Research. 12 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.830. Postdoc Research MMI. 1 - 22 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.840. SS/R: Mol Microbiology & Imm. 1 - 22 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.844. Causation. 3 Credits.
Acquaints students with fundamental ideas and historic theories about causation. Discusses how cause and effect relationships govern biomedical and public health research. Compares how sub-disciplines of the biomedical and public health sciences approach causation using concrete case examples. Addresses limitations of causal inference in biomedicine and public health. Examines strategies to mitigate the limitations of causal inference.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).
PH.260.848. Community-Based Practice Through Civic Engagement. 2 Credits.
Examines a participatory, online service-learning approach to enable students regardless of geographical location to engage in real-world, community-based, educational projects. Acquaint students to work with Baltimore-based community organizations through critical reflection on issues of equity and professional practice. Emphasizes the application of professional skills to real-world issues. Discusses the limitations and ethical aspects inherent to civic engagement work. Prepares students to develop evaluation plans and materials for the organizations’ identified programs. Emphasizes translation of experiences with Baltimore Community-based organizations into local contexts. Focuses on building reciprocal partnerships that reach beyond “consultancy.”
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.851. Laboratory Rotations. 4 - 8 Credits.
All departmental Sc.M. and doctoral students spend one and three terms, respectively, participating in the research activities of departmental faculty's laboratories. Students select appropriate rotations in consultation with their academic advisors and the departmental Graduate Program Committee.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.852. Molecular Biology Literature. 2 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.854. Current Literature in Microbial Immunity. 1 Credit.
Reviews and discusses, in depth, current publications in the field of microbial immunity, with emphasis on the areas of innate/adaptive immunity, pathogenesis, and vaccination
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.855. Pandemics of the 20Th Century. 1 Credit.
Focuses on major pandemics in the human population that have occurred in the 20th century: the 1918 influenza pandemic; the emergence of HIV; the severe acute respiratory distress syndrome (SARS) outbreak of 2002-03; and viral hepatitis (hepatitis B and C viruses). For each pandemic, discussion groups cover a clinical-, public health- and pathogen-oriented reading topic in order to give students a broad understanding of the overall importance of each, as well as to compare and contrast the key aspects of each disease. Focuses on acute and chronic diseases, as well as diseases with different routes of transmission and incubation times between infection and disease. Provides a comprehensive overview of how each pandemic emerged, what key factors dictated spread in the population, and how each pathogen induced disease.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.895. MPH Practicum: MMI. 1 - 4 Credits.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).

PH.260.935. Lab for MMI 260.635. 3 Credits.
Laboratory sessions examine living and preserved parasites, gross pathology, histopathology, and vectors. Journal discussions based on research papers and topics of fundamental importance to parasitology will involve student participation in a seminar format.
Course location and modality is found on the JHSPH website (https://www.jhsph.edu/courses/).