MCP (MCP)

Courses

MCP 126. Neurons and Disease. 4 Units.
Diseases of the nervous system. First lecture of each week focuses on the clinical, epidemiological and behavioral aspects of a selected disease or syndrome. Second lecture exposes the cell biological, electrophysiological, biochemical and/or molecular biological processes that underlie each disease presented. Instructors maintain some flexibility in the diseases chosen for elucidation, but students can expect those covered to range from the relatively straightforward, for example Multiple Sclerosis (MS) or Amyotrophic Lateral Sclerosis (ALS), to the more complex, for example, Schizophrenia or Obsessive Compulsive Disorder (OCD). Prerequisite: Biology or Human Biology core.

MCP 156. How Cells Work: Energetics, Compartments, and Coupling in Cell Biology. 4 Units.
Open to graduate and medical students, and advanced undergraduates. Dynamic aspects of cell behavior and function, including cellular energetics, homeostasis, heterogeneity of membranes, structure and function of organelles, solute and water transport, signaling and motility. Emphasis is on the principles of how coupling of molecular processes gives rise to essential functions at the cellular level. Mathematical models of cell function. Student presentations.
Same as: MCP 256

MCP 199. Undergraduate Research. 1-18 Unit.
Students undertake investigations sponsored by individual faculty members. Prerequisite: consent of instructor.

MCP 202. Advanced Immunology II. 3 Units.
Readings of immunological literature. Classic problems and emerging areas based on primary literature. Student and faculty presentations. Prerequisite: IMMUNOL 201/MI 211.
Same as: IMMUNOL 202

MCP 207. MCP Bootcamp. 3 Units.
Hands-on, week-long immersion in methods and concepts related to the physiology of cell signaling. Required of all first-year MCP students; other PhD students may enroll with consent of instructor.

MCP 221. Advanced Cell Biology. 4 Units.
For Ph.D. students. Current research on cell structure, function, and dynamics. Topics include complex cell phenomena such as cell division, apoptosis, compartmentalization, transport and trafficking, motility and adhesion, and differentiation. Weekly reading of current papers from the primary literature. Preparation of an original research proposal. Prerequisite for advanced undergraduates: BIO 129A,B, and consent of instructor.
Same as: BIO 214, BIOC 224

MCP 222. Imaging: Biological Light Microscopy. 3 Units.
Survey of instruments which use light and other radiation for analysis of cells in biological and medical research. Topics: basic light microscopy through confocal fluorescence and video/digital image processing. Lectures on physical principles; involves partial assembly and extensive use of lab instruments. Lab. Prerequisites: some college physics, Biology core.
Same as: BIO 152

MCP 256. How Cells Work: Energetics, Compartments, and Coupling in Cell Biology. 4 Units.
Open to graduate and medical students, and advanced undergraduates. Dynamic aspects of cell behavior and function, including cellular energetics, homeostasis, heterogeneity of membranes, structure and function of organelles, solute and water transport, signaling and motility. Emphasis is on the principles of how coupling of molecular processes gives rise to essential functions at the cellular level. Mathematical models of cell function. Student presentations.
Same as: MCP 156

MCP 287. Connectomes. 1-3 Unit.
(Same as PSYCH 287) Neural circuitry can be measured over a huge range of spatial scales, from sub-synaptic to whole brain connectomes. The methods used to measure these scales differ enormously, and scientists working at one scale should be able to understand and communicate with those measuring at other scales. Reviews methods, principal results, and ideas for integrating findings across scales by large-scale computation modeling.

MCP 299. Directed Reading in Molecular and Cellular Physiology. 1-18 Unit.
Prerequisite: consent of instructor.

MCP 300. Neuroscience Journal Club and Professional Development Series. 1-2 Unit.
Neuroscience Journal Club and Professional Development Series New description: Required of Neurosciences Ph.D. students in Autumn, Winter, and Spring of the first three years of study. Recent papers in neuroscience literature presented by graduate student.

MCP 370. Medical Scholars Research. 4-18 Units.
Provides an opportunity for student and faculty interaction, as well as academic credit and financial support, to medical students who undertake original research. Enrollment is limited to students with approved projects.

MCP 399. Graduate Research. 1-18 Unit.
Students undertake investigations sponsored by individual faculty members. Research fields include endocrinology, neuroendocrinology, and topics in molecular and cellular physiology. Prerequisite: consent of instructor. (Staff).

MCP 801. TGR Project. 0 Units.

MCP 802. TGR Dissertation. 0 Units.