Molecular Physiology and Biophysics Courses (MPB)

This is a list of all molecular physiology and biophysics courses. For more information, see Molecular Physiology and Biophysics.


MPB:4753 Developmental Neurobiology 3 s.h. Neural induction and nervous system patterning; neurogenesis, axon and dendrite outgrowth and targeting; synapse formation, specificity, refinement; mechanisms of neuronal cell death; myelination; neural stem cells; introduction to cellular, molecular, and genetic techniques in studies of neural development. Prerequisites: BIOL:2753 with a minimum grade of C- or BIOL:3253 with a minimum grade of C-. Corequisites: BIOL:3253, if not taken as a prerequisite. Same as BIOL:4753, NSCI:4753.

MPB:5153 Graduate Physiology 4 s.h. Principles of human physiology, organ systems, cell function. Offered fall semesters. Requirements: grades of C- or higher in BIOL:1411 and CHEM:2210 and CHEM:2220, and graduate standing.

MPB:5200 Medical Physiology Online 5 s.h. Fundamental principles of cellular membranes, muscle, sensory organs, motor neurological systems, autonomic nervous systems, cardiovascular, pulmonary, renal, gastrointestinal, endocrine, and reproductive systems; interdependence of organ systems to maintain a normal physiological state using clinical correlates as applied to humans; basic physiological principles that establish a solid foundation for future pathophysiological and pharmacological concepts. Recommendations: medical, dental, physician assistant, nurse anesthesia, physical therapy, or graduate standing.

MPB:5211 Biophysics of Excitable Membranes 3 s.h. Selected electrophysiological and biophysical topics from published research. Prerequisites: HHP:3500.

MPB:5241 Neuromuscular Diseases: Case-Based Seminar 1 s.h.

MPB:6209 Steroid Receptor Signaling 1 s.h. Structure-function relationship and genomic and nongenomic actions of the steroid hormone receptor family; basis for actions of novel new ligands on these receptors. Offered spring semesters. Same as NSCI:6209, PCOL:6209.

MPB:6220 Mechanisms of Cellular Organization 3 s.h. Current understanding of basic cell biological processes; key experiments that led to guiding insights; mechanisms that cells use for compartmentalization and how those mechanisms are regulated; biogenesis of major organelles (e.g., mitochondria, peroxisomes, nucleus, secretory/endocytic membrane system); functions of cytoskeleton in cell motility, organelle motility, and cell division. Prerequisites: BIOC:3130. Same as ACB:6220, MCB:6220.

MPB:6225 Growth Factor Receptor Signaling 1 s.h. Mechanisms of signaling by growth factors; cytokines and related molecules that regulate cell proliferation, development, differentiation, and survival; emphasis on molecular mechanisms of signaling, relevance of these signaling processes to various human diseases. Same as ACB:6225, MCB:6225.

MPB:6226 Cell Cycle Control 1 s.h. Cell cycle regulation, DNA damage-dependent cell cycle regulation, redox-dependent cell cycle regulation, cellular senescence. Same as ACB:6226, MCB:6226.

MPB:6227 Cell Fate Decisions 1 s.h. Cellular fate decisions, including signal integration, terminal differentiation in development, mechanisms of embryonic stem cell gene regulation/cellular reprogramming, cell death paradigms, and cell death in development and cancer. Same as ACB:6227, MCB:6227.

MPB:6265 Neuroscience Seminar 0-1 s.h. Research presentations. Offered fall and spring semesters. Same as ACB:6265, BIOL:6265, NSCI:6265, PSY:6265.

MPB:6302 Research Physiology and Biophysics arr. Requirements: molecular physiology and biophysics graduate standing.


MPB:8115 Human Physiology for Dental Students 4 s.h. Principles of human physiology, organ systems, cell function. Offered fall semesters. Requirements: grades of C- or higher in BIOL:1411, CHEM:2210, and CHEM:2220; and D.D.S. enrollment.