

Molecular Physiology and Biophysics

Chair

- Kevin P. Campbell

Executive Associate Chair

- W. Scott Moye-Rowley

Faculty: <https://physiology.medicine.uiowa.edu/profile/>

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Courses

Molecular Physiology and Biophysics Courses

MPB:4199 Research, Independent Study arr.

Recommendations: closed to molecular physiology and biophysics graduate students.

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:5201 Advanced Physiology Online 3 s.h.

Examination of cellular and organ systems of medical physiology; fundamental principles of cellular membranes including muscle, sensory organs, motor neurological systems, autonomic nervous system, cardiovascular, pulmonary, renal, gastrointestinal, endocrine, and reproductive physiology; emphasis on interdependence of organ systems to maintain a normal physiological state (homeostasis) using clinical correlates as applied to humans; basic physiological principles that establish a solid foundation for future pathophysiological and pharmacological concepts.

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

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: BMB:3130. Same as ACB:6220, MMED:6220.

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, MMED: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, MMED:6227.

MPB:6265 Neuroscience Seminar 0-1 s.h.

Research presentations. 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:7402 Thesis arr.

Requirements: molecular physiology and biophysics PhD candidacy.

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 DDS enrollment.