

2022-23

MEDICAL PHYSIOLOGY

Degree Offered: Master of Medical Physiology



Program Description

The Master's Program in Medical Physiology at MCW is a one-year program designed for a college graduate looking to strengthen their academic credentials in preparation for applying to U.S. medical schools. Our program is closely integrated with the first-year medical student (M1) curriculum at MCW, providing you with a comparable experience encountered as a medical student, including examinations. Our program also offers an MCAT course in collaboration with Wisconsin Lutheran College. We maintain a small cohort size to ensure each student receives the personalized academic advising and career development they need to succeed. Graduates of this program will have a solid foundation for medical school, graduate school, and jobs in academia, industry, or government positions, as supported by our strong placement data.

Admission Requirements

In addition to the general [Graduate School admission requirements](#), this program has additional specific requirements.

This program recommends applicants submit MCAT scores with their applications. MCAT scores are preferred, but other health professional school test scores (e.g., GRE, DAT, or PA-CAT) can be used if MCAT scores are not available.

Credits Required to Graduate

31.5 credits

Required Courses

BIOC 02203 Molecules to Cells. 5 credits.

Cross listed with the Medical School Course INTE D1105 Molecules to Cells

Molecules to Cells integrates the concepts of biochemistry, medical genetics, human development and cell and tissue biology. The goal of the curriculum is for students to become aware of the contributions these disciplines bring to future developments in clinical diagnosis and treatment. Molecules to Cells will expose students to the molecular and chemical principles of life from the structure and function of DNA and proteins to metabolism, membrane transport and cellular recognition.

PHYS 08204 Graduate Human Physiology. 5 credits.

Cross listed with the Medical School Course PHYS D1102: Physiology

This course provides the fundamental aspects of : 1) cell membrane transport, 2) smooth, skeletal, and cardiac contractile mechanisms and excitation-contraction coupling, 3) principles of synaptic transmission, neurotransmitters, and neuromodulators, 4) respiratory mechanics, gas exchange in the lung, and control of breathing, 5) cardiac electrophysiology, hemodynamics, nervous and humoral control of the heart and cardiac output, 6) renal tubular transport,

glomerular filtration, and regulation of sodium and water balance, 7) neural and humoral control of gastrointestinal absorption and motility, and 8) endocrinology including pituitary, adrenal cortical, thyroid, pancreatic and male and female reproductive organs. Material will be covered primarily in lecture format by expert physiologists in each respective area.

PHYS 08208 Current Topics in Physiology. *2 credits.*

The course is designed to give enrolled students a window into current advances and techniques in modern physiological research. Students will be required to attend and be graded upon attendance at weekly lectures/seminars sponsored by the Dept. of Physiology, evaluations of each presentation, and attendance and participation in the series of faculty discussion sessions (4 or more per semester) with the course director or other physiology faculty members. Students will take this course in the fall and spring terms.

PHYS 08275 Special Problems in Physiology. *1 credit.*

Readings and/or research under direction of a faculty member in a specialized field of physiology. Under specific circumstances, may be substituted for formal courses.

PHYS 08280 MMP Career Development Training. *2 credits.*

The goal of the MMP Career Development Training course is to increase your skills and readiness for medical school and graduate school applications. To achieve this goal, you will be working with your peers, current medical and graduate students, and diverse range of faculty to write an application cycle calendar, personal statement, and CV/resume, and to execute individual and group mock interviews. Importantly, this course has been designed specifically for MMP students, and does not overlap with other graduate or medical school courses at MCW. Ultimately, MMP Career Development Training will provide timely and important preparation for applying to medical or graduate school, and for your continuing education and careers in science and medicine.

PHYS 08295 Reading and Research. *1-9 credits.*

The course of study for Reading and Research is designed by each student with his/her advisor to focus on readings in literature in the student's field, to build bibliographic resources for the dissertation, and to conduct supervised, independent research.

BIOE 10222 Ethics and Integrity in Science Course. *1 credit.*

This course provides the basis for understanding the ethical issues related to basic scientific and medical research, including animal and human subject research, fraud, and misconduct, and governmental, institutional, and researcher responsibilities. Bioethics 10222 is offered during the spring and summer terms only.

INBS 16271 Fundamentals in Neuroscience. *3.5 credits.*

Fundamentals of Neuroscience follows a multidisciplinary approach to current knowledge about the structural and functional properties of the nervous system. The mechanisms of the nervous system are described at the molecular, cellular, systems and complex brain function levels. The course includes in-class lectures, seminars from prominent scientists (video archives), and written assignments. The purpose of this course is to introduce 1st year graduate students to the structure and function of the human nervous system.

INBS 16278 Functional Genomics. 3 credits.

This course will use a variety of didactic lecture, paper discussions, and hands on bioinformatics learning to provide students with fundamentals in genomics, transcriptomics, proteomics, genetic manipulation, epigenetics, protein modeling and molecular simulation. Theory, practical applications, and analysis methods will be taught.

CDBI 31140 Clinical Human Anatomy I. 5 credits.

Cross listed with the Medical School Course CBNA D1102 Clinical Human Anatomy I

The Clinical Human Anatomy course teaches students the structural and functional aspects of the human body. Students explore the macroscopic anatomy and three-dimensional relationships of organs, organ-systems, regions of the body, cross-sections and spaces. Learning experiences are reinforced with cadaveric dissection and a variety of imaging techniques - such as plain films (X-rays), CT, and MRI scans - that relate to clinical practice. Aside from medical knowledge, the course nurtures teamwork, interpersonal and communication skills, and reinforces professionalism at all times.

CDBI 31141 Clinical Human Anatomy II. 2 credits.

Cross listed with the Medical School Course CBNA D1103 Clinical Human Anatomy II

The Clinical Human Anatomy course teaches students the structural and functional aspects of the human body. Students explore the macroscopic anatomy and three-dimensional relationships of organs, organ-systems, regions of the body, cross-sections and spaces. Learning experiences are reinforced with cadaveric dissection and a variety of imaging techniques - such as plain films (X-rays), CT, and MRI scans - that relate to clinical practice. Aside from medical knowledge, the course nurtures teamwork, interpersonal and communication skills, and reinforces professionalism at all times.

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