

## Program Description

The Physiology program at MCW features research leaders with strong programs in cardiovascular, renal, metabolic, and respiratory physiology, and utilize genetics, genetically manipulated model systems, functional genomics, proteomics, bioinformatics, computational biology, and a growing strength in neuroscience. Didactic coursework covers a broad interdisciplinary foundation complemented with several integrative systems physiology courses. Trainees develop critical thinking skills and other professional skills through performance of cutting-edge research to prepare the next generation of scientists in the Physiological Sciences.

## Admission Requirements

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



(Organ Systems Physiology ). Students are then required to also enroll in the Seminar course in the Summer semester. Additional required courses in the Physiology program prior to the Qualifying Exam include a grant writing course and Advanced Human Physiology

learning (pre- work) and presenting published papers.

ethical principles that apply in such situations, and the provide practical guidance on

16242 Techniques in Molecular & Cellular Biology. 2 credits.

The primary objective for this course is to provide information and conceptual knowledge of a number of the most common techniques required for biomedical research. The information presented in this course should facilitate comprehension of the scientific literature and introduce procedures that students will commonly use in

16292 Writing a Scientific Paper. 1 credit .

This course is offered in the Summer between years 1 and 2. The goal is to enhance specific skill sets related to scientific writing and presentation. The course will focus on the processes important for the preparation of scientific manuscripts and an NIH F-type research proposal. This course will include didactic components, and will require students to work individually, or in small groups. Students will also engage in peer review activities to improve interpersonal, professionalism, and leadership skills.

### Required Courses as Needed

08002 Master's Thesis Continuation. 0 credits.

This is a form of registration available to students who have completed all of the required coursework, including thesis credits but have not yet completed the writing of the Thesis. Continuation status is limited to three consecutive terms following the completion of Thesis credits.

08003 Doctoral Dissertation Continuation. 0 credits.

This is a form of registration available to students who have completed all of the required coursework, including dissertation credits but have not yet completed the writing of the Dissertation. Continuation status is limited to three consecutive terms following the completion of Dissertation credits.

08299 Master's Thesis. 1-9 credit(s) .

Students in the Ph.D. degree program who cannot or elect not to complete that program may be allowed to transfer to the Master's program. This transfer must be approved by the student's advisor, the Program Director, the Chair, and the Graduate School. To transfer to the Master's Program, the student must be in good academic standing according to regulations established by the Graduate School.

### Elective Courses in Physiology

08270 Current Concepts in Cardiovascular Biology. 3 credits .

This lecture course explores the pathogenic mechanisms that underlie cardiovascular disease the leading cause of death in the United States and other industrialized countries. This course covers foundational principles of cardiovascular physiology and pathophysiology with special emphasis on topics related to the CVCs Signature Programs and Affinity Groups. Unique features of the course include the integration of basic and clinical research intentional pairing of pre-doctoral students with post-doctoral fellows' presentations by students and fellows on selected topics and a section on Current Topics in Cardiovascular Sciences such as racial inequity COVID19 and social determinants of health. In addition to advancing education in cardiovascular biology and pathophysiology major goals are to increase knowledge in translational medicine and enhance peer-to-peer mentoring.

dissertation committee before the start of the Fall semester in Year 2, 6) provide an approved dissertation outline within 6 months after completing the Qualifying Exam, 7) attend and present research at regional or national meetings each year beginning at the end of the second year in graduate school, 8) complete the PhD within 5 years after matriculation, and 9) publish two (2) or more peer-reviewed, first-authored manuscripts with a minimum of at least one accepted at the time of graduation.

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