PHYSIOLOGY (PH.D.)

The mission of the Ph.D. program in the Department of Physiology is to provide an outstanding educational experience for future scientists, researchers, and academicians in one or more areas of cellular and organ system physiology or developmental biology and reproductive systems. By combining a contemporary curriculum with innovative research, our goal is to develop skilled investigators in the physiological sciences who, by utilizing their advanced problem solving and presentation skills, are qualified to succeed as educators, independent researchers, and as scientists in a wide variety of professional venues.

Admission to these programs is contingent upon admission to the Graduate School (http://bulletins.wayne.edu/graduate/general-information/) and the graduate programs of the School of Medicine (http://bulletins.wayne.edu/graduate/school-medicine/programs/), respectively. In addition, applicants for the Doctor of Philosophy degree are normally expected to have a personal interview with one or more members of the Departmental Graduate Committee.

All course work must be completed in accordance with the regulations of the Graduate School and the School of Medicine governing graduate scholarship and degrees.

Applicants for the Doctor of Philosophy degree must complete a minimum of sixty credits beyond the bachelor's degree, of which at least eighteen credits must be in doctoral research and dissertation direction. For the remaining credits, 3 courses must be physiology advanced courses (for the Reproductive Sciences concentration, a minimum of ten credits in required from the Physiology-Reproductive Sciences coursework) and six from multidisciplinary courses other than Physiology (minor). Ph.D. students holding IBS Fellowships are required to take additional credits from courses in the IBS curriculum (http://bulletins.wayne.edu/courses/ibs/). Remaining credits to obtain the required total are taken as electives in subjects pertinent to the student's chosen field of research. Requirements of the Department of Physiology Graduate Program must also be satisfied.

Cardio-Metabolic Physiology Concentration

The Cardio-Metabolic Physiology concentration is designed to appeal to students who wish for a deeper study in the areas of cardiovascular physiology and metabolism. Students in this concentration will be expected to follow the basic requirements of the Physiology Ph.D. program, but their elective course work will include 10 credits of coursework oriented around cardiovascular and metabolic physiology. These credit hours can be chosen by the student from within the approved list of courses in the concentration, with a view toward the research interests of the student. Courses will be taught by both Physiology department faculty and faculty from other departments. Students in this concentration are free to select any dissertation mentor that is a member of the Physiology Graduate Faculty, and are expected to choose a research topic related to cardiovascular and/or metabolic physiology. Research projects for students in this concentration may center on understanding of basic cardiovascular physiology and metabolism, understanding of cardiovascular and/or metabolic diseases, impact of lifestyle changes on cardio-metabolic physiology, or other related topics.

Reproductive Sciences Concentration

Students pursuing this concentration are expected to follow the requirements of the Physiology Ph.D. program but their curriculum is oriented around courses in the reproductive sciences taught primarily by Obstetrics and Gynecology graduate teaching faculty. Students taking the Reproductive Sciences concentration will select dissertation mentors from the Obstetrics and Gynecology graduate teaching faculty and perform their dissertation research in the basic science facilities of the Department of Obstetrics and Gynecology.

Physiology Courses

Code	Title	Credits
PSL 5680	Basic Endocrinology	3
PSL 6010	Advanced Exercise Physiology	3
PSL 6300	Biotechnology: Techniques and Applications	2
PSL 6310	Biotechnology: Techniques and Applications Lab	2-5
PSL 7010	Basic Graduate Physiology Lecture I	4
PSL 7011	Basic Integrative Graduate Physiology I	4
PSL 7020	Introduction to Rigor, Reproducibility, Experimentation, and Statistics in Physiology	2
PSL 7030	Basic Graduate Physiology Lecture II	4
PSL 7031	Basic Integrative Graduate Physiology II	4
PSL 7040	Basic Graduate Physiology Laboratory II	2
PSL 7060	Current Literature in Physiology	1
PSL 7215	Nanobioscience	3
PSL 7400	Sleep and Breathing in Health and Disease	2
PSL 7420	Organizing and Communicating Hypothesis Testing in Physiology	3
PSL 7550	Advanced Renal Physiology	2
PSL 9995	Candidate Maintenance Status: Doctoral Dissertation Research and Direction	0
PSL 7600	Advanced Cardiovascular Physiology	2
PSL 7640	Cell and Molecular Physiology	3
PSL 7685	Reproductive Physiology Seminar	1
PSL 7660	Advanced Neurophysiology	3
PSL 7680	Endocrinology (RPS approved)	4
PSL 7690	Principles and Techniques of Reproductive Biology (RPS approved)	3
PSL 7700	Embryonic Stem Cell Biology (RPS approved)	3
PSL 7710	Disease States and Reproductive Processes (RPS approved)	1
PSL 7730	Reproductive Sciences: Teratology (RPS approved)	3
PSL 7775	Current Research Topics in Reproductive Science (RPS approved)	3
PSL 7825	Membrane Physiology: Protein Transport, Lipid Metabolism and Human Diseases	2
PSL 7880	Special Problems in Physiology	1-8
PSL 7890	Seminar	1
PSL 7996	Arranged Research	1-15
PSL 8888	Survey of Research at the Chemistry Biology Interface	3