

# PHYSIOLOGY, M.S. OR PH.D.

## About the Program

The Physiology graduate program provides comprehensive training in integrative sciences incorporating the tools and techniques of physiology with other disciplines to conduct research at the molecular, cellular, organ, and whole animal levels. Areas of research include Angiogenesis and Inflammation in Diabetic Retinopathy; Retinal Degeneration/Inflammation/Vitamin A Metabolism; Insulin Receptor/Phosphoinositide Signaling in Retinal Diseases; Obesity-Associated Metabolic Disorders; Neurobiology of Aging and Diabetes; Cardiovascular Physiology and Neurophysiology; Gastrointestinal Disorders; Tumor Biology of Invasion, Progression, and Metastasis.

## Areas of Specialization

- Angiogenesis and Inflammation in Diabetic Retinopathy
- Retinal Degeneration/Inflammation/Vitamin A Metabolism
- Insulin Receptor/Phosphoinositide Signaling in Retinal Diseases
- Obesity-Associated Metabolic Disorders
- Systems Neurobiology of Aging and Diabetes
- Cardiovascular Physiology and Neurophysiology
- Geroscience
- Gastrointestinal Disorders
- Tumor Progression and Metastasis

## Career Opportunities

Individuals who graduate with a PhD in Physiology have a number of exciting and rewarding career opportunities in academic research, teaching, biotechnology, government laboratories, industry, and health-related organizations.

## Cost

It is the student's responsibility to ensure they are enrolled in the prescribed courses and to pay tuition and fees at the time designated by the Bursar's Office. Details regarding tuition/fee charges and collection are available from the Bursar's Office.

## Prerequisites

- Bachelor's degree in pharmacy or related field from an accredited institution.
- Grade point average of 3.0 or above using the upper-division coursework of the bachelor's degree.
- GRE test scores of at least 150 in both verbal and quantitative sections.
- Three letters of recommendation from prior college instructors addressing the qualifications to pursue graduate study.
- Proof of language proficiency for international applicants. TOEFL score of at least 79 on the IBT or its equivalent in other versions of the TOEFL examination.

## Master of Science Degree Requirements

The MS degree is offered with a thesis (30 credit hours) or non-thesis (32 credit hours) option. For the thesis option four hours of PHYO 5980 Research For Masters Thesis are required. For either

option, no more than one hour of PHYO 5971 Seminar can be taken for credit.

### Thesis Track

Code	Title	Hours
<b>General Requirements</b>		
BIOC 5104	Biochemistry	4
BSE 5163	Biostatistical Methods I	3
PHYO 5016	Human Physiology	6
PHYO 6303	Advanced Systemic Physiology	3
Electives		6
<b>Thesis Track Requirements</b>		
BSE 5111	Scientific Integrity in Research	1
PHYO 5971	Seminar	1
PHYO 5980	Research For Masters Thesis	1-4

### Non-Thesis Track

Code	Title	Hours
<b>General Requirements</b>		
BIOC 5104	Biochemistry	4
BSE 5163	Biostatistical Methods I	3
PHYO 5016	Human Physiology	6
PHYO 6303	Advanced Systemic Physiology	3
Electives		6
<b>Non-Thesis Track Requirements</b>		
BSE 5111	Scientific Integrity in Research	1
PHYO 5971	Seminar	1
PHYO 9980	Special Studies (Lab Experience)	4
Electives		3

## Doctor of Philosophy Degree Requirements

The minimum credit requirement for the PhD degree is 90 semester hours of classwork and research. Requirements for the degree can usually be met in four years. During the first year, the student completes interdisciplinary course work emphasizing molecular aspects of cell and organismal biology, along with at least three and up to six research rotations. For the subsequent years, the student enters the Physiology PhD program, takes the advanced physiology class and performs dissertation research in close collaboration with the major professor and doctoral committee. Course credit can be given for previous Master's work.

Code	Title	Hours
<b>Core Courses</b>		
BSE 5111	Scientific Integrity in Research	1
BSE 5113	Principles of Epidemiology	3
BSE 5163	Biostatistical Methods I	3
BSE 5173	Biostatistics Methods II	3
HAP 5203	Health Economics	3
PHSC 5031	Oral/Written Presentation Skills in the Social & Administrative Pharmaceutical Sciences	1
PHSC 5433	Social and Behavioral Issues in the Medication Use Process	3
PHSC 5703	Pharmacy Administration Research Methods	3

PHSC 5713	Advanced Pharmacy Management	3
PHSC 5723	Pharmacy Service Evaluation	3
PHSC 5990	Special Studies in Pharmaceutical Sciences	1-5
PHSC 6120	Advanced Topics in Pharmaceutical Sciences	1-4
PHSC 6970	Seminar in Pharmaceutical Sciences	1-2

**Elective Courses**

Courses relevant to area of specialization	1-12
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**Dissertation**

PHSC 6980	Research for Doctoral Dissertation	1-16
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Note: Student's advisory committee sets the remainder of any needed requirements to meet the 90 hours required for the degree.

## Admission Requirements

The department supports both the MS and the PhD Programs. For the PhD program, the department of Physiology is a participant in the interdisciplinary Graduate Program in Biomedical Sciences (GPiBS) (<http://graduate.ouhsc.edu/Graduate-Programs/PhD-Programs/Graduate-Program-in-Biomedical-Sciences/>). Students wishing to enter the Physiology PhD program apply to GPiBS as described in the GPiBS section of the Bulletin. Applicants can also be admitted directly into the Physiology PhD program with the same requirements as the GPiBS admission process.