

# Physiology (PHY)

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## **PHY 503 General Physiology I** (3 credit hours)

Physiology is the study of the how living systems function from the molecular to organismal level. As such, this course will build on your knowledge of anatomy, biochemistry, and cell biology and also presumes a working knowledge of the basics of college level physics and chemistry. Students will learn the fundamental mechanisms underlying normal function of cells, tissues, organs, and organ systems of the human body and be able to integrate knowledge and concepts from various organ systems to explain function in the human body. In this course, we will address cellular, neural, muscular, and gastrointestinal physiology in humans.

P: BCH451 and BCH553 (or equivalents) and one year each of college-level physics and chemistry

*Typically offered in Fall only*

## **PHY 504 General Physiology II** (3 credit hours)

Physiology is the study of the how living systems function from the molecular to organismal level. As such, this course will build on your knowledge of anatomy, biochemistry, and cell biology and also presumes a working knowledge of the basics of college level physics and chemistry. Students will learn the fundamental mechanisms underlying normal function of cells, tissues, organs, and organ systems of the human body and be able to integrate knowledge and concepts from various organ systems to explain function in the human body. In this course, we will address cardiovascular, respiratory, and renal physiology in humans.

P: BCH451 and BCH553 (or equivalents) and one year each of college-level physics and chemistry

*Typically offered in Spring only*

## **PHY 505 Pathophysiology** (2 credit hours)

Pathophysiology is one of the bridge courses between basic medical science and clinical medicine: it plays an important role in basic medical courses, concerning the etiology and pathogenesis of disease as well as the mechanisms of functional and metabolic alterations in disease. Different from pathology, which emphasizes the morphological changes, pathophysiology focuses on the functional and metabolic alterations and mechanisms underlying the development of diseases. This discussion- and presentation-based course will focus on developing written and oral communication skills through the use of case studies.

R: Physiology Program Students Only

*Typically offered in Spring only*

## **PHY 524/PO 524 Comparative Endocrinology** (3 credit hours)

Basic concepts of endocrinology, including functions of major endocrine glands involved in processes of growth, metabolism and reproduction.

*Typically offered in Spring only*

## **PHY 552/ANS 452/ANS 552 Comparative Reproductive Physiology and Biotechnology** (3 credit hours)

Comparative approach to examining aspects of reproductive physiology in selected vertebrate species. Detailed examination of current reproductive biotechnologies and ethical issues associated with the application of reproductive biotechnologies. Credit will not be given for both ANS 452 and ANS (PHY) 552.

*Typically offered in Spring only*

*This course is offered alternate even years*

## **PHY 574 Musculoskeletal Physiology, Palpatory Anatomy and Dynamic Kinesiology** (3 credit hours)

This is a hybrid, interdisciplinary course designed for graduate students preparing for a career within the health professions. This course focuses on the concepts and principles of palpatory anatomy and kinesiology of the musculoskeletal system and associated structures through the development of skilled palpation as a fundamental component of effective manual therapy techniques with an emphasis on how muscles and joints interact based upon their structure and function. By definition, palpation requires physical contact (touching) in order to locate anatomical structures for diagnostic purposes. Therefore, due to the nature of the activities in this class, it is necessary to have some amount of physical contact occur between yourself, class participants, and instructor(s). Students should come to this class with an understanding of the close relationship between structure, function, and movement in the human body and with an appreciation for, and comfort level associated with, palpatory diagnostic techniques.

Restriction: Graduate Standing in Physiology

*Typically offered in Fall, Spring, and Summer*

## **PHY 578 Exercise Physiology and Sport Science** (3 credit hours)

This course will cover basic principles of human anatomy, physiology, and biomechanics and their relationship to exercise, sport science, health professions and athletic coaching.

Prerequisite: Admitted to the Master of Physiology Program

*Typically offered in Fall, Spring, and Summer*

## **PHY 595 Special Topics in Physiology** (1-6 credit hours)

The study of special problems and selected topics of current interest in physiology and related fields.

*Typically offered in Spring only*

## **PHY 601 Physiology Seminar** (1 credit hours)

Weekly seminars on topics of current interest given by resident faculty members, graduate students and visiting lecturers.

Prerequisite: Graduate standing

*Typically offered in Spring only*

## **PHY 610 Special Topics In Physiology** (1-6 credit hours)

The study of special problems and selected topics of current interest in physiology and related fields.

Prerequisite: Graduate standing

*Typically offered in Fall, Spring, and Summer*

## **PHY 620 Special Problems In Physiology** (1-6 credit hours)

Credits Arranged

Prerequisite: Graduate standing

*Typically offered in Fall, Spring, and Summer*

## **PHY 685 Master's Supervised Teaching** (1-3 credit hours)

Teaching experience under the mentorship of faculty who assist the student in planning for the teaching assignment, observe and provide feedback to the student during the teaching assignment, and evaluate the student upon completion of the assignment.

Prerequisite: Master's student

*Typically offered in Fall and Summer*

**PHY 690 Master's Examination** (1-9 credit hours)

For students in non thesis master's programs who have completed all other requirements of the degree except preparing for and taking the final master's exam.

Prerequisite: Master's student  
*Typically offered in Summer only*

**PHY 693 Master's Supervised Research** (1-9 credit hours)

Instruction in research and research under the mentorship of a member of the Graduate Faculty.

Prerequisite: Master's student  
*Typically offered in Fall, Spring, and Summer*

**PHY 695 Master's Thesis Research** (1-9 credit hours)

Thesis Research

Prerequisite: Master's student  
*Typically offered in Fall, Spring, and Summer*

**PHY 696 Summer Thesis Research** (1 credit hours)

For graduate students whose programs of work specify no formal course work during a summer session and who will be devoting full time to thesis research.

Prerequisite: Master's student  
*Typically offered in Summer only*

**PHY 699 Master's Thesis Preparation** (1-9 credit hours)

For students who have completed all credit hour requirements and full-time enrollment for the master's degree and are writing and defending their thesis.

Prerequisite: Master's student  
*Typically offered in Fall, Spring, and Summer*

**PHY 702/ANS 702 Reproductive Physiology of Mammals** (3 credit hours)

Survey of reproductive strategies among vertebrates; in-depth coverage of mammalian reproductive physiology; gametogenesis, fertilization, embryonic and fetal development, parturition, puberty, neuroendocrine control mechanisms in male and female mammals.

Prerequisite: ZO 421  
*Typically offered in Fall and Spring*

**PHY 764/CBS 764/NTR 764 Advances in Gastrointestinal Pathophysiology** (3 credit hours)

This course will focus on advanced gastrointestinal physiology and the pathophysiology of diseases of relevance to scientists involved in animal-related research. In particular, the course will cover the pathophysiology of ulceration, infectious diarrhea, ischemia, motility disorders, and inflammatory diseases of the gut. An in-depth review paper will be required based on recent literature regarding a specific gastrointestinal disease.

Prerequisite: PHY 503, PHY 504  
*Typically offered in Fall only*  
*This course is offered alternate odd years*

**PHY 795 Special Topics in Physiology** (1-9 credit hours)

The study of special problems and selected topics of current interest in physiology and related fields.

*Typically offered in Fall and Spring*

**PHY 801 Physiology Seminar** (1 credit hours)

Weekly seminars on topics of current interest given by resident faculty members, graduate students and visiting lecturers.

Prerequisite: Graduate standing  
*Typically offered in Spring only*

**PHY 810 Special Topics In Physiology** (1-4 credit hours)

The study of special problems and selected topics of current interest in physiology and related fields.

Prerequisite: Graduate standing  
*Typically offered in Fall and Spring*

**PHY 820 Special Problems In Physiology** (1-6 credit hours)

Credits Arranged

Prerequisite: Graduate standing  
*Typically offered in Fall and Spring*

**PHY 885 Doctoral Supervised Teaching** (1-3 credit hours)

Teaching experience under the mentorship of faculty who assist the student in planning for the teaching assignment, observe and provide feedback to the student during the teaching assignment, and evaluate the student upon completion of the assignment.

Prerequisite: Doctoral student  
*Typically offered in Summer only*

**PHY 890 Doctoral Preliminary Examination** (1-9 credit hours)

For students who are preparing for and taking written and/or oral preliminary exams.

Prerequisite: Doctoral student  
*Typically offered in Fall, Spring, and Summer*

**PHY 893 Doctoral Supervised Research** (1-9 credit hours)

Instruction in research and research under the mentorship of a member of the Graduate Faculty.

Prerequisite: Doctoral student  
*Typically offered in Fall and Summer*

**PHY 895 Doctoral Dissertation Research** (1-9 credit hours)

Dissertation Research

Prerequisite: Doctoral student  
*Typically offered in Fall and Summer*

**PHY 896 Summer Dissertation Research** (1 credit hours)

For graduate students whose programs of work specify no formal course work during a summer session and who will be devoting full time to thesis research.

Prerequisite: Doctoral student  
*Typically offered in Summer only*

**PHY 899 Doctoral Dissertation Preparation** (1-9 credit hours)

For students who have completed all credit hour requirements, full-time enrollment, preliminary examination, and residency requirements for the doctoral degree, and are writing and defending their dissertations.

Prerequisite: Doctoral student  
*Typically offered in Fall, Spring, and Summer*