Physiology and Biophysics (PHYB)

Courses

PHYB 502. Physiology of Reproduction. 2 hours.
The purpose of this course is to enable students to acquire a detailed
and up-to-date understanding of the Biology of Reproduction at both the
physiological and molecular levels.

PHYB 512. Gastrointestinal Physiology. 2 hours.
Advanced study of the physiology of the gastrointestinal tract. Special
emphasis will be placed on recent developments in cellular and molecular
aspects and on how they relate to established concepts in the literature.
Course Information: Prerequisite(s): PHYB 402 or consent of the
instructor.

PHYB 516. Physiology and Biochemistry of Muscle Contraction. 2
hours.
Structure and function of myosin, actin, tropomyosin, troponin, and the
sarcoplasmic reticulum; control, energetics, and mechanism of muscle
contraction; gene expression.

PHYB 518. Cardiovascular Pathophysiology. 3 hours.
Focuses on pathogenesis and fundamental mechanisms of impaired
cardiac performance due to systemic and cardiac disease. Function
and pathology of diseased heart in relation to normal healthy states and
therapeutic interventions. Course Information: Prerequisite(s): GCLS
500 and either GCLS 501 or GCLS 502 or GCLS 503; or consent of the
coordinator.

PHYB 523. Tissue Inflammation and Repair. 3 hours.
Mechanisms of tissue inflammation and repair in various tissues and
different pathological conditions. This course will focus on current
research related to factors influencing inflammation and tissue repair
including the effects of exercise. Course Information: Same as KN 523.
Prerequisite(s): Graduate standing; and consent of the instructor.

PHYB 530. Stem Cells. 2 hours.
Discussion of stem cell development into different cell types that
may offer a renewable source of replacement cells to treat diseases,
conditions, and disabilities. Cells from adult tissue, fetal tissue, and
embryonic sources are discussed. Course Information: Recommended
background: Knowledge of cell biology.

PHYB 540. Ion Channels: Structure, Function, Pharmacology and
Pathology. 2 hours.
The concept of ion channels is treated from the perspectives of their
molecular structures and functions. Modulation, pathological conditions
(channelopathies), and pharmacological intervention will also be treated.
Course Information: Same as PCOL 540. Recommended background:
One undergraduate course in biochemistry and one in physiology, or
consent of the instructor.

PHYB 551. Human Physiology I. 5 hours.
Lectures and conferences in human physiology. Emphasis is on cellular,
nervemuscle, cardiovascular, respiratory and renal physiology. Course
Information: Prerequisite(s): Mathematics, undergraduate physics, and
organic chemistry; or consent of instructor. Recommended background:
Course work in biological sciences. Class Schedule Information: To be
properly registered, students must enroll in one Conference and one
Lecture.

PHYB 552. Human Physiology II. 5 hours.
Lectures and conferences in human physiology. Continuation of PHYB
551 Human Physiology II. Emphasis is on central nervous, endocrine and
reproductive systems physiology. Course Information: Prerequisite(s):
PHYB 551. Recommended background: Course work in biological
sciences.

PHYB 569. Methods in Experimental Physiology. 3 hours.
Primarily for students in physiology. Registration limited to eight.
A laboratory course designed to acquaint students with advanced
techniques and methodology in physiologic investigations. Course
Information: Prerequisite(s): Enrollment in the M.S. or Ph.D. in Physiology
and Biophysics program, and credit or concurrent registration in PHYB
401 or the equivalent; or consent of the instructor.

PHYB 571. Clinical Applications of Physiology I. 2 hours.
Students in this course will apply principles of basic physiology to
select topics in state of the art science affecting both clinical issues and
research designed to address these issues. Course Information:

PHYB 572. Clinical Applications of Physiology II. 2 hours.
Students in this course will apply principles of basic physiology to
select topics in state of the art science affecting both clinical issues and
research designed to address these issues. Course Information:
Prerequisite(s): Mathematics, undergraduate physics, and organic
chemistry; or consent of instructor. Recommended background:
Extensive course work in undergraduate sciences, particularly biological
sciences. Corequisites: Requires concurrent registration in PHYB 552.

PHYB 585. Cell Biology. 4 hours.
Functional and structural organization of the cell with emphasis on the
cellular basis of physiological activity. Course Information: Same as
ANAT 585 and MIM 585.

PHYB 586. Cell Physiology. 3 hours.
Advanced functional and structural organization of the cell with emphasis
on the cellular basis of physiological activity. Course Information:
Prerequisite(s): PHYB 552 and GCLS 501 and GCLS 503; or consent of the
instructor.

PHYB 590. Seminar in Cardiovascular Science. 1 hour.
Weekly seminars on advanced cardiovascular science topics by staff and
invited speakers. Course Information: Satisfactory/Unsatisfactory grading
only. Prerequisite(s): Consent from the course coordinator. Enrollment
is open to students following completion of their first year of graduate
studies.

PHYB 591. Departmental Seminar. 1 hour.
Weekly seminar by staff and invited speakers. Course Information:
Satisfactory/Unsatisfactory grading only. May be repeated. Required of
all physiology and biophysics students each fall and spring semester
while enrolled in the graduate program. Prerequisite(s): Graduate or
professional standing.

PHYB 592. Experimental and Diagnostic Methods in Cardiovascular
Science. 3 hours.
Establishes the fundamental physical basis between diagnostic and
experimental procedures in the clinic and basic science laboratory,
combined with some direct observation of methods used for experimental
approaches. Course Information: Prerequisite(s): GCLS 500 and
either GCLS 501 or GCLS 502 or GCLS 503; or consent of the course
coordinator.
PHYB 594. Special Topics in Physiology and Biophysics. 1-4 hours.
Topics may include bioengineering, endocrinology, membrane biology, ion transport and its regulation, muscle physiology, neurophysiology, molecular neurobiology and others of current significance in physiology and biophysics. Course Information: May be repeated. Students may register in more than one section per term. Prerequisite(s): Consent of the instructor.

PHYB 595. Journal Club and Seminar in Physiology. 1 hour.
Student presentation and discussion of assigned topics of current importance in physiology and biophysics as well as related fields. Course Information: Satisfactory/Unsatisfactory grading only. Prerequisite(s): Consent of the instructor. Limited to degree candidates in physiology and biophysics.

PHYB 596. Independent Study. 1-4 hours.
Individual study guided by a faculty member. The format of the course, examination and grading to be established by the faculty member. Course Information: May be repeated. Students may register in more than one section per term. Prerequisite(s): Consent of the instructor.

PHYB 598. M.S. Thesis Research. 0-16 hours.
Thesis work under the supervision of a graduate adviser. Course Information: Satisfactory/Unsatisfactory grading only. Prerequisite(s): Graduate standing in physiology and biophysics.

PHYB 599. Ph.D. Thesis Research. 0-16 hours.
Thesis work under the supervision of a graduate adviser. Course Information: Satisfactory/Unsatisfactory grading only.