**PHYB 550. Human Physiology I. 5 hours.**
Lectures and conferences in human physiology. Emphasis is on cellular, nerve-muscle, 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.

**PHYB 551. 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 552. Methods in Experimental Physiology. 3 hours.**
Primarily for students in physiology. Registration limited to eight.

**PHYB 553. 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 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 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 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.