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 550. Introductory Medical Physiology. 2 hours.
Lectures and conferences in human physiology. Emphasis is on cellular, nerve-muscle, cardiovascular, respiratory and renal physiology. Course Information: Prerequisite(s): PHYB 401 or the equivalent; or consent of the instructor. Recommended background: Course work in biological sciences.

PHYB 551. Human Physiology I. 5 hours.
Lectures and conferences in human physiology. Continuation of PHYB 550 Human Physiology II. Emphasis is on central nervous, endocrine and reproductive systems physiology. Course Information: Prerequisite(s): PHYB 550. Recommended background: Course work in biological sciences.

PHYB 552. Human Physiology II. 5 hours.
Lectures and conferences in human physiology. Emphasis is on central nervous, endocrine and reproductive systems physiology. Course Information: Prerequisite(s): PHYB 551 Human Physiology II. Emphasis is on cellular, nerve-muscle, cardiovascular, respiratory and renal physiology. Course Information: Prerequisite(s): PHYB 401 or the equivalent; or consent of the instructor. Recommended background: Course work in biological sciences.

PHYB 553. Tissue Physiology. 4 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 554. Histology. 2 hours.
The course will focus on current research related to factors influencing inflammation and tissue repair including the effects of exercise. Course Information: Same as AN 523. Prerequisite(s): Graduate standing; and consent of the instructor.

PHYB 555. 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 course coordinator.

PHYB 556. 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 557. 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 558. 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:

PHYB 559. 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 560. 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 561. 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 562. 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 563. 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 564. 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 course coordinator.

PHYB 565. Histology. 2 hours.
The course will focus on current research related to factors influencing inflammation and tissue repair including the effects of exercise. Course Information: Same as AN 523. Prerequisite(s): Graduate standing; and consent of the instructor.

PHYB 566. 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 567. 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 course coordinator.

PHYB 568. 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 AN 523. Prerequisite(s): Graduate standing; and consent of the instructor.

PHYB 569. Histology. 2 hours.
The course will focus on current research related to factors influencing inflammation and tissue repair including the effects of exercise. Course Information: Same as AN 523. Prerequisite(s): Graduate standing; and consent of the instructor.

PHYB 570. Histology. 2 hours.
The course will focus on current research related to factors influencing inflammation and tissue repair including the effects of exercise. Course Information: Same as AN 523. Prerequisite(s): Graduate standing; and 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:

PHYB 573. 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 AN 523. Prerequisite(s): Graduate standing; and consent of the instructor.

PHYB 574. Histology. 2 hours.
The course will focus on current research related to factors influencing inflammation and tissue repair including the effects of exercise. Course Information: Same as AN 523. Prerequisite(s): Graduate standing; and consent of the instructor.

PHYB 575. 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 course coordinator.

PHYB 576. 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 577. 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 course coordinator.

PHYB 578. 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 AN 523. Prerequisite(s): Graduate standing; and consent of the instructor.

PHYB 579. Histology. 2 hours.
The course will focus on current research related to factors influencing inflammation and tissue repair including the effects of exercise. Course Information: Same as AN 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.