999. Research
Fall, Winter, Spring. Variable credit.
M.S. degree in biological science or equivalent.
Research in an area of biological science, data to form the basis for the thesis required for the doctoral degree in biological science.

BIOMECHANICS* BIM
College of Osteopathic Medicine

580. Introduction to Athletic Medicine
Fall, Winter, Spring; 3(3-0) Approval of department.
Health care of student athletes. Examination and evaluation of physical training sequences for high school athletes. Analysis of functional role of musculoskeletal systems; illustrated in various high school sports.

581. Health Care Delivery For Athletes
Fall, Spring, 3(3-9) Bachelor's degree and involvement in secondary school athletics. Physical training—the role of the athletic trainer in health care delivery. Emphasizes all interscholaric sports. Injury prevention and treatment rehabilitation stressed.

620. Directed Studies
Fall, Winter, Spring, Summer. 1 to 6 credits. May re-enroll for a maximum of 24 credits. Approval of department. Individual or group work on special problems related to biomechanics, neuromusculoskeletal system primarily.

865. Advanced Neurobiology
Winter of odd-numbered years, 3(3-0) BPY 825. Interdepartmental with the Departments of Biophysics, Physiology, Psychology and Zoology. Emphasizes organization, structure and function of neural networks comprising sensory, motor, and autonomic systems including examples from invertebrates and vertebrates.

BIOPHYSICS BPY
College of Human Medicine

402. Introduction to Biophysics
Spring, 5(5-0) PHY 590, MTH 113, 1 year organic chemistry and 1 year biology. Salient features of biophysics, methods and principles. Structure and organization of biological materials, bioenergetics, radiation biophysics, biologic phenomena, biomechanics and psychophysics.

480. Special Topics in Biophysics
Fall, Winter, Spring, Summer. 2 to 4 credits. Approval of department, 402 recommended. Special topics within five areas of biophysics: structure—function correlation, neurophysiology, membrane biophysics, molecular biophysics, or theoretical biophysics.

499. Independent Study
Fall, Winter, Spring, Summer. 1 to 5 credits. May re-enroll for a maximum of 15 credits. Approval of department. Undergraduate research under one of our faculty.

521. Molecular Biophysics
Fall of odd-numbered years, 3(3-4) Approval of department. Theoretical/experimental methods for determination of electronic structure, excited states and spectroscopy of biological systems. Biological energy transfer. Quantum processes in photosynthesis. Exciton effects in photoconductors and pigments. Conformational changes.

582. Charge Transport and Solid State Processes
Winter of even-numbered years, 4(3-2) Approval of department. Fundamental electrical properties, dielectric properties and photoconductivity effects and their relevance to the biological functioning of these molecules.

583. Radiation Biophysics
Spring of even-numbered years, 3(3-2) Approval of department. Effects of various types of ionizing radiation and ultraviolet and visible light on proteins, nucleic acids, viruses and plant and animal cells. Damage and repair mechanisms at the molecular level.

584. Membrane Biophysics
Fall of even-numbered years, 4(3-2) Approval of department. Membrane Biophysics will cover interfacial phenomena in biology and chemistry; structure and function, theoretical and experimental models for biological membranes; membrane biophysics. Labs will emphasize biomolecular lipid membrane (BLM) techniques.

825. Basic Neurobiology
Winter of odd-numbered years, 4(3-2) Approval of department. A comparative survey of fundamental principles of nervous organization will be undertaken in lectures. Laboratory will emphasize examination of prepared neuroanatomical material and a demonstration of important neurophysiological phenomena.

826. Cellular Biophysics
Spring, 4(3-2) Approval of department. Basic cell structure and function at the molecular level. Emphasis will be on genetic and molecular controls of cellular systems.

834. Membranes: Natural and Artificial
Winter of odd-numbered years, 3(3-0) Approval of department. Emphasis is placed on the biophysical and biochemical characterization of biological membranes and their theoretical and experimental models. Presentation and discussion by students and staff of recent advances in membrane research.

895. Interdepartmental with the Departments of Biomechanics, Physiology, Psychology and Zoology and administered by the Department of Biomechanics. Basic organization, structure and function of neural networks comprising sensory, motor, and autonomic systems including examples from invertebrates and vertebrates.

890. Special Topics in Biophysics
Fall, Winter, Spring, Summer. Variable credit. May re-enroll for a maximum of 15 credits. Special topics within the five subdivisions of biophysics: structure, organization and function of biological phenomena, sensory perception, and psychophysics and bioscience.

895. Interdepartmental with the Departments and Systems I
Fall of odd-numbered years, 5(3-4) Approval of departments; ANT 815 and BPY 825 recommended. Interdepartmental with the Zoology, Physiology and Psychology Departments and administered by the Psychology Department. Structure and function of major component systems of vertebrate brains, their evolution, ontogeny and comparative analysis in mammals, birds, reptiles, amphibians and fish. Interrelation of behavioral, anatomical and physiological studies.

896. Vertebrate Neural Systems II
Winter of even-numbered years, 5(3-4) PSY 885. Interdepartmental with the Psychology, Physiology and Zoology Departments and administered by the Zoology Department. Continuation of 885. Major component systems of vertebrate brains, their evolution, ontogeny, and comparative analysis in mammals, birds, reptiles, amphibians and fish. Interrelation of behavioral, anatomical, and physiological studies.

900. Readings in Biophysics
Fall, Winter, Spring. 3 to 6 credits. Approval of department. Reading course in special topics adapted to the individual preparation and needs of the student.

999. Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.