**Descriptions — Biochemistry**

**Courses**

**952. Plant Physiology and Biochemistry I**  
Winter of odd-numbered years. 3(3-0)  
Approval of department. Interdepartmental with the Botany and Plant Pathology Department.  
Selected topics concerning photosynthesis and related processes.

**955. Plant Physiology and Biochemistry II**  
Winter of even-numbered years. 3(3-0)  
Approval of department. Interdepartmental with the Botany and Plant Pathology Department.  
Metabolic pathways of unique significance to plants.

**960. Selected Topics in Biochemistry**  
Fall, Winter, Spring. 1(1-0) or 2(3-0) May re-enroll for a maximum of 6 credits if a different topic is taken. Approval of department.  
Topics will be selected from the areas of biochemical genetics, biochemistry of development, biochemical evolution, complex proteins, lipid metabolism, immunology, hormonel control mechanisms and structure of biological macromolecules.

**961. Selected Topics in Biochemistry**  
Fall, Winter, Spring. 1(1-0) or 2(3-0) May re-enroll for a maximum of 6 credits if a different topic is taken. Approval of department.  
Topics will be selected from the areas of bioenergetics, bioinstrumentation, complex carbohydrates, mechanisms of enzyme action, natural products, carbohydrate metabolism, mass spectrometry and biochemistry of isoprenoid compounds.

**978. Seminar in Biochemistry**  
Fall, Winter, Spring. 0 or 1(1-0)  
Presentation and discussion of reports by graduate students on biochemical topics of current interest.

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

**BIOMEDICAL SCIENCE**

**College of Natural Science**

**200. Studies in Contemporary Biological Science**  
Spring. 4(2-3) 12 credits in a Department of Natural Science sequence.  
Biological topics impacting contemporary American and world society are studied in the context of major biological themes and individual laboratory investigation of a self-chosen topic.

**202. Biological Science for Elementary Teachers**  
Fall, Winter. 4(3-3)  
Fundamental principles of biology which provide background appropriate for preparation for elementary education teaching.

**210. General Biology**  
Fall, Spring. 4(4-2) Not open to students with credit in LBC 242.  
Concepts relating to basic attributes and diversity of living things.

**211. General Biology**  
Fall, Winter. 4(4-2) GEM 150 or high school chemistry. Not open to students with credit in LBC 141.  
The structure and behavior of cells and their subunits, interactions of tissues, genetics and development, history and relations of organisms.

**212. General Biology**  
Winter, Spring. 4(4-2) Not open to students with credit in LBC 140.  
The structure and behavior of cells and their subunits. Genetics, development, history and relations of organisms.  
Continuation of 211.

**400. Biological Science for Teachers**  
Fall, Winter, Spring. 3 to 4 credits. May re-enroll for a maximum of 12 credits. Teacher certification with science major or minor.  
A course for in-service teachers. Topics will be selected from actual classroom problems of the participants. Stress will be placed on field, laboratory and inquiry teaching.

**408. Freshwater Ecology**  
(413.) Summer. 6 credits. 212 or approval of department. Given at W. K. Kellogg Biological Station. Interdepartmental with the departments of Zoology and Botany and Plant Pathology.

The ecology of freshwater ecosystems, their biotic and abiotic components and functional interactions between environmental variables regulating population dynamics, productivity and community structure. Extensive field investigations.

**410. Terrestrial Ecology**  
Summer. 6 credits. 212 or approval of department. Given at W. K. Kellogg Biological Station. Interdepartmental with the departments of Botany and Plant Pathology and Zoology.

Further determination of distribution and abundance. Interrelationship of plants, animals, and environment. Extensive field investigations of several types of terrestrial communities in light of current trends.

**420. Seminar in Recent Advances in Biological Science**  
Fall, Winter, Spring. Summer. 3(3-0)  
May re-enroll for a maximum of 6 credits if different topic is taken. Approval of department.  
A series of lectures by senior faculty of topics on the history, development, the most recent advances and the possible future and limits of the Biological Sciences.

**430. Introduction to Environmental Science**  
Fall, Winter. 3(3-0)  
Environmental approaches appropriate for teaching kindergarten – 12. Course will not emphasize teaching specific technical skills but will cover many areas of environmental science. Awareness, understanding and implementation will be stressed with classroom applications.

**431. Environmental Science for Teachers I**  
Winter, Spring. 4(3-3)  
Techniques of using equipment to collect data about the environment such as air, water and soil samples. Also the scientific methods used by professional environmental scientists.

**500. Problems in Biological Science**  
Fall, Winter, Spring. Variable credit. B.S. degree in biological science.

**599. Research**  
Fall, Winter, Spring. Variable credit. M.S. degree in biological science or equivalent. Research in some phase of biological science. Data to form the basis for the thesis required for the doctoral degree in biological science.

**BIOMECHANICS**

**College of Osteopathic Medicine**

**580. Introduction to Athletic Medicine**  
Fall, Winter. 3(3-0) Approval of department.  
Health care of student athlete. Examination and evaluation of physical training sequences for high school athletes. Analysis of physiological and psychological factors involved in the neuromusculoskeletal system and in various high school sports.

**581. Athletic Medical Systems**  
Fall, Spring. 3(3-0) Bachelor’s degree and involvement with secondary school athletics.  
Health care systems for athletes in growth years. Physiological and psychological concepts applied to human development, training and care. Injury prevention, emergency medicine and 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.

**885. Advanced Neurobiology**  
Winter of odd-numbered years. 3(3-0)  
Pre-Requisite: 895, 896. Interdepartmental with the department of Neurobiology.  
Basic organization, structure and function of the nervous system comprising sensory, motor, and autonomic systems including examples from invertebrates and vertebrates.

*Established July 1, 1972.*