

BIOLOGICAL SCIENCE B S

College of Natural Science

The content of courses 400, 405, 420, 440, 450 and 451, as well as the research and problems courses 499, 800 and 999, may vary from term to term. Brochures giving detailed information about individual courses are available in the Science and Mathematics Teaching Center and the Office of the Assistant Dean for Lifelong Education. These courses are primarily designed for in-service teachers and interested adults and are offered in off-campus locations.

200. Studies in Contemporary Biological Science

Spring, 3(3-0) 12 credits in a Department of Natural Science sequence.

Biological topics relating directly to contemporary problems of world society are presented after an introduction to the uses and limitations of science and to the world of biology.

200L. Contemporary Biology Laboratory

Spring, 1(0-3) 200 or concurrently.

Students practice processes and procedures of science in the laboratory, design and carry out a self-selected laboratory investigation of a biological topic, report and evaluate reports of scientific work.

202. Biological Science for Elementary Teachers

Fall, Winter, Spring, 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 141.

Concepts relating to basic attributes and diversity of living things.

***211. General Biology**

Fall, Winter, 4(4-2) CEM 130 or high school chemistry. Not open to students with credit in LBC 242.

The structure and behavior of cells and their subunits, interactions of tissues, genetics, and the development, history and relations of organisms.

***212. General Biology**

Winter, Spring, 4(4-2) Not open to students with credit in LBC 140. Continuation of 211.

400. Biological Science for Teachers

Fall, Winter, Spring, Summer, 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.

405. Topics in Biological Science

Fall, Winter, Spring, Summer, 1 to 3 credits. May re-enroll for a maximum of 6 credits if different topic is taken. Approval of department.

Presentation of single topics from the biological sciences by senior faculty and guest lecturers. Topics are selected to facilitate development of strong biological science programs in schools.

*For prerequisite purposes, the introductory biology sequence in Lyman Briggs College, LBC, 140, 141, 242, may be used instead of this sequence.

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 structure, and the functional interrelationships of 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.

Factors determining distribution and abundance. Interrelationship of plants, animals, and environment. Extensive field investigations of several types of terrestrial communities in light of current theory.

420. Seminar in Recent Advances in Biological Science

Fall, Winter, Spring, Summer, 1 to 3 credits. 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 sciences. Awareness, understanding and implementation will be stressed with classroom applications. Approved through Winter term 1978.

431. Environmental Science for Teachers I

Winter, Spring, 4(3-3) 430.

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. Approved through Spring term 1978.

432. Environmental Science for Teachers II

Fall, Spring, 4(3-3) 431.

Continuation of 431. Implementation of the techniques learned in 431 into the school program. Approved through Fall term 1978.

440. Man and Environment Workshop for Teachers

Summer, 3 Credits. Approval of department. Given at W. K. Kellogg Biological Station.

Discussions and practical work sessions concerning the development of ideas and activities for environmental studies in and outside the classroom. Designed for intermediate and secondary inservice teachers.

450. Outdoor Environmental Studies

Summer, 3 credits. May re-enroll for a maximum of 9 credits when new topics are given. Teaching experience or approval of department. 451 must be taken same summer. Given at W. K. Kellogg Biological Station.

Emphasis on environmental understanding. Planning and developing interdisciplinary program for elementary and intermediate children.

*For prerequisite purposes, the introductory biology sequence in Lyman Briggs College, LBC, 140, 141, 242, may be used instead of this sequence.

451. Outdoor Environmental Studies: Laboratory

Summer, 5 credits. May re-enroll for a maximum of 15 credits when new topics are given. Teaching experience, 450. Given at W. K. Kellogg Biological Station.

Perfecting lesson plans and materials developed in 450, while interacting with elementary and intermediate children in four week outdoor activity oriented programs. Emphasis on environmental understanding.

499. Research

Fall, Winter, Spring, 2 to 4 credits. May re-enroll for a maximum of 12 credits. Approval of director of biological science program and student's adviser.

Undergraduates are invited on an individual basis into research laboratories of faculty in biological departments of the college. After three terms of research, a presentation in thesis form is produced and defended.

800. Problems in Biological Science

Fall, Winter, Spring. Variable credit. B.S. degree in biological science.

999. 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 BIM

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. Analyze functional role of musculoskeletal systems; illustrated in various high school sports.

590. Special Problems in Biomechanics

Fall, Winter, Spring, Summer, 1 to 8 credits. May re-enroll for a maximum of 32 credits. Approval of department.

Each student will work under direction of a faculty member on an experimental, theoretical or applied problem.

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

Spring, 3(3-0) BPY 825. Interdepartmental with the departments of Biophysics, Physiology, Psychology and Zoology.

Basic organization, structure and function of neural networks comprising sensory, motor, and autonomic systems including examples from invertebrates and vertebrates.

880. Athletic Medical Systems

(581.) 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 preventions, emergency medicine and rehabilitation stressed.