BIOLOGICAL SCIENCE  B S

College of Natural Science

The content of courses 400, 405, 420, 440, 450 and 460 as the research and problems courses 499, 500 and 599, 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 interested adults and are offered in off-campus locations.

200. Studies in Contemporary Biological Science
Spring. 3(0-3) 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-directed investigation of an aspect 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(3-3) 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 function 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 program in schools.

408. Freshwater Ecology
Fall, Winter, Spring, Summer. 6 credits. May re-enroll for a maximum of 12 credits if different topic is taken. Approval of department. G.C.E. 420 given at W. K. Kellogg Biological Station.
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
Fall, Winter, Spring, Summer. 6 credits. May re-enroll for a maximum of 12 credits if different topic is taken. Approval of department. G.C.E. 420 given at W. K. Kellogg Biological Station.
Factors determining distribution and abundance. Interrelationships 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, Spring. 3(0-3)
Environmental approaches appropriate for teaching kindergarten - 12. Concepts will 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 1975.

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. G.C.E. 420 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 6 credits if new topics are taken. Teaching experience or approval of department. G.C.E. 420 must be taken some summer. G.C.E. 420 given at W. K. Kellogg Biological Station. Emphasis on environmental understanding. Planning and developing interdisciplinary programs for elementary and intermediate children.

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

BIOMECHANICS  BIM

College of Osteopathic Medicine

550. Introduction to Athletic Medicine
Fall, Winter, Spring. 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, musculoskeletal system primarily.

885. Advanced Neurobiology
Spring. 3(3-0) BPS 625. Interdepartmental with the Departments of Biophysics, Physiology, Psychology and Zoology. Basic organization, structure and function of the nervous system comprising nervous, motor, and autonomic systems including examples from vertebrates and invertebrates.

880. Athletic Medical Systems
(S31.) 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.

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