940. Seminar in Audiology and Speech Sciences
Spring, Summer. 4(2-0) May re-enroll for maximum of 16 credits.

990. Special Problems in Audiology and Speech Sciences
Fall, Winter, Spring, Summer. 1 to 6 credits.
Special projects in audiology and speech sciences.

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

BIOCHEMISTRY BCH

College of Agriculture and Natural Resources
College of Human Medicine
College of Natural Science
College of Osteopathic Medicine

200. Introduction to Biochemistry
Winter, Summer. 5(5-0) Credit may not be earned in both 200 and 401. General chemistry; one term organic chemistry. Not acceptable for a B.S. degree in biochemistry.
Survey of biochemistry emphasizing the major metabolic activities of living organisms.

363. Clinical Biochemistry
Spring. 3(2-3) 401; CEM 162. Medical Technology majors. Not acceptable for a B.S. degree in biochemistry. Others: approval of department.
Quantitative clinical laboratory methods.

400H. Honors Work
Fall, Winter, Spring. Variable credit. Approval of department.
Assigned reading and experimentation.

401. Basic Biochemistry
Fall, Spring. 5(5-0) Credit may not be earned in both 200 and 401. One year organic chemistry or CEM 242; not open to biochemistry majors.
A one-term presentation of biochemistry emphasizing structure and function of major biomolecules, metabolism and regulation. Examples used for illustrative purposes will emphasize the mammalian organism.

404. General Biochemistry Laboratory
Winter, Spring. 3(1-6) Analytical chemistry; 401 or 451.
Experimental aspects of biochemistry.

451. Biochemistry
Fall. 4(4-0) Credit may not be earned in both 401 and 451. One year organic chemistry or CEM 242.
A comprehensive presentation of biochemistry designed for undergraduate biochemistry majors, students of medicine, and other students desiring an intensive treatment of the subject.

452. Biochemistry
Winter. 4(4-0) 451.
Continuation of 451.

IDC. Biological Membranes
For course description, see Interdisciplinary Courses.

499. Research
Fall, Winter, Spring, Summer. 1 to 4 credits. May re-enroll for a maximum of 12 credits. Approval of department.
A course designed to give qualified undergraduate students an opportunity to gain experience in biochemical research.

501. Medical Biochemistry
Winter, Summer. 3(3-0) or 5(5-0) May enroll for a maximum of 5 credits in 501 and 502 combined. Winter: College of Human Medicine students; Summer: College of Osteopathic Medicine students.
Basic biochemical principles and terminology of importance in medical biology.

502. Medical Biochemistry
Fall. 2(2-0) Three credits in 501. Not open to students with five credits in 501.
A continuation of 501.

801. Biochemical Research Methods
Fall. 1(0-3) One year of organic chemistry or CEM 242; BCH 451 or 811, or concurrently.
Discussions and demonstrations of selected experimental techniques of wide application in biochemistry.

804. Advanced Biochemistry Laboratory
Fall. 3(0-8) Analytical chemistry; 801 and 811, or concurrently; biochemistry majors or approval of department.
Experiments to be selected from a representative group illustrating modern biochemical research.

805. Advanced Biochemistry Laboratory
Winter. 3(0-8) 804; 812 or concurrently; biochemistry majors or approval of department.
Experiments to be selected from a representative group illustrating modern biochemical research.

806. Advanced Biochemistry Laboratory
Spring. 3(0-8) 805; 813 or concurrently; biochemistry majors or approval of department.
Special experiments in advanced laboratory techniques.

811. Advanced Biochemistry
Fall. 4(4-0) One year of organic chemistry, one year of physical chemistry, one term of introductory biochemistry, 801 taken previously or concurrently, or approval of department. Limited to graduate students in biochemistry or other students needing a similar professional preparation.
The structure and function of biomolecules, energy transformations and chemical reactions in living cells, regulation of cell reactions, and the replication of living organisms.

812. Advanced Biochemistry
Winter. 4(4-0) 811
Continuation of 811.

813. Advanced Biochemistry
Spring. 4(4-0) 812.
Continuation of 812.

855. Special Problems
Fall, Winter, Spring, Summer. Variable credit. May re-enroll for a maximum of 12 credits. Approval of department.
Consideration of current problems.

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

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

960. Selected Topics in Biochemistry
Fall, Winter, Spring, Summer. 1(1-0) or 2(2-0) 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, immunochemistry, hormones, control mechanisms and structure of biological macromolecules.

961. Selected Topics in Biochemistry
Fall, Winter, Spring, Summer. 1(1-0) or 2(2-0) 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.