

**Descriptions — Audiology and Speech Sciences  
of  
Courses**

**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) 812.  
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.