BIOCHEMISTRY (BCM)

BCM 430 Journal Club in Molecular Pharmacology & Structural Biology (1 Credit)
Arts & Sciences
Double-numbered with BCM 630
Critical evaluation of recent journal articles that focus on molecular pharmacology and/or structural biology. Students make at least one presentation per semester and participate in weekly discussion. Additional work required of graduate students.
Repeatable 2 times for 2 credits maximum

BCM 460 Research in Biochemistry (1-3 Credits)
Arts & Sciences
Research carried out under the supervision of a faculty member.
Repeatable 4 times for 12 credits maximum

BCM 475 Biochemistry I (3 Credits)
Arts & Sciences
Structure, function, isolation, and characterization of nucleic acids and proteins. Enzyme kinetics, mechanisms, and regulation. DNA replication, transcription, and translation. Metabolic pathways of glycolysis and respiration, and application of thermodynamic principles to them.
Prereq: CHE 325
Shared Competencies: Scientific Inquiry and Research Skills (https://coursecatalog.syracuse.edu/shared-competencies/scientific-inquiry-and-research-skills/)

BCM 476 Biochemistry II (3 Credits)
Arts & Sciences
Continuation of Biochemistry I. Regulation of gene expression. Protein synthesis and degradation. Structures and metabolism of lipids. Biochemistry of selected systems chosen from: photosynthesis; motor proteins; sensory and immune systems; transmembrane transport; human energy metabolism.
Prereq: BCM 475

BCM 477 Proteins and Nucleic Acids Lab (3 Credits)
Arts & Sciences
Cross-listed with CHE 477
Double-numbered with CHE 677, BCM 677
Experimental methods for biologically synthesizing and chemically purifying macromolecules in order to analyze their structure and function, including: polymerase chain reaction; site-directed mutagenesis; Protein expression and purification; nucleic acid and protein electrophoresis. Additional work required of graduate students.
Prereq: BIO 224 AND (BIO 326 OR BCM 475 OR CHE 474)

BCM 478 Biochemistry Laboratory (3 Credits)
Arts & Sciences
Cross-listed with BIO 478
Experiments on amino acids, proteins, enzymes, fatty acids and nucleic acids, illustrating modern biochemical techniques applied to the chemistry of living cells. Titrations; electrophoresis; gel filtration; kinetics; spectrophotometric assays; cellular fractionation and analysis.
Prereq: BIO 326 and BIO 327 Coreq: BCM 475

BCM 480 International Course (1-12 Credits)
Arts & Sciences
Offered through SUAbroad by educational institution outside the United States. Student registers for the course at the foreign institution and is graded according to that institution's practice. SUAbroad works with the SU academic department to assign the appropriate course level, title, and grade for the student's transcript.
Repeatable

BCM 484 Biomolecular Modeling (3 Credits)
Arts & Sciences
Double-numbered with BCM 684
Experience in biomolecular modeling of proteins, nucleic acids, and drug candidates as practiced in biochemical research and technology. Connections with structural and physical principles will be emphasized. Additional work required of graduate students.
Prereq: CHE 474

BCM 490 Independent Study (1-6 Credits)
Arts & Sciences
Exploration of a problem, or problems, in depth. Individual independent study upon a plan submitted by the student. Admission by consent of supervising instructor(s) and the department.
Repeatable

BCM 495 Distinction Thesis in Biochemistry (1 Credit)
Arts & Sciences
Students preparing a thesis in partial fulfillment of the requirements for the Distinction in Biochemistry Program must enroll in this course in the semester prior to graduation.

BCM 499 Honors Capstone Project (1-3 Credits)
Arts & Sciences
Completion of an Honors Capstone Project under the supervision of a faculty member.
Repeatable 3 times for 3 credits maximum