

BIOCHEMISTRY

BCH 252 Biochemistry I: Biochemical Structure and Function (3 Credits)

Structure and function of biological macromolecules: proteins and nucleic acids. Mechanisms of conformational change and cooperative activity; and bioenergetics, enzymes and regulation. Prerequisites: BIO 202 and CHM 223. Corequisite: BCH 253 is required for biochemistry majors. {N}

Spring

BCH 253 Biochemistry I Laboratory (2 Credits)

Techniques of modern biochemistry: ultraviolet and visible spectrophotometry, spectrofluorimetry, SDS polyacrylamide gel electrophoresis, western blot and mass spectroscopy. Prerequisite: BIO 203. Corequisite: BCH 252. Enrollment limited to 12. {N}

Spring

BCH 335 Physical Chemistry of Biochemical Systems (3 Credits)

The course focuses on the tools and methods used to study the physical chemistry of biological systems. Discussions include thermodynamics and equilibria, solution properties, enzyme kinetics and membrane transport processes. Prerequisite: BCH 252 and (CHM 118 or CHM 224). Corequisite: BCH 336 is required for biochemistry majors. {N}

Spring

BCH 336 Physical Chemistry of Biological Systems Laboratory (2 Credits)

This course emphasizes the tools and methods used to study the physical chemistry of biological systems. The laboratory focuses on the applications of experimental techniques in elucidating the principles of biochemical systems. Prerequisite: BCH 252 and (CHM 118 or CHM 224). Corequisite: BCH 335. {N}

Spring

BCH 352 Biochemistry II: Biochemical Dynamics (3 Credits)

Chemical dynamics in living systems. Enzyme mechanisms, metabolism and its regulation, energy production and utilization. Prerequisites: BCH 252 and CHM 224. Corequisite: BCH 353 is required for biochemistry majors. {N}

Fall

BCH 353 Biochemistry II Laboratory (2 Credits)

Investigations of biochemical systems using experimental techniques in current biochemical research. Emphasis is on independent experimental design and execution. Corequisite: BCH 352. Enrollment limited to 12. {N}

Fall

BCH 380cc Seminar: Topics in Biochemistry-Cancer Cells Out of Control (3 Credits)

Known since the ancient Egyptians, cancers may be considered a set of normal cellular processes gone awry in various cell types. This seminar considers chemical and radiation carcinogenesis, oncogenesis, growth factor signaling pathways and the role of hormones in cancers, as well as the pathologies of the diseases. Prerequisites: BIO 202 and BIO 203. Enrollment limited to 12. Juniors and seniors only. Instructor permission required. {N}

Fall, Spring, Variable

BCH 390mm Topics in Biochemical Research Using Advanced Techniques: Molecular Microbiology (4 Credits)

Even with the wealth of microbial genomic data, microbiologists are faced with deciphering the ever-increasing complexity of macromolecules, their regulation and how this impacts bacterial pathogenesis. This hands-on research course will utilize state-of-the-art molecular biology and microbiology techniques in student/faculty-designed projects. This fully integrated lab/lecture course utilizes lectures for experimental design, discussion of relevant literature, protocol development, data analysis and other related topics to support the experimental work in the laboratory section. Prerequisites: BIO 230/ BIO 231 or equivalent. Enrollment limited to 12. Instructor permission required. {N}

Fall, Variable

BCH 400 Special Studies (1-4 Credits)

Must be taken S/U.

Fall, Spring

BCH 430D Honors Project (4 Credits)

Fall, Spring, Annually

BCH 432D Honors Project (6 Credits)

Fall, Spring, Annually