

Biochemistry (BCH)

BCH 206K Undergraduate Research 2 Hours

Introduction to research practices; supervised individual undergraduate research in biochemistry.

BCH 215L Introduction to Biotechnology Laboratory Skills 2 Hours

Explore skills, concepts, and careers in biotechnology, biochemistry and the molecular biosciences.

BCH 115T, 215T, 315T, 415T, 515T, 615T, 715T, 815T, 915T Special Topics in Biotechnology 1-9 Hours

Explore recent development and research methods in biotechnology and biomanufacturing.

BCH 219L Introduction to Biochemical Laboratory Practices and Skills 2 Hours

Explore basic skills used by biochemists and an introduction to future career options. Examine basic biochemical concepts and laboratory, computational, and professional skills.

BCH 119S, 219S, 319S, 419S, 519S, 619S, 719S, 819S, 919S Topics in Biochemistry 1-9 Hours

This course is used to record credit the student earns while enrolled at another institution in a program administered by the University's Study Abroad Office. Credit is recorded as assigned by the study abroad adviser in the Department of Chemistry and Biochemistry. University credit is awarded for work in an exchange program; it may be counted as coursework taken in residence. Transfer credit is awarded for work in an affiliated studies program.

BCH 129S, 229S, 329S, 429S, 529S, 629S, 729S, 829S, 929S Topics in Biochemistry 1-9 Hours

This course is used to record credit the student earns while enrolled at another institution in a program administered by the University's Study Abroad Office. Credit is recorded as assigned by the study abroad adviser in the Department of Chemistry and Biochemistry. University credit is awarded for work in an exchange program; it may be counted as coursework taken in residence. Transfer credit is awarded for work in an affiliated studies program.

BCH 330M Medical Biochemistry 3 Hours

Apply the principles of biochemistry to medicine and physiology to gain an understanding of organ function and regulating metabolite homeostasis.

BCH 339F Foundations of Biochemistry 3 Hours

Metabolism of carbohydrates, lipids, amino acids, and nucleotides; structure and function of proteins.

BCH 339J Chemical and Synthetic Biology 3 Hours

Topics include enzymatic reaction mechanisms and how they can be manipulated using tools from both chemistry and molecular biology. Designed for students pursuing pharmaceutical and biotechnology careers.

BCH 339M Structure and Function of Molecular Machines 3 Hours

Function of proteins and protein complexes as machines in the cell, including the interaction of proteins with nucleic acids, synthesis of proteins, and degradation of proteins.

BCH 339N Systems Biology and Bioinformatics 3 Hours

Understanding how the cell works as a system with emphasis on the methods used to gather and analyze data and develop/test models of systems level data.

BCH 339P Biochemistry in Physiology and Medicine 3 Hours

Explore the fundamentals of physiology and medicine to understand how the body functions and maintains homeostasis through the principles of biochemistry.

BCH 147, 247, 347, 447 Topics in Biochemistry 1-4 Hours

Explore recent developments and research methods in biochemistry.

BCH 364C Bioinformatics 3 Hours

Examine typical data, data analysis, and algorithms encountered in computational biology. Includes introductory probability and statistics, basics of programming, protein and nucleic acid sequence analysis, genome sequencing and assembly, synthetic biology, analysis of large-scale gene expression data, data clustering, biological pattern recognition, and biological networks.

BCH 364D Macromolecular Structure Determination 3 Hours

Theory of physical methods used in biochemistry and molecular biology, with a strong emphasis on macromolecular structure determination by X-ray crystallography and cryo-electron microscopy. Includes surface plasmon resonance, isothermal titration calorimetry, and biolayer interferometry.

BCH 364E Systems Biology 3 Hours

Survey of current high-throughput technologies and computational methods for generating data and integrating information at all levels of biological organization. Emphasis on how hypotheses can be generated and tested with these techniques to better understand how model organisms function and evolve.

BCH 364F Astrobiology 3 Hours

An overview of the science used in the search for extraterrestrial life, life origins, earth history, evolution, metabolism of extremophiles, biochemistry, and astronomy.

BCH 365D Structure and Function of Proteins and Nucleic Acids 3 Hours

Exploration of the structures and functions of proteins and nucleic acids, utilizing quantitative methods to evaluate the roles of structural features in function, and developing new ways of thinking about the dynamics of macromolecules.

BCH 168C, 268C, 368C, 468C Topics in Biochemistry 1-4 Hours

Supervised study of selected topics in Biochemistry by individual arrangement with the instructor.

BCH 368H Capstone Honors Research 3 Hours

Conduct a laboratory research project in a specific field of biochemistry under the supervision of one or more faculty members.

BCH 368L Capstone Course-Based Research Experience 3 Hours

Explore experimental design, data collection, data analysis and fundamental principles of biochemistry research.

BCH 368M Capstone Experience in Biochemistry 3 Hours

Explore approved capstone experiences such as Biochemistry Research Experience Abroad, Biochemistry/Biotechnology Internships or other external, intensive biochemistry-related research experiences.

BCH 368R Supervised Capstone Research 3 Hours

Perform supervised independent research and write a capstone thesis on a selected subject in Biochemistry by individual arrangement with the instructor.

BCH 368T Biotechnology Capstone 3 Hours

BCH 368W Supervised Literature Review 3 Hours

Perform a supervised literature review and write a capstone thesis on a selected subject in Biochemistry by individual arrangement with the instructor.

BCH 369 Fundamentals of Biochemistry 3 Hours

The basics of protein structure and function, carbon and nitrogen metabolism, and molecular biology of macromolecules.

BCH 369K Techniques of Research 3 Hours

Advanced laboratory practice and introduction to research.

BCH 369L Biochemistry Laboratory 3 Hours
An introduction to modern fundamental techniques of biochemistry.

BCH 369T Biotechnology Laboratory 3 Hours
Advanced techniques in biotechnology.

BCH 370 Physical Methods of Biochemistry 3 Hours
Theory of electrophoresis, ultracentrifugation, spectroscopy, electron microscopy, and diffraction as applied to biological macromolecules.

BCH 175C Biochemistry Capstone Seminar 1 Hour
Receive guidance during capstone experience. Document and reflect on the experience, present capstone work in a professional venue, and discuss plans for transitioning to post-graduation careers.

BCH 379H, 679H Biochemistry Honors Tutorial Course 3,6 Hours
Laboratory research project in a specific field of biochemistry under the supervision of one or more faculty members.

BCH 080M Dual MD/PhD Program with UT Medical Branch 0 Hours
Preclinical medical study at the University of Texas Medical Branch at Galveston.

BCH 386 Topics in Problems and Methods in the Life Sciences 3 Hours
Examine the questions addressed in modern life sciences research and the experimental methods used. Focus on experimental reasoning and on the application of different techniques to solve problems.

BCH 387D Physical Methods in Biochemistry and Molecular Biology 3 Hours
Theory of physical methods used in biochemistry and molecular biology.

BCH 190C, 290C Topics in Biochemistry 1-2 Hours
Discuss current topics in biochemistry.

BCH 394 Structure and Function of Proteins and Nucleic Acids 3 Hours
Explores the structures and functions of proteins and nucleic acids. Emphasis is placed on quantitative methods used to evaluate the roles of structural features in function and in developing new ways of thinking about the dynamics of macromolecules.

BCH 394P Bioinformatics 3 Hours
Examine typical data, data analysis, and algorithms encountered in computational biology. Includes introductory probability and statistics, basics of programming, protein and nucleic acid sequence analysis, genome sequencing and assembly, synthetic biology, analysis of large-scale gene expression data, data clustering, biological pattern recognition, and biological networks.

BCH 395F Advanced Biochemistry 3 Hours
Explore advanced biochemistry concepts and the scientific process. Consider the structure and function of proteins, carbohydrates, lipids and nucleic acids, and discuss enzyme mechanisms and kinetics.

BCH 395G Structure and Function of Proteins and Membranes 3 Hours
Explore advanced biochemistry concepts and the scientific process. Examine a detailed consideration of the structure and function of proteins, carbohydrates, lipids and nucleic acids, as well as discussion of enzyme mechanisms and kinetics.

BCH 395J Genes, Genomes, and Gene Expression 3 Hours
Detailed consideration of prokaryotic and eukaryotic mechanisms of DNA replication and transcription; posttranscriptional processing of transcription products; and mechanism and regulation of the translation of messenger RNAs.

BCH 396S Synthetic Biology 3 Hours
Survey of current high-throughput technologies and computational methods for generating data and integrating information at all levels of biological organization. Emphasis on how hypotheses can be generated and tested with these techniques to better understand how model organisms function and evolve.

BCH 197C, 297C, 397C, 497C, 597C, 697C, 997C Advanced Study and Research in Biochemistry 1,2,3,4,5,6,9 Hours

BCH 698 Thesis 6 Hours

BCH 398T Professional Development for Graduate Students in Biochemistry 3 Hours
Provides professional development skills to graduate students in biochemistry. Subjects include excellence in teaching, scientific communication, grantsmanship, ethics, and career planning.

BCH 399W, 699W, 999W Dissertation 3,6,9 Hours