

# BIOCHEMISTRY (BCHM)

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## **BCHM 320 - PHYSICAL CHEMISTRY FOR BIOSCIENCE**

Survey of the principles of physical chemistry that govern molecular structure and chemical reactivity in biochemical systems. Topics include thermodynamics, kinetics, quantum mechanics, computational chemistry and spectroscopic techniques and their application for the study of structure and functioning of biomolecules.

Credits: 3

Prerequisites: CHEM 212 and CHEM 201 and CHEM 202 and CHEM 211

Course Notes: BIOL 301 recommended.

## **BCHM 322 - FERMENTATION SCIENCE**

Fermentation is a metabolic process, a hallmark of evolutionary history, a cultural practice, a vehicle for scientific discovery, an art form, and a commercial industry. This course examines the biochemistry of fermentation, its significance in foods and beverages, and applications in research and medicine. Discussions and field trips address the cultural history of fermentation as well as modern production methods. Students also make and share their own homemade ferments.

Credits: 3

Prerequisites: BIOL 301 or BCHM 355 or BIOL 360

## **BCHM 344 - BIOINORGANIC CHEMISTRY**

Survey of biological molecules that involve metal ions and/or metal-containing cofactors; the interaction and biological significance of metal ions including medicinal applications.

Credits: 3

Prerequisites: CHEM 202 and CHEM 212

Course Notes: BIOL 301 recommended.

## **BCHM 355 - BIOCHEMISTRY**

Electron transport chain, protein structure, enzyme kinetics, biosynthesis and intermediary metabolism of amino acids, and carbohydrates and lipids. Included in the biotechnology certificate program.

Credits: 3

Prerequisites: CHEM 202 and CHEM 212 or BIOL 301

Course Notes: Also for BIOL major credit.

## **BCHM 356 - EXPERIMENTAL METHODS IN BIOCHEMISTRY & BIOTECHNOLOGY**

Biochemical techniques including enzyme and lipid assays, isolation, and analysis of biologically relevant macromolecules.

Credits: 3

Attributes: Lab Course

Prerequisites: BCHM 355 (may be taken concurrently)

Course Notes: Also for BIOL major credit.

## **BCHM 357 - ADVANCED BIOCHEMISTRY**

This course covers advanced topics in the chemistry of life and is designed to build upon the fundamental understanding of biochemical topics as presented in introductory biochemistry. The course will focus on protein structure-function relationships and metabolic pathways in human and non-human organisms. Modern biochemical problems and new developments in biochemical techniques will also be explored through primary literature readings and student presentations.

Credits: 3

Prerequisites: BCHM 355

Course Notes: Also for BIOL major credit.

## **BCHM 392 - RESEARCH IN BIOCHEMISTRY**

Independent science laboratory research experience under the guidance of a faculty researcher; 1 to 4 semester hours total may be applied toward the BS degree. Students may register in consecutive semesters.

Credits: 1-4

Attributes: Lab Course

Course Notes: Consent of instructor.

## **BCHM 393 - BIOCHEMISTRY SEMINAR**

This course primarily involves searching, reading, and critiquing primary literature on biochemical topics, learning how to give a technical seminar, and presenting a seminar to technical audience. Weekly assignments will consist of reading, discussing, and writing short reviews of recent biochemical research published in the literature. You will learn how to give a technical presentation by attending and critiquing seminars presented by speakers within and outside of the Roosevelt community, and by preparing and giving a presentation on a literature topic of your choice.

Credits: 1

Prerequisites: BIOL 301 or BCHM 355

Course Notes: Consent of instructor

## **BCHM 395 - INDEPENDENT STUDY**

Independent library research culminating in a formal review paper on a topic approved by the instructor.

Credits: 1-3

Course Notes: Consent of instructor., Students must arrange for a library independent study, with an instructor prior to registration,, may register for only 1 SH per semester up to two semesters.