

# BIOCHEMISTRY (BCHM)

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## **BCHM 420 - 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

Course Notes: CHEM 212 with minimum grade of C-, BIOL 301 recommended.

## **BCHM 444 - 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

Course Notes: CHEM 212 with a minimum grade of C-; BIOL 301 recommended.

## **BCHM 455 - 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

Course Notes: BIOL 301 strongly recommended.

## **BCHM 456 - EXP. MTHDS BIOCHEM & BIOTECH**

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

Credits: 3

Course Notes: Also for BIOL major credit.

## **BCHM 457 - 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

Course Notes: BCHM 355 with a minimum grade of C-

## **BCHM 485 - THESIS**

Independent laboratory research culminating in a written thesis under supervision of a faculty sponsor and thesis committee.

Credits: 1-6

## **BCHM 485Y - THESIS COMPLETION**

Credits: 0

Prerequisites: BCHM 485

Course Notes: Completion of the MS thesis beyond BCHM 485.

## **BCHM 491 - INDEPENDENT STUDY**

Credits: 1-3

Course Notes: Instructor consent required

## **BCHM 492 - RESEARCH IN BIOCHEMISTRY**

Independent field- or laboratory-based research experience under the supervision of a faculty sponsor. A minimum of 3 completed semester hours will fulfill the research requirement for the MS degree. Up to 3 semester hours may be applied toward thesis requirements. Students may register in consecutive semesters.

Credits: 1-4

Course Notes: Consent of instructor. \$100 per semester hour., Students must arrange for independent laboratory research, experience with a science faculty member prior, to registration.

## **BCHM 493 - 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

Course Notes: BCHM 355/BCHM 455 or BCHM 357/BCHM 457 or BIOL 453 or, BIOL 458 recommended. Graduate standing.

## **BCHM 495 - INDEPENDENT STUDY**

Credits: 1-3