

CHEMICAL BIOLOGY (CHEB)

CHEB 601. Chemical Biology I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Provides an overview of the structure and function of biological macromolecules from a chemical biology perspective. The course will be divided into three sections – nucleic acids, proteins and carbohydrates. Each section will initially focus on the thermodynamic properties of these macromolecules including the energetics of folding, thermodynamics of interactions and, for catalytic molecules, the kinetics of catalysis. Citing literature examples, the class will then focus on how small molecules have been used to uncover these properties.

CHEB 602. Chemical Biology II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Focuses on four broad areas of chemical biology: drug discovery (combinatorial chemistry, high throughput screening), natural product synthesis (combinatorial biochemistry), signal transduction (chemical genetics, pathway engineering) and protein translation (Phage display, in vitro translation/sections). Each area will begin with a brief overview followed by several examples based on the current literature.

CHEB 690. Research Seminars in Chemical Biology. 1 Hour.

Semester course; 1 lecture hour. 1 credit. May be repeated for credit. Seminars presented by students, staff and visiting lecturers where current problems and developments in chemical biology are discussed. Graded as P/R.

CHEB 697. Chemical Biology Research Rotations. 1,2 Hour.

A research rotation laboratory course that gives students different experiences and allows them to choose a research supervisor. Students will learn the theory and practice of advanced chemical biology research methods in a research lab setting. Students will be mentored by a postgraduate student, postdoctoral fellow or technician. At the end of each rotation, the students will give a presentation on the laboratory work done at that time. The lab hours are a minimum of three hours per week to achieve significant experience, but it is expected that students will put in appropriate time to achieve meaningful results in the laboratory setting. Graded as S/U/F.