MOLECULAR BIOLOGY AND BIOCHEMISTRY
MBB 420 – 3
Advanced Approaches to Enzyme Mechanisms
DAY Summer 2005

Instructor:
Dr. E. C. Young
Office: SSB 7155

Description/topics:
As far as biology is concerned, enzymes do everything. Lectures in Part 1 of this course will examine some important but complex enzymatic reactions, such as:
- electron transfer and light-activated reactions
- free radical reactions
- generation of force and directed movement
- membrane transport

These examples will also be used in discussing some key concepts of chemistry that serve as a universal theoretical foundation for the study of enzyme catalysis, such as:
- steady-state and transient kinetics
- reaction coupling
- molecular recognition
- stochastic analysis

In Part 2 of this course, students will apply the ideas of Part 1 by researching a Term Paper dealing with a selected topic from recent enzymology research. Each student will present to the class a 30-minute seminar on a specific research paper from their chosen topic, and will participate in discussions of papers presented by other students.

Grading:

Midterm Exam on Part 1	35%
Part 2 - Seminar	20%
Part 2 - Term Paper	30%
Participation	15%

Structure of this course and its grading are subject to change depending on enrolment.

Required texts:
This course is based on primary literature (journal articles), a file of which will be kept on Reserve in the Library.

Recommended texts:
C. Walsh, *Enzymatic reaction mechanisms*, Freeman, 1979.
A. Fersht, *Structure and mechanism in protein science : a guide to enzyme catalysis and protein folding*, Freeman, 1999.
Copies will be kept on Reserve.

Materials/supplies:
None

Prerequisite/co-requisite:
Requires MBB321 or permission of instructor.

Notes:
None