

MOLECULAR BIOLOGY AND BIOCHEMISTRY

MBB 424/724

Membrane Transport Mechanisms

Summer 2013

Instructor: Dr. E. Young

Office: 7155

Description/topics: Cells employ a wide array of channels, carriers, and pumps to move specific molecules across membranes. Lectures in Part 1 of this course will discuss the structure and function of some examples of these molecular transport machines, focusing on the different experimental approaches which have been developed to help understand their mechanisms. This will introduce students to some key concepts and techniques from biochemistry, physiology, and biophysics:

- passive, chemically-driven and gradient-driven transport
- selectivity and activation
- electrogenic transport and voltage-clamp techniques
- action of pharmacological agents
- single-molecule analysis
- fluorescence and other spectroscopic techniques

In Part 2 of the course, students will use the knowledge gained in Part 1 to prepare a Term Paper covering several research articles on a topic of their choice. Each student will also present to the class a 30-minute seminar on one article, and will participate in discussions of articles presented by other students.

Grading:	Short Assignments - Part 1	20%
	Midterm Exam on Part 1	25%
	Class Exercises - Participation	15%
	Part 2 – Seminar	15%
	Part 2 – Term paper	25%

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

Required text: This course is based on primary literature (journal articles), copies of which will be kept on Reserve in the Library. Supplementary excerpts will be available from selected texts or journal articles (TBA) kept on Reserve.

Recommended text: Foundation textbooks from MBB 321 / 322 are recommended as background.

Prerequisite: MBB 321, MBB 322 and either MBB 323 or CHEM 360 or permission of the instructor.

Students requiring accommodations for a disability must contact:

Centre for Students with Disabilities (778-782-3112 or e-mail: csdo@sfu.ca).

All students are subject to and responsible for being familiar with the SFU academic integrity policy which can be found on-line at <http://students.sfu.ca/academicintegrity/index.html>

Students are advised to review the plagiarism tutorial found at <http://www.lib.sfu.ca/help/tutorials/plagiarism-tutorial>

For help with writing, learning and study strategies please contact:

Student Learning Commons, <http://learningcommons.sfu.ca/>