

BIOL 2021/BCHM 2021 - Cell Biology and Biochemistry II
Winter 2009 Course Outline
Faculty of Science and Engineering, Department of Biology

Course Description

A study of those aspects of cell biology and biochemistry not included in SC/BIOL 2020 4.00. Topics include membranes, the endomembrane system, the cytoskeleton, cellular motility, the extracellular matrix, intercellular communication and intracellular regulation. Three lecture hours, three laboratory hours. One term. Four credits.

Prerequisite: SC/BIOL 2020 4.00 or SC/BCHM 2020 4.00, or both SC/BIOL 1010 6.00 and SC/CHEM 2050 4.00.

WARNING: Students without pre-requisites will be de-enrolled unless they have advanced standing or permission of the instructor.

Course Director

Dr. Pat Lakin-Thomas, room 005 Farquharson, x33461

Office hours: Tues & Thurs 11:30 – 1:00, other times by arrangement

e-mail: clocklab@yorku.ca

e-mail policy: I will try to respond within one working day, or answer your question at the next class meeting if appropriate. Questions and answers of interest to the entire class will be posted on the class website or sent by listserv if urgent.

Listserv: important announcements will be sent to a listserv for this course using your @yorku.ca address. Please check your email for announcements. If you wish to send an announcement using the listserv, send it to the course director at clocklab@yorku.ca.

Lab Co-ordinator

Tamara Kelly, tljkelly@yorku.ca or phone x22972 (email is best)

Office: room 108A Farquharson (Undergrad Office)

email for appointment or contact Undergrad Office, x55311

Lectures: T, Th 10:00 - 11:30 am, CSE A

Laboratories: Labs run every week and start Monday, March 9. Consult lab manual for schedules for your section. Wet labs will be held in 208 Farquharson, dry labs in 312 Farquharson. There is a minimum laboratory attendance requirement that is described in the lab manual.

NOTE: There will be a quiz on microscopy at the beginning of your first lab session. Be sure to read the lab manual and answer the first question before you come to the first lab.

Course website

Located on WebCT at <http://webct.yorku.ca/>

You must get a WebCT account to access the site. Go to the site and download the Quickstart Guide for instructions on getting access. This website will be used for posting exam results and lab grades, course information, and some supplementary information. Lecture outlines (a list of topics covered and figures used) will be posted but complete

lecture notes will NOT be posted. If you miss a lecture, you are responsible for getting notes from another student. The course director will not provide notes.

Evaluation

Laboratory assignments 25%, mid-term exam 25%, final exam 50%.

Note: Both the lecture and laboratory parts of the course must be passed in order to pass the course, even if your combined mark is above 50%.

Note: Final course grades may be adjusted to conform to Program or Faculty grade distribution profiles.

Exams

Exam format: Exams will be multiple-choice, approx. 30-35 questions on the midterm and 60-70 questions on the final exam.

Exam Notesheets: You are allowed to bring one notesheet, 8 1/2 x 11 inches, both sides, to the midterm and two notesheets to the final exam. The notesheets must be individually hand-written (not computer-printed, no photocopies) with your name and student number. They will be checked during the exam.

Midterm: If the midterm is missed with a valid excuse and documentation (e.g. illness with a doctor's note), the weight will be transferred to the final exam so that the final will be worth 75%. You must contact the course director within one day of the midterm exam and present valid documentation within one week of the exam to qualify for exemption.

Deferred final exam: If you miss the final exam with a valid excuse and documentation, you must fill out a Deferred Standing Agreement Form (see the Biology Undergraduate Office or <http://www.registrar.yorku.ca/services/forms.htm>) as soon as possible after the exam and have it signed by the course director. Doctor's notes are not sufficient; you must get your doctor to fill out the Attending Physician's Statement included in the petitions package (http://www.registrar.yorku.ca/pdf/petitions/petition_package.pdf). Make-up exams will be given during the regular exam period if possible, otherwise during the Biology deferred exam period in summer. The format of the make-up exam for this course will be essay, not multiple-choice.

Mid-term exam date: April 14 (80 minutes)

Drop date: April 22

Academic Integrity

Students are expected to be familiar with and follow York University's policies regarding academic integrity. Please consult the website below for more details:

<http://www.yorku.ca/academicintegrity/students/index.htm>

Accommodation Statement

Students who feel that there are extenuating circumstances that may interfere with their ability to successfully complete the course requirements are encouraged to discuss the matter with the Course Director as soon as possible. Students with physical, learning or psychiatric disabilities who require reasonable accommodation in teaching style or evaluation methods should discuss this with the Course Director early in the term so that appropriate arrangements can be made.

Required texts

1. Alberts *et al.* (2008) *Molecular Biology of the Cell*, 5th ed., Garland Publishing. Videos and animations used during lecture can be found on the DVD packaged with the textbook. If you share a copy or buy a used copy, be sure to get access to the DVD. The textbook and DVD are available on reserve in the Steacie Library.

Note: There are significant differences between the fourth and fifth editions.

Using an earlier edition of the textbook is not recommended.

2. BIOL 2021 Laboratory Manual, Winter 2009

Lecture Topics

Chapters correspond to Alberts, 5th ed. (2008)

Date	Lecture #	Topic	Chapter
Mar 5	1	Introduction, Studying cells	8 & 9
Mar 10 & 12	2, 3	Membranes	10
Mar 17 & 19	4, 5	Transport of small molecules	11
Mar 24 & 26	6, 7	Compartments, protein sorting	12
Mar 31 & Apr 2	8, 9	Vesicular traffic	13
Apr 7	10	Chloroplasts & photosynthesis	14
Apr 9	11	Cell communication	15
Apr 14		Midterm	
Apr 16 & 21	12, 13	Cell communication	15
Apr 22		Drop deadline	
Apr 23 & 28	14, 15	Cytoskeleton & molecular motors	16
Apr 30 & May 5	16, 17	Cell division cycle	17
May 7	18	Apoptosis	18
May 12	19	Junctions & adhesion	19
May 14	20	Cancer	20
May 19	21	Stem Cells	23

Coverage of chapters will not be complete, and the lectures will cover only selected topics from the chapter. Students are advised to attend all lectures and study those sections of the text relevant to the lecture topics. Exam questions will relate to the topics covered during lecture and will not cover material in the chapters that was not mentioned during lectures.

Learning Objectives

Upon successful completion of BIOL 2021, students will be able to demonstrate an understanding of: the internal organization of the cell, major cellular functions at the molecular level, and aspects of the interactions between cells in multicellular organisms. Students will also be able to demonstrate laboratory competence in using microscopy techniques to study cells and in basic biochemical techniques.