

BIOL 2021/BCHM 2021 - Cell Biology and Biochemistry II
Winter 2010 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.

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.

Course Director

Dr. Patricia Lakin-Thomas, room 005 Farquharson, x33461 (“Dr. Pat”)

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 Director

Dr. 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

Lab (TA) Coordinator

Nicole Nivillac (biol2021@yorku.ca)

Lectures: T, Th 10:00 - 11:30 am, CLH I

Laboratories: Labs run every week and start Jan 11. 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 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 course information, exam results and lab grades, and some supplementary information. There is a Discussion board with Course FAQs and other postings. Be sure to read the other threads before you post a question to see if your question has already been answered. 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.

NOTE: There is a QUIZ on WebCT covering the course outline and course policies. You must finish it before Jan 19. It is worth 2% of your grade.

Evaluation

Course outline quiz 2%, laboratory assignments 25%, mid-term exam 24%, final exam 49%.

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%. 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 (or two single sided sheets), to the midterm and two notesheets (or four sides) 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 73%. You must contact the course director within two days 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). The deferred exam will be given 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: Feb 23 (80 minutes)

Drop date: March 8

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 2010

Lecture Topics

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

Date	Lecture #	Topic	Chapter
Jan 5	1	Introduction, Studying cells	8 & 9
Jan 7 & 12	2, 3	Membranes	10
Jan 14 & 19	4, 5	Transport of small molecules	11
Jan 21 & 26	6, 7	Compartments, protein sorting	12
Jan 28, Feb 2	8, 9	Vesicular traffic	13
Feb 4	10	Chloroplasts & photosynthesis	14
Feb 9 & 11	11, 12	Cell communication	15
Feb 13-19		Reading Week	
Feb 23		Midterm (lectures 1-10)	
Feb 25, Mar 2	13, 14	Cell communication	15
Mar 4 & 9	15, 16	Cytoskeleton & molecular motors	16
Mar 11 & 16	17, 18	Cell division cycle	17
Mar 18	19	Apoptosis	18
Mar 23	20	Junctions & adhesion	19
Mar 25 & 30	21, 22	Cancer	20
Apr 1	23	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.