



University of Guelph
Molecular and Cellular Biology



BIOC*4580 - MEMBRANE BIOCHEMISTRY Winter 2017

Prerequisites:

BIOC*2580 and BIOC*3560/BIOC*3570 (can be concurrent)

Objectives:

To examine at the molecular level the structures and functions of cell membranes, cell surfaces, and associated structures. We will (a) discuss structure-function relationships of membrane proteins, lipids, & carbohydrates; (b) explain the molecular basis and integrate data to explain cell physiology; (c) explore experimental tools of biochemistry, molecular biology, cell biology, and biophysics; (d) apply this knowledge to problems & new situations.

Instructor:

Dr. George Harauz, Department of Molecular and Cellular Biology

Office:

SCIE 3458; Extension 52535
e-mail: gharauz@uoguelph.ca

Hours:

Monday, Wednesday, & Friday 9h30-11h00

E-mail:

If these times are not suitable for you, please contact me by e-mail or phone for an appointment. As per University regulations, all students are required to check their <mail.uoguelph.ca> account regularly. E-mail is the official route of communication between the University and its students.

Lectures:

Monday, Wednesday, & Friday 11h30-12h20 in JTP 214

Review sessions:

During lectures and review sessions, I will present study questions pertaining to the material. The review sessions that are scheduled before each quiz are an excellent opportunity to discuss the topics to be examined in the class.

Electronic recording of lectures:

Electronic recording of lectures is expressly forbidden without prior consent of the instructor. When recordings are permitted, they are solely for the use of the authorized student, and may not be reproduced, or transmitted to others, without the express written consent of the instructor.

This course will be run using: [Courselink](#)

The **course outline**, **lecture schedule**, and **reading list** for the text-book are available at this site. The **lecture notes** will be posted weekly, and can be downloaded and printed before each lecture. The answers to the in-class quizzes will also be available here.

Material will be posted as pdf files, which can be viewed and printed using Adobe Acrobat Reader.

Required Text:

"Lehninger Principles of Biochemistry" by Nelson & Cox (6th edition, 2013)

This is an excellent text for many senior level courses in biochemistry and other molecular bioscience fields, and is also very useful as a reference text at the graduate level. A course reading list is provided for this textbook. Copies of this book are on 2-hour Reserve in the McLibrary, as well as in the stacks, and it is available for sale in the Campus Bookstore. The 5th edition (2008) of this book is still very useful, whereas the 4th edition (2005) will not contain the new structural and proteomics information that has become available in the past few years.

Additional Open-access Textbook Resource:

William Stillwell. AN INTRODUCTION TO BIOLOGICAL MEMBRANES: From Bilayers to Rafts. Elsevier - Academic Press (2013).

This textbook has appeared in open-access in the fall of 2013. I have made the pdf available on-line. It appears to cover the course material broadly if not in-depth, and may be helpful as additional reading.

Other useful references

(also on 2 h Reserve in McLibrary or TUG-Online):

M Luckey. Membrane Structural Biology. Cambridge, 2008. QH 601.L75

Assigned & Interesting Readings:

I will occasionally post and/or assign review or primary experimental papers from the literature that pertain to lecture material as it arises. Reading these will help you learn to APPLY YOUR KNOWLEDGE to problems and new situations.

Course evaluation:

In-class quizzes (1@10% + 2@20%)	50%
Final examination (cumulative)	50%

Quizzes:

A set of questions on material covered in a roughly 3 week block of lectures. These will be written during a lecture period, and will be of 45 minutes duration. Students who foresee potential problems with any of the scheduled dates are advised to contact me as soon as possible. If quizzes are missed because of **illness or other valid reasons such as compassionate considerations**, the marks allotted for that quiz will be transferred to the final examination. Make-up quizzes will not be provided. **Quizzes missed for no valid reason will result in a grade of zero.**

Answers to the in-class quizzes will be posted on [Courselink](#) after the marked quizzes are returned.

Final examination:

Short answer questions, essay questions, and problems dealing with the entire semester's material. **The College of Biological Science policy stipulates that all students must write the final exam at this time.** Students who are unable to write the final exam at the scheduled time because of conflicts, or other valid reasons, should contact their Academic Counsellor, and request a deferred final examination. Course instructors are prohibited from setting an alternate final examination at another time.

Academic Integrity:

Academic misconduct limits learning and disadvantages honest students.

For University policy on academic misconduct and penalties see: [Undergraduate Calendar - Academic Misconduct](#)

For a better understanding of academic integrity see tutorials at: [Academic Integrity](#) and [Academic Integrity - Plagiarism](#)

Faculty evaluation:

As part of the faculty evaluation process, written comments on the teaching performance of the lecturer may be sent at any time to Dr. Robert Mullen, Chair, Department of Molecular and Cellular Biology. Such letters must be signed; a copy is made available to the instructor after submission of final grades.

Viewing final examinations:

The university regulations for viewing a final examination within the appropriate timeframe are listed in the Undergraduate Calendar: [Undergraduate Calendar](#)

and permission must be requested from the Department Chair at mcbchair@uoguelph.ca.