

Course Outline

Instructor	Dr. Wely Floriano Office: CB4029; Phone: 766-7215; Email wely.floriano@lakeheadu.ca
Office Hours	MW 1pm-4pm; T 9am-11am; F 10am-12pm; by appointment
Prerequisite	Organic II
Lectures	MW 5:30pm-7:00pm Location: ATAC 1001 (changed from BB1021)
Labs	T 02:30PM-05:30PM, Th 08:30AM -11:30AM Location: CB2050 / 2051
Lab Coordinator	Christina Richard (CB 2028A, 343-8765, crichar3@lakeheadu.ca)
Lab Safety	All students must take WHMIS and adhere to Department's safety rules and LU's academic integrity rules. Students must take the WHMIS, Lab Safety, and Academic Integrity questionnaires through D2L. They are 3 modules on the same Chemistry Safety course. After taking the WHMIS quiz student must upload certificate to D2L.

Course Materials

- Syllabus, lecture notes, and other course materials are posted on Desire2Learn (D2L).
- Lecture notes will be posted on Desire2Learn in advance. They are intended as guides. The corresponding chapters in the textbooks must be studied for exams.
- Lecture topics are subject to change and schedules are approximate.
- Lab Manual: *Chem3251 & Biol3252 – Biochemistry I Laboratory Manual*, Department of Chemistry, Lakehead University, Revised 2018. The manual is available for free download on Desire2Learn (D2L). Lab starts on the second week. For a complete description of the labs and the dates when laboratory reports are due, please see your laboratory manual. Word document templates and other guiding materials for the preparation of your lab reports are also available on D2L.

Textbook

- *Biochemistry*, 8th edition by Berg /Stryer/Tymoczko/Gatto, W.H. Freeman and Company, New York, 2015. ISBN-10: 1-319-03681-3; ISBN-13: 978-1-319-03681-2

Mark Distribution

- Midterm Exams 25% + 25%
- Final Exam 25%
- Lab Reports 25%
- Quizzes extra 0.5% each. Online. Opens Thursday at 4pm and closes Monday at 4pm.

Exams (including midterms)

- Midterm exams include everything up to the lecture prior to the exam, unless otherwise noted.
- Final exam is comprehensive. However emphasis is given to content not covered in the midterms.
- No phones, tablets, or other gadgets allowed at the desk or with the student during the exams.
- Backpacks, bags, folders and other containers should be placed at the front of the classroom.
- Leave at least one seat empty between you and the next student.
- If you absolutely have to go to bathroom in the middle of the exam, leave all your belongings in the classroom.
- If you miss an exam for medical or compassionate reasons, you will be asked to present appropriate documentation in order to schedule a make-up exam **during or immediately after the finals week**.

Accommodations Lakehead University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you think you may need accommodations, you are strongly encouraged to contact Student Accessibility Services (SAS) and register as early as possible. For more information, please visit: <http://studentaccessibility.lakeheadu.ca>.

Tentative schedule of classes

Date	Mon	Date	Wed	Week	
9/3		9/5	Review of biochemical concepts, macromolecule classes, amino acids (chp 1)	1	Labs start on week 2 LR = full lab report LQ&A = lab Q&A report
9/10	Nucleic acids (chp 4)	9/12 Final date to register 9/17	DNA replication, transcription and translation (chp 4)	2 Quiz 1	Lab 1: Introduction to automatic pipettors and proper pipetting technique.
9/17	Genomes and Genome sequencing (chp 5)	9/19	Protein composition and structure (chp 2)	3 LQ&A 1 (4%)	Lab 2: Lipids - Iodine number determination and lipase activity.
9/24	Proteins: assay and purification (chp 3)	9/26	Proteins: physical characterization (chp 3)	4 Quiz 2 LQ&A 2 (4%)	Lab 3: Introduction to recombinant DNA methodology.
10/1	Uses of pure protein and Protein detection methods (chp 3)	10/3	EXAM I (25%)	5	Lab 4: Purification of bovine liver lactate dehydrogenase: A) Affinity chromatography and LDH quantification.
10/8	FALL STUDY BREAK	10/10	FALL STUDY BREAK	6	FALL STUDY BREAK
10/15	Analysis and comparison of nucleotide and amino acid sequences (chp 6)	10/17	Introduction to metabolism (chp 15)	7 LQ&A 3 (4%)	Lab 4: Purification of bovine liver lactate dehydrogenase: B) Protein content determination by the Bradford method.
10/22	CLASS CANCELLED	10/24	Carbohydrates and glycoproteins (chp 11)	8 LQ&A 4A (2%)	Lab 4: Purification of bovine liver lactate dehydrogenase: C) SDS-PAGE gel preparation.
10/29	Lipids (chp 12)	10/31	Cell membranes (chp 12)	9 Quiz 3 LQ&A 4B (2%)	Lab 4: Purification of bovine liver lactate dehydrogenase: D) SDS-PAGE of bovine liver crude lysate and purified LDH.
11/5	Membrane proteins	11/7 DROP DATE 11/9	Transport across membranes (chp 13)	10	Lab 5: Carbohydrate content of fruit
11/12	Glycolysis and Gluconeogenesis (chp 16)	11/14	EXAM II (25%)	11 LR4 (5%)	
11/19	TCA cycle (chp 17)	11/21	Oxidative phosphorylation (chp 18)	12 LQ&A 5 (4%)	
11/26	Biosynthesis of phospholipids and TAGs (chp 22, 26)	11/28	Biosynthesis of cholesterol Transport of cholesterol and TAGs (chp 26)	13 Quiz 4	
12/3	REVIEW	12/5	STUDY PERIOD	14	EXAMINATIONS PERIOD
12/10	EXAMINATIONS PERIOD	12/12	EXAMINATIONS PERIOD	15	EXAMINATIONS PERIOD