BIOLOGY 3252/CHEMISTRY 3251 – BIOCHEMISTRY I

Course Outline, Fall 2023

Overview
Chemistry and metabolism of monosaccharides, disaccharides and polysaccharides. Chemistry of amino acids and proteins. Structure and reaction of fatty acids, triacylglycerols and phospholipids. Structure and properties of nucleotides and polynucleotides of DNA and RNA.

Instructor:	K. Lefrancois-Gagnon
Office:	CB-4070
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E-mail:	kgagnon@lakeheadu.ca
Laboratory Coordinator:	Christina Richards

Lectures:	Wednesday and Friday 7:00PM-8:30PM, **Location:** UC0050
Laboratory:	Thursday 8:30 AM-11:30 AM OR Friday 2:30 PM-5:30 PM OR Friday 11:30 AM-2:30 PM, **Location:** CB 2050
Drop-In Hours:	Wednesday 9:30 AM – 10:30 AM, or by appointment
Pre-requisite:	Chemistry 2231

Textbooks:

Biochemistry (with Achieve), 10th edition, Jeremy M. Berg, Gregory J. Gatto, Jr., Justin Hines, John L. Tymoczko, and Lubert Stryer – W. H. Freeman and Company. New York, NY

Mark Distribution:

Achieve Assignments	15%
Laboratory	25%
Examinations*	60%
Total	100%

*Average of 2 midterms and 1 final exam.

Important Dates

September 5:	start of classes
September 18:	last day to register
October 9-13:	Study Week
October 18:	Exam 1
November 3:	final date to withdraw from course without academic penalty
November 15:	Exam 2
December 4:	last day of classes
December 7-17:	exam period (exam to be scheduled by registrar)

Schedule and Topics Covered

Week	Lecture Topics
1 Sep 5 to Sep 8	• Welcome! Course Description and Organization • Review of biochemical concepts (chp 1)
2 Sep 11 to Sep 15	• Nucleic acids (chp 8) • DNA replication, transcription and translation (chp 8)
3 Sep 18 to Sep 22 Last day to add classes Sep 18	• Genomes and Genome sequencing (chp 9) • Introduction to Bioinformatics (chp 10)
4 Sep 25 to Sep 29	• Protein composition and structure (chp 2) • Protein assay and purification (chp 4)
5 Oct 2 to Oct 6	• Proteins: physical characterization (chp 4) • Uses of pure protein and protein detection methods (chp 4) • Introduction to Metabolism (chp 15)
6 Oct 9 to Oct 13	FALL STUDY WEEK
7 Oct 16 to Oct 20	• EXAM 1 Wed, Oct 18, 2023 7:00pm to 8:30pm EDT Room UC0050 • Carbohydrates and Glycoproteins (chp 11)
8 Oct 23 to Oct 27	• Lipids (chp 12) • Midterm Review
9 Oct 30 to Nov 3 drop date Nov 3	• Cell membranes (chp 12) • Transport across membranes (chp 13)
10 Nov 6 to Nov 10	• Membrane proteins (chp 12, 13 and chp14) • Glycolysis and Gluconeogenesis (chp 16)

11 Nov 13 to Nov 17	• **EXAM 2** **Thu, Nov 15, 2023 7:00pm to 8:30pm EDT Room UC0050** • TCA cycle (chp 17)
12 Nov 20 to Nov 24	• Pentose phosphate pathway (chp 20) • Oxidative phosphorylation (chp 18)
13 Nov 27 to Dec 1	• Synthesis of cholesterol and TAGs (chp 27) • Transport of cholesterol and TAGs (chp 27) • Exam Review
14 Dec 4 to Dec 8	FINAL DAY OF CLASSES Dec 4th
	EXAMINATION PERIOD Thursday, December 7, 2023 - Sunday, December 17, 2023 Marks due on Dec 21

Late Assignment Policy
Achieve assignments must be completed by the due dates listed on the course site. Late completion is not accepted, but extensions may be granted at the discretion of the instructor.
Lab reports submitted after the due date will be subject to a late penalty equal to 10% of the total available for the report for each day that they are late.

Policy on Plagiarism:
The *Code of Student Behaviour and Disciplinary Procedures* (from the University Academic Calendar) will be followed in cases of suspected plagiarism. To prevent misunderstanding about what is plagiarism in a scientific report, the *Chemistry Department Policy on Plagiarism and Academic Integrity* is posted in the myChemistry site on myCourselink. Completion of the Academic Integrity Matters module in the myChemistry site is required by September 22, 2023.

If you have already successfully completed the full Academic Integrity Matters (AIM) course in a previous academic year, under Content tab you will now have the AIM Annual Refresher (2023-2024). If this refresher course is available to you, you must complete it as part of your myChemistry Academic Integrity Module. Review the Refresher material and complete the 2023-2024 Annual Refresher Quiz. You must get 100% on the quiz in order to pass the course and obtain the refresher certificate.

Completion of Laboratories
Successful completion of the laboratory section is required in order to pass the course.

Safety Regulations
All students attending Chemistry labs, whether in-person or online, must complete the compulsory safety modules on **myChemistry**:

1. WHMIS with GHS
2. Chemistry Department Safety Regulations

myChemistry is available on available on myCourselink. The deadline for completion of all 3 modules is September 21, 2023(Thursday Section) and September 22, 2023(Friday Sections). Please note that students who do not complete these modules by the deadline will be barred from further lab participation, and a grade of zero will be assigned to each missed lab report. In addition, students who miss half of the labs will receive no lab credit for the course.

Supports for Students
There are many resources available to support students. These include but are not limited to:

- Health and Wellness
- Student Success Centre
- Student Accessibility Centre
- Library
- Lakehead International
- Indigenous Initiatives

Lakehead University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities and/or medical conditions to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability and 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 contact Student Accessibility Services (SC0003, 343-8047 or sas@lakeheadu.ca)