



COURSE OUTLINE
CHEM-3251/BIOL-3252 Biochemistry I
Department of Chemistry
FALL 2023

Instructor: Dr. Van Nguyen
Email: tknguyen@lakeheadu.ca
Lectures: MW 4:00 pm-5:30 pm
Location: OA2010
Office Hours: Tue: 4:10-5:10 pm via Zoom (Other times by appointment)

Lab instructor: Dr. Drazen Vivic
Email: dvivic1@lakeheadu.ca
Labs: W 8:30 am -11:30 am
Location: OA3001
Lab Instructor office hours: Please email the Lab instructor to schedule appointments as needed.

Course info

CHEM-3251-FAO/BIOL-3252-FAO in Fall 2023 is expected to be an in-person/on-campus course. There is a mycourselink page of this course to provide course materials as well as for posting announcements. Students will attend in-person classes and labs AND follow the mycourselink page closely for learning materials as well as for quizzes/tests if any. More info will be posted on mycourselink. When you need to contact us, please make sure to use your @lakeheadu.ca email.

Prerequisites: Chemistry 2231

Course Description

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.

Important: Please don't hesitate to join my office hours or email for appointment IMMEDIATELY if you need help or have a question; don't wait until the end of the semester to seek for help.

Course Learning Objectives

By the end of this course, the student is expected to

- know the chemical structures of the four major classes of biomacromolecules and how they are related to their properties and functions.
- understand metabolism
- obtain some biochemical techniques/skills and know how to write a scientific report
- relate biochemistry to daily life

Delivery mode and course resources

This course is planned to be in-person on Orillia campus. Material is covered through textbook readings, in-person lectures, poster and/or presentation activities and practice exercises. In case of need, the in-person lectures can be changed to online via Zoom. There may be pre-lab and/or post-lab quizzes. Course materials and quizzes are posted to the “mycourselink” course site <https://mycourselink.lakeheadu.ca>

Materials

Textbook: *Biochemistry*, 9th edition by Stryer/Berg/Tymoczko, ISBN: 9781319234362 (ebook), or ISBN: 9781319114671 (hard cover)

Lecture notes: will be posted on mycourselink

Lab Manual: Chem3251 & Biol3252 – Biochemistry I Laboratory Manual, Department of Chemistry, Lakehead University; will be provided by the lab instructor and posted in “mycourselink”.

Evaluations

You earn your grade by the time and effort you put into your work. Please don't ask for extra-credit assignments or bonus work or grade bumping as there are already several chances for you to improve your grade. Please let me know asap though, if you have any special circumstance so I can help finding a solution.

Grade protest: if you find any grade mistake or have any questions on the grading, you must inform the instructor **within 1 week** after the grade is posted. After that, no change can be made.

<i>Grade Components</i>	<i>Percentages</i>
Quizzes/Assignments	20%
Laboratory	30%
Term Exam	20%*
Final Exam	25%*
Flexible distribution	<u>5%*</u>
Total:	100%

(*) For the Term Exam and Final Exam, the higher grade you get will be added with the flexible distribution (aka will weight 5% higher). For example, *IF* your higher score is the Final, the weighting will be as follows:

<i>Term Exam</i>	<i>20%</i>
<i>Final Exam</i>	<i>30%</i>

Note: All quizzes, tests and exams in this course are CLOSED BOOK.

Quizzes/Assignments (20%):

There will be weekly quizzes and/or assignments. They will be done either online via mycourselink OR in-class depending on each chapter; but will be announced ahead of time on mycourselink. *The lowest quiz will be dropped.*

Midterm and Final Exam:

Midterm and Final Exam include everything up to the lecture prior to the exam, unless otherwise noted. However, emphasis is given to content not covered in the previous exam(s).

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 arrange a solution.

The test time and date for each exam is fixed. Any student who has conflicts with these schedules need to email me no later than 1 week before the exam date for an arrangement.

Laboratory (30%):

You are expected to complete **1) the WHMIS training, 2) the Chem. Dept. safety quiz and 3) the academic integrity pledge** in the myChemistry course on mycourselink (due time and date to be announced by the lab instructor). No laboratory reports will be graded (and will be assigned a grade of 0) until these modules are completed.

Should you need to miss a lab you are still responsible for the material contained in this lab, even if you are excused (an excused lab will not count against your grade).

The lab instructor will give you more details and their specific requirements.

Cheating

Students are expected to complete all aspects of the course individually unless instructed differently. No communication of any kind is allowed between students during quizzes, Midterms and Final Exam.

Plagiarism is a serious academic offense. To prevent misunderstandings about what it is, the Department of Chemistry has prepared a document that clearly defines plagiarism, gives several examples and lists possible penalties. Students will have to complete the plagiarism certification, located on the "myChemistry" site.

How to e-mail your instructor(s)

This section is provided to help you to effectively communicate with me or your other instructor(s). Your e-mail must be sent from your official **@lakeheadu.ca** address. They must include the course code CHEM-3251-FAO in the subject, a formal greeting, and student number. E-mails missing these details will get a response requesting you to redo the email properly. Please make sure that won't happen to save your own time and the instructor's time.

Normally, I will endeavor to reply to emails promptly (within 1 business day). If you do not get a reply within **2 business days**, you can send me a reminder. Emails sent on evenings/nights or weekends will likely be responded to on the next working day. I highly recommend that you join my office hours for the best help especially when the questions are about solving a problem or need long explanation.

Email format example:

Subject: CHEM-3251-FAO Question about Quiz 3

Dear Dr. Nguyen,

I am a student in your CHEM-3251-FAO class and I have a question about....

...

Sincerely,

Full Name

Student #

COURSE OUTLINE**Lecture:** MW 4:00 pm-5:30 pm. **Room:** OA2010**Lab:** W 8:30 am-11:30 am. **Room:** OA3001(This outline is provisional and may change as the course progresses)

Day	Mo.	Date	Chapter (9 th Ed)	Topics	Quiz	Lab	Lab Report
Wed	Sep	6	1.3	Intro to Biochemistry: Macromolecules – structure, properties, functions		Check in	
Mon		11	1.3	Intro to Biochemistry: Macromolecules – structure, properties, functions			
Wed		13	2	Proteins: Amino acids, R-groups, protein structure	Quiz 1	Lab 1	
Mon		18	2	Proteins: Amino acids, R-groups, protein structure	Quiz 2		
Wed		20	3	Proteins: Technique introduction	Quiz 3	Lab 2	Lab 1
Mon		25	4	Nucleic acids: Structure and properties			
Wed		27	4	Nucleic acids: Structure and properties	Quiz 4	Lab 3a	Lab 2
Mon	Oct	2		Review			
Wed		4	15	Metabolism: Introduction		Lab 3b	
		9-13		Fall study week			
Mon		16		Midterm			
Wed		18	16	Carbohydrates: Glycolysis	Quiz 5		
Mon		23	16	Carbohydrates: Glycolysis			
Wed		25	16	Carbohydrates: Gluconeogenesis	Quiz 6	Lab 4	Lab 3
Mon		30	17	Carbohydrates: TCA cycle			
Wed	Nov	1	17	Carbohydrates: TCA cycle	Quiz 7	Lab 5a	Lab 4
Mon		6	18	Carbohydrates: Oxidative phosphorylation			
Wed		8	18	Carbohydrates: Oxidative phosphorylation	Quiz 8	Lab 5b	
Mon		13	20	Carbohydrates: Pentose phosphate pathway			
Wed		15	12, 13	Lipids: Membranes			
Mon		20	12, 13	Lipids: Membranes			
Wed		22	22	Lipids: Synthesis	Quiz 9	Lab 6	Lab 5
Mon		27	22	Lipids: Synthesis			
Wed		29	22	Lipids: Degradation	Quiz 10		Lab 6
Mon	Dec	4		Review			
		TBA		Final Exam			

Lab schedule: will be posted on mycourselink and/or announced by the lab instructor.

Important Dates

First Day of Classes	Tuesday, September 5, 2023
Final Day of Classes	Monday, December 4, 2023
Final Date to Register (Add)	Monday, September 18, 2023
Final Date to Withdraw (Drop)	Friday, November 3, 2023
Examination Period	Thursday, December 7, 2023 - Sunday, December 17, 2023 (11 Days)
Exam Contingency Date	Monday, December 18, 2023
Marks Due	Thursday, December 21, 2023

University Closures and No Classes

<u>Occurrence</u>	<u>Date (2022-2023)</u>	<u>Closes/No Classes</u>
Labour Day	Monday, September 4, 2023	University Closed
Thanksgiving Day	Monday, October 9, 2023	University Closed
Fall Study Week	Monday, October 9, 2023 - Friday, October 13, 2023	No Classes
Fall Exam Study Break	Tue, December 5, 2023 - Wed, December 7, 2023	No Classes
Holiday Season Break	Mon, December 25, 2023 - Mon, January 1, 2023	University Closed

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 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)."

Academic integrity

"A breach of Academic Integrity is a serious offence. The principle of Academic Integrity, particularly of doing one's own work, documenting properly (including use of quotation marks, appropriate paraphrasing and referencing/citation), collaborating appropriately, and avoiding misrepresentation, is a core principle in university study. Students should view the Student Code of Conduct – Academic Integrity – for a full description of academic offences, procedures when Academic Integrity breaches are suspected and sanctions for breaches of Academic Integrity."

Copyright

"Students should be aware that all instructional, reference, and administrative materials prepared for this course are protected in their entirety by copyright. Students are expected to comply with this copyright by only accessing and using the course materials for personal educational use related to the course, and that the materials cannot be shared in any way, without the written authorization of the course instructor. If this copyright is infringed in anyway, students may be prosecuted under the Lakehead University Student Code of Conduct – Academic Integrity, which requires students to act ethically and with integrity in academic matters and to demonstrate behaviours that support the University's academic values."

***The instructor reserves the right to revise, alter or amend this course outline as necessary.
Students will be notified in writing / email of any such changes.***