

CHEM/MBIO 2710
BIOCHEMISTRY II: CATABOLISM, SYNTHESIS, AND INFORMATION PATHWAYS
WINTER 2022

Note: there will be two UMLearn sites for this course; one for the lecture sections and one for each laboratory section. Please check both regularly.

Instructors

Dr. Mazdak Khajehpour
Mazdak.Khajehpour@umanitoba.ca

Dr. Muntahi Mourin
muntahi.mourin@umanitoba.ca

All questions via email will be directed to Dr. Mourin regardless of your lecture section.

Office Hours

Office hours: Monday 12 PM to 1 PM, Wednesday 11:30 AM to 12:30 PM

Zoom meetings can be arranged by email. If you attend office hour meetings you must have a microphone and your webcam turned on. You will not be allowed in office hours if you do not show yourself.

Lecture Time/Location/Mode of Delivery

Tuesday/Thursday 8:30AM to 9:45AM and 11:30AM to 12:45PM

Zoom meeting – posted in UMLearn

All lecture-related material will be available to registered students through the UMLearn website. All lectures in the first 4 weeks will be delivered **LIVE** via zoom. The University of Manitoba are a return to full ‘face-to-face’ instruction on Feb 28th 2022. If this does not happen, lecture delivery will continue via zoom. Lectures will be presented in your assigned lecture slot through the Zoom Platform, for which the link will be provided through the UMLearn site. Lectures will be recorded and posted on the UMLearn site for a limited time for students to view asynchronously. ***Material presented in class takes precedence over all other material.***

Evaluation

Take Home Exam	Saturday April 2 nd	15%
Midterm Exam	Wednesday March 2nd, 6:00-8:00 PM	35%
Final Exam	TBA	50%

There is no deferred midterm or take home exam. For students who do not complete the midterm or take home exam, the final exam will be pro-rated. **NO EXCEPTIONS.** If there are conflicts please inform your instructors.

Mark Breakdown

A+	90 to 100%
A	80 to < 90%
B+	75 to < 80%
B	70 to < 75%
C+	65 to < 75%
C	60 to < 65%
D	50 to < 60%
F	< 50%

Course Technological Requirements

Students enrolled in the course must ensure they satisfy the following minimum technological requirements:

- A computing device where one can create and edit documents,
- An internet connection capable of streaming videos and downloading software
- Access to a web-cam and microphone.
- Zoom application (zoom.us)
- Ability to take pictures and images for upload to UMLearn or Crowdmark (Exams).

Exam details

Exams will be given remotely and will be invigilated via the zoom application. Exams will be closed notes/book and you must work individually. During the exam your camera and microphone must remain on with your work space and immediate surroundings visible to the camera (camera tilted down so hands are visible). Please turn down the volume on your own computer so you do not hear other students. The exam zoom host will have the questions shared via their screen, and it will be recommended to pin their screen. After the exam is complete, you will be expected to take pictures of your exam pages for upload to UMLearn or Crowdmark.

Professional Conduct

We recognize that these are unusual circumstances and some adjustments need to be made when working virtually. At the same time, we do want to remind you that University policies, such as the **Respectful Work and Learning Environment policy**, still apply, as do basic expectations around how students will engage with each other and all members of the University. This means that when participating in classes, online meetings, etc., students are expected to behave professionally, and follow the same basic norms as they would in person, such as being properly clothed, not being impaired, and participating respectfully. **Essentially, if you wouldn't do it in an in-person class, don't do it in a virtual setting.**

Please familiarize yourself with the UM Respectful Work and Learning Environment (RWLE) http://umanitoba.ca/admin/governance/media/Respectful_Work_and_Learning_Environment_RWLE_Policy_-_2016_09_01.pdf

Section 2.5(c) of the Student Non-Academic Misconduct and Concerning Behaviour Procedure describes types of inappropriate or disruptive behaviour (https://umanitoba.ca/admin/governance/media/Student_Non-Academic_Misconduct_and_Concerning_Behaviour_Procedure_-_2018_09_01.pdf).

Academic Integrity

Academic integrity is taking responsibility for and being honest with your work and respecting the work of others. Since you are a member of the university community, we want you to learn what that responsibility and honesty entails and how we respect the work of others.

The Faculty of Science continues to uphold high standards of academic integrity. We know that our students support us in this endeavour and we count on each and every one of you to do your part. The same academic standards apply online, remote learning, and in class education. We expect all students to strictly adhere to instructions from their professors regarding what resources can and cannot be used during exams, to follow all rules professors decide to set.

To aid professors in ensuring that all forms of assessments have been administered fairly, the University will be electronically monitoring tests, quizzes and examinations, included, but not limited to overseeing chat-rooms, relevant predatory web-sites and, in so doing, we will analyze scholastic evidence of individual exams. E-monitoring tools may include one of the following: Respondus Lockdown Browser & Respondus Monitor; WebEx; Zoom or Microsoft Teams.

Please carefully review information with regards to academic integrity **be aware; be proactive; be smart and be honest.**

Academic Integrity Message from Associate Dean Krystyna Koczanski : <https://youtu.be/Ok-lilm4SeE>

UM Respondus Student Guide

<https://universityofmanitoba.desire2learn.com/d2l/le/content/6606/viewContent/1463719/View>

The Student Discipline By-Law may be accessed at:

http://umanitoba.ca/admin/governance/media/Student_Discipline_Bylaw_-_2009_01_01.pdf

The list of suggested minimum penalties assessed by the Faculty of Science for acts of academic dishonesty is available on the Faculty of Science webpage:

[Faculty of Science – Suggested Minimum Penalties for Acts of Academic Dishonesty](#)

Using Copyright material

Please respect copyright. We will use copyrighted content in this course. University guidelines state that copyrighted works, including those created by instructors of the course are made available for private study and research and must not be distributed in any format without permission. Since it is illegal, do not upload copyrighted works to a learning management system (such as UM Learn), or any website, unless an exception to the Copyright Act applies or written permission has been confirmed.

Course Outline and Prerequisites

An introductory course dealing with the basic metabolic processes that occur in living cells including the production and use of metabolic energy, the breakdown and synthesis of biomolecules, the synthesis of DNA, RNA and proteins; and the regulation of these processes.

******In order to register for this course, a grade of C or higher is required in Biochemistry I (CHEM/MBIO 2700 or 2360) and Organic Chemistry I (CHEM 2100 or 2210).

TEXTBOOKS:

Lehninger. Principles of Biochemistry, 7th Edition (Nelson and Cox).

Modules

1. Glycolysis (Khajehpour)
2. TCA Cycle (Khajehpour)
3. Electron-transport Chain (Khajehpour)
4. Photosynthesis (Mourin)
5. Lipid Catabolism (Khajehpour)
6. Amino Acid Catabolism (Khajehpour)
7. Carbon Fixation (Mourin) 17
8. Gluconeogenesis and the Pentosephosphate Pathway (Mourin) 22
9. Glycogen metabolism (Khajehpour)
10. Nitrogen Fixation (Khajehpour)
11. Amino Acid Synthesis (Khajehpour)
12. Nucleotide Synthesis (Mourin)
13. Fatty Acid Synthesis (Khajehpour)
14. DNA structure (Mourin)
15. DNA metabolism (Mourin)
16. RNA metabolism (Mourin)
17. Translation (Mourin)