

**Chemistry 370/470, Biochemistry
Fall 2024**

Instructor: Graham R. Moran

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Lectures: 8:15 – 9:05 AM, Mon, Wed, Fri, Flanner Hall 105

Discussions: 9:20 - 10:10 AM Fri, Flanner Hall 105

Office Hours: Any time 8AM-5PM weekdays (Flanner Hall 419 (office), 421 (lab))

(In person or Zoom. Walk-ins are fine but best to schedule in advance)

Pre-requisites: Organic Chemistry CHEM 222 or 224 and 226

Course Description: This is a Biochemistry course that emphasizes important biochemical concepts on the structure and function of proteins, enzymes, carbohydrates, lipids, and cell membranes as well as on the bioenergetic and regulatory principles behind the central carbohydrate metabolism pathways.

Graduate Version of the Course: Chem 470 is the graduate version of this Biochemistry course. It requires students to learn additional skills not required for the undergraduate (Chem 370) course that will be helpful in their careers as professional biochemists and chemists. Extra requirements for graduate students will be given as the course progresses.

Text: Nelson and Cox, *Lehninger Principles of Biochemistry*, 7th Ed (ISBN 1464126119) (though 6th or 8th editions will work just fine). The 7th edition is available used for around \$60. In truth almost any of the current introductory biochemistry texts (last three editions) would serve you well in this course. The only downside to using an alternate text is that the figures won't match precisely what is in lecture.

In person meeting guidance: Lectures and exams will be in person. According to university mandate, all students participating on campus activities need to be vaccinated. The university has currently relaxed its universal requirement for indoor mask-wearing during the Fall 2022 semester. As such masks are optional in this class. However, it will remain a principle of this class-section that we show respect for the health of housemates and others in regular contact with members of our community by monitoring both our individual health status and the current guidance of health authorities with regard to contagions.

SCHEDULE OF LECTURES:

Aug 26	Introduction	Ch. 1	23	Enzymes III	Ch. 14
28	Amino acids and Proteins	Ch. 3	25	Review	
30	Amino acids and Proteins	Ch. 3	28	Exam Section 2	
Sep 04	Carbohydrates	Ch. 7	30	Metabolism	Ch. 13
06	Carbohydrates	Ch. 7	Nov 01	Metabolism	Ch. 15
09	Nucleic Acids	Ch. 8	04	Glycolysis and Gluconeogenesis	Ch. 14
11	Nucleic Acids	Ch. 8	06	Glycolysis and Gluconeogenesis	Ch. 14
13	Lipids	Ch. 10	08	Glycolysis and Gluconeogenesis	Ch. 14
16	Lipids	Ch. 10	11	The Citric Acid Cycle	Ch. 16
18	Review		13	The Citric Acid Cycle	Ch. 16
20	Exam Section 1		15	Oxidative Phosphorylation	Ch. 19
23	Protein Synthesis	Ch. 27	18	Oxidative Phosphorylation	Ch. 19
25	Protein Synthesis	Ch. 27	20	Oxidative Phosphorylation	Ch. 19
27	RNA Synthesis	Ch. 26	22	Review	
30	RNA Synthesis	Ch. 26	25	Exam Section 3	
Oct 02	DNA Replication	Ch. 25	27-29	Thanksgiving Break	
04	No Class		Dec 02	Review Section 1	
07-08	Fall Break		05	Review Section 1,2	
09	Membranes	Ch. 11	07	Review Section 2	
11	Enzymes I	Ch.6			
14	Enzymes I	Ch. 6			
16	Enzymes II	Ch.9	12	Final Exam (Cumulative) 9-11am	
18	Enzymes II	Ch. 10			
21	Enzymes III	Ch. 10			

Discussion Activities: Attending the Discussion Sessions are mandatory, and they are critically beneficial to your class performance. The Discussion include the followings activities:

Aug 30	Biochemistry	Ch. 1	08	Glycolysis	Ch. 14
Sept 06	Amino Acids	Ch. 3	15	The Citric Acid Cycle	Ch. 16
13	Carbohydrates and Nucleic	Ch. 7	22	Oxidative Phosphorylation	Ch. 19
20	Nucleic Acids and Lipids	Ch. 8,10	Dec 06	Review	
27	Protein Synthesis	Ch. 27			
Oct 04	No Class				
11	RNA Synth/DNA Replic.	Ch. 26,25			
18	Enzymes	Ch. 6			
25	Enzymes	Ch. 6			
Nov 01	Metabolism	Ch. 13			

Grading Policy:

There are **3 tests and a final examination** during the course. There will be 100 (20% of total) points possible on each test and 200 (40% of total) on the final. If you miss a mid-term test for any sanctioned reason, then your final will automatically count for 300 points. Minimally, to miss an exam and shift the assessment to the final, a written doctor's or judge's note or similar verifying notification must be provided prior to the test.

Grading Sale:

100-90%	A
90-85%	A-
85-80%	B+
80-75%	B
75-70%	B-
70-65%	C+
65-60%	C
60-55%	C-
55-50%	D+
50-45%	D
45-40%	D-
40-35%	F+
35-0%	F

Final Examination: The University sets the schedule for all final exams.

The final will be held on Saturday, 12th of December from 9 AM to 11 AM. You will have exactly 2 hours to complete the exam. Additional time will not be granted, even if you start late. There will be no make-up final exams given under any circumstance, and the exam will not be given early, either.

Instructors may not reschedule final exams for a class for another day and/or time during the final exam period. There can be no divergence from the posted schedule of dates for final exams. Individual students who have four (4) final examinations scheduled for the same date may request to have one of those exams rescheduled. If a student reports having four final examinations scheduled for the same date, students should be directed to e-mail a petition to Adam Patricoski, Assistant Dean for Student Academic Affairs, CAS Dean's Office (apatricoski@luc.edu).

Information about Academic Integrity

Academic integrity is the pursuit of scholarly activity in an open, honest, and responsible manner. Academic integrity is a guiding principle for all academic activity at Loyola University Chicago, and all members of the University community are expected to act in accordance with this principle. Please open and read the foldout for the third item, "Academic Integrity" in the [Undergraduate Academic Standards and Regulations](#).

Academic dishonesty can take several forms, including, but not limited to cheating, plagiarism, copying another student's work, submitting false documents, and deliberately disrupting the performance of other class members. Standards apply to both individual and group assignments.

Regarding the use of Artificial Intelligence: our Provost has expressed to "Let us all make sure we are learning and sharing best practices and not allowing AI to do the learning for us." In this course, any work you submit for credit must represent your own ideas and understanding of the assigned material. If you are uncertain about any case where your use of AI may be in conflict with University or course standards, please see me to discuss your concerns.

An instance of academic misconduct (including those detailed on the website provided above or in this syllabus) will be reported to the Department Chair and the academic Dean's office.

Attendance

Universal Absence Accommodation Policy

The purpose of a universal absence accommodation policy is to account for emergency circumstances (e.g., serious illness, caring for a family member, car accident) that require you to be absent from class, while maintaining fairness in grading for students who attend and complete all in-class graded assignments. We believe that class attendance and participation are essential for your success in this class, and that your health is important to us and our shared community. Please use good judgement and stay home if necessary/prudent for your circumstances.

Accommodations for Religious Observances

If you have observances of religious holidays that will cause you to miss class or otherwise effect your academic work in the course you must alert the instructor ***no later than Friday of Week 2 in the semester*** to request accommodations. Advance notice must be sent to the instructor through Loyola email by this deadline.

Loyola University Absence Policy for Students in Co-Curricular Activities (including ROTC):

Students missing classes while representing Loyola University Chicago in an official capacity (e.g., intercollegiate athletics, debate team, model government organization) shall be allowed by the faculty

member of record to make up any assignments and to receive notes or other written information distributed in the missed classes.

Students should discuss with faculty the potential consequences of missing lectures and the ways in which they can be remedied. Students must provide their instructors with proper documentation i.e., "[Athletic Competition & Travel Letter](#)" describing the reason for and date of the absence.

This documentation must be signed by an appropriate faculty or staff member and it must be provided to the professor in the first week of a semester. It is the responsibility of the student to make up any assignments. If the student misses an examination, the instructor is required to allow the student to take the examination at another time.

(<https://www.luc.edu/athletheadvising/attendance.shtml>)

Students who will miss class for an academic competition or conference must provide proper documentation to their instructor as early in the semester as possible.

Information about Accessibility Support

Student Support: Requests for Accommodation

Loyola University Chicago provides reasonable accommodations for students with disabilities. Any student requesting accommodations related to a disability or other condition is required to register with the Student Accessibility Center (SAC). Professors will receive an accommodation notification from SAC, preferably within the first two weeks of class.

Students are encouraged to meet with their professor individually in order to discuss their accommodations. All information will remain confidential.

Please note that in this class, software may be used to audio record class lectures in order to provide equal access to students with disabilities. Students approved for this accommodation use recordings for their personal study only and recordings may not be shared with other people or used in any way against the faculty member, other lecturers, or students whose classroom comments are recorded as part of the class activity. Recordings are deleted at the end of the semester.

For more information about registering with SAC or questions about accommodations, please contact [SAC](#) at 773-508-3700 or SAC@luc.edu.

If you use the Testing Center, please schedule all of the tests for this class at the beginning of the semester. If a scheduled test date changes, you will still be accommodated if you had scheduled your test in advance. If you have any questions or concerns regarding the implementation of your accommodations in this course, please contact the SAC for assistance.

Pass/Fail Conversion Deadlines and Audit Policy

A student may request to convert a course into or out of the "Pass/No-Pass" or "Audit" status only within the first two weeks of the semester. For the Fall 2024 semester, students are able to convert a class to "Pass/No-Pass" or "Audit" through Monday, September 9th. Students must submit a request for Pass/No-Pass or Audit to their Academic Advisor.

Department Course Repeat Rule

Course Repeat Rule

Effective with the Fall 2017 semester, students are allowed only THREE attempts to pass Chemistry courses with a C- or better grade. The three attempts include withdrawals (W). The Department advises that it is preferable to complete a course with a grade of C or C-, and to demonstrate growth in future coursework, than to withdraw from a course.

After the second attempt, the student must secure Department approval for a third attempt. Students must fill out the [Permission to Register Form](#), and arrange a meeting with the Undergraduate Program Director, Assistant Chairperson, or Chairperson in Chemistry. If approved, a signed copy of this form is then sent to the student's Advising office to secure final permission for the attempt.

Additional course material and recording statements

a. Copyright/Intellectual Property reminder

Course materials provided by your instructors at Loyola, including my materials, may not be shared outside any course without the instructor's written permission. Content posted without permission will be in violation of Copyright/Intellectual Property laws. Class meetings may not be recorded without the instructor's written permission.

Privacy Statement

Assuring privacy among faculty and students engaged in online and face-to-face instructional activities helps promote open and robust conversations and mitigates concerns that comments made within the context of the class will be shared beyond the classroom. As such, recordings of instructional activities occurring in online or face-to-face classes may be used solely for internal class purposes by the faculty member and students registered for the course, and only during the period in which the course is offered. Students will be informed of such recordings by a statement in the syllabus for the course in which they will be recorded. Instructors who wish to make subsequent use of recordings that include student activity may do so only with informed written consent of the students involved or if all student activity is removed from the recording. Recordings including student activity that have been initiated by the instructor may be retained by the instructor only for individual use.