

**Chemistry 370/470, Biochemistry**  
**Fall 2022**

**Instructor:** Graham R. Moran

**Office:** FH419

**Phone:** 773-508-3756

**Email:** g Moran3@luc.edu

**Lectures:** 9:20 – 10:10 AM, Mon, Wed, Fri, Cudahy Science Room 100

**Discussions:** 10:25 - 11:15 AM Wed, Cudahy Science Room 100

**Office Hours:** Any time 8AM-5PM weekdays (happy for walk-ins 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:** Berg, Tymoczko, Gatto and Stryer, *Biochemistry*, 9<sup>th</sup> Ed (though 8th edition will work just fine). This text is only recommended to have continuity with Chemistry 371. In truth almost any of the current 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 29	Introduction	Ch. 1	24	Enzymes III	Ch. 14
31	Amino acids and Proteins	Ch. 2	26	Review	
Sept 02	Amino acids and Proteins	Ch. 2	28	Exam Section 2	
05	Carbohydrates	Ch. 11	31	Metabolism	Ch. 15
07	Carbohydrates	Ch. 11	Nov 02	Metabolism	Ch. 15
09	Nucleic Acids	Ch. 4	04	Glycolysis and Gluconeogenesis	Ch. 16
12	Nucleic Acids	Ch. 4	07	Glycolysis and Gluconeogenesis	Ch. 16
14	Lipids	Ch. 12	09	Glycolysis and Gluconeogenesis	Ch. 16
16	Lipids	Ch. 12	11	The Citric Acid Cycle	Ch. 17
19	Review		14	The Citric Acid Cycle	Ch. 17
21	Exam Section 1		16	Oxidative Phosphorylation	Ch. 18
23	Protein Synthesis	Ch. 31	18	Oxidative Phosphorylation	Ch. 18
26	Protein Synthesis	Ch. 31	21	Oxidative Phosphorylation	Ch. 18
28	RNA Synthesis	Ch. 30	23-26	Thanksgiving Break	
30	RNA Synthesis	Ch. 30	28	Review	
Oct 03	DNA Replication	Ch. 29	30	Exam Section 3	
05	DNA Replication	Ch. 29	Dec 02	Review Section 1	
07	Membranes	Ch. 13	05	Review Section 1	
10-11	Mid-Sem. Break		07	Review Section 2	
12	Enzymes I	Ch.8	09	Review Section 2	
14	Enzymes I	Ch. 9	17	Final Exam (Cumulative) 1-3pm	
17	Enzymes II	Ch.9			
19	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 31	Biochemistry	Ch. 1	09	Glycolysis	Ch. 13
Sept 07	Amino Acids	Ch. 2	16	The Citric Acid Cycle	Ch. 13
14	Carbohydrates and Nucleic	Ch. 2	30	Oxidative Phosphorylation	Ch. 14
21	Nucleic Acids and Lipids	Ch. 3	Dec 07	Review	
28	Protein Synthesis	Ch. 3			
Oct 05	RNA Synthesis	Ch. 4			
12	DNA Replication	Ch. 4			
19	Enzymes	Ch. 5			
26	Enzymes	Ch. 5			
Nov 02	Metabolism	Ch. 6			

### 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, 17th from 1 PM to 3 PM.** You will have exactly 2 hours to complete the exam. Additional time will not be granted. There will be no make-up final exams given. 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. A student having four final examinations scheduled for the same date should e-mail a petition to Adam Patricoski, Assistant Dean for Student Academic Affairs, CAS Dean's Office (aptricoski@luc.edu).

**Independent Effort:** Students are referred to [the CAS Statement on Academic Integrity](#). Students are advised to download and read the statement as it will be part of the governance of their efforts in the course. Any student found cheating on any examination will receive an automatic "0" for that examination, which cannot be dropped. His (her) name will be reported to the Chairperson of the Chemistry and Biochemistry Department, as well as to the Dean's office of the College of Arts and Sciences, who will decide whether further disciplinary action is necessary. We remind you that academic misconduct will become part of the record and may be transmitted to organizations such as medical schools, dental schools, pharmacy programs, graduate programs, etc. Together, we encourage you to become the best that you can be and will work with you to achieve that goal.

**Students with Disabilities:** If you have any special needs, please let me know in the first week of classes. The university provides services for students with disabilities. Any student who would like to use any of these university services should contact the Services for Students with Disabilities (SSWD), Sullivan Center, (773) 508-3700. Further information is available at <http://www.luc.edu/sswd/>.

**Loyola University Absence Policy for Students in Co-Curricular Activities:** 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 (develop standard form on web) 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 as far in advance of the absence as possible. It is the responsibility of the student to make up any assignments. If the student misses an examination, the instructor is required to give the student the opportunity to take the examination at another time. (<https://www.luc.edu/athletheadvising/attendance.shtml> )