



LOYOLA UNIVERSITY CHICAGO

Department of Chemistry & Biochemistry
1068 W. Sheridan Rd.
Chicago, IL 60660
<https://www.luc.edu/chemistry/>

- Course:** **Biochemistry**
CHEM 361
Semester: Fall 2019
Lecture: Section 008 - MWF 1:40 – 2:30 PM, Dumbach 120
Discussion: Section 009 – W 10:25 – 11:15 AM, Dumbach 117
- Professor:** **Dr. Caitlin G. Decker, PhD**
Office: FH 200A
Office Hours: T/Th 10-11 AM
Email: cdecker@luc.edu
*** No specific problem-solving questions will be answered via email. All such questions should be posted to the discussion board (sakaii) so that they are visible to all students or asked during discussion section / office hours.*
- Materials:** **Textbooks**
Campbell, Farrell, McDougal. (2016) Biochemistry, 9th edition.
Print or electronic version is fine. Earlier editions are acceptable.
Text ISBN: 9781305961135
EText ISBN:9781337514354

MCAT Biochemistry Review 2020-2021
ISBN 978-1-5062-4865-3
- Sakaii:** All students are enrolled in the class Sakaii site. It is imperative that you check this site daily to keep informed of all activities.
- Important Dates:** Oct 25th – Midterm Grades / Academic Alerts (*prior* to this date!)
Nov 1st – drop deadline
- Exams:** **Exam 1 – Friday Sept 13th**
Exam 2 – Friday Oct 18th (Midterm Grades submitted after Exam 2 is graded)
Exam 3 – Friday Nov 15th
FINAL - Thursday, Dec 12th 1-3 PM
*Final Exam is NOT cumulative
***There will be NO regrades for this course on any exam. Grades are final. You must show your ID to the instructor and sign-in next to your name for each exam. All electronic devices must be turned off and inside bags during exams.*

Quizzes:

5 quizzes (worth 1% each) towards an overall 5% participation grade. A quiz will be given at the beginning of each discussion section and graded for completeness rather than correctness. The answers will be discussed immediately after the quiz, and questions on the quiz may appear on exams. There are a total of 15 discussion sections, so to gain the maximum possible 5% students must attend at least 5 discussion sections. No additional points may be earned by taking more than the 5 minimum quizzes nor will any make-up quizzes be given outside of the scheduled discussion section.

Quizzes may be based on a research journal article provided 1 week in advance or on material from class. Quizzes may be assigned to individuals or groups, may be assigned as open-note (or open-electronics) or closed.

Grade:

Grades will be determined using one of the two methods below (whichever results in a *higher* overall grade):

1) Participation (Discussion Quizzes) = 5%.

Rest of Grade: All three midterms + final are averaged.

Thus, each exam will weigh $\frac{1}{4}$ of the remaining 95%

2) Participation (Discussion Quizzes) = 5%. Rest of Grade: The top two midterm exams weigh $\frac{1}{4}$ each, and the final will weigh $\frac{1}{2}$ of the remaining 95%

This equates to the final exam score replacing the lowest midterm score.

***due to this policy there will be NO make-up exams. If you miss an exam, it will count as the "dropped" exam, and method #2 will be used to calculate the grade.*

To calculate what you need on the Final:

Ex 1) Student X wants to calculate the grade needed on the final exam in order to gain an overall score of 70% or a C- in the class. Student X has received the following scores thus far:

Participation (Quizzes): 4%

Exam 1: 56%

Exam 2: 70%

Exam 3: 42%

Method 1:

$$(56+70+42+N)/4 + 4 = 70$$

Subtract 4 from each side, then multiply by 4 on each side to give:

$$56+70+42+N=264$$

Subtract the 3 known scores to give

$$N=96\%$$

Method 2:

$$(56+70+2N)/4=70$$

Subtract 4 from each side, then multiply by 4 on each side to give:

$$56+70+2N=264$$

Subtract the 2 known scores to give

$$2N= 138$$

Divide by 2 on each side

$$N=69\%$$

Therefore, Student X needs to earn a score of 69% on the final exam in order to pass the class with an overall grade of 70% or C-

Grading Scale:

	93-100% = A	90-92% = A-
87-89% = B+	83-86% = B	80-82% = B-
77-79% = C+	73-76% = C	70-72% = C-
60-69% = D		
Below 60% = F		

***the professor reserves the right to implement a curve, as necessary*

Course Description: Lecture and discussion. Survey of Biochemistry for non-majors. Structural-functional relationships of proteins, nucleic acids and cell membranes; and metabolic pathways.

Prerequisite: Chem 222 (or Chem 224 and 226)

Course Content*

- Sc 1. Biomolecules - DNA, RNA, amino acids, peptides, proteins, carbohydrates, lipids (C. Ch 1)
- Sc 2. DNA, Replication, and Biotechnology (C. Ch 9, 10 & 13, MCAT Ch 6)
- Sc 3. Genetic Code – RNA, Transcription, Translation (C. Ch 11-12, MCAT Ch 7)
- Sc 4. Amino Acids, Peptides, Proteins (C. Ch 3&4, MCAT Ch 1)
- Sc 5. Enzymes & Enzyme Kinetics (C. Ch 6&7, MCAT Ch 2)
- Sc 6. Proteins that are NOT Enzymes (C. Ch 8, MCAT Ch 3)
- Sc 7. Buffers, pH, pKa, Isoelectric point (PI), titration (C. Ch 2)
- Sc 8. Protein expression, purification / isolation, and characterization (C. Ch 5, MCAT Ch 3)
- Sc 9. Lipid structure and function (C. Ch 8, MCAT Ch 5)
- Sc 10. Biological membranes (C. Ch 8, MCAT Ch 9)
- Sc 11. Carbohydrate structure and function (C. Ch 16, MCAT Ch 4)
- Sc 12. Carbohydrate metabolism I:
Glycolysis, Gluconeogenesis, Pentose Phosphate pathway (C. Ch 17&18, MCAT Ch 9)
- Sc 13. Carbohydrate Metabolism II: Aerobic Respiration:
Citric Acid Cycle, electron transport and oxidative phosphorylation (C. Ch 19, 20, MCAT Ch 10)
- Sc 14. Lipid and Amino Acid Metabolism (C. Ch 21, MCAT Ch 11)
- Sc 15. Bioenergetics and regulation of metabolism (C. Ch 15, MCAT Ch 12)

*as this course is a 1-semester overview of Biochemistry for non-majors, selected topics will be covered. Therefore the above describes “Section or Sc Topics”, the specific chapters and parts of chapters from the reference books that correspond to various Sc will have different numbering. Attendance in lectures, therefore, is crucial to understand what information was covered. Not all announcements or topics will be posted on sakai, so if a lecture is missed **it is the student’s responsibility to contact another student in the class to obtain any missed information / hand-outs**. Please do not email the professor with regards to absences unless it is for an exam day or an extended absence.

Institutional Policies:

Loyola Official Academic Calendar: www.luc.edu/academics/schedules

Incomplete Grade:

If the Final Exam is missed for extenuating circumstances (incapacitating illness, immediate family member death, fire/flood or related emergency) students must fill-out an “Incomplete Grade Form”. Be aware that the option to apply for an incomplete grade is at the discretion of the professor. Incomplete grade info: <https://www.luc.edu/regrec/faculty.shtml>

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). After the second attempt, the student must secure approval for a third attempt. Students must come to the Chemistry Department, fill out a permission to register form or print it from Department of Chemistry & Biochemistry website: <http://www.luc.edu/chemistry/forms/> and obtain a signature from the Undergraduate Program Director, Assistant Chairperson, or Chairperson in Chemistry. A copy of this form is then taken to your Academic Advisor in Sullivan to secure final permission for the attempt. Students are encouraged to seek help with the course material early and often during the semester. Attend office hours regularly for assistance before any deficiencies become serious!

Accommodation Requests:

Additional time on exams, a quiet space for exams, a note-taker, or permission to record lectures can be requested for qualifying students. It is the responsibility of the student to register with SAC and to provide documentation to the professor prior to the initiation of such accommodations.

Student Accessibility Center: <https://www.luc.edu/sac/registerwithsac/>

Tentative Course Schedule/Outline:

The instructor reserves the right to adjust the schedule and assignments as circumstances may warrant during the semester.

Week	Monday	Tuesday	Wednesday	Thursday	Friday
1	<i>Aug 26th</i>	<i>Aug 27th</i>	<i>Aug 28th</i>	<i>Aug 29th</i>	<i>Aug 30th</i>
	Syllabus / Sc.1		Sc 2		Sc 2
2	<i>Sept 2nd</i>	<i>Sept 3rd</i>	<i>Sept 4th</i>	<i>Sept 5th</i>	<i>Sept 6th</i>
	LABOR DAY		Sc 3		Sc 4
3	<i>Sept 9th</i>	<i>Sept 10th</i>	<i>Sept 11th</i>	<i>Sept 12th</i>	<i>Sept 13th</i>
	Sc 4		Catch-up/Review		EXAM 1
4	<i>Sept 16th</i>	<i>Sept 17th</i>	<i>Sept 18th</i>	<i>Sept 19th</i>	<i>Sept 20th</i>
	Sc 5		Sc 5		Sc 5
5	<i>Sept 23rd</i>	<i>Sept 24th</i>	<i>Sept 25th</i>	<i>Sept 26th</i>	<i>Sept 27th</i>
	Sc 5		Sc 6		Sc 6
6	<i>Sept 30th</i>	<i>Oct 1st</i>	<i>Oct 2nd</i>	<i>Oct 3rd</i>	<i>Oct 4th</i>
	Sc 7		Sc 7		Sc 7
7	<i>Oct 7th</i>	<i>Oct 8th</i>	<i>Oct 9th</i>	<i>Oct 10th</i>	<i>Oct 11th</i>
	FALL BREAK		Sc 8		Sc 8
8	<i>Oct 14th</i>	<i>Oct 15th</i>	<i>Oct 16th</i>	<i>Oct 17th</i>	<i>Oct 18th</i>
	Sc 8		Catch-up/Review		EXAM 2
9	<i>Oct 21st</i>	<i>Oct 22nd</i>	<i>Oct 23rd</i>	<i>Oct 24th</i>	<i>Oct 25th</i>
	Sc 9		Sc 9		Sc 10
10	<i>Oct 28th</i>	<i>Oct 29th</i>	<i>Oct 30th</i>	<i>Oct 31st</i>	<i>Nov 1st</i>
	Sc 10		Sc 11		Sc 11
11	<i>Nov 4th</i>	<i>Nov 5th</i>	<i>Nov 6th</i>	<i>Nov 7th</i>	<i>Nov 8th</i>
	Sc 12		Sc 12		Sc 12
12	<i>Nov 11th</i>	<i>Nov 12th</i>	<i>Nov 13th</i>	<i>Nov 14th</i>	<i>Nov 15th</i>
	Sc 13		Catch-up/Review		EXAM 3
13	<i>Nov 18th</i>	<i>Nov 19th</i>	<i>Nov 20th</i>	<i>Nov 21st</i>	<i>Nov 22nd</i>
	Sc 13		Sc 13		Sc 14
14	<i>Nov 25th</i>	<i>Nov 26th</i>	<i>Nov 27th</i>	<i>Nov 28th</i>	<i>Nov 29th</i>
	Sc 14		THANKSGIVING BREAK		
15	<i>Dec 2nd</i>	<i>Dec 3rd</i>	<i>Dec 4th</i>	<i>Dec 5th</i>	<i>Dec 6th</i>
	Sc 15		Sc 15		Catch-up/Review
16	<i>Dec 9th</i>	<i>Dec 10th</i>	<i>Dec 11th</i>	<i>Dec 12th</i>	<i>Dec 13th</i>
	Final Exam Week			FINAL EXAM 1-3 PM	