

SYLLABUS

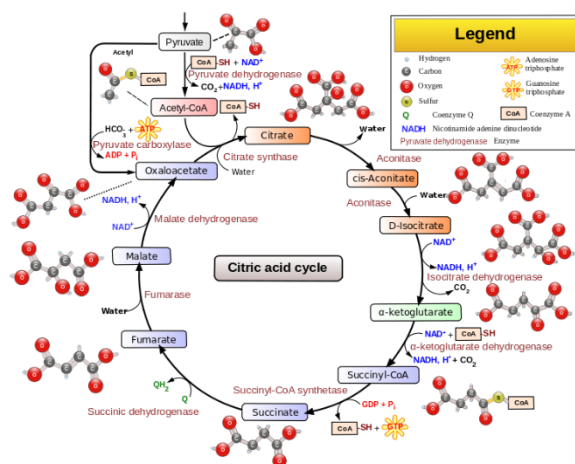
Department Name: Natural Sciences
 Course Number: Chem 4100

Course Title: **Biochemistry**

Units: 3 units
 Semester offered: **Summer 2024 (7/1-8/2)**
 Modality: In person

Course Meeting Time: **10:00 a.m. - 12:30 p.m.**
 Course Meeting Days: **Monday - Friday (see p. 4-5)**
 Course Meeting Place: **Meadowlands 333**

Prerequisites: General Chemistry I (Chem 2000)
 General Chemistry II (Chem 2100)
 Organic Chemistry I (Chem 3800)



Instructor Information:

Name: Tyler Johnson, PhD
 Office Phone: 415-482-1983

Office Hours: Tuesday, Thursday 1:00 - 2:00 p.m. (in person or by Zoom)
 Office Location: 128 Science center or by Zoom

e-Mail Address: tyler.johnson@dominican.edu
 web: <http://moodle.dominican.edu/> Login → Chem 4100

Teaching Assistant (TA): Jacqueline Clark - jacqueline.clarke@students.dominican.edu
 Joe Gerke - joe.gerke@students.dominican.edu

If anything is unclear to you - please **Reach out – we're all here to HELP STUDENTS** 😊

DESCRIPTION OF SYLLABUS CONTENTS

1. Course Description: General Content of the Course. An interdisciplinary introduction to Biochemistry. Chemistry of carbohydrates, lipids, proteins, nucleic acids, vitamins, and hormones, with major emphasis on biochemical processes in human cells. This class also covers enzyme kinetics, energetics of metabolic reactions and molecular biochemistry

2. General Education or Major Requirements Satisfied by the Course:

This course satisfies the requirements for a biology or chemistry degree at Dominican University of California. This course is designed for majors that also want to include a pre-medicine (pre-med) emphasis and is transferable to the California State University (CSU) and University of California (UC) systems.

[This syllabus is subject to modification. The instructor will inform students of any changes.](#)

3. Learning Outcomes

This course satisfies the following Chemistry Program Learning Outcomes:

PLO 1. Students will comprehend and integrate the fundamental scientific concepts and laboratory skills in the chemical and physical sciences.

PLO 3. Students will demonstrate effective communication skills in written presentations of scientific research

PLO 3. Students will develop the skills and knowledge to become ethical practitioners of science.

PLO 5. Students will demonstrate readiness for further study or employment in discipline related areas.

This course will also allow students to acquire the following institutional learning outcomes

ILO 1 Exploration and Acquisition of Knowledge

ILO 2 Development of Intellectual, Professional, and Artistic Skills

4. Required Text & Materials: Biochemistry 7th Edition, 2011 ISBN-13: 978-1429276351

Scientific calculator (without memory functions) for use on exams. A copy of the text is on reserve in library.

5. Library Support: Library Liaison: Amy Gilbert, amy.gilbert@dominican.edu, 415-257-1329

6. Online Components of the Course. Moodle website: <http://moodle.dominican.edu/>

7. Academic Honesty Honor Code. Students are expected to adhere to the Academic Honesty Honor Code stated in the [Catalog](#). Students should practice academic integrity in all of its forms, including abstaining from plagiarism, cheating, and other forms of academic misconduct. The University reserves the right to determine in any given instance what action constitutes a violation of academic honesty and integrity.

Our course policy on cheating involves the following guidelines which include:

1) Any student caught using a: a) graphing calculator, b) smart phone, c) smart watch or d) unauthorized supplementary device during an exam will receive a 0.

2) Students are encouraged to use the restroom prior to each 70 minute exam. Students may not be allowed to use the restroom during a 70 minute exam. Professional notes from a physician will be an exception.

3) No make up exams will be provided. Students missing an exam can take the weighted average score of their scores from two of the three exams given if they miss an examination.

If more than one exam is missed by a student, they may be advised to *withdraw* from the course.

Make up exams will be proctored by a faculty or staff member and if one is not available the student will take the make up exam under video surveillance. **Individual circumstances will be evaluated at the instructor and the NSM department chair's discretion.** The above guidelines have been set in place to create democracy and equity for everyone in the classroom. **Please do not take them personally, just take them seriously.**

8. Diversity

Dominican University of California is committed to promoting diversity. In recognition of our diverse backgrounds, the inclusion of diverse thought is encouraged in this course and in all classroom interaction. In addition, in this course, an effort will be made to provide a learning environment which is conducive for all students.

9. Assignments

Students are expected to read ahead in the textbook based on the tentative schedule. Assignments include homework and in-class worksheets. In-class exams will also be administered.

Homework. There will be no homework, there will just be suggested problems for each chapter from the book. You don't have to do them, but you are unlikely to get a good grade if you don't try some of the questions from each chapter.

IMPORTANT NOTE:

Working problems is essential to learning biochemistry. It'll be difficult for you to solve problems on exams if you do not **PRACTICE** working similar problems while you are studying. Keeping all of your worked-out problems in an organized folder provides the foundation for review material involving our exams.

10. Grading:

Exam 1	200 pts
Exam 2	200 pts
Exam 3	200 pts
Total	600 pts

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
< 59%	F

NOTE: We structured this course to simulate preparative courses that prepare students for the: a) Optometry Admissions Test (OAT), b) Dental Admissions Test (DAT) or c) Medical College Admissions Test (MCAT). After taking these entrance exams (a-c), students are not provided their exams or able to view which question(s) they missed. They are provided their percentile score overall out of 100%. Similarly, our exams will not be passed back to students. Exam scores will be emailed to each student. Students can view the question(s) they missed on our exams during office hours in person with their instructor. Exams will be drawn from approximately ~85% Worksheets questions with ~15% drawn from new but related material.

11. Expectations for Students

Please turn off cell phones during class and practice respect for your fellow students and the instructor. Texting friends and family during class can be distracting to your fellow students and instructor. Materials posted to the course web site are only for class use and may not be duplicated and distributed or sold. Students may download and print information for personal use as a student in the class. This is consistent with Fair Use under intellectual property protection. Expect to spend a minimum of three hours outside of class for every one hour of class. Students must come to class on time and attend all lectures. Teamwork is essential and encouraged on class assignments 😊, **however** completing assignments is the responsibility of each student.

PRIOR TO EACH LECTURE – PLEASE READ THE OUTLINED CHAPTERS IN OUR TEXT (see page 5)

12. Students Who Require Accommodations:

Dominican University of California is committed to equal access for all students in accordance with the American's with Disabilities Act of 1990. Students who feel they may need accommodations based on the impact of a disability should contact the Office of Accessibility and Disability Services at 415-257-1388 asap to discuss specific accommodations. Please submit the subsequent paperwork to the instructor asap.

13. Course Evaluations Dominican University of California is committed to an ongoing evaluation of its programs and courses through a culture of constructive dialogue and feedback. It is expected that students will complete the course evaluation either in class or outside of class. The instructor will determine time for the course evaluation to be completed. A link to the course evaluation will be sent to all the students enrolled in the class by the IT Department. The evaluation may be completed on a laptop, tablet, or mobile device. A laptop can be checked out from the library if needed.

14. Title IX

As instructors, one of our responsibilities is to help create a safe learning environment for our students and for the campus as a whole. As part of our commitment to students' well being, we have the responsibility to report any instances of sexual harassment, sexual violence, relationship violence, or stalking to our Title IX Coordinator, so they can inform students about their reporting options and the various support resources available. Student privacy is a priority for us and will be maintained to the extent permissible by law and policy. For more information about your rights and reporting options, including confidential and anonymous reporting, please visit dominican.edu/titleix.

15. Disclaimer This syllabus is subject to modification. The instructor will inform students of changes.

16. TENTATIVE Lecture Class Schedule – We reserve the right to adjust accordingly.

Date	Lecture	Content	Chapter
July 1	1	Water and Acids/Bases	1, 2
	2	pH, pKa and Buffers	2
July 2	3	Amino Acids	2
	4	Proteins	2
July 3	5	Exploring proteins	3
July 4		HOLIDAY	
July 5	6	Exploring proteins	3
July 8	7	Protein structure	3
July 9	8	Exploring proteins	3
July 10	9	Enzymes & review of thermodynamics	8
		Exam 1 (Lectures 1-8)	1-3
July 11	10	Enzyme kinetics - Michaelis Menten	8
July 12	11	Enzyme kinetics - Michaelis Menten	8
July 15	12	Enzyme kinetics – Regulation	9,10
July 16	13	Examples of Enzyme Regulation	7,10
July 17	14	Carbohydrate and Metabolism	11,14
July 18	15	Glycolysis	7-10
July 19	16	Gluconeogenesis	15
July 22	17	The Citric Acid Cycle (TCA)	17
		Exam 2 (Lectures 9-16)	7-11, 14-15
July 23	18	The Citric Acid Cycle (TCA)	17
July 24	19	Electron Transport chain	18
July 25	20	Electron Transport chain	18
July 26	21	Pentose Phosphate Pathway	20
July 29	22	Glycogen Metabolism	21
July 30	23	Glycogen Metabolism-Regulation	21
July 31	24	Lipids	12,22
Aug 1	25	Fatty acid Metabolism	22
Aug 2		Exam 3 (Lectures 17 -25)	12, 16-18, 20-22

Tentative Calendar for Summer Biochemistry

JULY 2024

SUN	MON	TUE	WED	THU	FRI	SAT
30	1 Lect 1 & 2 (review)	2 Lect 3 & 4 (review) O.H. 1-2 pm	3 Lect 5	4 Holiday 😊	5 Lect 6	6
7	8 Lect 7	9 Lect 8 O.H. 1-2 pm	10 Lect 9 Exam 1	11 Lect 10 O.H. 1-2 pm	12 Lect 11	13
14	15 Lect 12	16 Lect 13 O.H. 1-2 pm	17 Lect 14	18 Lect 15 O.H. 1-2 pm	19 Lect 16	20
21	22 Lect 17 Exam 2	23 Lect 18 O.H. 1-2 pm	24 Lect 19	25 Lect 20 O.H. 1-2 pm	26 Lect 21	27
28	29 Lect 22	30 Lect 23 O.H. 1-2 pm	31 Lect 24	1 Lect 25 O.H. 1-2 pm	2 Exam 3	3