

Biochemistry I, CHE 450

MW, Section -30

Instructor: Dr. Noel Sturm, SI 311

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Course Organization and Policies:

1. **Prerequisites:** (a) General Chemistry (1 year) **and** (b) Organic Chemistry w/ Laboratory (1 year or a 1 semester survey course w/ lab) **and** (c) Quantitative Analysis (may **NOT** be taken concurrently w/ Biochemistry 450).

2. **REQUIRED Text:** Lehninger: Principles of Biochemistry, 8th Edition; Authors: Nelson and Cox

We will be Using the myCSUDH-ImmediateAccess- program.

How Does It Work?

The required course ebook will be available through BlackBoard in a digital format .

You will receive Free Access on the first day of classes.

Discounted pricing, \$89.99, has been negotiated with publishers.

Students will have until Friday, February 17th, 2023 to opt out of the program..

After the opt-out deadline, any students who has not opted out will be charged on their CSUDH student account by the university, allowing more time to pay for the required material.

Here is a link from the publisher, Macmillan, that provides ISBN information for the text book and Sapling Learning.

[Lehninger and Sapling](#)

3. The reading list consists of links (see below) for Lehninger that highlight the sections and sub-sections of each chapter that are important for understanding the chemistry of biological systems and are relevant to the questions you will be asked in the homework and on the exams.

4. **Power Point Slides:** The power point slides are on-line, arranged via lecture topic, see below. **Examination questions will be derived directly from the readings, power point slides and homework.** There are also additional .html files provided to give an alternative presentation of the material.

5. **On-Line and On-Campus Sessions:** We will meet on-line every Monday 10:00AM-11:15AM, using Class Collaborate Ultra, on-campus every Wednesday 10:00-11:15AM, WH D-165 and on-line every Friday 10:00AM-11:15AM for Office Hours, using Blackboard Collaborate Ultra. We will discuss lecture material, do *quick thinks* and answer questions. It is very important that you attend all of the on-line sessions in order to succeed in this course. You must have a working computer, reliable internet connectivity and browser is an important requirement, please use Firefox 2.0.x or higher.

Instructions for Class Collaborate Ultra:

https://help.blackboard.com/Collaborate/Ultra/Moderator/Get_Started/About_Collaborate

In Blackboard:

<Tools

<Class Collaborate Ultra

<Click-on the "Session"

<Click-on "Join Room"

6.Examinations: There will be four multiple choice examinations (see syllabus for specific dates) each worth 99 points. Absolutely **NO** make-up exams will be given. All examinations will be on-line through Bb Collaborate Ultra using the Respondus Lockdown Browser.

7. Final Exam: The final exam (100 pts), will be on-line through Bb Collaborate Ultra using the Respondus Lockdown Browser and for section -30 is scheduled for Monday, May 15th, 2023, 1:00PM-3:00PM.

8. Homework:

- Homework can be found in the "Homework" link on Bb.
- There are twenty-two, on-line, multiple choice homework assignments.
- The homework assignments are based on the readings from Lehninger: Principles of Biochemistry.
- **Each homework assignment has a specific due date and homework submitted after that date will not be graded.** (See Syllabus)
- Each homework assignment is worth 10 points for a total of 220 points towards your final course grade.

9. The Goal of this course is to understand and outline Proteins, Enzymes, Vitamins, Membranes and all of the Carbohydrate Metabolic Pathways.

10. Grading Criteria: Letter grades are based on the following point distribution. Grades are criterion-referenced not norm-referenced; each student has an equal opportunity meet the criteria charted below:

Homework	220 pts
Respondus Test Question	4 pts
Exams	396 pts
Final Exam	100 pts
Total	720 pts

Grade	Percentages	Grade	Percentages
A	100-91	A-	90-89
B+	88-87	B	86-81
B-	80-79	C+	78-77
C	76-71	C-	70-69
D+	68-67	D	66-60
F	59-0		

11. Case Studies/Clinical Correlates: Related directly to the general biochemical principles being taught are intended to give "real-life" significance to the *biochemistry* experience and should be printed from the web site.

12. Course Description: The chemistry of amino acids and proteins; the chemistry and metabolism of carbohydrates and lipids; energetics in living systems. The course is taught with a medical emphasis and covers peptides, proteins, myoglobin/hemoglobin, enzymes, vitamins, catecholamines and metabolism, as well as, clinical correlates and case studies.

13. Academic Integrity Statement

The university is a community of learners bonded together by the search for knowledge; the pursuit of personal, social,

cultural, physical, and intellectual development; and the desire for the liberating effects of an advanced education. California State University, Dominguez Hills (CSUDH) has a culture--an academic culture--shared with other universities and colleges across the nation. Integral to that culture is a set of values such as academic freedom, dedication to teaching and learning, diversity, civility toward others, and academic integrity. Academic integrity is of central importance in the university community and involves committed allegiance to the values, the principles, and the code of behavior held to be central in that community. Integrity concerns honesty and implies being truthful, fair, and free from lies, fraud and deceit. *Cheating or plagiarism is cause for formal university discipline and is justification for an instructor to assign a lower grade or a failing grade.*

Academic Integrity and Plagiarism are described and discussed in the University Catalog. This course will be taught in a manner which upholds and enforces those statements. Academic Dishonesty of any sort will not be tolerated and will result in a grade of **F** for the assignment, quiz, or test, and referral to the Vice President of Student Affairs and to your Dean or Program Director. Dishonesty in this course includes, but is not limited to:

- Dry Lab, Fabrication – creating data without actually performing the experiment
- Falsification or data destruction – changing experimental results; destroying experimental results without notation in your notebook; cherry picking (picking only the experimental results you think are the best); removing pages from your notebook
- Backdating – performing an experiment on a particular date, but stating that it was performed at an earlier date.
- Improper recordkeeping – Recording your measurements somewhere else before writing them in your notebook; Not writing your experiment data directly in the notebook when measured; Transferring existing notebook data to a different notebook; Failure to include supporting data in your notebook (charts, spectra, calculations); Failure to answer the required pre-lab questions in your notebook before starting the experiment.
- Sabotage – messing with someone else's experiment or supplies, as a joke or for malice
- Plagiarism – presenting someone else's words, ideas, equations, explanations, conclusions as your own without attribution; failure to cite the source of someone else's words, ideas, equations, explanations, conclusions; (cut and paste without citation is plagiarism; using your lab manual as a report resource without citation is plagiarism); using a classmate's or prior student's report or spreadsheet content; copying someone's report or homework
- Having someone else -- amateur or professional -- analyze your unknowns and claiming the work as your own
- Impersonation – taking a course on behalf of someone else; letting someone take the course on your behalf; having someone else use your clicker in class on your behalf; having someone else perform your on-line assessments for you
- Cheating – using or possessing unauthorized resources during an exam/quiz and in preparation for exams/quizzes; providing unauthorized resources to another student; copying someone's exam/quiz; Using someone else's answers for your own on-line assessments

14. Disabled Student Services: CSUDH adheres to the American with Disabilities Act with respect to providing reasonable accommodations for students with temporary or permanent disabilities. To receive accommodations, students with disabilities must register with Disabled Student Services. For more information, please contact their office in Welch Hall B250 at (310) 243-3660 or (310) 243-2028.

15. Statement of Diversity and Inclusion

It is my intent that students from all diverse backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that the students bring to this class be viewed as a resource, strength, and benefit. It is my intent to present materials and activities that are respectful of diversity: gender identity, sexuality, disability, age, socioeconomic status, ethnicity, race, nationality, religion, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally, or for other students or student groups. Lastly, it is my intention to uphold our class norms. Students who act as a disruption to me or my students will be asked to leave the class.

16. COVID information for students

Stay up to date with and comply with campus COVID policies: <https://www.csudh.edu/together/students/>

If you get COVID-19:

If you have a positive COVID-19 test and are asymptomatic, or if you get sick and have a positive COVID-19 test, your priority is to get well. Don't try to tough it out. Get medical attention, quarantine, take care of yourself, recover. Please inform the instructor immediately if you are ill or have an asymptomatic positive COVID-19 test so we can arrange alternate assignments, deferment of deadlines or late penalties, or an incomplete. **DO NOT COME TO SCHOOL IF YOU HAVE ANY COVID SYMPTOMS or A POSITIVE TEST RESULT.**

Also, report your illness directly to the COVID-19 Reporting Hotline (310) 243-2076, which will be answered by a representative from Human Resources to collect the appropriate information from 9 a.m. to 5 p.m., Monday through Friday. Calls received after hours will be returned the following business day. All information will be kept confidential. The one-stop-shop for COVID resources, procedures, FAQ's etc., can be found here: <https://www.csudh.edu/together/reporting>

Date	Lecture	Reading (Lehninger: Principles of Biochemistry, 7th Edition)	Case Study	Homework
January 23	Chemistry of Life / The Cell Molecules of Life / Water Ch. 1: Lehninger Introductory Ppt Ch. 2: Lehninger Water Ppt	Chapter 1		
January 25*	Acidosis / Alkalosis Ch. 2: Lehninger Water Ppt	Chapter 2	Case Study 1 Solution A Qualitative Look at the HH Equation	Chapters 1 & 2 DUE: Friday, 01/27
January 30	Amino Acids / Proteins Ch. 3: Lehninger Amino Acids, Peptides and Proteins Ppt	Chapters 3	Case Study 2 Solution Cys & Lys Structures at Different pH's	Chapter 3 DUE Wednesday, 02/01
February 01	Protein Synthesis and Maturation Ch. 27: Lehninger Protein Metabolism Ppt	Chapter 27		Chapter 27 DUE: Friday, 02/03
February 06	Proteins: 3D Structure Ch. 4: Lehninger 3D Structure of Proteins Ppt	Chapter 4	FEAR Protein at Different pH's	Chapter 4 DUE: Wednesday, 02/08

February 08	Membranes Ch. 11: Lehninger Membranes Ppt	Chapter 11		Chapter 11 DUE: Friday, 02/10
February 13	Myoglobin / Hemoglobin Ch. 5: Lehninger Protein Function Ppt	Chapter 5	Case Study 3 Solution	Chapter 5 DUE: Friday, 02/17
<i>February 15**</i>	Exam 1			
February 20	HOLIDAY			
February 22	Enzymes: Catalysis & Kinetics Ch. 6: Lehninger Enzymes Ppt	Chapter 6	Case Study 4 Solution	
February 27	Enzymes: Isozymes & Regulation Ch. 6: Lehninger Enzymes Ppt	" "	Case Study 5 Solution	Chapter 6 DUE: Wednesday, 03/01
March 01	Overview of Nutrients / Vitamins of CHO Metabolism Intro To & Thermo Of Metabolism Ch. 13: Lehninger Introduction to Metabolism Ppt	Chapter 13	NADH and FADH₂ Structures Case Study 6 Solution	Chapter 13 DUE: Friday, 03/03
March 06	Study Guide Overview of CHO Metabolism Ch. 7: Lehninger Carbohydrates Ppt	Chapter 7		Chapter 7 DUE: Friday, 03/10
<i>March 08</i>	Exam 2			
March 13	Glycolysis, Gluconeogenesis and the PPP Ch. 14: Lehninger Glycolysis, Gluconeogenesis and the PPP Ppt	Chapter 14		Chapter: 14 DUE: Wednesday, 03/15
March 15	Citric Acid Cycle Ch. 16: Lehninger The Citric Acid Ppt	Chapter 16	Case Study 8 Solution	Chapter 16 DUE: Friday,

				03/17
March 20	Electron Transport Electron Transport pdf Ch. 19: Lehninger Oxidative Phosphorylation Ppt CHO Pathways Review	Chapter 19	Case Study 10 Solution	Chapter 19 DUE: Wednesday, 03/22
March 22	Glycogen Metabolism Ch. 15: Lehninger Glycogen Metabolism	Chapter 15	Case Study 9 Solution	Chapter 15 DUE: Friday, 03/24
March 27	HOLIDAY			
March 29	HOLIDAY			
April 03	Fatty Acid beta-Oxidation Ch. 17: Fatty Acid Metabolism	Chapter 17		Chapter 17 DUE: Wednesday, 04/05
April 05	Amino Acid Metabolism Ch. 18: Amino Acid Metabolism and Urea	Chapter 18		
April 10	The Urea Cycle Ch. 18: Amino Acid Metabolism and Urea	" "		Chapter 18 DUE: Friday, 04/14
<i>April 12</i>	Exam 3			
April 17	Nucleotides: Composition and Structure Ch. 8: Lehninger Nucleotides and Nucleic Acids Ppt	Chapter 8	AT and GC Pair Structures	Chapter 8 DUE: Wednesday, 04/19
<i>April 19*</i>	Ch. 22: Lehninger Nucleotide Synthesis Ppt Purine Metabolism (Study Guide) Pyrimidine Metabolism (Study Guide)	Chapter 22	Case Study 7 Solution	Chapter 22 DUE: Friday, 04/21
	DNA Synthesis, Mutation and Repair			Chapter 25

April 24	Ch. 25: Lehninger DNA Metabolism Ppt	Chapter 25		DUE: Wednesday, 04/26
April 26	RNA Synthesis and Processing Ch. 26: Lehninger RNA Metabolism Ppt	Chapter 26		Chapter 26 DUE: Friday, 04/28
May 01	Genome Organization Ch. 24: Lehninger Genes and Chromosomes Ppt	Chapter 24	Study Guide/Worksheet: Genome Organization	Chapter 24 DUE: Wednesday, 05/03
May 03*	Regulation of Gene Expression Ch. 28: Lehninger Regulation of Gene Expression Ppt	Chapter 28	Study Guide/Worksheet: Regulation of Gene Expression	Chapter 28 DUE: Friday, 05/05
May 08	Study Day			
<u>May 10</u>	Exam 4			
<u>Monday, May 15</u>	Final Exam, 8:00AM-11:59PM			

*NO Wednesday On-campus Meeting, Lecture will be ON-LINE at 10:00AM Using Class Collaborate Ultra

**NO On-campus Meetings, Exams will be available on-line 8:00AM-8:00PM

Homework Assignment

Chapters 1 & 2

Chapter 3

Chapter 27

Chapter 4

Chapter 11

Chapter 5

Chapter 6

Chapter 13

Chapter 7

Chapter 14

Chapter 16

Chapter 19

Chapter 15

Chapter 17

Chapter 18

Chapter 8

Chapter 22

Chapter 25

Chapter 26

Chapter 24

Chapter 28

DUE DATE

Friday, 01/27, 2023

Wednesday, 02/01, 2023

Friday, 02/03, 2023

Wednesday, 02/08, 2023

Friday, 02/10, 2023

Friday, 02/17, 2023

Wednesday, 03/01, 2023

Friday, 03/03, 2023

Friday, 03/10, 2023

Wednesday, 03/15, 2023

Friday, 03/17, 2023

Wednesday, 03/22, 2023

Friday, 03/24, 2023

Wednesday, 04/05, 2023

Friday, 04/14, 2023

Wednesday, 04/19, 2023

Friday, 04/21, 2023

Wednesday, 04/26, 2023

Friday, 04/28, 2023

Wednesday, 05/03, 2023

Friday, 05/05, 2023

Log into Blackboard and then navigate to this course.

Click the "Homework" menu link.

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