

CHEMISTRY 464 **Principles of Biochemistry**
Syllabus **Fall 2005**

CHEM 464. Principles of Biochemistry (4)

Catalog Description: Prerequisite: Chemistry 334. Chemistry 321/321L strongly recommended. Properties and metabolism of the constituents of biological systems. Mechanism of enzyme action, energy relations in biological systems. Three hours of lecture, one 3-hour laboratory per week.

Ticket # **17964** ; Time: **MWF 0800-0850**; Room: **EH 2228** (Science 2, second floor)

Instructor: **Jheem D. Medh** ; Office: **CS 3112B** (Science 3, first floor)

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Office hours: **M 1200-1400, F 1500-1700**

Tutoring hours: **M 1100-1200, EH 2307** (Science 2, third floor)

TextBook: **Biochemistry** by **J.M. Berg, J.L. Tymoczko and L. Stryer**; W.H. Freeman and Co. 5th Edition
Due to time constraints, all chapters and topics in the text will not be covered. Students are expected to take notes during class to keep track of included topics.

Exams and Grading: All exams will test student knowledge of structures, reactions, pathways, biochemical processes, definitions and problem solving. The final exam will include 50 points for comprehensive questions. The point distribution is:

Exam I	150 points
Exam II	150 points
Exam III	150 points
Class Quizzes	100 points (11 quizzes x 10 points each, extra credit of 10 points)
Final Exam	250 points
<u>Laboratory</u>	<u>200 points</u>
Total	1000 points

The **plus/minus** system will be used to assign final grades

	A = 951-1000	A- = 901-950
B+ = 851-900	B = 801-850	B- = 751-800
C+ = 701-750	C = 651-700	C- = 601-650
D+ = 551-600	D = 501-550	D- = 401-500
F = ≤ 400		

Withdrawal From Class: The Department of Chemistry and Biochemistry adheres to University policy concerning withdrawal from class. Please see appropriate pages of the CSUN catalog / Schedule of classes.

Course Objective:

1. To appreciate the significance of the study of biomolecules.
2. To learn the structures of different classes of biological compounds.
3. To understand the relationship between structure and function of macromolecules.
4. To learn the chemical reactions that are responsible for the synthesis and degradation of biomolecules.
5. To examine the regulation and interconnections of these metabolic pathways.
6. To understand how energy required for the sustenance of life is generated through biochemical reactions.
7. To gain some experience in experimental biochemistry through the laboratory segment of the course.

Lecture Schedule

Month	Date	Day	Chapter	Topic	In Exam:	Quiz
August	29	M	1 and 2	Introduction and Biochemical Evolution	I	
	31	W	3 (appendix)	pH and Buffers	I	
September	2	F	3 (appendix)	pH and Buffers	I	
	5	M		Labor Day Holiday		
	7	W	3	Protein Structure and Function	I	1: pH and Buffers
	9	F	3	Protein Structure and Function	I	
	12	M	3	Protein Structure and Function	I	
	14	W	4	Exploring Proteins	I	
	16	F	10	Hemoglobin: Regulatory Strategies	I	2: Ch. 3,4
	19	M	10	Hemoglobin: Regulatory Strategies	I	
	21	W	8	Enzymes. Basic concepts and Kinetics	II	
	23	F	8	Enzymes. Basic concepts and Kinetics	II	3: Ch. 10 (Hb only)
	26	M		Exam I (Ch. 1,3,4,10 (Hb only))		
	28	W	8	Enzymes. Basic concepts and Kinetics	II	
	30	F	8	Enzymes. Basic concepts and Kinetics	II	
October	3	M	9	Enzymes: Catalytic Strategies	II	
	5	W	9	Enzymes: Catalytic Strategies	II	
	7	F	10	Enzymes: Regulatory Strategies	II	4: Ch. 8,9
	10	M	12	Lipids and Biomembranes	II	
	12	W	12	Lipids and Biomembranes	II	
	14	F	13	Membrane Transport	II	
	17	M	15	Signal Transduction Pathways	II	5: Ch. 12,13
	19	W	11	Carbohydrates	III	
	21	F		Exam II (Ch. 8,9,10,12,13,15)		
	24	M	14	Metabolism: Basic Concepts	III	
	26	W	14	Metabolism: Basic Concepts	III	
	28	F	16	Glycolysis	III	6: Ch. 11,14
	31	M	16	Gluconeogenesis	III	
November	2	W	16	Regulation of glycolysis, Cori Cycle	III	
	4	F	17	Citric Acid Cycle	III	7: Ch. 16
	7	M	17	Citric Acid Cycle	III	
	9	W	17	Regulation of Citric Acid Cycle	III	
	11	F	20	Pentose Phosphate Pathway	III	8: Ch. 17
	14	M	18	Oxidative Phosphorylation	Final	
	16	W		Exam III (Ch. 11,14,16,17,20)		
	18	F	18	Oxidative Phosphorylation	Final	
	21	M	22	Fatty acid Catabolism	Final	
	23	W	22	Fatty acid Catabolism	Final	9: Ch. 18,20
	25	F		Thanksgiving Holiday		
	28	M	22	Biosynthesis of Fatty Acids	Final	
	30	W	23	Amino acid Catabolism: Urea Cycle	Final	
December	2	F	30	Integration of Metabolism	Final	10: Ch. 22,23
	5	M	5	DNA and RNA Structure	Final	
	7	W	5	DNA and RNA Structure	Final	
	9	F		Review Class	Final	11: Ch 5, 30
	14	W		Final Exam (Ch. 18,22,23,30,5)		

Quizzes will be given during the first 10 min of class. There will be no make-up exams or quizzes.