CHEM 6921 - Advanced Biochemistry 1

Fall 2026 Syllabus, Section 01, CRN 40896,

Credit hours: 3

Instructor

Dr. Nina V. Stourman

Professional Qualifications:
• Ph. D., Bioorganic Chemistry and Chemistry of Natural Physiologically Active Compounds, Moscow State University, Russia
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Public Instructor Information

Instructor Title: Professor
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Course Description

6921. Advanced Biochemistry 1. Protein structure and intermediary metabolism. Prereq.: CHEM 3720, or concurrently with CHEM 3737 or CHEM 3739. 3 s.h.

Course Readings

Group	Title	Author	ISBN
Required	Biochemistry, 4th edition		

4th Edition by Donald and Judith Voet, John Wiley & Sons, Inc., 2011

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

Schedule of Topics and Assignments

Day	Date	Reading(s)	Proposed Topic	Due/To Prepare for Class
Tue	8/25	2 (40 - 51)	Introduction. Aqueous Solutions	
Thu	8/27	2 (40 - 51)	Aqueous Solutions	Bring calculator
Tue	9/1	4 (67 - 81)	Amino Acids	
Thu	9/3	8 (221 - 240)	Three-Dimensional Structures of Proteins	
Tue	9/8	8 (241-256; 259-277)	Three-Dimensional Structures of Proteins	
Thu	9/10	6 (129 - 143)	Techniques of Protein Purification	
Tue	9/15	6 (143 - 152)	Techniques of Protein Purification	
Thu	9/17	7 (163 - 175)	Covalent Structures of Proteins	
Tue	9/22		Exam 1	Ch. 2, 4, 6, 7, 8, 9

Thu	9/24	10 (323 - 358)	Hemoglobin: Function and Structure Cooperativity and Regulation; Abnormal Hemoglobin;	
Tue	9/29	13 (469 - 481) 14 (482 – 487)	Introduction to Enzymes	
Thu	10/1	14 (487 – 501)	Rates of Enzymatic Reactions	Bring calculator
Tue	10/6	15 (506 - 516)	Enzymatic Catalysis	
Thu	10/8	11 (359 - 385)	Sugars and Polysaccharides	
Tue	10/13	15 (517 - 538)	Enzymatic Catalysis: Lysozyme	
Thu	10/15	15 (517 - 538)	Enzymatic Catalysis: Serine Proteases	
Tue	10/20		Exam 2	Ch. 10, 11, 13, 14, 15
Thu	10/22	3 (57 - 63)	Thermodynamic Principles: a Review	Bring calculator
Tue	10/27	16 (559 – 569, 578 - 592)	Introduction to Metabolism	
Thu	10/29		Methods for Elucidation of Enzymes' Mechanisms	Group presentations based on papers provided by the instructor
Tue	11/3	17 (593 – 621)	Glycolysis	
Thu	11/5	17 (593 – 621, 622 - 637)	Glycolysis. Metabolic Regulation. Metabolism of Other Hexoses	
Tue	11/10	21 (789 – 805)	Mitochondrion. Citric Acid Cycle: PDC	
Thu	11/12	21 (806 – 822)	Citric Acid Cycle; Regulation. Amphibolic Nature of the Citric Acid Cycle	
Tue	11/17	22 (828 – 845)	Electron Transport	
Thu	11/19	22 (845 - 870)	Oxidative Phosphorylation	Presentation papers selection is due
Tue	11/24		Paper (discussion)	Read the assigned paper
Thu	11/26	No Class		
Tue	12/1		Students' Presentations	
Thu	12/3		Students' Presentations	
Tue	12/8		Exam 3 5:30 – 7:30 pm	Ch. 3, 16, 17, 21, 22
Thu	12/10	No Class		

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