

BIOLOGY 375: Biochemistry

Fall 2026 Lecture Syllabus

(subject to change)

Readings refer to *Lehninger Principles of Biochemistry*, Sixth edition, Freeman.

PDFs of text book chapters, supplementary readings, homeworks, slides, etc. posted on Moodle.

Date	Lecture topic	Readings
Tu, 9/1	1. Course introduction, water	Course information Lecture syllabus Ch. 2:47-58
Th, 9/3	2. pH & buffers <i>Problem set 1: pH and buffers (due 9/10)</i>	Ch. 2:58-69
Tu, 9/8	3. Amino acids: structure & chemistry	Ch. 3:75-89
Th, 9/10	4. The peptide bond & covalent structure of proteins <i>Problem set 2: amino acids (due 9/17)</i>	Ch.4:115-143
Tu, 9/15	5. Thermodynamics & kinetics of protein folding	Ch. 4:143-151
Th, 9/17	6. Protein structure & function: myoglobin & hemoglobin I	Ch. 5:157-174
Tu, 9/22	7. Protein structure & function: myoglobin & hemoglobin II <i>Problem set 3: hemoglobin (due 9/29)</i>	Ch. 5:157-174
Th, 9/24	8. <i>Paper 1 – A silent polymorphism in the MDR1 gene changes substrate specificity</i>	Posted on Moodle
Tu, 9/29	9. Protein function: enzymes	Ch. 6:189-200; 214-218
Th, 10/1	10. Enzyme kinetics <i>Exam 1 (classes 1-8) - available at Collier Library from noon Th, 10/1 through noon W, 10/7</i>	Ch. 6:200-213
Tu, 10/6	11. Regulation of enzyme activity <i>Problem set 4: enzyme kinetics (due 10/20)</i>	Ch. 6:226-236
Th, 10/8	12. Carbohydrate biochemistry	Ch. 7:243-269
Tu, 10/13 Th, 10/15	FALL BREAK	
Tu, 10/20	13. Lipid biochemistry <i>Problem set 5: carbs & lipids (due 10/27)</i>	Ch. 10:357-370
Th, 10/22	14. Biological membranes	Ch. 11:385-402
Tu, 10/27	15. Membrane transport	Ch. 11:402-427
Th, 10/29	16. <i>Paper 2 – Attachment of Helicobacter pylori to human gastric epithelium mediated by blood group antigens</i>	Posted on Moodle
Tu, 11/3	17. Introduction to metabolism	Intro II, p. 501-504
Th, 11/5	18. Bioenergetics and thermodynamics	Ch. 13:505-527

	<i>Exam 2 (classes 9-16) - available at Collier Library from noon Th, 11/5 through noon W, 11/11</i>	
Tu, 11/10	19. Glycolysis & glycogen metabolism	Ch. 14:543-568 Ch. 15:612-620
Th, 11/12	20. Citric acid cycle <i>Problem set 6: metabolism I (due 11/17)</i>	Ch. 16:633-656
Tu, 11/17	21. Fatty acid oxidation <i>Problem set 7: metabolism II (due 11/24)</i>	Ch. 17:667-688
Th, 11/19	22. Redox reactions & electron transport chain	Ch. 13:528-537 Ch. 19:731-747
Tu, 11/24	23. Oxidative phosphorylation <i>Problem set 8: thermodynamics/redox reactions (due 12/1)</i>	Ch. 19:747-759
Th, 11/26	THANKSGIVING	
Tu, 12/1	24. Hormonal regulation of metabolism I	Ch. 15:601-606; 620-626; Ch. 23:951-960
Th, 12/3	25. Hormonal regulation of metabolism II	Ch. 15:601-606; 620-626; Ch. 23:951-960
Tu, 12/8	26. <i>Paper 3- Superoxide activates mitochondrial uncoupling proteins</i>	Posted on Moodle
Th, 12/10	27. Wrap up and review	
	<i>Self-scheduled final exam (classes 17-27) – College deadline Dec 18, 12:30 p.m.</i>	