

Reading List for MCDB 108B Winter 2012 (Textbook is Nelson & Cox, 5th ed.)

Lecture (approx.)

1. Introduction: Lehninger p485-8
2. Thermodynamics & Free energy
Handout: Basic Biochemical Thermodynamics
Lehninger sec 1.3; 13.1
3. Equilibrium, Steady-state
Lehninger pp569-74
Prob set 1 #1-8.
4. Enzymology, Regulation of enzymes
Handout: Basic Enzyme Theory
Lehninger sec 6.2 (up to p188); sec 6.3 (up to p199); p571-572
5. Phosphoryl group transfer, ATP: Lehninger sec 13.3
Coupled reactions: Lehninger p494 " ΔG 's are additive"
Carbohydrate chemistry: Lehninger p235-46
Prob set 1 #9-10
6. Digestion of carbohydrates, absorption of glucose: p403-4
Handout: Glucose transport to liver
Properties of glucose transporters: p391-6
7. Glycolysis: Lehninger p527-542; Reaction classes: sec 13.2
Handouts: Aldo cleavage mechanism; Aldolase mech.
Prob set 2: #1-4, 10.
Lehninger sec 13.4 (dehydrogenation)
8. Handouts: GAPDH energy profile; GAPDH mech.
Prob set 2: #6,9
Lehninger sec 14.3 (fermentation)
Prob set 2: #7
9. Cooperativity, PFK
Handout: Cooperativity
Lehninger p165 (cooperativity)
Prob set 2: all except #5,8
10. Lehninger p583-9 (PFK, Hexokinase, Pyruvate kinase)
Handout: PFK
Prob set 2 #5,8
11. Prob set 3 #1-4,6
Lehninger p512-14 incl. Fig.13.22 (Biological oxidations)
12. Lehninger p615-20 (pyruvate dehydrogenase)
13. Lehninger - all of Sec. 16.2, 16.3 (TCA cycle)
14. continue with TCA cycle
Prob set 3 #5
15. Lehninger – all of Sec 14.4 (gluconeogenesis)
Midterm Exam??
16. Gluconeogenesis continued.
Do all of Prob. Set 3

17. Oxidative Phosphorylation – Lehninger sec. 19.1-19.4
Prob set 4 #2,3
18. Continue with Oxid. Phos.
19. Continue with Oxid. Phos.
20. Finish Oxid Phos. **Do all of Problem Set 4**
Glycogen Breakdown/Synthesis pp594-600
21. Fatty acid oxidation pp652-6
22. Ethanol Metabolism
23. Exercise
24. Starvation (read sec 23.3)
25. Ketone bodies (sec. 17.3), Insulin deficiency (p929)
Do Prob. Set 5 #1-5
26. Fatty Acid Synthesis p805-16
TAG synthesis Sec 21.2
27. Obesity and Leptin Sec 23.4
Amino Acid breakdown Selected reading from Chap 18
Do all of Problem Set 5
For review Sec 23.2 and 23.3 are excellent