

Course Outline (as of Sep. 2009)

(Chapter numbers refer to the new (**Fifth**) edition of the text **Lehninger: Principles of Biochemistry by Nelson and Cox**)

The **precise date and time for each topic is not fixed**, but the pace will be adjusted to cover the subjects in the order indicated below. (There are ~thirty 50 min lectures in the fall quarter)

Topics will be covered in the following order

(Chapter 3, 4 and 6 in LN&C)
Introduction to the Course/ Announcements

Proteins, Enzymes, Enzyme Kinetics
Enzyme Catalysis
Michaelis-Menten Kinetics
Inhibitors and Enzyme Kinetics
Intro to Allosteric Enzymes

(Chapter 13, LN&C)
Bioenergetics and Thermodynamics
Phosphate Group Transfers and ATP
Biological Oxidation-Reduction Reactions

(Chapter 14, 15 in LN&C)
GLYCOLYSIS AND GLYCOGEN METABOLISM
Glycolysis
Degradation of Glycogen and Starch
Biosynthesis of Glycogen and Starch
Control of Glycogen Metabolism
Glycogen Storage Diseases

(Chapter 16 and 19 in LN&C)
The Citric Acid Cycle (TCA Cycle)
Glyoxylate Cycle

(Chapter 19 in LN&C)
MITOCHONDRIA
Electron Transport and Oxidative Phosphorylation
The Chemiosmotic Hypothesis

(Chapter 14 in LN&C)
Carbohydrate Metabolism
Pentose Phosphate Pathway

(Chapter 19 and 20 in LN&C)
PHOTOSYNTHESIS
Light and Dark Reactions

(Chapters 17 and 21 in LN&C)
LIPIDS

Fatty Acid Oxidation
Fatty Acid Synthesis
Cholesterol biosynthesis
Polyisoprenoids

(Chapter 18 in LN&C)
Amino Acid Metabolism (Introduction)
The Urea Cycle

Catch-Up and Review