

CHM 312

Biochemistry II

Spring 2013

Instructor: Dr. Matthew Junker
314 Boehm Science Center
Phone: 610-683-4199 Email: junker@kutztown.edu
Office hours: Tue. 1-4 pm; Wed. 10-11 am; Thu. 10-11 am; I am often
available at other times: feel free to stop by, email, or phone

Lecture time and location: M, W, F 1:00 – 1:50, Boehm 262

Textbook: *Lehninger Principles of Biochemistry*, 5th edition, by David L. Nelson and Michael M. Cox, W. H. Freeman and Co., ISBN: 0-7167-7108-X.
Electronic rental: <http://stepp.gatech.edu/>

Textbook website: www.whfreeman.com/lehninger

Online lecture slides & handouts: Posted under D2L at <https://desire2learn.kutztown.edu/>

Pre-requisites: Biochemistry I (CHM 310)

Co-requisite: CHM 312 Biochemistry II Laboratory

Grading: The average of 4 exams (each worth 100 points) will be 80% of final score
(10% of final exam will be the ACS Biochemistry Exam given in lab)
The average of all problem sets will be 5% of final score
The total lab score (CHM 313) will be 15% of final score

Final scores will be scaled to 100 and grades assigned by the following scheme:

90-100: A, A- 80-90: B+,B, B- 70-80: C+,C 60-70: D <60: F

(actual scheme may be more generous; +/- for scores within 2 of grade cutoffs)

Attendance policy: Lecture attendance is highly recommended but not required.

Course objectives: Upon successful completion of this course, a student will be able to

- Explain the metabolic pathways for the synthesis and breakdown of the major types of biomolecules (carbohydrates, amino acids, nucleotides, and lipids)
- Explain the integration and regulation of the major metabolic pathways
- Predict how changes in specific cellular conditions alter the major metabolic pathways
- Predict how changes in specific metabolic reactions alter overall cellular metabolism

ADA Notice: Please contact me early in the semester if you need accommodation for a disability. You should also contact the KU Disability Services Office at 610-683-4108 or in Stratton 215.

Lecture schedule:

Date	Topic	Lehninger Chapter
Jan. 28	Principles of bioenergetics	Part II Intro. & 13
Jan. 30	Principles of bioenergetics	13
Feb. 1	Principles of bioenergetics	13
Feb. 4	Principles of bioenergetics	13
Feb. 6	Principles of bioenergetics	13

Date	Topic	Lehninger Chapter
Feb. 8	Glycolysis	14
Feb. 11	Glycolysis	14
Feb. 13	Glycolysis	14
Feb. 15	Gluconeogenesis	14
Feb. 18	Gluconeogenesis & pentose phosphate pathway	14
Feb. 20	EXAM 1	
Feb. 22	Metabolic regulation: glucose and glycogen	15
Feb. 25	Metabolic regulation: glucose and glycogen	15
Feb. 27	Metabolic regulation: glucose and glycogen	15
Mar. 1	Citric acid cycle	16
Mar. 4	Citric acid cycle	16
Mar. 6	Citric acid cycle	16
Mar. 8	Fatty acid catabolism	17
Mar. 11	Fatty acid catabolism	17
Mar. 13	Amino acid catabolism	18
Mar. 15	EXAM 2	
Mar. 18-22	NO CLASS: Spring Break	
Mar. 25	Amino acid catabolism	18
Mar. 27	Oxidative phosphorylation	19
Mar. 29	Oxidative phosphorylation	19
Apr. 1	Oxidative phosphorylation	19
Apr. 3	Oxidative phosphorylation	19
Apr. 5	Oxidative phosphorylation	19
Apr. 8	Oxidative phosphorylation	19
Apr. 10	Photophosphorylation	19
Apr. 12	Photophosphorylation	19
Apr. 15	Carbohydrate biosynthesis	20
Apr. 17	EXAM 3	
Apr. 19	Carbohydrate biosynthesis	20
Apr. 22	Lipid biosynthesis	21
Apr. 24	Lipid biosynthesis	21
Apr. 26	Lipid biosynthesis	21
Apr. 29	Nitrogen metabolism	22
May 1	Nitrogen metabolism	22
May 3	Amino acid biosynthesis	22
May 6	Amino acid biosynthesis	22
May 8	Nucleotide biosynthesis	22
May 10	Nucleotide biosynthesis	22
May 15 (Wed.)	FINAL EXAM NOTE: 8:00 am – 10 am	

IDEA Course Objectives:

1. Gaining factual knowledge (terminology, classifications, methods, trends)
2. Learning fundamental principles, generalizations, or theories
3. Learning to apply course material (to improve thinking, problem solving and decisions)
4. Developing specific skills, competencies, and point of view needed by professionals in the field