

# CHM 312

# Biochemistry II

Spring 2012

Instructor: Dr. Matthew Junker  
314 Boehm Science Center  
Phone: 610-683-4199 Email: junker@kutztown.edu  
Office hours: Tue. 1-3 pm; Wed. 2-4 pm; Thu. 1-2 pm

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

Textbook: *Lehninger Principles of Biochemistry*, 5<sup>th</sup> 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](http://www.whfreeman.com/lehninger)

Lecture slides posted online under Desire2Learn: <https://desire2learn.kutztown.edu/>

Pre-requisites: Biochemistry I (CHM 310)

Co-requisite: CHM 312 Biochemistry Laboratory II

Grading: The average of 4 exams (each worth 100 points) will be 80% of final score  
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 points

Minimum guaranteed curve (final curve can be more generous, but not less):

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

Plus and minus letter grades will be used where allowed by KU policy.

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 would alter the major metabolic pathways
- Predict how changes in specific metabolic reactions would 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. 23 | Principles of bioenergetics | Part II Intro. & 13 |
| Jan. 25 | Principles of bioenergetics | 13                  |
| Jan. 27 | Principles of bioenergetics | 13                  |
| Jan. 30 | Principles of bioenergetics | 13                  |

| Date          | Topic                                       | Lehninger Chapter |
|---------------|---|-------------------|
| Feb. 1        | Principles of bioenergetics                 | 13                |
| Feb. 3        | Glycolysis                                  | 14                |
| Feb. 6        | Glycolysis                                  | 14                |
| Feb. 8        | Glycolysis                                  | 14                |
| Feb. 10       | Gluconeogenesis                             | 14                |
| Feb. 13       | Gluconeogenesis & pentose phosphate pathway | 14                |
| Feb. 15       | <b>EXAM 1</b>                               |                   |
| Feb. 17       | Metabolic regulation: glucose and glycogen  | 15                |
| Feb. 20       | Metabolic regulation: glucose and glycogen  | 15                |
| Feb. 22       | Metabolic regulation: glucose and glycogen  | 15                |
| Feb. 24       | Citric acid cycle                           | 16                |
| Feb. 27       | Citric acid cycle                           | 16                |
| Feb. 29       | Citric acid cycle                           | 16                |
| Mar. 2        | Fatty acid catabolism                       | 17                |
| Mar. 5        | Fatty acid catabolism                       | 17                |
| Mar. 7        | Amino acid catabolism                       | 18                |
| Mar. 9        | <b>EXAM 2</b>                               |                   |
| Mar. 12-16    | <b>NO CLASS: Spring Break</b>               |                   |
| Mar. 19       | Amino acid catabolism                       | 18                |
| Mar. 21       | Oxidative phosphorylation                   | 19                |
| Mar. 23       | Oxidative phosphorylation                   | 19                |
| Mar. 26       | Oxidative phosphorylation                   | 19                |
| Mar. 28       | Oxidative phosphorylation                   | 19                |
| Mar. 30       | Oxidative phosphorylation                   | 19                |
| Apr. 2        | Oxidative phosphorylation                   | 19                |
| Apr. 4        | Photophosphorylation                        | 19                |
| Apr. 6        | Photophosphorylation                        | 19                |
| Apr. 9        | Carbohydrate biosynthesis                   | 20                |
| Apr. 11       | <b>EXAM 3</b>                               |                   |
| Apr. 13       | Carbohydrate biosynthesis                   | 20                |
| Apr. 16       | Lipid biosynthesis                          | 21                |
| Apr. 18       | Lipid biosynthesis                          | 21                |
| Apr. 20       | Lipid biosynthesis                          | 21                |
| Apr. 23       | Nitrogen metabolism                         | 22                |
| Apr. 25       | Nitrogen metabolism                         | 22                |
| Apr. 27       | Amino acid biosynthesis                     | 22                |
| Apr. 30       | Amino acid biosynthesis                     | 22                |
| May. 2        | Nucleotide biosynthesis                     | 22                |
| May. 4        | Nucleotide biosynthesis                     | 22                |
| May. 9 (Wed.) | <b>FINAL EXAM NOTE: 8:00 am – 10 am</b>     |                   |