CHM 310 Biochemistry I Lecture Fall 2014

Instructor: Dr. Matthew Junker
314 Boehm Science Center
Phone: 610-683-4199 Email: junker@kutztown.edu
Office hours: Tues.10-11 am; Thu. 1-3 pm, Fri. 10 am - noon

-I am often available at other times: feel free to stop by, email, or phone

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

Textbook: *Lehninger Principles of Biochemistry*, 6th edition, by David L. Nelson and Michael M. Cox, W. H. Freeman and Co., ISBN-13: 978-1-4641-1063-4.

Electronic rental: STEPP (http://stepp.gatech.edu/) or Sapling Learning with online homework purchase (less expensive option).

Textbook website: www.whfreeman.com/lehninger

Online Homework: Sapling Learning- info in separate handout and on D2L

Online lecture slides: Posted under D2L at https://desire2learn.kutztown.edu/

Pre-requisites: Organic Chemistry I & II (CHM 214 & 216)

Co-requisite: CHM 310 Biochemistry I Laboratory

Grading: The average of 4 exams (each worth 100 points) will be 75% of final score
The average homework score will be 6% of final score
The total lab score will be 19% 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

- Describe the distinguishing structural and chemical properties of the major types of biomolecules (amino acids, proteins, carbohydrates, lipids, and nucleic acids)
- Relate the chemical properties of each type of biomolecule to its physiological function
- Explain the primary, secondary, tertiary, and quaternary structures of the molecular components of cells
- Describe protein and lipid dynamics and perform pertinent calculations

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
Aug. 25	Overview, major types of biomolecules	1
Aug. 27	Thermodynamics in biochemistry	1
Aug. 29	Water and molecular forces in aqueous environments	2
Sept. 1	LABOR DAY- NO CLASS	

Date	Topic	Lehninger Chapter
Sept. 2 (Tues!)	Water: pH, and acid-base chemistry I	2
Sept. 3	Water: pH, and acid-base chemistry II	2
Sept. 5	Amino acids (Ch. 3 section 3.1)	3
Sept. 8	Peptides and polypeptides (Ch. 3 section 3.2)	3
Sept. 10	Protein structure I (Ch. 4 sections 4.1 - 4.2)	4
Sept. 12	Protein structure II (Ch. 4 sections 4.1 - 4.2)	4
Sept. 15	Protein methods (Ch. 3 sections 3.3 - 3.4)	3
Sept. 17	Protein methods (Ch. 3 sections 3.3 - 3.4)	3
Sept. 19	**EXAM 1**	
Sept. 22	Protein structure III (Ch. 4 section 4.3)	4
Sept. 24	Protein structure IV (Ch. 4 section 4.3)	4
Sept. 26	Protein structure V (Ch. 4 Box 4-5 & section 4.4)	4
Sept. 29	Protein structure VI (Ch. 4 section 4.4; Ch. 3 section 3.4)	4, 3
Oct. 1	Protein function I	5
Oct. 3	Protein function II	5
Oct. 6	Protein function III	5
Oct. 8	Protein function IV	5
Oct. 10	**EXAM 2**	
Oct. 13	COLUMBUS DAY- NO CLASS	
Oct. 15	Protein function V	5
Oct. 17	Enzymes I	6
Oct. 20	Enzymes II	6
Oct. 22	Enzymes III	6
Oct. 24	Enzymes IV	6
Oct. 27	Enzymes V	6
Oct. 29	Enzymes VI	6
Oct. 31	Carbohydrates I	7
Nov. 3	Carbohydrates II	7
Nov. 5	Nucleic acids I	8
Nov. 7	**EXAM 3**	
Nov. 10	Nucleic acids II	8
Nov. 12	Nucleic acids III	8
Nov. 14	DNA technologies I	9
Nov. 17	DNA technologies II	9
Nov. 19	Lipids I	10
Nov. 21	Lipids II	10
Nov. 24	Membranes and transport I	11
Nov. 26	THANKSGIVING – NO CLASS	
Nov. 28	THANKSGIVING – NO CLASS	
Dec. 1	Membranes and transport II	11
Dec. 3	Membranes and transport III	11
Dec. 5	Membranes and transport IV	11
Dec. 10 (Wed.)	**FINAL EXAM 8:00 am - 10:00 am**	