Course: CHMB62H3 (January – April, 2014)

Title: Introduction to Biochemistry

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Course Instructors

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Course Summary

Biochemistry refers to the study of chemical processes in living systems. The rules of Biochemistry govern the flow of information and the flow of chemical energy in all organisms. Most biochemical experiments attempt to elucidate the structures and functions of the different components of the cell including proteins, nucleic acids, carbohydrates, and lipids. This course will provide an overview of Biochemistry at the introductory level. Topics covered will include protein structure, enzyme kinetics, metabolism, DNA/RNA structure, protein synthesis.

Course Time

The course will be held every Thursday from 5:00 pm – 7:00 pm with a tutorial from 7:00 pm – 8:00 pm. There will be 12 two-hour lectures and 12 one-hour tutorials. Tutorials will be used to allow for an open discussion of the material covered in the lectures and to go over problem sets. The lectures and tutorials will be held in IC220.

Evaluation Scheme

- In-class quiz on lectures 1-5 and 7-11. The quizes will take place at the end of the lectures 2-6 and 8-12. Each quiz is worth 1%.
- Two assignments with each assignment worth 10% - total 20%.
  Students will be asked to read a landmark paper related to one of the topics being covered and to answer questions based on that paper.
- Midterm: lectures 1 – 6, 35% of grade
- Final: lectures 7 – 12, 35% of grade

Required Textbook

Biochemistry: A Short Course (second edition) by John L. Tymoczko, Jeremy M. Berg, and Lubert Stryer, W. H. Freeman and Company.

Lecture notes will be provided in class and/or on the web.

Lecture	Day	Date	Topic	Chapter (Tymoczko et al, 2nd edition)	Lecturer	Notes
1	Thursday	Jan 9	**central dogma/biochemical interactions**	1, 2	Walid Houry	
2	Thursday	Jan 16	**amino acids/protein structure**	3,4	Walid Houry	
3	Thursday	Jan 23	**enzyme action/enzyme kinetics**	6, 7	Walid Houry	Last day to add course, Jan 19
4	Thursday	Jan 30	**enzyme inhibition/allostery**	8, 9	Walid Houry	
5	Thursday	Feb 6	**carbohydrates/lipids**	10, 11	Walid Houry	1st assignment due
6	Thursday	Feb 13	**membrane proteins/signal transduction**	12, 13	Walid Houry	
	Thursday	Feb 20	no lecture, reading week			
7	Thursday	Feb 27	**DNA/RNA**	33, 34, 37, 38, 39, 40	John Glover	Midterm, to be announced
8	Thursday	March 6	**Design of Metabolism and Glycolysis**	15, 16	John Glover	
9	Thursday	March 13	**Gluconeogenesis and Pentose Phosphate Pathway**	17, 26	John Glover	
10	Thursday	March 20	**Acetyl CoA synthesis and the Citric Acid Cycle**	18, 19	John Glover	last day to drop course, March 23
11	Thursday	March 27	**Electron Transport Chain/Proton Motive Force/ ATP Synthesis**	20, 21	John Glover	2nd assignment due
12	Thursday	April 3	**Light and Dark Reactions of Photosynthesis**	22, 23	John Glover	
	24L + 12T	April 10-26	final exam period			Final, to be announced