Biochemistry I (Chm 370/Bio 370) **Drs. Cohen/Poget**
Spring 2019 **Course Outline**

Lecture Time: Mon & Wed 2:30 – 4:15 PM, 6S-138
Text: Lehninger Principles of Biochemistry 7th Edition –David L. Nelson and Michael M. Cox (ISBN-9781464126116). See explanation below for purchase options.

Office Hours (or by appointment):
Dr. Poget: Monday 11 am – 12:30 pm; Wed 1 – 2:30 pm. (6S-233, 718-982-4183, sebastien.poget@csi.cuny.edu)
Dr. Cohen: Tuesday 9 -10 am, Thu 1 -2 pm (6S-224, 718-982-3902, Leah.cohen@csi.cuny.edu)

DATE	TOPIC	READING
Jan. 28	Introduction, The Molecular Logic of Life, Cells	Chapter 1
Jan. 30	Biomolecules & Water	Chapter 2
Feb. 4	Amino Acids, Peptides & Proteins **(Pre-recorded, recitation)**	Chapter 3
Feb. 6	Proteins 3D Structure	Chapter 4
Feb. 11	Protein 3D Structure/ Protein Function	Chapters 4/5
Feb. 13	Oxygen Binding, Antibodies **(Pre-recorded, recitation)**	Chapter 5
Feb. 18	NO CLASSES	
Feb. 20	**First Exam (Chapters 1-5)**	
Feb. 25	Enzymes: Introduction, Kinetics **(Pre-recorded, recitation)**	Chapter 6
Feb. 27	Enzymes: Mechanism/Regulation	Chapter 6
Mar. 4	Enzyme wrap-up **(Pre-recorded, recitation)**	Chapter 6
Mar. 6	Carbohydrates	Chapter 7
Mar. 11	Nucleic Acids- Structure	Chapter 8
Mar. 13	DNA-Based Information Technologies (**Pre-recorded, recitation**)	Chapter 9
Mar. 18	Lipids	Chapter 10
Mar. 20	Biological Membranes & Transport **(Pre-recorded, recitation)**	Chapter 11
Mar. 25	Wrap-up of chapters 6-10, exam preparation	
Mar. 27	**Second Exam (Chapters 6 - 10)**	
Apr. 1	Biological Signaling	Chapter 12
Apr. 3	Bioenergetics and Metabolism **(Pre-recorded, recitation)**	Chapter 13
Apr. 8	Oxidation-Reduction Reactions	Chapter 13
Apr. 10	Glycolysis (**Pre-recorded, recitation**)	Chapter 14
Apr. 15	Citric acid cycle	Chapter 16
Apr 17	Gluconeogenesis and Regulation **(Pre-recorded, recitation)**	Chapter 14/15
Apr. 22,24	SPRING BREAK	
Apr. 29	**Third Exam (Chapters 11-16, excluding ATP synthesis)**	
May 1	Oxidation of Fatty Acids	Chapter 17
May 6	Oxidative Phosphorylation **(Pre-recorded, recitation)**	Chapter 19
May 8	ATP Synthesis	Chapter 19
May 13	Review, Final exam preparation	

DURING FINALS WEEK (May 15-22): Comprehensive Final Examination

Instructions concerning course text. The cost of College Textbooks continues to rise. The publisher of Lehninger Biochemistry 7th Edition indicated the cost of the text (HardCover) is approximately $280.00. A reduced price version of Instructional Material through a program known as Sapling provides students with an E-Copy of the textbook and a library of resources. The resources include homework problems with solutions and with feedback concerning errors made and hints on how to proceed if the answers are incorrect. They also provide pre-class quizzes, test questions and supplementary videos that walk students through various chemical and biochemical processes. The following are some of the available options, and can be purchased at store.macmillanlearning.com:

1) Sapling Plus for 6 months is $72.99: ISBN 9781319108359
comes with e-book

2) Sapling Plus for 24 months is $103.99: ISBN 9781319108380
comes with e-book

3) Sapling Plus for 24 months + Loose-leaf sheets is $186.99: ISBN 9781319162504
comes with the e-book and students will also get loose-leaf sheets for the whole text

4) Sapling Plus for 24 months + Hardcover textbook is $280.99: ISBN 9781319161927
comes with e-book and students get a hardcover textbook

The course will be taught using Sapling and students are advised to purchase, at a minimum, option 1 above. All homework and any pre-quizzes will be available only through Sapling, and completion of the on-line homework will contribute to your final grade (see grading policy below).

The course outline is a tentative schedule of the sequence in which various topics will be covered. You will benefit most if you have read the text prior to attending the lecture. I presume you will do so. **Please NOTE: 10 of the lectures in this course will be pre-recorded and you must view them outside the classroom, before the date and time where they appear on the syllabus. During those scheduled class hours, an extended recitation session will take place where we will reinforce our understanding of concepts and our ability to solve problems**. These sessions include group problem solving exercises and provide an opportunity for you to bring up problems or concepts that you are struggling with and discuss and understand these in a supportive learning group environment. **You are asked to e-mail Dr. Poget before the recitation sessions with a typed list of concepts that you struggle with or problems that you would like to be discussed.** Some of the discussions during recitations will be done in peer groups, and one student will keep notes on the discussions. All note sheets will be collected by the instructor at the end of recitation. Biochemistry I touches on exciting, contemporary topics that are of interest to both biologists and chemists. It should be an enjoyable experience. However, it will require your commitment and effort.

GRADING POLICY: There will be 3 exams, homework assignments and recitation participation that will constitute your class average. The 3 exams will be worth 85 % of the class average. Homework completion will account for 10% of the grade, and recitation attendance will account for 5 %. Credit will be given for homework completion if all homework assignments have been completed, and for recitation participation if at least five recitation sessions are attended. The class average (60%) and the comprehensive final, which will count for 40% of your final score, will give a course average that forms the basis for your final grade.

Learning Objectives

- The student should understand the chemical nature of the major classes of biomolecules: proteins, nucleic acids, carbohydrates and lipids.
- The student should understand the relationship between the chemical structure of a protein and its three dimensional structure.
- The student must understand the relationship between the three-dimensional structure of proteins and nucleic acids and their biological function.
- The student must understand quantitative aspects of enzyme kinetics and ligand binding.
- Students must understand the structure and function of membranes and the involvement of the membrane in metabolite transport and cell-cell communication.
- Students must understand the physical principles underlying bioenergetics and be able to predict the directionality of metabolic reactions.
- Students must be able to follow metabolic pathways involved in energy production and the biosynthesis of intermediates.

Blackboard: Lecture slides, pre-recorded lectures, and general announcements will be posted on Blackboard. You should therefore access the course home page on a regular basis. Announcements will be emailed through Blackboard, which will go to your registered CUNY address, so make sure that your address on Blackboard is up to date and that you check the corresponding account. Homework problems and solutions will only be available through Sapling, but will be announced on Blackboard.

Recitation and tutoring: Recitation will cover problems from the lectures as well as select homework problems. Also, take advantage of the tutoring hours offered by Dr. Cohen for more individualized help.

Dr. Poget will be available in his office during his office hours listed above or upon arrangement at other times.

Withdrawal deadlines: According to CSI's Spring 2019 Academic Calendar, the last day to withdraw with the grade of "W" without permission of an instructor or Chairperson is April 1, 2019. From April 2, 2019 to May 6, 2019, withdrawal from a course is possible, with the permission given under the discretion of the instructor and the Chairperson. The Biology and Chemistry Department policies do not permit the withdrawal from a biology or chemistry course after May 6, 2019.