CHEM 4511/6501: Biochemistry I - Fall 2015

Tuesdays and Thursdays 9:35 am – 10:55 am
Howey (Physics) L3
Course website available on T-Square: http://t-square.gatech.edu/portal

Prof. Wendy L. Kelly
School of Chemistry and Biochemistry
Office: Institute for Bioengineering and Bioscience (IBB) 3304
Office Hours: Thursdays 11 am - noon or by appointment
E-mail: wendy.kelly@chemistry.gatech.edu

Biochemistry I:

This course offers an introduction to the chemistry and biochemistry of proteins, nucleic acids, lipids, carbohydrates, and other biomolecules. Each type of biomolecule harbors an essential function in a living organism. We will move toward an understanding of how the chemical properties of biomolecules sustain a living cell. Reading assignments and suggested problems will help to enhance your ability to remain abreast of the material to be discussed in class and to apply the concepts learned toward various types of biological and biotechnological situations. To make the most of your time in class, the associated material should be read in advance of the scheduled discussion. For the Team Workshop days, it is essential that you read the material ahead of time so that you can contribute in a meaningful and productive manner to your team's in-class assignment. If at any time you feel that you are falling behind or need additional assistance, please speak with the Professor or a TA and come to our office hours.

Week of:	Topic:	Chapter:
August 17	**No Class Tuesday August 18** Foundations of Biochemistry	1
Aug 24	Water **Team Workshop 1 – Thursday, August 26**	2
Aug 31	Amino Acids and Peptides	4
Sept 7	Proteins **Team Workshop 2 – Thursday, September 10**	5, 6
Sept 14	Proteins **Exam I – Thursday, September 17**	5, 6
Sept 21	Protein Structure and Function	6, 7
Sept 28	Enzymatic Catalysis, Kinetics, and Inhibition	11, 12
Oct 5	**Team Workshop 3 – Tuesday, October 6** Enzymatic Catalysis, Kinetics, and Inhibition	11, 12
Oct 12	**No Class – Tuesday, October 13** Nucleotides and Nucleic Acids	3, 24
Oct 19	**Exam II – Tuesday, October 20** Nucleotides and Nucleic Acids	3, 24
Oct 26	Nucleotides and Nucleic Acids	3,24
Nov 2	**Team Workshop 4 – Tuesday, November 3** Replication, Transcription and Translation	25-27

Nov 9	Replication, Transcription and Translation Carbohydrates	25-27 8
Nov 16	**Exam III – Tuesday November 17** Carbohydrates	 8
Nov 23	Lipids and Membranes **No Class Thursday, November 26**	9-10
Nov 30	Lipids and Membranes	9-10

Final Exam: **Thursday, December 10, 2015; 8 am – 10:50 am in Howey (Physics) L3**

Grading:

Midterm Exams (300 pts; 1oo pts each)

Final Exam (200 pts): The final will be comprehensive for the course.

Team Workshops (200 pts; 50 pts each): Four class sessions this semester will be graded based on in-class activities. It is imperative that you read the suggested material in advance and come to class ready to (1) be quizzed on the material and (2) to work with a team through a problem (or set of problems) that draw upon the assigned reading. The topics and readings for these Team Workshop days will be announced at least six days in advance. These sessions will kick off with a graded, individual quiz (5 points), that you turn in. Next, you will work with your team to complete the quiz as a group (5 points). The bulk of the class period will be spent working through a problem or series of problems (40 pts). Toward the end of class, a team will be asked to present their solutions and logic in reaching those solutions.

Teams will be randomly generated and you will remain with the same team throughout the semester. Team assignments will be announced by Tuesday, August 25, and the designated meeting area for your team will be provided.

There will most likely be a curve for the final grade based upon the overall class average, but the following are ***guaranteed minimums*** for grade cutoffs:

Greater than 90% = A
Greater than 80% = B
Greater than 70% = C
Greater than 60% = D

TA Office Hour:

Hiro Ichikawa: Mondays, 10 – 11 am. Office hour will be held in the couch/table area in from of IBB wWing 3A. If not present, please ring the doorbell of IBB Wing 3A.

Required Text: "Fundamentals of Biochemistry: Life at the Molecular Level", 4th Edition, Donald Voet, Judith G. Voet, and Charlotte Pratt (on reserve at the library under CHEM 4512).

Additional readings may be assigned and those will be posted on T-square.

Recommended Texts:

It is highly recommended that you have access to Organic Chemistry and General Chemistry textbooks.

Missed Exams/Workshop Days: There are no scheduled makeup exam or workshop days. Planned absences for exam dates that coincide with an Institute Approved activity ***must*** be cleared with Prof. Kelly ***no later*** than ***three weeks prior*** to the date of the exam. In addition to the verbal request, the approval must be requested in an email message. ***No exceptions***. (see http://www.deanofstudents.gatech.edu for information on Institute Approved Activities.)

Calculators for Exams: You are responsible for ensuring that you have an appropriate calculator for the exams. ***Only*** simple calculators are permitted – i.e. ***no*** programmable or graphing functions are permitted.

Background: You should have an understanding of the functional groups of organic and biochemical compounds, and the fundamental reaction mechanisms common in organic chemistry. You should be able to draw a reaction mechanism using double-headed curved arrows to demonstrate the flow of electrons.

Re-grade requests: Requests must be made in writing and handed to Prof. Kelly in person. In addition, an email message reiterating the request must be sent to Prof. Kelly. Requests are not to be made to a TA. The re-grade request must be turned in no later than the Friday of the week in which the exam is returned (by 5 pm). No exceptions. ***In all cases, the entire exam is subject to reassessment, not just the item in question.***

E-mail rules: E-mail can only be accepted from Georgia Tech accounts. When sending an e-mail, put the following information in the subject line: CHEM 4511, firstname lastname, subject.

Example: CHEM 4511, Rosalind Franklin, DNA

The e-mail must be composed in a professional manner. Use proper salutations, complete sentences and avoid text-message style abbreviations.

Send all e-mail to wendy.kelly@chemistry.gatech.edu

Laptops and Cell Phones: *As a courtesy for those sitting around you, these items are not permitted for use during class. Turn these items off prior to the start of each session.*

Please refer to the Georgia Institute of Technology's academic honor code: www.honor.gatech.edu, which you are required to uphold. *Academic dishonesty will **NOT** be tolerated.*