

CHEM 4512/6502: Biochemistry II – Fall 2011

Tuesdays and Thursdays 9:35 am – 10:55 am

MoSE 1222

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: Mondays 4-6 pm or by appointment

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Week of:	Topic:	Chapter:
Aug 22	Introduction to metabolism and bioenergetics	14
Aug 29	Quiz (Aug 30) Biochemical Signalling	13
Sept 5	Sept 6: Homework #1 Due Glucose metabolism	15, 16
Sept 12	Sept 13: Homework #2 Due Glucose metabolism	15, 16
Sept 19	Sept 20: Homework #3 Due Integration and regulation Citric acid cycle Sept 22: Exam I	22 17
Sept 30	Citric acid cycle Electron transport and oxidative phosphorylation	17 18
Oct 3	Oct 4: Homework #4 Due Electron transport and oxidative phosphorylation Photosynthesis	18 19
Oct 10	Oct 11: Homework #5 Due Photosynthesis Lipid metabolism	19 20
Oct 17	Oct 18: Fall Break Oct 20: Homework #6 Due Lipid metabolism	20
Oct 24	Oct 25: Exam II Lipid metabolism	20
Oct 31	Nov 1: Homework #7 Due Lipid metabolism Amino acid metabolism	20 21

Nov 7	November 8: Homework #8 Due Amino acid metabolism	21
Nov 14	Nov 15: Exam III Nucleic acid metabolism	23
Nov 21	Nov 22: Homework #9 Due Nucleic acid metabolism November 24: Thanksgiving	23
Nov 28	Nov 29: Homework #10 Due DNA replication and repair, transcription, and translation	25, 26, 27
Dec 5	Dec 6: Homework #11 Due Special Topics (TBA)	TBA

Final Exam: Tuesday, December 13; 8 am – 10:50 am

Grading:

Midterm Exams (300 pts; 100 pts each)

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

Quiz (50 pts)

Homework (110 pts; 10 pts each): Each homework assignment is worth 10 points. Three of the questions from each assignment will be chosen at random to be graded in detail. One point will be taken off automatically for each unanswered problem in addition to any other points subtracted from the graded questions. Homework is due at the start (i.e. 9:35 am) of the class period indicated. To be considered for full credit, assignments must be turned in at that time.

Extra Credit (up to 5 pts): Due by 5 pm on Friday, December 9, but may be turned in any time during the semester prior to that. Find in the popular culture – from music, TV series, movies – a portrayal of a metabolic disorder that directly relates to the topics discussed this semester. Write up a paragraph that: (1) includes the title of the song, TV show (and episode), or movie; (2) includes the name of the metabolic disorder; (3) discuss whether or not that disease state was accurately portrayed.

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

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

TA Office Hours:

Po-Yu Fang: Tuesdays, 4-5 pm. Buzz IBB wing 3-A and he will direct you to a work area along the IBB main stairs.

Optional Discussion Session: Fridays, 2 pm, location: MoSE 1222.

Required Text: “Fundamentals of Biochemistry”, 3rd 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 recommended that you have access to an Organic Chemistry and a General Chemistry textbook.

Also on reserve in the library is T. Bugg’s “Introduction to Enzyme and Coenzyme Chemistry”. This is a very nice text that describes the chemistry of enzymes, grouped according to the cofactor/coenzyme and type of chemistry.

Missed Exams: There is no scheduled makeup exam. 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. You should be able to draw the structure of each natural amino acid, nucleotide, common lipids and common carbohydrates (such as glucose) (it is assumed that you are already familiar with these bio-molecules). It is highly recommended that you read Chapters 11 and 12 to refresh your knowledge of the fundamentals of enzyme catalysis and kinetics.

Re-grade requests: Requests must be made in writing and handed to Prof. Kelly in person. Requests should not 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 4512, firstname lastname, subject.

Example: Chem 4512, Gertrude Elion, Purine Metabolism

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

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.**