

Chemistry 312

Spring 2006

Instructor: Dr. Wayne Harrison

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Office Hours: TBA

Text: "Biochemistry: The Molecular Basis of Life" by McKee and McKee

This course is designed to introduce the student to the chemistry of biomolecules. The course will have two main points of focus. The first introduces the structures of the classes of biomolecules and how the structure influences the properties (both chemical and physical) of the class. In the second area, the major metabolic pathways will be studied with an emphasis on the chemistry occurring within the processes. Within the content of the course, the student will be expected to draw on concepts previously introduced in both biology and chemistry and relate these to topics in the course.

TOPICS

READINGS AND SUGGESTED PROBLEMS

1. Introduction	Ch. 1 - 3	1: 4, 7, 13, 17, 4(TQ) 3: 1 – 5, 12, 21, 22, 23
2. Structure of Biomolecules		
Carbohydrates	Ch. 7	10, 11, 20, TQ: 1, 5
Lipids	Ch. 11	3
Amino Acids, Proteins	Ch. 5	2, 3, 5, 14, 21, 22
Nucleic Acids	Ch. 17	
3. Review of Selected Organic Reaction Mechanisms		
4. Metabolism: Basic Concepts and Designs		
Bioenergetics	Ch. 4	4, 5, 9, 8(TQ)
Enzymes, Vitamins and Coenzymes	Ch. 6	4, 15, TQ: 1, 3, 9
Metabolic Regulation		
5. Summary of Primary Metabolism		
Carbohydrate Metabolism	Ch. 8	
Citric Acid Cycle	Ch. 9	
Oxidative Phosphorylation	Ch. 10	
Lipid Metabolism	Ch. 12	
Nitrogen Metabolism	Ch. 14, 15	
Photosynthesis	Ch. 13	
Biosynthesis of Proteins	Ch. 19	

EXAMS AND GRADING

Exam 1	25% (2/7)
Exam 2	25% (3/16)
Exam 3	25% (4/13)
Final Exam	25% (finals week)

A-, A:	90.0 - 100
B-, B, B+:	80.0 – 89.9
C-, C, C+:	70.0 – 79.9
D-, D, D+:	60.0 – 69.9
F:	< 60.0

NO MAKE-UP EXAMINATIONS WILL BE GIVEN WITHOUT A VALID (APPROVED BY ME) EXCUSE AND ANY MAKE-UPS MUST BE COMPLETED PRIOR TO THE NEXT CLASS MEETING. IF YOU ARE TO MISS AN EXAM DUE TO A SCHEDULED COLLEGE RELATED ACTIVITY, IT IS YOUR RESPONSIBILITY TO NOTIFY ME AND SCHEDULE TO TAKE THE EXAM PRIOR TO YOUR DEPARTURE. Class attendance and participation are expected and could be a factor in the final outcome. Greensboro College policies will be in effect; therefore, excessive absences, classroom (including laboratory) misconduct and dishonesty will be dealt with accordingly.