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CHEM 414-01, Biochemistry, Fall 2003

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CHEMISTRY 414, BIOCHEMISTRY

Fall, 2003 – C Hour

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DESCRIPTION: In this course, you will study the fundamental principals that define biochemistry by exploring the metabolism of carbohydrates, proteins and fats. The regulation of these pathways and how they differ in the muscle and liver will be a main theme in the course. At the completion of the class, you should have a solid understanding of these pathways and how malfunctions in them can lead to disease.

GOALS: To be successful in this course, you should work to:

1. Obtain knowledge about the metabolism of carbohydrates, proteins and fats.
2. Understand the regulation of these pathways.
3. Understand the function of liver and muscle.
4. Understand how disruptions in these pathways can lead to disease.

TEXT: Lehninger Principals of Biochemistry by Nelson and Cox, 3rd edition.

EVALUATION:

1. Quizzes

Twenty-five quizzes will be given during this course, on Mondays and Wednesdays (to be handed in on Wednesdays and Fridays). You will be quizzed on the material in lecture and the assigned reading. I will specify the pages in the text to focus on and any problems pertaining to the quiz. The quizzes will be available in my public folder and you are to do them without your notebook or book, unless otherwise specified. You will turn the quizzes in to me at the beginning of the class period for which they are due. These quizzes are to help keep you current on the material and to catch any problems early on (i.e. before an exam). The quizzes will be worth 10 points each and the top 20 scores will be retained. Your total points will be divided by 200 for a percentage, which will become your portion of the 100 possible quiz points.

2. Exams

The mini exams will be held in class, during our regular class periods. They will be designed to be completed in one hour and you will hand them in at the end of the class period. They will be closed-book and closed-notebook. Exam 1-3 will be take-home exams that are closed-book and closed-notebook. You will be allowed 2.5 hours to take these exams. I do not want time to be a limiting factor in testing your ability to solve complex problems.

3. Final Exam

The final exam will be comprehensive.

4. Available Points

The maximum number of points you may obtain for each task are as follows:

Mini Exam A	40 points
Exam 1	100 points
Mini Exam B	60 points
Exam 2	100 points
Exam 3	100 points
Quizzes	100 points
Final Exam	100 points

5. Final Grade

The following is a guide in determining your final grade:

Points accrued:

540-600	A
480-539	B
420-479	C
360-419	D
Below 360	F

Plus and minus assignments will be made within these ranges. Your success on these examinations will depend not only on the correctness of your answers but also on how you develop your answers. Attention to detail, clarity in presentation and consistency in the application of the principles involved will all improve your point sum.

POLICIES:

Your attendance at every class meeting is expected and is important to your ultimate success in the class. In instances in which an absence is unavoidable, you should contact me as promptly as you can to allow me to help you with the material missed.

You will be allowed to make up a missed exam only with an excused absence. If possible, you should let me know ahead of time if you are not able to take an exam at its scheduled time so that we can make plans to prevent you from falling behind. If the absence is not excused, you will receive no points for the exam.

The Honor Code, of course, governs your activities in this class, and all work handed in for grading must be pledged to be your own.

Problem sets will be assigned on a regular basis. Although they will not be turned in or graded, their completion is essential for your success in the class. An answer key will be made available, and I would strongly encourage you to discuss with me, either in class or in my office, questions that arise in your work with these sets. Ultimately, all material discussed in class and assignments given are your responsibility.

My door is always open to you for questions arising out of your work in this class, and I am very interested in helping you be successful in your work in biochemistry. Please feel free to come and see me.

SCHEDULE: In this semester, we will work our way through 16 chapters in the text. Our schedule will be:

<u>Date(s)</u>	<u>Topic</u>	<u>Reading</u>
Aug 27	Introduction	
Aug 29, Sept 3	Acids, Bases and Buffers	Chapter 4
Sept 5, 8	Amino Acids	Chapter 5
Sept 10	Mini Exam A	
Sept 12 - 22	Introduction to Proteins	Chapters 5 & 6
Sept 24, 26	Hemoglobin & Myoglobin	Chapter 7
Sept 29	Exam 1	
Oct 1 - 8	Enzyme Kinetics	Chapter 8
Oct 10	Thermodynamics	Chapter 14
Oct 13	Mini Exam B	
Oct 15	Carbohydrate Chemistry	Chapters 9 & 20
Oct 17 - 29	Glycolysis	Chapter 15
Oct 31, Nov 3	Citric Acid Cycle	Chapter 16
Nov 5	Exam 2	
Nov 7, 10	Electron Transport & Oxidative Phosphorylation	Chapter 19
Nov 12 - 17	Fatty Acid Metabolism	Chapters 17 & 21
Nov 19 – Dec 1	Amino Acid Metabolism	Chapters 18 & 22
Dec 3 – 8	Hormonal Regulation of Mammalian Metabolism	Chapter 23
Dec 10	Exam 3	
Dec 15	Final Exam (5:30 – 8:00)	