

## Chemistry 3785, Biochemistry 1, Fall 2003 - Syllabus **(Final)**

**Lecturer:** Dr. Allen Hunter (Office 5015), Phone: 941-7176 (Office), E-mail: [adhunter@ysu.edu](mailto:adhunter@ysu.edu)  
**Textbooks:** 1. "Fundamentals of Biochemistry," Voet, Voet, & Pratt, Upgrade Edition, 2002 (recommended)  
2. "Student's Companion" & "Take Note" for "Fundamentals of Biochemistry"  
3. Molecular Model Set (recommended, use will be allowed during exams).

**Lecture Times:** **Course Code 0559: Monday, Wednesday, & Friday, 11:00 to 11:50 in WB 6030**  
**Course Code 0553: Monday, Wednesday, & Friday, 12:00 to 12:50 in WB 6029**  
**Common midterm quizzes will be given simultaneously to both sections on alternate Mondays from 11:30 to 11:50 in both WB 6030 & 6029**

**Lab:** Note: This is a separate course but if you are register, you must come to the first lab on time.

**Office Hours:** Monday 10:00 to 10:50 and Wednesday & Friday 9:00 to 10:50 or by appointment

**Objectives:** Chemistry 3785 serves as an introduction to the major classes of biomolecules: proteins, lipids, carbohydrates, and nucleic acids and some of their basic biochemical reactions. By the end of the course students will:

- Review the basic concepts of molecular structure and bonding as they apply to biochemical systems.
- Understand how amino acids join to form polypeptides and how the structure and order of the amino acids influences polypeptide structure and function.
- Understand the basic principles of enzyme structure and function, including enzyme kinetics, inhibition, and mechanics.
- Understand the structures and functions of the major classes of carbohydrates.
- Understand the structures of the various classes of lipids and how lipid structure is related to the properties of cell membranes.
- Understand how nucleotides join to form DNA and RNA and how the structure of these is related to information storage and protein synthesis.
- Understand the principles of the major methods used by biochemists to characterize and manipulate biomolecules.
- Understand the principles of representative anabolic and catabolic pathways in cells.

Chapter(s)	Title
1	Introduction & Life
2	Water
3	Nucleotides and Nucleic Acids
4	<b>Amino Acids</b>
5	<b>Proteins - Primary Structure</b>
6	<b>Proteins - Three-Dimensional Structure</b>
7	<b>Proteins - Function</b>
8	<b>Carbohydrates</b>
9	<b>Lipids</b>
10	<b>Biological Membranes</b>
11	<b>Enzymatic Catalysis</b>
12	<b>Enzyme Kinetics, Inhibition, &amp; Regulation</b>
13	<b>Introduction to Metabolism</b>
14	Glucose Catabolism
15	Glycogen Metabolism & Gluconeogenesis
16	Citric Acid Cycle
17	Electro Transport & Oxidative Phosphorylation
18	Photosynthesis
19	Lipid Metabolism
20	Amino Acid Metabolism

\*Course content will be drawn primarily from these chapters but the order and relative weighting of topics will be revised as the class progresses.

**Exams:** There will be seven midterm quizzes that will be given on alternate Mondays starting the third week of classes, however, the exact quiz dates may change depending on circumstances. Each of the quizzes will be worth 10 % and the cumulative final exam will be worth 30 % of the final grade. The grades will be assigned on the scale of 90 to 100% is an A, 80 to 89 % is a B, 65 to 79% is a C, 50 to 64% is a D, and less than 50 % is an F. **MAKE-UP EXAMS WILL NOT BE GIVEN.** Absences that have not been approved in advance will result in a grade of **ZERO** for that quiz/exam. Approved absences for sporting events, holidays, car breakdown, etc. will be given **only** if I am informed in advance and only if I agree. Absences for health reasons or family emergencies must be discussed with me *within 24 hours* of the missed quizzes/exams for approval to be granted. The points for exams/quizzes missed during approved absences will be applied to the final exam. A quiz/exam must be submitted for re-grading *within 48 hours* after it has been returned. The **whole** quiz/exam will be re-graded, not just single questions. **You must bring photo ID with you when you write quizzes/exams and place it on the desk top.**

**Attendance:** Lecture attendance is mandatory and your timely arrival in class is expected. Students are responsible for all information, material, and announcements made in class.

**Assigned Readings and Problems:** You are required to read the assigned chapters from the lecture text **before** we discuss them in class. Some question based on these readings will appear on exams. I will assign problems from the text. These will not be graded but are very important since they will be similar to those on the exam!

**Academic Honesty:** In accordance with university policy and professional standards, the highest levels of academic integrity are expected in this lecture. The code of student conduct will be *strictly* enforced. Academic dishonesty will result in a grade of F and expulsion from this class and/or the university. *[Note: Representative exams are photocopied before they are returned. These photocopies are compared to the originals returned for re-grading to check if answers have been altered.]*