



Chemistry 464 – Organic and Biochemistry – 2010-2011

Textbook: Introduction to General, Organic, and Biochemistry by Bettelheim, Brown, Campbell, and Farrell
ISBN: 978-0-495-56095-1

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Introduction

Welcome to Chemistry 464! Enrolling in this class assumes that your interest in science, especially chemistry, is immense. It is likely that you will be entering into college next fall and embarking on a career in medicine, or one of the main sciences such as chemistry, biology, or physics. This class will provide you with a few advantages. We will be discussing two high-impact areas of chemistry, namely, Organic Chemistry and Biochemistry. You will be taking these full year courses in college and it is my hope to give you a bit of a head start. While we will not move as quickly as a college course, we will hit many major topics in a rigorous fashion. These topics are listed below; some of these include organic nomenclature, reactions, stereochemistry, mechanisms, biochemical pathways, protein structure and function, and materials chemistry. Depending on your suggestions and backgrounds we may spend the first few weeks reviewing some topics from general chemistry.

Quarterly Grading

	Number	Points per	Total points	Percentage (weight)
<i>Exams</i>	2	175	350	60.0
<i>Quizzes*</i>	4	50	200	15.0
<i>Laboratory</i>	TBD	TBD	TBD	10.0
<i>Classwork/HW*</i>	4	15	60	5.0
<i>WebAssign</i>	4	50	200	10.0

* Lowest grade will drop at the end of quarter

The quizzes will cover topics from current classwork/lectures and homework sheets – but will cover past material as well – remember Chemistry is a cumulative subject. Exams will be scheduled at least one week in advance; however, quizzes will not (I will likely give you 48 hours notice for quizzes). It is best to keep current with the reading and associated classwork/homework problems; waiting to “cram” at the last minute is generally ineffective, *especially* for Organic chemistry. Class time will generally consist of a PowerPoint presentation along with problem solving in groups and with me on the board. There will be problems assigned from the book, which will not be handed in, as well as a series of worksheets. Lastly, you will be required to sign up for a WebAssign account (WebAssign.net). You will be responsible for completing the assignments I post; these will assist you in learning the material and help keep everyone on track. Some material will be labeled **NIB** – *Not In Book*. I will provide notes for this material on the class site and in class.

The number of assignments, weighting, and point total may change. Also, there will likely be a group project that will involve a report and a PPT presentation; this will count as an exam.

Extra Credit: the only way to earn extra points is by solving problems in class – your opportunities will be unannounced and there will only be three chances per quarter. You will earn points as a class, but you may lose them individually.

Topics to be covered

This course will introduce you to many fundamental concepts that will provide you with a base knowledge important for your future degree in the physical and/or medical sciences. Topics we will cover this year include:

- **General (Chapters 1-9) – Optional - TBD**
 - **Organic (Chapters 10-19)**
 - Bonding of carbon
 - Alkanes, Alkenes, and Alkynes
 - Aromatics
 - Alcohols, Ethers, and Thiols
 - Chirality
 - Amines
 - Aldehydes and Ketones
 - Carboxylic Acids
 - Esters and Amides
 - Common reactions, synthetic routes, and mechanisms
 - Polymers and uses
 - **Biochemistry (Chapters 20-27)**
 - Sugars, lipids, amino acids
 - Proteins and enzymatic reactions
 - Signaling pathways
 - DNA, gene Expression and some bioenergetics topics
- *Scientific literature will also be used to explore technology based on fundamental Organic chemistry and Biochemistry as well as reinforce class material.*

There will be a laboratory component of this class – this will assist you in learning and applying the class material, plus it should be fun! Proper laboratory safety will be stressed. Please take and read the safety contract. You and your parents must sign this document and return it to me before you will be allowed in the laboratory.

Class Preparedness & Website

Please bring a calculator to class each day and also for each exam. **CHECK THE CLASS WEBSITE EVERYDAY!** I will have updates up by 9 PM daily. **Docshrouchemistry.com** is your source for all class activities and announcements. We will take time to navigate through the site during the first couple of classes to ensure everyone becomes familiar with the pages and how to download materials. Also, I will post PPT shows so that you may review. Occasionally we will watch a film – this too will be available for your viewing at home.

Attendance and Classwork/HW Policies

Attendance is paramount. I will allow make-ups provided your absence was verified, but it is your responsibility to schedule a make-up. Classwork will be checked the day of the quiz. After this time the assignment will turn to a zero in PowerSchool.

Help

You will need to keep current with material. Lectures will be given assuming you have already read and outlined the material.

I am here to help. I am usually in my room by 7 AM, and leave no earlier than 3 PM. There are exceptions and I will write these on the board so that you may schedule accordingly. My schedule will be posted in the room. Lastly, please feel free to email anytime should you need help.