



Honors Chemistry 440 – 2010-2011

Textbook: Chemistry: Connections to Our Changing World by LeMay, Beall, Robblee, and Brower
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Introduction

Welcome to Chemistry 440! Chemistry is often referred to as the Central Science; this moniker reflects the far-reaching effects that chemistry has on our everyday lives. Chemistry, in some capacity, is behind most all of what we see, touch, and smell. Whether it is the smell of isoamyl-acetate, commonly associated with the aroma of bananas, or the feel and look of polymethylmethacrylate, *i.e.* Plexi-glass, chemistry is responsible for these sensations. Determining molecular interactions is paramount in the ultimate understanding of how chemicals react, proteins fold, and even how *E. coli* can sense chemicals in its complex environment. This is a fast moving class that will require **significant** commitment from you. Many students feel this is really three classes in one; math, chemistry, and a foreign language. The most important thing to remember is that Chemistry is a **CUMULATIVE** subject. Also keep in mind I am here to help you through this journey.

Quarterly Grading

	Number	Points per	Total points	Percentage (weight)
Exams	2	175	350	60.0
Quizzes*	5	50	250	15.0
Laboratory	3	15	45	10.0
Classwork/HW*	6	15	90	5.0
WebAssign	6	50	300	10.0

* Lowest grade will drop at the end of each 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 this honors class. Class time will generally consist of PowerPoint presentations 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, which *will* be simply checked for completeness. 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.

The number of assignments, weighting, and point total may change – I will keep you apprised of any such changes. Also, there will be a group project that will involve a report and a PPT presentation due at some point during the first few months; 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 a few chances per quarter. You will earn points as a class, but you may lose them individually by not being prepared, talking when you should not, or not participating in class discussions.

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 or medical sciences. Topics we will cover this year include (order subject to change as is pace – (red/orange colored font indicates that the chapters are paired) :

- **Quarter 1 (Chapters 1-7, 24):**
 - Chemistry and You
 - Energy and Matter
 - Atomic Structure
 - Electron Configurations
 - The Periodic Table
 - Groups of Elements
 - Chemical Formulas and Bonding
 - Applications of Nuclear Chemistry
- **Quarter 2 (Chapters 8-11, 25 and 26):**
 - Molecular Shape
 - Carbon and its Compounds (**Organic Chemistry**)
 - Classes of Organic Compounds
 - Chemical Reactions and Equations
 - The Mole
 - The Mathematics of Chemical Equations (**Stoichiometry**)
- **Quarter 3 (Chapters 13-15, 12 and 23):**
 - Gases
 - Liquids and Solids
 - Solutions
 - Heat in Chemical Reactions
 - Thermodynamics
- **Quarter 4 (Chapters 16-21):**
 - Chemical Equilibrium
 - Solubility and Precipitation
 - Acids, Bases, and Salts
 - Reactions of Acids and Bases
 - Oxidation and Reduction
 - Electrochemistry

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/rules & Website

- Please bring a calculator, writing instrument, book, notebook, and any required materials to class each day. Also, I recommend a 3-ring binder to organize your notes, worksheets, completed exams, etc. Please be prepared for class!
- **Be quiet.** Some concepts you will learn will be quite challenging and talking while we are going through the material will not be beneficial. Please be respectful to others in the classroom and do not talk when others are talking. Please act as young adults. **Do not give a substitute a difficult time.**
- One person at a time is allowed to use the pass – 5 minute limit.
- You may not leave the room to print materials that you should have printed the night before nor are you allowed to use my computer. I will provide paper to you if asked.

- You may have a beverage as well as gum at your desk – **DO NOT** leave wrappers or bottles on your desk (or floor) when you leave. Also, please straighten your desks as you leave. **DO NOT BRING FOOD/DRINK INTO THE LAB AREA.**
- **CHECK THE CLASS WEBSITE EVERYDAY!** I will have updates posted 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. Please download and print the *Chart of Charges* PDF I have posted; this will be instrumental in the coming months *and* will count for your first Classwork/HW assignment. These sheets may also be used on exams and quizzes. 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.
- **Do not cheat. Do not rationalize the impact of cheating. Any questions?**

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. It is your responsibility to make sure your work is correct – keys will be provided to you in class. I will usually check your classwork on the day of the **quiz**. After this time the assignment grade will turn to a zero in PowerSchool.

Help

You will need to keep current with the material – this includes reading assignments, worksheets, and any other assignments that are necessary – the pace will be swift. Most lectures will be given assuming you have already read and outlined the material. Math will be integral to this class, please see me early if you are having difficulty.

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. Lastly, please feel free to email anytime should you need help. You are in an honors chemistry class – please be prepared.