

# Schedule and Policies

Chemistry 1B  
Summer 2014

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Text: Chemistry: A Molecular Approach;  
Nivaldo Tro, 3<sup>rd</sup> ed.

Lab Manual: See Blackboard content folder for lab instructions

Calculator: TI-83 or higher

Notebook: Composition Notebook (with either graph paper or lined)

Lab Supplies: Approved safety goggles, Lab coat, Dishwater soap (can be shared)  
Matches or disposable lighter

Homework: [www.masteringchemistry.com](http://www.masteringchemistry.com)  
Course ID: MCKAWAGOE74151  
If you have already have an account for mastering chemistry (1A or 1B), please come see me after class to get things straightened out.

## Course Objectives

On successfully completing this course you should be able to:

- ✓ Understand ideas related to collisional theory, rate of reaction, rate laws, and to use data to determine rate laws; also use Arrhenius equation, determine reaction mechanism, and define catalysis.
- ✓ Use the concept of equilibrium to write equilibrium constant expressions, define relationship between  $K_C$  and  $K_P$ ; also demonstrate proficiency with equilibrium calculations and apply LeChatelier's principle.
- ✓ Classify and use the definitions of acids and bases, use the pH scale, and relate molecular structure to acid strength; also classify types of acid-base reactions, identify acidic, basic, and amphoteric oxides
- ✓ Describe weak acids and bases and their conjugates, solve problems involving weak electrolytes; work with ionization equilibria of polyprotic acids; also demonstrate knowledge about salt hydrolysis, buffers and acid-base titrations and their indicators.
- ✓ Define  $K_{sp}$  and solubility; describe common ion effect on solubility and complex ion formation.
- ✓ Use the concept of qualitative analysis.
- ✓ Assign oxidation numbers to atoms in compounds, balance redox equations, and perform stoichiometric calculations involving redox reactions.
- ✓ Explain the basic definitions and convention of signs in thermodynamics, use concepts of energy, enthalpy, heat and work in thermodynamic terms; define the concept of entropy and use free energy to determine spontaneity of a reaction; relate standard free energy and equilibrium constant.
- ✓ Describe galvanic cells, calculate the emf of electrochemical cells, relate emf to the free energy change, the equilibrium constant, and the spontaneity of the reaction; work with the concepts of batteries, corrosion, and electrolytic processes.
- ✓ Describe nuclear chemical concepts and write nuclear equations, use kinetics of radioactive decay, define fission and fusion and their applications.
- ✓ Describe the chemistry of transition metals, coordination compounds, and use ligand field theory.
- ✓ Demonstrate laboratory and record keeping skills necessary to organize, carry out, describe, and interpret general chemistry experiments neatly and safely.

## General Outcomes

- ✓ Prepare for further studies in the sciences, medical, health, or allied disciplines.
- ✓ Develop an understanding of the role of science and chemistry in the formation of our present society.
- ✓ Make informed decisions that affect our future by incorporating the ideas and concepts of chemistry and science.
- ✓ Become a skeptical thinker. Discern between observations and conclusions, science and myth, cause and effect, and fact-based reasoning versus unsubstantiated claims, notions, feelings, or superstitions.
- ✓ Develop skills in making observations, drawing conclusions, using laboratory controls, and in recognizing error probability.

## Disabled Students Programs Services

If you require alternate accommodations, please contact me before they are needed. I am happy to make reasonable accommodations for exams, labs, and online homework assignments. You must provide verification from DSPS in a timely fashion.

## Attendance Policies and Academic Dishonesty

You should read and understand the college policy and rules regarding Student Conduct, Academic Dishonesty, Attendance, and Withdrawing from College. These are found in the RC 2012-14 Course Catalog (pg 48-49)

You are responsible for knowing all that is discussed in the catalog.

**In the first week**, if you miss two days and do not contact me, **you will be dropped from the course.**

### Attendance and makeup work

You must answer roll or sign in at the **beginning** of each class period. Otherwise, you will be counted as absent.

**You must contact me about your absence and bring verifiable documentation for if you want any chance of making up work.**

**Leaving early without permission is considered an absence.** Please inform me if you plan to leave class early. If you are tardy, inform me in order to convert your absence to a tardy.

### Consequence of Absences

A combination of three absences in the lecture and lab are considered excessive (i.e. missing one day is 2 absences).

- **If you receive excessive unexcused absences before the drop deadline, may be dropped from the course and receive a W.**
- **Remember, this is a summer course. Three absences amounts to about 4 missed weeks of work.**

### Academic Dishonesty

All incidents of cheating will be documented using a dishonesty infraction form and you will have to meet with the Vice President of Students to discuss potential dismissal from the college. The penalty for academic dishonesty ranges from minus the maximum score on the assignment to receiving an F for the course (Read the section on plagiarism in the course catalog.)

**I encourage you to work with each other on homework and lab reports.** However, copying calculations and answers on lab reports is considered cheating. Lab reports must reflect individuality in order to receive credit. The penalty for confirmed cheating on lab reports is minus the possible score for that assignment in addition to being reported to the Dean of Students. Cheating in lab includes, but is not necessarily limited to, using data or written material from a previous year, someone else's data, or faked results.

## Course Work

Typically for a 5-unit class; because this is a summer class, you should devote all your remaining conscious hours to do well in this class. During a regular semester, I expect that a student spends between 5 and 15 hours a week outside of class to earn a C.

## Grading

- ◆ The **grading scale** will be based on a percentage of the total points in each category (exams, lecture, etc.):  
A = 100% - 90%; B = 89% - 80%; C = 79% - 70%; D = 69% - 60%; F = 59% - 0%  
Some curving of the grades will be done at the end of the semester. You will receive your grades via e-mail after each exam.
- ◆ Four midterm **exams** will be given. None will be dropped.
- ◆ **No one who fails the lab portion of this course will receive a grade higher than a D.**

Four midterm exams	40 %
Final exam	20 % (cumulative for both semesters of general chemistry)
Homework	15 % (written and online combined)
Laboratory	25 %
Total	100%

## Due Dates

Homework is due as specified on the Mastering Chemistry website. Homework is assigned by chapters.

Written homework is due as specified on Mastering Chemistry. **One problem written neatly per page unless specified otherwise.** Because I am assigning these problems through mastering chemistry, you can easily get the answers! However, I am grading you on the quality of your written work and thoughtfulness in answering the problems.

I expect you to turn in your lab reports at the end of the lab period. This will make our evenings late, but your days will be much better we can keep this up!

**Lab Data notebooks are** required and must be brought to class **every** day. See the section "Keeping Lab Data Journals and Writing Reports." for details. **Always use ink with your notebooks.** You will record your data and observations in your notebook. The printed procedures can be brought to class, but you must show some record of having outlined the procedure (either in or out of your notebook).

Your journal is a "living" document; you should try to keep it organized, but it is not the final report. Never erase unwanted entries. Chemistry is an experimental science. Sometimes, we need those entries that we once thought were mistakes. **To make corrections, make a single line through the error and initial the change in your book.** You must sign and date each page of your lab book and you should cross out any large blank areas. **I will periodically check your lab journals for accuracy.**

**Homework** is due as stated in on MasteringChemistry.com.

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# Keeping Lab Data Journals and Writing Reports

## Lab Data Journals (Notebook)

You are required to purchase and maintain a lab data journal as a written record of your lab work and lab-related calculations. **Always use non erasable ink with your lab journal.**

Setting up your lab journal is *easy*

Put your name, course number, semester, and year on the outside of your data journal

*Create a Table of Contents* which will be on your first page.

Include your address, telephone number, and any information (i.e. my email address) to help someone return your lost data journal.

Keep a separate folder for your lab procedures and bring those to class.

## Recording Data in Your Journal

This data journal will be a **primary record**; it shall include

- Observations
- Numeric data that you obtain during an experiment
- Calculations
- Conclusions (summary of your work)
- Numbered pages (number the first couple of dozen pages in your notebook when you start)

Here are some things **NOT** to do with your lab data

- Writing in pencil
- Recording data on scraps of paper because, "I will write it in my journal as soon as I get back to my bench."
- Recording data on your hand (the original mobile device).
- Yelling it across the room for someone else to copy it down
- Repeating it over and over again while you walk back to your lab journal, "3.14159, 3.14159, 3.14159, 3.41459..."

Should you make a mistake in your lab journal...

- Draw a single line through the mistake
- Write your initials or sign next to the mistake
- Write the corrected information next to the data

**At the end of each lab period, you cross out any large blank spaces on a page. This is to keep you from making later entries.**

**Since your mistakes might be valuable later, you should never erase or whiteout errors in your lab book.**

It is sometimes okay to tape stuff into your notebook. Some examples would be

- A graph you make in Excel.
- A table of reference data (i.e. unit conversions) you print from an online source.
- Pictures of your loved ones.

If you do this,

- **The space covered by what you add must be blank.**
- Use non-removable tape to tape down the edges of the addition.
- Sign and date across the tape and paper (i.e. right on the edge of the tape).

### **Before you start an experiment**

You should have the following in your lab journal before you come to class:

1. The laboratory title
2. Purpose
3. Hazards
4. (Optional) The procedure in outline form.
5. (Sometimes) There may be separate questions to complete with the lab (they will be with the lab procedure). These should be turned on separate paper.

### **When an experiment is completed**

You should have added the following to your notebook

1. Data in neat tables (and scrawled all over the place)
2. Relevant chemical equations
3. Relevant calculations
4. Summary of results and conclusions

### **In addition**

You do the following in at the end of class

1. Show me your notebook to receive a notebook grade
2. Answer post lab questions
3. Fill out the report forms and turn them in (generally due at the end of class)

### **Formal Lab Reports**

If we do a formal report this summer... the formal lab report requirements will be posted on Blackboard. Experiments requiring a formal lab report will be specified before the lab begins.

**For those of you who actually read this far:** Accuracy is usually given a value of 20-70%. The remaining percentage of the lab score is for prelab work, organization (order and neatness), calculations, discussion of results, and answers to post-lab questions. With a formal report, as much as 40% of the overall score can be for format (i.e. including all the required sections, all the data present, all graphs present, all required calculations shown etc.).