

## Chemistry 141 Course Syllabus

<b>Course Information:</b>	Course:	Chemistry 141		
	Section:	2529		
	Lecture:	TTh	5:30-6:45 pm	Room 30-240
	Lab:	TTh	7:00-9:50 pm	Room 30-240
<b>Instructor Information:</b>	Instructor:	Diana Vance		
	E-mail:	<a href="mailto:diana.vance@gcccd.edu">diana.vance@gcccd.edu</a>		
	URLs:	<a href="http://www.grossmont.edu/dianavance">www.grossmont.edu/dianavance</a>		
		<a href="http://www.masterchemistry.com">www.masterchemistry.com</a>		
		Course ID: <b>CHEM141VANCE2009FALL</b>		
	Phone:	619-644-7047		
Office:	30-214			
Office Hours:	MTWTh	4:00-5:20 pm (in office or Chemistry Computer lab)		
	Other times by appointment			

### General Information

Chemistry 141 is the first semester of the one-year general chemistry course (141-142). It is assumed that you have had a previous course in chemistry and can do problems in stoichiometry, solution concentrations, gas laws and that you can name common inorganic compounds and write their formulas. Also that you are familiar with basic laboratory equipment such as balances, burettes, pipettes, graduated cylinders, etc. Most of the first four weeks of the course will be spent reviewing basic material, material you should have covered thoroughly in a previous course. Following this, new topics will be introduced. The course consists of three hours of lecture instruction and six hours of laboratory per week. **Attendance at these sessions is required. Plan to spend, on the average, two hours per lecture hour and one hour per lab hour per week additional study time.**

**Prerequisites:** Grade of "C" or better in Chemistry 120 at Grossmont or successful completion of the Chemistry 141 entrance exam.

A working knowledge of intermediate algebra is mandatory, which includes such topics as solving simultaneous equations, graphing of various functions and the algebra of logarithms.

**Text:** *Chemistry, A Molecular Approach* 1<sup>st</sup> edition, by Nivaldo J. Tro  
*MasteringChemistry* account (available with new books or bought online from publisher)

**Optional:** Study Guide for above text.

**Lab:** 141 Laboratory Manual  
Quadrille-ruled, double-entry notebook  
A pen with nonerasable blue or black ink is required for the recording of all laboratory data.  
Safety Glasses - Available in bookstore and hardware stores.  
Lock for laboratory drawer - Must be Master Lock (V-69), series recommended by stockroom and sold in the bookstore which comes in a box with a key hole on the back.

**Additional requirements:**

Calculator -- A standard scientific calculator is required for the course.

**Important Dates:**

Last to drop without receiving a "W"	Friday, September 4, 2009
Last day to apply for CR/NCR	Friday, September 25, 2009
Last day to drop a class	Friday, November 12, 2009
Holidays – Labor Day: Monday, September 7;	
Veterans Day: Friday-Saturday, November 13-14;	
Thanksgiving: Thursday-Saturday, November 26-28	

- Registration should be completed before checking into lab. If registered late, bring your validated receipt to lab. You will be charged for all breakage or loss of laboratory equipment, in addition you will be assessed a \$10 minimum fee if you fail to check out of the laboratory before the end of the semester. To make an appointment to check out call the Stockroom at 619-644-7339.
- Regular attendance is expected. (A roll sheet may be passed at each class.) The instructor may drop any student who misses over (4) classes. (BUT this is not a guarantee!) If you wish to drop, you should turn in the forms and get a receipt.
- Those enrolled at the end of the semester must receive a letter grade unless they have chosen the CR/NC option. An “incomplete” may be arranged for completion of a particular item such as the final exam, but will not be given to allow a repeat of the course. Withdrawal or CR/NC grading is available through admissions and records.
- All course assignments must be turned in no later than the start of the final examination in order to be considered for credit. Late laboratory assignments will receive a 10% deduction in the grade per week late.

### Student Learning Outcomes

This course is both a lecture and a laboratory course. The major goals for the semester are to become fluent in the language of chemistry and to utilize the tools of chemistry to analyze a variety of chemical phenomena. The behavior of materials will be explored in the laboratory and use your knowledge of chemistry to explain the behavior. In particular, each student should be able to do the following upon completion of this course:

- Demonstrate a working knowledge of the language of chemistry.
- Apply quantitative reasoning to chemical problems
- Apply a laws and theories to explain and predict the properties of atoms and molecules.
- Employ laboratory equipment and techniques to collect, organize and evaluate experimental data.

### Course Objectives

The student should be able to:

- Solve stoichiometry problems involving mass, moles, mixtures, gas volumes, and limiting reactants
- Solve gas problems using the ideal gas, combined gas, Dalton’s partial pressure, and Graham’s effusion laws
- Demonstrate proficiency in chemical nomenclature
- Identify and balance net ionic equations for oxidation reduction, acid base and precipitation reactions.
- Demonstrate quantitative and qualitative understanding of chemical equilibrium
- Demonstrate understanding of chemical periodicity in terms of quantum mechanics and atomic structure
- Analyze the bonding in chemical compounds in terms of Lewis structures, VSEPR, valence bond theory, molecular orbital theory.
- Calculate enthalpies of reactions using Hess’ Law, bond energies, and calorimetry.
- Apply the first and second laws of thermodynamics to chemical systems.
- Solve colligative property problems and explain solution properties in terms of vapor pressure and intermolecular interactions.
- Demonstrate ability to analyze a phase diagram.
- Apply science methodology in a laboratory setting
- Demonstrate proficiency in quantitative chemical analysis techniques
- Apply kinetic molecular theory to describe the properties of solid, liquids and gases.
- Demonstrate correct documentation of experimental data in laboratory notebook and presentation of analysis in a formal lab report.
- Solve problems involving the relationship of pH, pOH and Kw in aqueous solution.

### Grading Criteria

Quizzes	variable	15%
Exams	100 points each	35%
Assignments	variable	10%
Laboratory	variable	25%
Final Exam	200 points	15%
<b>Total</b>		<b>100%</b>

Approximately 88% will be an A, 78% a B, 67% a C and 55% a D grade. Please note however that anyone with less than a 50% average on the exams (including final), or on the labs will receive an F.

All grades may be subject to a (+/-) 1-2% instructor evaluation of the student, which may be based on homework, class participation, etc...

- Quizzes -- Quizzes will be given in lab. There will be 9 - 12 quizzes given over the course of the semester and 1 or 2 may be dropped at the instructor's discretion. Material from both laboratory and lecture may be included. Much of the material on the quizzes will be similar to the material found in the assignments. No makeups are given for missed quizzes. Missed quizzes will count for zero points and be counted as low scores when dropping quizzes.
- Exams -- Exams will be given in the lab as noted in the schedule. Please do not miss these examinations. *Make-up exams will only be given with an acceptable and verifiable excuse within **one week** of the scheduled exam.* It is the student's responsibility to arrange a make-up exam within one week of the original test date. Please notify the instructor before the missed exam or within two school days preferably via email, so that accommodations can be made. Please note that make-up exams may not be the same exam given to the rest of the class and may be more difficult than the regularly scheduled exam.
- Assignments -- These include computer exercises and homework.
  - Computer exercises -- These are computer graded tutorials that are available via the internet (see below).
  - Homework assignments - Problems and questions from the textbook are assigned on the syllabus.
- Laboratory Work -- Your laboratory work must be done and completed during your regularly scheduled time and the reports must be turned in to pass the course. The laboratory portion of the grade will depend on experimental technique, lab etiquette, and the lab reports. Lab reports are due one week after the period in which they are scheduled to be completed. The format for writing up lab reports is appended to the end of this document.

Deductions will be made from the overall laboratory grade for failure to follow basic laboratory protocols as outlined below:

  - Always wear eye protection (without reminders from the instructor).
  - Wear appropriate clothing- closed-toe shoes, long pants, no sleeveless tops, no dangling jewelry or neckties etc. No eating, drinking or gum chewing in the laboratory.
  - Tie back long hair
  - Use proper technique when handling glassware (we will review new techniques)
  - Properly clean up any minor chemical spills; report major spills to the instructor
  - Clean up your hood space and put away your equipment at the end of lab, turn off gas, and lock your locker.

**Academic Integrity Policy:**

This class will be conducted in accordance with the college student code of conduct and basic standards of academic honesty. Cheating and plagiarism (using as one's own ideas writings, materials, or images of someone else without acknowledgement or permission, or other forms of academic dishonesty can result in any one of a variety of sanctions. Such penalties may range from an adjusted grade on the particular exam, paper, project, or assignment (all of which may lead to a failing grade in the course) to, under certain conditions, suspension or expulsion from a class, program or the college. Examples include, but are not limited to, using unauthorized materials copying or allowing another student to copy your work during an exam, quiz, or homework assignment, using a programmable calculator, cell phone, or PDA during an exam or quiz. The instructor may also summarily suspend the student for the class meeting when the infraction occurs, as well as the following class meeting. For further clarification and information on these issues, please consult with your instructor or contact the office of the Associate Dean of Student Affairs. Violations will be reported to the school dean for appropriate action.

The faculty and the college have determined that integrity and honesty are essential to the academic process and that it is necessary that the written materials submitted by each student in a class reflect his or her own work for that class.

Submitting work as one's own which has been done either all or part by another is defined as CHEATING.

“CHEATING” includes but is not limited to the following:

1. The possession or use of unauthorized materials such as crib notes or unauthorized copies of exam material.
2. Copying from another person's quiz or exam or allowing another person to copy one's examination material.
3. Copying another person's lab data or report and turning it in as one's own or allowing another person to copy one's data.
4. Using a calculator or computer which contains stored information that can be used while taking a quiz or exam.
5. The possession and/or use at the students work area of a personal communications device during exams or quizzes.
6. Submitting a false report for work that was not actually done.

7. Modifying or attempting to modify an answer on an exam after it has been returned and then claiming it was graded incorrectly.

We hope that each student will support this policy and realize the importance of honesty and integrity in his or her academic effort!

**Accommodations for Students with Disabilities:**

Students with disabilities who may need accommodations in this class are encouraged to notify the instructor and contact Disabled Student Services & Programs (DSP&S) **early in the semester** so that reasonable accommodations may be implemented as soon as possible. Students may contact DSP&S in person in room 110 or by phone at (619) 644-7112 (voice) or (619) 644-7119 (TTY for deaf).

**Supervised Tutoring Referral:**

Students are referred to enroll in the following supervised tutoring courses if the service indicated will assist them in achieving or reinforcing the learning objectives of this course:

IDS 198, Supervised Tutoring to receive tutoring in general computer applications in the Tech Mall;  
English 198W, Supervised Tutoring for assistance in the English Writing Center (Room 70-119);  
and/or

IDS 198T, Supervised Tutoring to receive one-on-one tutoring in academic subjects in the Tutoring Center (Room 70-229, 644-7387).

To add any of these courses, students may obtain Add Codes at the Information/Registration Desk in the Tech Mall.

All Supervised Tutoring courses are non-credit/non-fee. However, when a student registers for a supervised tutoring course, and has no other classes, the student will be charged the usual health fee.

**Computer Course Materials:**

The computer materials for this class are accessed via the World Wide Web. Many of these materials can be accessed at [www.grossmont.edu/dianavance](http://www.grossmont.edu/dianavance) Online computer homework can be accessed at [www.masteringchemistry.com](http://www.masteringchemistry.com) using the Course ID: **CHEM141VANCE2009FALL**

**Additional Chemistry Assistance:**

There is a free tutoring service in the library building, and chemistry instructors are available to all students during "open" help times. Chemistry 141T, the computer drill course, is recommended.

**Suggestions for Success:**

It is not a secret that Chemistry can be a difficult course. Let me make a few suggestions for success. First, do the homework. Do all the homework, and do it thoroughly. If there are problems you cannot get, be sure to come to me for help or to ask a question in class.

The second suggestion is to form an informal study group. This would be a group of two, three or four students who meet regularly to work homework, study for quizzes and tests and share work toward writing up labs. It is the experience of this instructor that this is the best setting for learning to go on, as the stronger students teach the weaker and all benefit. Tutoring and 141-T are excellent resources, but your study group is the most valuable of all.

Third, I will be giving you problem sessions before each formal exam. However, the exams will not be exactly in the form of the problem session. The problem sessions are to help you prepare for the exam along with homework, lecture material and lab material.

Last, if at any point you are getting lost or significantly behind, please come see me for help. Helping students is what I am here to do, and it also happens to be what I love to do, so please come for help if at any time you are in need.

## Laboratory notebook and reports

You must turn in some combination of laboratory notebook pages and a formal report.

### Lab Notebook Format

- Title and date** – The title and date should be written in the space provided on all pages of the experiment and at the start of the experiment using a descriptive title.
- Procedure** - Reference procedure using correct MLA format. Note any changes you are instructed to make in the procedure.
- Safety and/or Waste Treatment** - List the any additional safety precautions or special waste handling procedures called for in the experiment; these are usually given in the lab manual.
- Data & Observations**

This section will be written as you perform the experiment; the data you collect and observations that you make are recorded here. Perhaps the easiest way to collect your data and observations is **to paraphrase the procedure as you go through the steps and then enter your observation and data for that step**. Simply enter a one- or two-line statement to describe the operation and immediately afterwards, record your data. You do not need to write complete, grammatically correct sentences in this section as it is understood that you will be concentrating on the experiment. Here is a brief example:

*Step 1*                    *1.0042 g of NH<sub>4</sub>Cl added to 5 mL of DI H<sub>2</sub>O in medium-size test tube*  
                                  *obtained clear solution*  
                                  *test tube was cold to touch (endothermic process?)*

*Step 2*    *approx. 1 mL of AgNO<sub>3</sub> (aq) added dropwise to test tube*  
                                  *immediate formation of ppt*  
                                  *ppt was white, cloudy*                    *no heat observed*                    *no bubbles*

Write all observations and data for the experiment in this section. This section is your rough draft for the report. As you record your data and observations, this section may become messy and unorganized which is to be expected. You may want to add a summary of your data in the form of tables, charts or lists to facilitate writing the report rather than trying to "hunt" through disjointed recordings.

Suggestion: Carefully read the experiment, more than once, and create a mental list of the type(s) of information you will be collecting. Plan in advance; if you need a data table, decide on the number of columns in the table and column titles and consider how much room on a page you need for your table(s) (or charts, lists). *The post-lab write up cannot include any information which is not supported by the Data & Observation section.*

### Other Notebook Information

- Provide at least two pages at the front of the notebook for a table of contents.
- Always use non-erasable black or blue ink.
- The top of each page should have your initials, the date and Exp #
- Always record data directly into notebook; do not use scratch paper
- Record colors, phases, odors and texture of all substances you observe.
- Turn in the original pages (not the carbon copies) with your reports, even if the entire page is a deletion.
- Do not remove any pages from your notebook except for those pages that are turned in with the reports.
- To correct writing mistakes: draw a single line through the words or sentences you want to correct and place your initials after the deletion. To delete paragraphs, place a single X over the entire paragraph and initial the deletion. You may want to look at your deletions at some later date, this way, your original entries will be readable. **Never use white-out or try to black-out your writing mistakes!**
- Sign and date the bottom of each page containing data before you leave for the day. (For half completed pages sign under the last data recorded so that you may use the remainder of the page for the next lab period.)
- Have instructor initial last page on which you have recorded data before leaving lab for the day.

## Formal Report

**A general guide for writing lab reports follows. Guidelines specific to each experiment may be found on the instructor web site. Note that each experiment will require different parts of this formal write-up. All sections are not required for every experiment; see your instructor's webpage for details.**

### Title Page

Include experiment name, date, your name, instructor name, and section number. Also, copy the grading rubric onto this page in the upper left hand corner; it will be found on the web under experiment write-up instructions.

### Objective

The objective is a brief description of the purpose of the experiment. That is, why are you doing this experiment? To understand a concept? To determine a constant? To characterize a sample?

**The objective (or goal) can usually be stated in one sentence or at most, a short paragraph.** The objective is not always conveniently given at the beginning of each experiment in the lab manual. Often, the experiments in the manual begin with some background information which helps to elucidate the theoretical aspects of the experiment and it is left to the student to deduce the purpose of the experiment. Occasionally, the goal is stated in the body of this background text. Therefore, it is crucial that the student read each experiment thoroughly before coming to lab so that an appropriate (and accurate) objective can be formulated. This will also prepare the student for the experiment itself.

### Introduction

The Introduction should explain the theory behind the experiment and explain how the procedure used will accomplish the objective of the experiment. This section will not be lengthy but it should be sufficient to allow the reader can understand the logic of the experiment simply by reading this section.

**The introduction will succinctly explain the theoretical basis of the experiment and describe the method that will be used to achieve the objective.** In some experiments, there is very little "theory" that can be discussed, for example, learning about a new lab technique or getting familiar with a particular piece of lab equipment. In these cases, simply describe how the technique or piece of equipment facilitates learning a new skill. However, note that many lab instruments are based on scientific principles and the student must decide whether a theoretical discussion regarding the instrument or its use is appropriate; if in doubt, ask your instructor.

Some lab reports will require a lengthier Introduction. Some examples:

- Qualitative experiments that investigate a particular type of chemical reactivity need to address in the Introduction some of the pertinent concepts and theories that are presented in Chem 141 lecture.
- Experiments which involve chemical synthesis or the interconversion of one compound into another should include balanced chemical equations for each reaction that is part of the experiment; this should be part of the Introduction.
- Experiments that are much more quantitative in nature will require a brief discussion of the mathematical process to be used in calculating the final results; this should be part of the Introduction. In very simple terms:
  - Your method description answers the question, "how will the experiment be run?"
  - Your theoretical discussion answers the question, "why does this particular method apply to this experiment?"

The length of the Introduction depends upon how much background material is included. If very little "theory" is discussed, the Introduction may be as short as one-half to three-fourths of a page. If there are several chemical equations that need to be included, the Introduction may be two to three pages in length. A well thought-out Introduction is the key to writing a good lab report; quality is more important than quantity (length). In general a short introduction is preferred.

### Procedure

**DO NOT COPY THE PROCEDURE FROM THE LAB MANUAL.** You are not required to write out the experimental procedure. However, it is expected that the student will have read through the procedure

(more than once) and understand the operations that are involved; it is essential that the student understand why each step is being done.

**The only thing that needs to be written in this section is a complete reference for the procedure.** Leave blank at least one-half of a page to include additions or changes (if any) that are given to you by your instructor.

### Sample references

#### Textbook:

Tro, N. (2008). *Chemistry: A Molecular Approach* (1st ed.), pp. xx-xx. Upper Saddle River, NJ: Pearson Prentice Hall.

#### Lab Manual:

Lehman, J. & Olmstead, T. et al (2002). Experiment 1: Computer Warm-Up. In *Grossmont College Chemistry 141 Laboratory Manual* (4<sup>th</sup> Edition, pp. 1-3). El Cajon, California

#### Online Lab Manual:

Lehman, J., Olmstead, T. et al (2002). Experiment 1: Computer Warm-Up [Electronic version]. *Grossmont College Chemistry 141 Laboratory Manual*, 1-3.

#### Online Journal Article, Spreadsheet, or Directions: include author and date if known

Willard, C. (2007). Lab 1 – Error analysis, Retrieved August 16, 2007, from <http://www.grossmont.edu/cwillard>

#### Handouts: include author and date if known

Dirbas, J. (2005). “Chemistry 141: Colligative Properties: Molar Mass Determined by Freezing Point Depression” [Handout 2007], Grossmont College, El Cajon, California.

## Results and Calculations

The results from your experiment are always entered in this section. Recall in the objective that you asked the question, “What is being investigated in this experiment?” This is the place to answer that question. **State your results clearly so the reader knows exactly what happened in the experiment but do not discuss the reasons for your results in this section.**

Tell the reader exactly what you obtained in the experiment, for example: **quantitative results** from an experiment (% composition of a substance) or **qualitative results** (compounds A, B and C were identified as acids; D, E and F were bases).

Whenever you include statistical treatment of your data, which is a result which should be entered in this section.

Calculations (if any) are done in this section. Show all set-ups for each type of calculation; be explicit! If you must perform the same calculation more than once, you do not have to write the set-up for each one, but it should be clear as to which set-up correlates to which calculation(s). Be sure to include the final results of all calculations- consistently highlight your final answers in some fashion, draw a box around the result, double-underline the result or place final results in a table or chart.

It is a good idea to organize your results in a Table format to make it easier for the reader to understand the outcome of your experiment. If your D&O section has become messy and a bit unorganized, this is the place to “clean it up” and present it to the reader with clarity.

## Discussion

The discussion is used to explain your results; **the previous section is used to present the results, this section is used to discuss these results.** Ask yourself provocative questions such as: Do the results make sense, is there some data missing? Did you obtain a result different from your expectations?

Sometimes the data you obtain in an experiment is straight-forward and self-explanatory. In these cases, your discussion may be brief. However, most of the time, you will need to explain to the reader why you obtained a particular result, especially if your result is different than expected.

Think of the discussion as a conclusion to your Objective and Introduction. If you have presented the objective clearly along with the theoretical background and some comments about the method to be used, then discuss your results in this context. If you posed questions in your Introduction, answer those questions here.

The discussion should also include error analysis (when appropriate): explain sources of error and how errors impact your results. Be sure to discuss only the connections between error analysis and your actual data and observations.

Include in the discussion answers to any pre or post-lab questions that have been asked in the experiment or by the instructor.

**Conclusion**

State the final result of your experiment in a concise and thorough manner. This section should be brief (one-paragraph).

**Questions**

Give the answers to any questions appearing in the lab. These may be handwritten if they involve calculations.

**I have read and understood the syllabus for Chemistry 141. I will return this page to my instructor by the second week of class or I may be dropped from the course by my instructor.**

Course Section \_\_\_\_\_

Student Name \_\_\_\_\_

Student Signature \_\_\_\_\_

Please write your goal(s) for the course and how you plan to accomplish them:

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_



## Chemistry 141 Tentative Schedule Fall 2009

Lecture week	Chapter	Topic	Homework (both in book and Mastering Chemistry)		Laboratory	Due Date (Lab)
			Chapter	Problems		
Aug 24	1 and 2	Introduction, Problem Solving Review	1 all	34, 38, 42, 44, 46, 48, 51, 59, 64, 66, 71, 73, 75, 81, 83, 85, 89, 93, 99, 111, 115, 119, 120	Nomenclature / Sig Fig Refresher	9/3
		Atoms and Elements	2 all	7, 16, 17, 21, 25, 39, 50, 56, 58, 60, 64, 74, 78, 83, 84, 87, 102, 107, 108, 115	Check-in Standard Deviation activity	
Aug 31	2 and 3	Molecules, Compounds, and Chemical Equations <b>Sept 4<sup>th</sup>: Last day to drop without a W and get full refund</b>	3 all	10, 30, 32, 34, 36, 40, 46, 48, 50, 52, 54, 56, 59, 60, 62, 63, 64, 68, 72, 75, 80, 82, 84, 86, 88, 90, 92, 94, 96, 102, 104, 106, 116, 118, 120, 122, 124, 137 Extra Credit 129, 131, 135	Conductivity Lab	9/10
<b>Monday Holiday</b> Sept 7	4	<b>Sept 7<sup>th</sup> – Labor Day Holiday</b> Chemical Quantities and Aqueous Reactions	4 all	Chapter 4 – 3, 25, 27, 31, 33, 37, 39, 41, 43, 45, 47, 49, 51, 55, 57, 59, 61, 91, 95, 99, 115, 119, 121 63, 65, 67, 69, 71, 73, 75, 77, 79, 81, 89, 101, 103, 111	Redox lab	9/17
Sept 14	18.2	Redox Reactions  Catch-up and Review	18.2	Chapter 18 – 38, 40, 42, 127	Problem Set  Copper Lab	9/29
Sept 21	5	Gases – Ideal gases and Gas Laws; Stoichiometry and KMT	5 all	30, 33, 35, 37, 39, 41, 43, 46, 47, 55, 59, 61, 63, 67, 69, 71, 75, 77, 85, 86, 93, 95, 99, 105, 107, 111, 117, 125, 131, 132	Copper cont Exam 1- Ch 1-4	
Sept 28	6	Thermochemistry – Heat, Energy and Work	6 all	32, 34, 39, 41, 45, 47, 53, 57, 59, 64, 66, 70, 72, 81, 86, 89, 91, 93, 94, 99, 102, 103, 104, 106	Alloy lab	10/8
		Calorimetry and Enthalpy Phase changes (chapter 11)	11	69, 70, 71, 77, 78, 79, 80, 81, 123, 124, 140, 145		
Oct 5	6	Thermochemistry – Heats of Reaction, Energy and the Environment Bond energies (chapter 9)	9	75, 76, 77, 97, 98, 110	Calorimetry Lab	10/15

## Chemistry 141 Tentative Schedule Fall 2009 continued

Lecture week	Chapter	Topic	Homework (both in book and Mastering Chemistry)		Laboratory	Due Date (Lab)
			Chapter	Problems		
Oct 12	7	The Quantum-Mechanical Model of the Atom –	7 all	37, 41, 42, 43, 45, 47, 51, 54, 55, 59, 60, 63, 66, 68, 70, 72, 77, 78, 83, 86, 91, 92	Atomic Spectra Problem Session	10/27
Oct 19	8	Periodic Properties of the Elements (Start chapter 9 if time)	8 all	42, 44, 46, 48, 50, 51, 56, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 110, 120	Atomic Spectra Cont. Exam 2 – Ch 5-7	
Oct 26	9	Chemical Bonding I: Lewis Theory – Ionic and Covalent Bonds	9 all	37, 40, 48, 50, 54, 56, 58, 60, 62, 64, 68, 69, 72, 73, 80, 83, 108, 109	Molecular Models Spartan Lab	11/10
Nov 2	10	Chemical bonding II: Molecular Shapes Valence Bond Theory	10 all	30, 38, 40, 44, 50, 57, 58, 76, 78, 81, 82, 85, 86, 87, 90	Molecular Models/Spartan cont Error Analysis Activity	11/17
<small>Friday/Saturday Holiday</small> Nov 9	10	Chemical Bonding II: Molecular Orbital Theory  Nov 12 <sup>th</sup> - Last day to drop Nov 13-14 <sup>th</sup> : Veteran's Day			Problem Session Titration	11/24
Nov 16	11	Liquids, Solids, and Intermolecular Forces	11 all	50, 52, 54, 56, 61, 65, 74, 76, 83, 84, 86, 87, 120, 125, 126, 136, 143, 144	Titration cont. Exam 3 – Chapters 8-10	
<small>Thur/Fri/Sat Holiday</small> Nov 23	12	Solutions Nov 26-28 <sup>th</sup> – Thanksgiving	12 all	32, 34, 36, 40, 49, 51, 55, 58, 60, 63, 66, 68, 76, 77, 79, 81, 87, 92, 94, 96, 97, 100, 104, 106, 109, 110, 111, 112, 114	Colligative Properties Lab	12/3
Nov 30	14	Chemical Equilibrium	14 all	24, 30, 32, 36, 38, 40, 42, 44, 46, 48, 51, 53, 55, 59, 62, 64, 66, 68, 70, 73, 75, 77, 79, 83, 85, 86, 89	Le Chatlier, equilibrium	12/10
Dec 7	14	Chemical Equilibrium Review			Check out/ Problem session Exam 4 – 11, 12, 14	
Dec 15		Final exam 5:30 – 7:30pm		2 hour multiple choice exam	Bring grademaster form # 25420	