

# CHEM 117

## General Chemistry II

### Spring 2003

#### CH117-3A

**Mondays and Wednesdays**

**3:30-4:45 PM in CHEM 101**

**Dr. Joe March**

**Office: CHEM 286**

**Email: march@uab.edu**

#### **Recitation Section H2:**

Tuesdays, 9:30-10:30 AM in CGA -253/259/260

#### **Recitation Section K5:**

Wednesdays, 2:00-3:00 PM in CGA -253/259/260

#### **Recitation Section K7:**

Wednesdays, 5:30-6:30 PM in CGA -253/259/260

#### **Recitation Section N2:**

Thursdays, 9:30-10:30 AM in CGA -253/259/260

#### **Recitation Section N3:**

Thursdays, 11:00 AM-12:00 PM in CGA -253/259/260

#### **Recitation Section Q1:**

Fridays, 8:00-9:00 AM in CGA -253/259/260

#### **Recitation Section Q5:**

Fridays, 2:00-3:00 in CGA -253/259/260

**Office Hours:** Open. If I am unavailable when you stop by, please email to set an appointment.

### **Goals of the General Chemistry Program**

1. Develop in the student an understanding of the methodology of science.
2. Generate a basic understanding of the fundamental concepts of atomic structure, chemical bonding, chemical periodicity, and properties of the states of matter that result from aggregate structure.
3. Impart in students the ability to utilize the periodic table in understanding and explaining chemical behavior and properties.
4. Ensure that students can read (qualitative/quantitative) a chemical equation, predict chemical reactions, and understand the energetics and kinetics associated with chemical reactivity.
5. Develop quantitative skills that permit the student to solve real problems, which exemplify the basic chemical concepts, *i.e.* numerical and conceptual problem solving.
6. Reinforce the teaching of basic chemical concepts by giving the students a feeling of the way chemistry impacts the world about them and their future careers.
7. Provide the tools that the student will need to function as a chemically literate person in a technological world.

## Required Material

- Textbook:** *Chemistry The Molecular Science*, 1<sup>st</sup> Edition, Moore, Stanitski, Jurs
- Calculator:** An inexpensive calculator is required. The calculator should have capabilities for square roots, logarithms, and exponentiation (antilogarithms), and exponential notation (scientific notation). The calculator will be used on homework assignments, quizzes, exams, and in the laboratory.
- Class Handouts:** You should obtain a copy of each handout when distributed in lecture, discussion, or laboratory. If you miss one, you should print a copy of the handout from the CH 117 Web page.
- Prerequisites:** Completed CH 115 with a C or higher. Students that do not meet the prerequisites for this course will be administratively dropped. You should be concurrently enrolled in CH 118 (General Chemistry I Lab), although this is not mandatory.
- Prior to enrollment in CH 115, the student must be able to
1. Solve algebraic equations.
  2. Solve problems involving area, volume, speed, average, or percentage.
  3. List the basic Metric units for mass, volume, and length.
  4. List the common prefixes used in the metric system with the appropriate numerical meaning.
  5. List the basic English units for weight, volume, and length.
  6. Convert between English measurements and Metric measurements using dimensional analysis.
  7. List the SI units of measurement.
  8. Determine the number of significant figures in a measurement or in a calculated value.
  9. Write a numerical value in scientific notation. Use the appropriate rules for scientific notation to perform calculations.
  10. Use the appropriate rules for rounding-off numbers in all calculations.
  11. Know the formula for the determination of the density of an object from mass and volume data.
  12. Use the temperature conversion formulas to convert Fahrenheit temperature to Celsius, and Celsius temperature to Fahrenheit.
  13. Use the method of dimensional analysis along with appropriate conversion factors to express a measurement given in one specific unit to another unit.
  14. Work basic stoichiometry problems that deal with chemical formulas and balanced chemical equations.

## Optional Material

*Chemistry I*, Thinkwell. This packet of 6 CD covers all of General Chemistry I with streaming video lectures and demonstrations for personal review of course material.

*Mastering Chemistry Practice Problems*; and *General Chemistry*, Falcon Software, Inc. These two CD-ROMs contain a large number of practice problems for use with this course. The software provides hints and suggestions about how to solve problems.

*JCE: Software General Chemistry Collection CD*, by the Editors of Journal of Chemical Education: Software, Madison, WI. This software package has several different simulations and tutorials that will help you understand the material better.

*How to Survive (and Even Excel in) General Chemistry*, by Kean and Middlecamp, McGraw-Hill, 1994.

## Grades

This course has many features designed to help you learn chemistry, however, none of these activities or materials can learn for you. Learning is something only you can do. You should plan on thinking about chemistry every day and the structure of this course should help you do this.

<i>Activity</i>	<i>Points</i>
In-Class Assignments (6 @ 5 pts)	30
Workshop Activities (12 @ 10 pts)	120
Power Point Presentation (1 @ 20 pts)	20
Homework (8 @ 10 points each)	80
Exams (3 @ 100 pts, 1 Final Exam @ 150 pts)	450
<b>Total</b>	<b>700</b>

## Grade Assignments

Final grades will be assigned on the scale shown below.

A	90% and above	630 points and above
B	80 – 89%	560 – 629 points
C	70 – 79%	490 – 559 points
D	60 – 69%	420 – 489 points
F	0 – 59%	0 – 419 points

If you earn 630 points, you are guaranteed an “A” regardless of how many other students earn an “A”. The process is similar for the other point totals. You are competing against this scale, not against your classmates. Therefore, you may work with other students to learn the material covered in this course.

## Withdrawing From This Course

You may withdraw from a course and receive a grade of W up to and including February 26. After that date you may not withdraw. See the 1999-2001 Undergraduate Catalog (<http://main.uab.edu/show.asp?durki=1934>) for the full text of this policy.

## Students with Disabilities

Students with disabilities should contact their course Professor as soon as possible at the beginning of the semester to make arrangements to accommodate their disabilities. This applies to lecture, recitation, and laboratory aspects of this course.

## The Parts of the Course

### Textbook

You should read the textbook prior to lecture (use the course schedule as a guide for chapters to read before class). After a lecture, you should reread the assignment and study the appropriate pages in the textbook. For each chapter, the textbook contains an outline, a list of objectives, a summary of keywords, example problems, and exercises. You should use this resource to complete your understanding of the material outlined in the lecture.

### CH 117 Home Page

This course home page can be accessed from <http://www.chem.uab.edu/march/GenChemWeb/instruct.htm>. This site includes all the course information and links to other sites. It will also contain PDF files of activity sets, sample exams, current exams, and other materials for the course as the course progresses during the term. Monitor the home page for the latest course information.

### Lectures

During lectures, I will discuss principles, outline goals, and present illustrations and demonstrations. You will want to take notes during the lecture. This process should be an active process where you think about what you hear, see, and do during class. Your notes should reflect your understanding of the material and should not be a repetition of what I said. I have several different strategies to help you become an active participant in the lecture. You will be asked to discuss parts of the lecture with your classmates and summarize the discussion or you will be given a short problem to solve for which you will have to vote on the correct answer. Your participation in the lecture is expected and required.

### Recitation/Workshop Sessions

You **must be concurrently enrolled** in a Recitation/Workshop Session. Recitation/Workshop sections are small groups of students (up to 40 students per section) that are supervised by Teaching Assistants. These sessions will be used primarily to complete the Workshop Activities, but your Teaching Assistant will also lead discussions related to lecture, homework, quizzes, exams, or the laboratory. All sessions take place in the Lower Division Chemistry Undergraduate Technology Facility, CH/GA Annex-259/260. The room contains computers with printers, Internet access, and software for use in this class.

You should be prepared when you arrive at the Technology Facility. Being prepared means that you should have at least tried to work out the homework problems assigned for the most recent lecture, and you should expect to be called upon by your Teaching Assistant to answer questions or discuss the concepts on which they are based. You should also be prepared to ask specific questions of your Teaching Assistant. Your Teaching Assistant is not expected to present a new lecture in recitation or solve homework problems, but rather to lead discussion and interaction among all students present.

### In-Class Assignments

There will be short assignments given during the lecture period. These assignments are designed to help you become an active member of the classroom. These assignments will require you to describe material you read in the textbook before coming to class, to restate a concept presented in the lecture in your own words, or to solve a simple problem as part of a group. Thus, you are expected to come to class prepared and ready to participate. ***You must turn in your in-class assignment before you leave. No late papers will be accepted.***

### Workshop Activities

Workshop Activities will be assigned in each recitation/workshop section. These are longer and more involved than a traditional homework problem. They require that you work in small groups to answer a question that involves more than one concept. A group report will be turned with all members of the group receiving the same grade for the assignment. ***All workshop activities are due at the end of the recitation session for the week indicated in the CH 117 Course Schedule.***

### Homework

Problems and problem solving are very important aspects of this course. Studying chemistry (or any science) involves trying to solve both numeric and conceptual problems. There are two types of homework problems included in the course schedule included with this syllabus: graded and suggested.

**On-line homework** will be submitted over the Internet with a browser-based grading program (WebCT). You may submit your homework for grading any time prior to the due date. You may access the on-line homework by entering the WebCT site (see directions on page 6) and clicking on the "Homework/Quiz" link. The next page will list the available homework and the due dates. Due dates are firm and will not change. ***It is your responsibility to complete these assignments before the due date***, no exceptions. **Note:** You will not have time during recitation to complete the homework set; there are other assignments to be done in recitation.

You are encouraged to form a study group to work on the homework sets. Still, it is important to realize that although you may collaborate with a study group on an assignment, the work you turn in must be your own. The computerized homework sets will generate each student a unique homework set. Thus, your partner's homework will be similar, but not identical.

You may contact Dr. March if you feel that any on-line homework is not being graded properly. When you email Dr. March, you **MUST** include the name of the on-line homework, the attempt number, the problem number, and any relevant information regarding the problem that makes you think your answer is better than the one given in the on-line homework.

### Examinations

There will be five exams given during class period in CHEM 101 **on the following dates: Monday, February 3; Monday, February 24; Monday, March 17; and Monday, April 21.** Each exam is worth **100 points**. Examinations will include questions based upon lecture, homework, and recitation workshop material. There are four exams scheduled for the term, but only the three best scores will be used in calculating your grade. There will be a five-point bonus added to your point total for all students that score above 60% on all *four* exams.

A Final Exam is scheduled for **Wednesday, April 30, 4:15-6:45 PM in CHEM 101.** The Final will be an American Chemical Society Final Exam that covers all of general chemistry and is worth **150** points.

***No make-up exams will be given and there are no excused absences.***

## Power Point Presentations

The last recitation/workshop/laboratory session will be devoted to a PowerPoint presentation that will focus on a visual and oral presentation by each learning team of some aspect of your work in general chemistry that has positively impacted your learning of chemistry. The topic of the presentation can be that team's favorite (a) laboratory activity, (b) concept learned, (c) processes developed, (d) web sites used, or (e) skills acquired during the current semester of General Chemistry.

It is *not acceptable* to simply state an equation or concept. You should present a topic that is interesting to your classmates and instructor. The presentation should communicate one of the following aspects of the topic you have chosen:

- Why is the topic important to your health, to the development of new products, to your everyday comfort?
- Is there an interesting historical account of the discovery of the relationship or concept?
- Did you have a unique approach to understanding the topic (or solving the problems associated with the topic)?
- Any other interesting approach is encouraged.

You should limit the topic to one that can easily be covered in less than 10 minutes. Many topics are too large to be covered in a short presentation, but do not limit the topic so much that you do not provide any interesting information. Discuss your topic with your Teaching Assistant and other groups to ensure that the topic is interesting, relevant, and focused.

The presentation must be done in PowerPoint. This program is available in the Chemistry Technology Center. You may develop your topic at home if you have PowerPoint and bring the presentation to class on a disk. A projector is available in the Technology Center for class presentations.

A well focused presentation will generally follow the outline shown below:

Title(include your names)

Abstract (short synopsis of the content of the poster)

Introduction (presents the reason for selecting the poster topic, orients the reader to the problem or topic, and outline background information including any relevant equations)

Discussion

References (cite literature, textbooks, web sites, etc. used)

Classmates, teaching assistants, and course instructor will review the posters and presentations, ask questions, and assign a grade using the following grading scheme.

### **Chemical Content (4 points possible)**

- (2) very little chemistry is presented
- (3) underlying chemical principles are introduced, but not explained
- (4) underlying chemical principles are used to clearly, and thoroughly explain subject

### **Level of Material (2 points possible)**

- (1) average
- (2) high (the topic covers material that required extensive research into the *chemistry* presented)

### **Accuracy of information presented (3 points possible)**

- (2) some errors in the chemistry (or in the presentation of the chemistry)
- (3) no errors are present

### **Appearance of the Presentation (3 points possible)**

- (1) attractive, but too many distracting noises or effects
- (2) attractive and organized
- (3) professional-looking

### **Amount of Material on Presentation Slide (2 points possible)**

- (1) amount of content on each screen was inappropriate
- (2) amount of content on each screen is acceptable

### **Oral Presentation (3 points possible)**

- (2) read from poster, sheet, or notecard
- (3) overview and highlights presented in a professional manner

### **Ability to Answer Questions (2 points possible)**

- (1) additional knowledge was demonstrated, but explanation was not clear
- (2) additional knowledge was clearly demonstrated

### **Evidence of a Team Effort (1 point possible)**

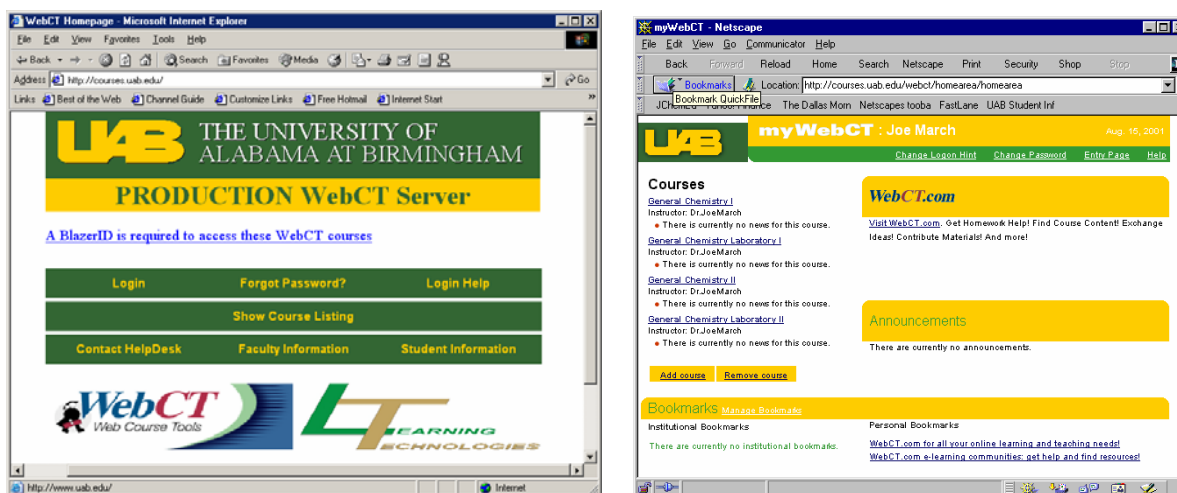
- (0) unclear how well the group worked together
- (1) clear evidence of a team effort

## WebCT

To access the WebCT site for CH 117. You can access the On-line Quizzes by using a browser (Internet Explorer or Netscape) at <http://courses.uab.edu> and following the instructions defined on the courses' web site. Your WebCT accounts are administered through the Learning Technologies Division of Lister Hill Library, not by the Department of Chemistry. Please contact the Lister Hill help desk at 205.934.0422 or [HelpDesk@lister2.lhl.uab.edu](mailto:HelpDesk@lister2.lhl.uab.edu) for help gaining access to WebCT. A frequently-asked-questions page is also available at <http://www.uab.edu/learntech/faqwebct>.

**You should log on to WebCT as soon as possible to ensure that you have access to course materials.**

When you access <http://courses.uab.edu> you should see the PRODUCTION WebCT Server screen (left screen-shot below). To begin, just click on Login. Your Login ID is the same as your BlazerID, and your password is the password that is associated with your BlazerID (probably the same login and password you use to register with on ACCESS). You will then be presented with "myWebCT" screen (right screen-shot below). All of the courses for which you are registered that use WebCT will be listed on the left. You will need to click on General Chemistry I to find on-line homework and grades.



## Tutors

Some students may want to hire a tutor for one-on-one or small group assistance outside of regularly scheduled class periods. A list of people willing to provide additional paid assistance with your studies in this course will be available from the Chemistry Department office. If you make an "A" in this course, you can add your name to this list for the following semester.

## E-mail

There will be a class distribution list available for this course. Sending messages to [CH117@class.uab.edu](mailto:CH117@class.uab.edu) will send a message to all students enrolled in CH 117. In order for you to send a message, you must be using the email account associated with your BlazerID. (To view or change this, go to <http://www.uab.edu/blazerid> and follow the directions.) Messages sent from the instructor will be sent to this address. I expect you to use this distribution list to discuss chemistry concepts and issues related to the class. Anyone who uses the list inappropriately will be dealt with accordingly.

E-mail is available at all times of day and night, so you can send messages whenever something comes to mind. Do not, however, expect immediate responses in the middle of the night!

## Student Board of Directors

I would like to form a Student Board of Directors for this course so that I can obtain feedback from students. The Board will meet with me on a weekly schedule to discuss course policies and content.

The board will consist of volunteers from each section. There will be no extra credit given for serving on the Board. If you are interested in participating on the Board, please indicate when you are available to meet with me on your student information sheet.

## Working with Your Classmates\*

You will be assigned to a work group during the first lecture. You will work within this group during the recitation periods to complete challenge problems and assignments.

Education research has shown that group experience has these benefits:

- both you and the other members of your group will understand the material better.
- cooperative group work is an effective means for teaching/learning science (and almost any other subject) and can help increase the depth of your understanding.
- the more often you explain something to a group mate, the better you understand the concept yourself.
- for those times when you find yourself clueless (it happens to all of us from time to time), group work gives you the opportunity to have someone besides your teaching assistant or professor explain the concept to you. Sometimes your group mates will have a common experience that will make a great memory association or analogy for you that none of the staff have access to. This means there are benefits for all group members if the group is functioning properly.

Although most humans are by nature social creatures, cooperative group work is not something that comes without effort. Such group activities require that a sense of trust be built between members, as well as a feeling of shared responsibility. This means a responsibility to carry your own weight in the group, as well as a responsibility to all of the other members of the group. In such a case, no one group member gets frustrated and rushes on ahead of the group and the group NEVER leaves any of its members behind. This may not always be easy. What do you do when you have someone in your group that you don't like? Or who doesn't like you? How do you deal with group members who refuse to help you out when you are confused?

Some words of advice:

- Slow down and remember that your group members are just as new at this as you are. Learning to be a member of the group, rather than a competing individual, in the learning process is a new experience for nearly everyone in this group.
- Secondly, group work should be seen as a professional experience, not a time for making social contacts. It does not matter whether or not your group mates are the kind of people you would most likely choose to spend a Friday night with. You will find that you can still work with these individuals.
- Finally, remember that in group work we expect all group members to take responsibility for keeping all of their group mates up to speed and to take personal responsibility for contributing everything they are capable of. "The whole is equal to the sum of its parts;" this is especially true when working in groups.

Very rarely do we find a group that actually cannot work. What we do find are groups with members who are not communicating effectively. If you think your group is having problems, sit down and talk things over as a group. Agree on some basic rules of conduct and responsibility within your group, and make a commitment to each other. Then try again. If you find you are still having problems, you may need help from someone with an "outside" perspective. Make an appointment when your entire group can meet with your TA or professor to talk things over. Don't let problems linger or fester, but do try to work things out among yourselves first.

Most of all, relax and enjoy interacting with some new kinds of people. Think of this as preparation for the "real" world. You will be required to work closely with people in many different settings. You will not always like all of those people, but you may find that you enjoy interacting with people who are very different from you. Relax, enjoy yourself, and have fun exploring the world around you.

At certain times you will be requested to hand in group reports. It is your responsibility as a group to ensure that everyone whose name is on the report participated equally in preparing it.

Collaboration is encouraged. After all, two (or more) heads really are often better than one. However, *simply copying a friend's or classmate's ideas or answers is not acceptable*. In order to distinguish between collaboration and copying, unless the assignment specifically states that a group report can be turned in, when you study/work with a group write the answers in your own words. Do not have a standard answer that everyone writes down. This will avoid confusion on the part of the graders.

<p style="text-align: center;"><b>Group Work</b> <b>vs.</b> <b>Individual Responsibility</b></p>
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\* The "Groups in the Laboratory" section is adapted from "Comments on Working In a Group," Experiences in Cooperative Learning, Institute for Chemical Education. Originally adapted from a biology lab manual by Dave Eichinger, Purdue University.

## CH 117 Course Schedule

<b>Week (beginning date)</b>	<b>Lecture Material</b>	<b>Recitation Workshop</b>	<b>Homework</b>
<b>1</b> (January 6)	Chemical Kinetics (Chapter 13)	<b>Workshop 1:</b> Formation of a Group (Ungraded)	
<b>2</b> (January 13)	Chemical Kinetics (Chapter 13)	<b>Workshop 2:</b> Chemical Kinetics	<b>On-Line Homework 1</b> (Ch. 13) (due January 19 <sup>th</sup> )
<b>3</b> (January 20)	Monday, Jan. 20 –Martin Luther King, Jr. Holiday; NO CLASS  Chemical Equilibrium (Chapter 14)	<b>Workshop 3:</b> Chemical Equilibrium	
<b>4</b> (January 27)	Chemical Equilibrium (Chapter 14)	<b>Workshop 4: MOCK EXAM</b>	<b>On-Line Homework 2</b> (Ch. 14) (due January 26 <sup>th</sup> )
<b>5</b> (February 3)	Monday, Feb. 3 – <b>EXAM 1</b> (Chapters 13 & 14)  Chemistry of Solutes and Solutions (Chapter 15)	<b>Workshop 5:</b> Solutes and Solutions	
<b>6</b> (February 10)	Chemistry of Solutes and Solutions (Chapter 15)  Acids and Bases (Chapter 16)	<b>Workshop 6:</b> Acids and Bases	<b>On-Line Homework 3</b> (Ch. 15) (due February 16 <sup>th</sup> )
<b>7</b> (February 17)	Acids and Bases (Chapter 16)	<b>Workshop 7: MOCK EXAM</b>	<b>On-Line Homework 4</b> (Ch. 16) (due February 23 <sup>rd</sup> )
<b>8</b> (February 24)	Monday, Feb. 24 – <b>EXAM 2</b> (Chapters 15 & 16)  Additional Aqueous Equilibria (Chapter 17)  February 26 – <b>Last Day to Drop with a W</b>	<b>Workshop 8:</b> Additional Aqueous Equilibria	
<b>9</b> (March 3)	Additional Aqueous Equilibria (Chapter 17)  Thermodynamics (Chapter 18)	<b>Workshop 9:</b> Thermodynamics	<b>On-Line Homework 5</b> (Ch. 17) (due March 9 <sup>th</sup> )

<b>10</b> (March 10)	Thermodynamics (Chapter 18)	<b>Workshop 10: MOCK EXAM</b>	<b>On-Line Homework 6</b> (Ch. 18) (due March 16 <sup>rd</sup> )
<b>11</b> (March 17)	Monday, Mar. 17 – <b>EXAM 3</b> (Chapters 17 & 18) Electrochemistry (Chapter 19)	Power-Point Presentation Assignment	
<b>12</b> (March 24)	Electrochemistry (Chapter 19)	<b>Workshop 11: Electrochemistry</b>	
<b>13</b> (March 31)	<b>SPRING BREAK</b>		
<b>14</b> (April 7)	Electrochemistry (Chapter 19) Nuclear Chemistry (Chapter 20)	<b>Workshop 12: Nuclear Chemistry</b> Scheduled Power Point Presentations	<b>On-Line Homework 7</b> (Ch. 19) (due April 13 <sup>th</sup> )
<b>15</b> (April 14)	Special Topics	Scheduled Power Point Presentations	<b>On-Line Homework 8</b> (Ch. 20) (due April 20 <sup>th</sup> )
<b>16</b> (April 21)	Monday, April 21- <b>EXAM 4</b>	Scheduled Power Point Presentations	
<b>17</b> (April 28)	<b>CH 117-3A on Wednesday, April 30, 4:15-6:45 PM in CHEM 101;</b> Comprehensive		

# CH 118

## General Chemistry Laboratory II

### Spring 2004

## Laboratory Coordinator

Dr. Joe March  
CHEM 286  
205.934.8788  
march@uab.edu

## Teaching Assistants

(Write down your TAs' names and email addresses.)

## Materials

### Required

- **Laboratory Experiments for Chemistry 116/118, Department of Chemistry, Thomson Learning**
- **Carbon-less copy notebook**
- **Materials packet (purchased from stockroom)**

### Suggested

- **General Chemistry textbook.** You should have a General Chemistry textbook available to you. Many of the experiments encountered will not have a complete background included because you are expected to either know the material or easily find the material in a General Chemistry text.
- **Basic scientific calculator**

## Weekly Schedule

1. Read the Experiment for the Week.
2. Outline the experiment and discuss the schedule of work with your lab group.
3. Take the Pre-Lab Quiz.
4. Pay attention and take notes during the Pre-Lab Lecture.
5. Complete the Data Collection.
6. Outline responsibilities for reporting your work.
7. Show the outline to your Teaching Assistant.
8. Work outside of laboratory on the report.
9. Submit the report to the Laboratory Instructor and receive a grade.

## Laboratory Experiences

The laboratory can be an interesting and enjoyable experience for everyone. It is an opportunity to discover a little bit of knowledge about how the universe works. It is also a place to practice using common laboratory equipment and developing important inquiry and communication skills.

You will be using a laboratory manual that should help you throughout the semester. The manual does not provide a great deal of detail about the upcoming experiment. Instead, it is intended to lead you to design or adapt an experiment to achieve an outcome. Thus, you will need to come to laboratory prepared.

Each week you will be evaluated on a 20-point scale. This scale is described below.

**5 pts** **Pre-Lab Preparation/QUIZ:** You should prepare a summary of the procedure you are going to use in the laboratory in your notebook. This summary should include sample calculations that are representative of those you will have to perform in the laboratory. You are not bound to this procedure—you may adapt the procedure as the experiment proceeds and you see the need to change your plans. You can use your notebook during this quiz (but NOT the laboratory handout).

Immediately at the beginning of the laboratory period you will take a quiz on the upcoming laboratory. Students who miss the quiz at the beginning of the laboratory period for ANY reason will receive a zero (NO make-ups, NO exceptions). The quiz will ensure that you are able to efficiently perform the laboratory.

**10 pts** **Participation:** You will be awarded these points when you arrive to the laboratory on time and actively participate during the laboratory period. Leaving early or passively watching others work will not earn these points. As part of your participation you will be required by the TA to turn in a carbon-copy of data collected during the lab. Failure to turn in a copy of your work will result in a deduction of these points.

**5 pts** **Post-Lab Report:** You are expected to type a report. Reports are due at the beginning on the next laboratory period. **No late reports will be accepted, no exceptions.** Points will be awarded using a low-resolution scale. The TAs will read the report and provide comments, and finally assign a *whole* number grade: 5 (excellent), 4 (good), 3 (poor), 2 (submitted but unacceptable). MOST reports will receive a grade of 4. Your report must be *excellent* to receive a 5. If you receive a 3 or 2, you should discuss your report with your TA immediately to identify ways that you can improve your communication skills.

## Laboratory Exams

You will be required to take two written exams during your scheduled laboratory time during the weeks of March 1 and April 19. The exam will cover material related directly to the laboratory and may cover specific calculations, concepts, or procedures. You may be asked to predict the outcome of a proposed experiment on the basis of your experiments in the laboratory. Therefore, it is suggested that you maintain a laboratory notebook throughout the semester. The notebook should outline the procedures and calculations, plus include relevant observations about how different variables affect the outcome of your experiments. Take notes during the laboratory experience that will help you remember what went on and what you observed.

If you miss a laboratory exam you must notify your TAs of your absence by email within 24 hours of the beginning time of your scheduled lab section if you plan to take a make-up exam. To be eligible to take a make-up exam you must present proof for a valid absence at the scheduled make-up exam times listed below.

Mid-Term: Monday, March 8 6:45 a.m. CHEM 307

Final: Monday, April 26 6:45 a.m. CHEM 307

If you miss the scheduled make-up exam, you will receive a zero, no exceptions.

## Safety

Your safety in the laboratory is very important to everyone involved in administrating this course. A large amount of effort goes into making each experiment safe for all of the students in the laboratory. Still, unexpected problems occasionally arise--a beaker is dropped, a hot piece of glass is picked up, or the wrong reagent is poured into a reaction flask. These events can cause serious injury to anyone close to the accident.

Note that the last sentence says "anyone close to the accident." This statement implies three things. First, any accident you have can cause injury to yourself; second, any accident you have can injure someone else; and third, any accident your neighbor (or TA, or instructor) has can injure you. While some of these accidents cannot be prevented, most accidents can be prevented if simple precautions are taken. Even if the accidents are not prevented, the precautions should protect you from becoming injured.

The precautions and guidelines for safe laboratory practice that are included in the laboratory manual are expected from you every time you enter the lab. Additionally, there will be more specific instructions within each experiment written in the manual and from your Teaching Assistant, the Laboratory Coordinator, or the Instructor.

***You will be dismissed from the laboratory when you do not observe any precaution or instruction listed here or given by any of the course administrators. A grade of zero will be recorded for any work not completed prior to the ejection.***

## Grading Scheme

There will be 11 laboratory assignments and two laboratory exams. Your grade will be based on the best 10 laboratory scores and the two exams. You can earn a 10 point **bonus** by scoring above 70% (14/20) on **all** 11 assignments.

You must attend the laboratory section for which you are registered, no exceptions.

*Absence Policy*— Due to the grading policy, it is possible that you may miss one laboratory period with no penalty. You will not be eligible for the 10 point bonus if you miss a laboratory period (no exceptions). Students who miss a second laboratory period **for any reason** will receive a zero for the missed work. Students who miss three or more laboratory periods for any reason will receive an F in CH 116.

Week of...		Points
January 5	NO LAB	
January 12	Kinetics Simulation	20
January 19	NO LAB, MLK Holiday Mon. January 19	
January 26	Rates of Chemical Reactions	20
February 2	Chemical Kinetics –Crystal Violet	20
February 9	Chemical Equilibrium—An Introduction	20
February 16	Chemical Equilibrium and LeChatelier's Principle	20
February 23	Acid-Base Solutions	20
March 1	Mid-Term Exam	50
March 8	Freezing Point Depression Measurements	20
March 15	Determination of $K_a$ from Measurement of pH	20
March 22	NO LAB, Spring Break	
March 29	Solubility Products of Insoluble Salts	20
April 5	Electrolytic and Voltaic Cells	20
April 12	Coordination Compounds	20
April 19	Final Exam	50
<b>Point Total</b>		<b>300</b>

## Letter Grade Assignments

Letter grades will be assigned according to point totals.  $A \geq 270$ ,  $B \geq 240$ ,  $C \geq 210$ ,  $D \geq 180$ ,  $F < 180$ . Grades will be available on ACCESS (<http://www.uab.edu/access>) May 9.