

# Chemistry 1151

## General Chemistry Syllabus

### Fall 2005

#### **Purpose:**

This course is required for students with majors in chemistry, biology, geology, chemical engineering, teaching of physical science, and several pre-professional programs such as medicine, medical technology, dentistry, pharmacy, optometry and veterinary medicine. This is an introductory college level chemistry course which covers fundamental concepts of atoms, molecules, stoichiometry, chemical reactions, thermochemistry, gas laws, atomic structure, periodic table, and chemical bonding. The prerequisites for Chem 1151 are high school chemistry and high school algebra. This course is the first in the two-semester sequence, Chem 1151-52, which prepares students for more advanced chemistry courses. Students should complete Math 1104 prior to registering for Chem 1151.

#### **Instructor:**

Dr. Sangeeta Mereddy                      Office: Chem 244  
Phone: (218)726-6482                      Email: smereddy@d.umn.edu  
Office Hours: 9-10 a.m. on M; 2-3 p.m. on W and F, and by appointment

#### **Goals of the Course:**

Study the content, principles and methods of chemistry;  
Develop an appreciation for the relevance of chemistry in our daily lives;  
Improve analytical and problem-solving skills;  
Learn and improve experimental skills and methods.

#### **Liberal Education Goals and Objectives:**

This course is a liberal education course in the physical sciences and as such includes topics basic to the understanding of the physical world, applications of these topics in society, and a historical development of the laws and theories of physical science. Problem-solving and analytical thinking skills are stressed in both the lecture and laboratory components of the course.

#### **Required Texts:**

Package: McMurry and Fay, "Chemistry," Fourth Edition, Prentice Hall.  
Chem 1151 Lab Manual, CATALYST, Prentice Hall

#### **Computer and Web Resources:**

McMurry and Fay, 4th ed., Student CD (packaged with text).  
[www.prenhall.com/mcmurry4](http://www.prenhall.com/mcmurry4)  
[www.prenhall.com/mcmurry](http://www.prenhall.com/mcmurry), choose 3rd ed., scroll to bottom to begin.  
[www.prenhall.com/umdchemistry](http://www.prenhall.com/umdchemistry), for problems in problem sets. User name and password are both "umdchemistry," i.e., enter "umdchemistry" twice.

## Course Format:

1. Lectures (MTWF 12:00-12:50 p.m. in Chem 200) **Bring your textbook and calculator to lecture.**
2. 14 Lab Periods (in SSB 129, 131, or 133)
3. 14 Discussions (Thursday at 12:00-12:50 p.m. or 1:00-1:50 p.m.)

We will use email, the Web, and bulletin board space (TBA), to communicate course-related materials, grade summaries, announcements, exam and quiz solutions, and homework assignments. Your teaching assistant (TA) will also use email. You should check these resources regularly. Students who have concerns about the lecture, lab or other issues in this course should discuss them with the course instructor. Issues that remain unresolved should be discussed with the department head.

## Access for Students with Disabilities:

*Individuals who have any disability, either permanent or temporary, which might affect their ability to perform in this class, are encouraged to inform the instructor at the start of the semester. It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have disabilities that may affect their ability to participate in course activities or to meet course requirements. Adaptations of methods, materials or testing may be made as required to provide for equitable participation. This material is available in alternate formats to individuals with disabilities upon request. Please contact Penny Cragun at Disability Services and Resources (726-8727).*

## Grade Distribution:

- |            |   |
|------------|---|
| 300 points | Hour exams (3), on October 7, November 4, December 9 (test dates are <u>tentative</u> ).                                    |
| 100 points | Quizzes and assignments; quizzes will usually be given in Discussion.   |
| 200 points | Final Exam, common exam date - TBA  |
| 150 points | Laboratory. <b>All labs and lab reports must be completed.</b><br>Lab Final Exam, Wed., Dec 14 (tentative date) in lecture. |

Each quiz is worth 20 points. The adjusted sum of all the homework assignments is worth 20 points. The sum of the top five quiz and/or homework assignments will contribute to the final grade.

There will be **no** make-up of quizzes.

Students are required to discuss arrangements for taking a make-up exam **prior** to the scheduled exam date. If illness or another emergency prevents you from taking an exam, leave a voice mail message (6482) immediately, or send an email.

Students must successfully **complete and pass both the lecture and the laboratory** portions of this course to receive a passing grade.

## Tentative Course Topics:

McMurry and Fay Text, Chapters 1- 9

- |          |   |
|----------|---|
| Chap. 1. | Chemistry: Matter and Measurement         |
| Chap. 2. | Atoms, Molecules, and Ions                |
| Chap. 3. | Formulas, Equations and Moles             |
| Chap. 4. | Reactions in Aqueous Solution             |
| Chap. 5. | Periodicity and Atomic Structure          |
| Chap. 6. | Ionic Bonds and Some Main-Group Chemistry |
| Chap. 7. | Covalent Bonding and Molecular Structure  |
| Chap. 8. | Thermochemistry: Chemical Energy          |
| Chap. 9. | Gases: Their Properties and Behavior      |

## Laboratory Syllabus:

The laboratory is an essential part of this course and must be completed in order to receive a grade. If you are repeating this course and have completed the laboratory satisfactorily in the past, you may not have to redo the laboratory. Please see the Instructor. Sufficient funds should be available on your UCard to cover consumables and breakage during the course. You must have at least \$8.00 on your account to check into the lab. The charge for a lost or not returned key is \$20, and the charge for failure to check out is \$25. Students will work with a lab partner for all experiments.

## Lab Rules:

1. You are responsible for knowing and obeying all safety rules. Sandals, shorts, short skirts, and other inappropriate clothing will not be allowed. **Safety glasses** are required in lab **at all times** (required by Minnesota State Law); they should be purchased in the Chemistry Stockroom (\$8.00).
2. All accidents and medical problems (e.g., epilepsy, fainting spells) must be reported immediately to the teaching assistant (TA).
3. Unauthorized work in the lab may be cause for dismissal from this course.
4. You will be issued a lab drawer containing an inventory of equipment needed to complete the laboratory portion of this course. You are responsible for this equipment and the drawer key. During the last lab period you will check out of lab, verify that you have all of the original equipment checked out to you, and return the key. Lost and broken items must be replaced. Failure to check out of lab and return the key will result in a \$45.00 fine, plus breakage charges.
5. Food and drink are not allowed in lab.
6. The department recognizes that students may miss lab due to situations beyond their control. However, accommodating students who wish to make up a missed lab creates extra work for the lab support staff, stockroom staff and teaching assistants. There are two ways students may make up a missed lab. In either case, you must let your TA know when you will make up the lab, and the TA in lab must sign your lab notebook before you leave lab:

## Lab Grade Distribution:

Completion of experiments and lab reports	100 points
Lab notebook: 25 points; Lab final exam: 25 points	50 points
Total	150 points

1. Lab reports are due at the beginning of the lab period one week after the experiment is completed.
2. Students are expected to remain in lab the entire three hours working on the lab report. Calculations for the Vernier experiments must be completed before leaving lab.
3. Late lab reports are penalized 10% of the grade for each day late.
4. You must complete the lab report to receive a grade for the experiment.

## The Lab Notebook:

The lab notebook is an authentic and complete record of your work in the lab. The notebook must be a **bound notebook** (not spiral!) with entries made **in ink**. If a mistake is made in writing, draw a line through the error and continue writing. The notebook must have a **table of contents** and it must be **signed and dated by your TA** at the end of each lab period. It will be **graded twice** during the semester in terms of completeness, neatness, sample calculations and conclusions.

### **The Lab Notebook Must Contain:**

1. Title, Date, and Purpose of Experiment
2. Raw Data and/or Observations
3. At least 1 sample calculation of each type for each experiment.
4. Conclusion and/or Interpretation of Result (why your results may be different from expected result). This is written in your notebook after you have finished your lab report.

### **Before Coming to Lab You Must:**

1. Read the lab handout.
2. Revise the printed lab instructions if appropriate.
3. Complete any pre-lab assignment if relevant.
4. Write the following in your lab notebook:
  - Title of experiment, with date
  - Purpose or objective of experiment
  - Any comments or questions you have
  - Data tables which you will fill in during lab (e.g., Data sheet(s) from lab modules).

### **During Lab:**

1. Take notes during the TA's lab lecture; these should be recorded in your notebook.
2. Record all data, observations, comments, mistakes, sample numbers etc.
3. Do not enter data directly on the printed Data Sheets; enter them into your lab notebook.
4. Complete calculations as time permits.

### **Lab Report:      Each student must turn in an individual lab report.**

1. Page 1: your name, date, lab section number, title and purpose of experiment
2. Following pages: data (e.g., Data Sheets), calculations and results, graphs, tables and computer printouts
3. Conclusions: post-lab assignments and answers to questions, as appropriate.

Course \_\_\_\_\_  
Number Semester Year

Lab. Section \_\_\_\_\_

Name \_\_\_\_\_  
Last First MI

Student I.D. \_\_\_\_\_

E-mail Address \_\_\_\_\_

Major \_\_\_\_\_

Last math course completed (or taking now) \_\_\_\_\_

High school attended \_\_\_\_\_

Have you had high school chemistry? \_\_\_\_\_

If so, what grade did you get? (Optional) \_\_\_\_\_

Are you repeating this course? \_\_\_\_\_

If yes, did you complete lab? \_\_\_\_\_

When did you complete lab? \_\_\_\_\_  
(semester, year, and instructor=s name)

Do you have any diagnosed allergies or other medical needs that would affect your participation in lab? (Check one) Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, please list:

If you have other requests or any concerns related to this course, please indicate below.

\_\_\_\_\_  
(Signed)

\_\_\_\_\_  
(Date)