Chemistry 132: General Chemistry II with Lab **Spring 2010**

Classroom (sections 01 and 02**) - M W F 9:30-10:20** Stuart Hall, Room 1104

Laboratory: Section 132-01 Monday 12:30-3:30 Stuart 1113/1121 (Samet)

Section 132-02 Tuesday 1:00-4:00 Stuart 1113/1121 (Samet)

Name: **Prof. Cindy Samet**

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Office hours: **1:00-2:30 Wednesdays* AND BY APPOINTMENT**

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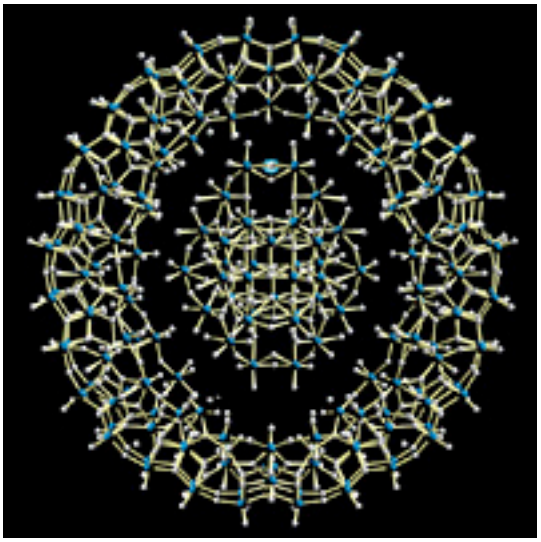

FILLED DONUT A Mo_{36} cluster (center) serves as the template for the formation of a Mo_{150} donut (Mo in blue, O in gray). Chemical and Engineering News, January 11, 2010.

Homer Simpson's view of this molecule. D'oh!!!

"Science is not a body of facts. Science is a state of mind. It is a way of viewing the world."

"Science is not a rigid body of facts. It is a dynamic process of discovery. It is as alive as life itself."

~Natalie Angier, from "The Canon"

<u>Chemistry 132</u>: Gen Chem II with Lab Prof. Samet/ Spring 2010

About the course:

This course is designed for science majors and pre-health students of any major. The course is designed to build on a one-year high school chemistry course *and on what you learned last semester in General Chemistry I*. It is assumed that all students in this course have completed Chemistry 131.

The central philosophy of this course is that chemical concepts are best learned when lecture, discussion, and laboratory are closely coordinated. Studies show that students retain more information in courses in which they can be active learners, where they can work cooperatively with less competition, and where visual methods of learning are included. Thus, this course has a heavy emphasis on *active learning*. Although there are three 50-minute class periods and a "separate" lab session, these two components are very closely linked. Sometimes new concepts will be introduced in the lab or in chemical demonstrations done in the classroom. Often, results from our laboratory experiments will provide the basis for our classroom discussions. Interpretation of experimental results will play a key role in understanding the fundamental concepts of chemistry. This course emphasizes repeating themes and connections, and although we may cover topics that you learned in high school, we will cover them in more depth. Even if you feel like some of it is a review, you may be surprised at the depth of understanding expected as well as the emphasis on communicating your knowledge of concepts by both solving problems and explaining concepts in high quality scientific writing.

I recommend that you bring the following to class **every day**:

- your textbook
- a calculator (capable of scientific notation, natural and base 10 logarithms, inverse logarithms, but still a SIMPLE calculator)
- notebook for taking notes/pens, pencils
- your laboratory notebook and laboratory manual
- your clicker (H-ITT IR transmitter) - this is a MUST for attendance!

Finally, the classroom and lab work in this course is scheduled very carefully and is all quite manageable if you keep the schedule in mind. Please refer frequently to the course calendar and to the laboratory schedule. All of the course materials are available on the Moodle site for this course.

Course Information and Assignments:

I will be using **MOODLE** as the major form of conveying information such as daily reading assignments and problems to do in the text, and for all announcements, handouts, and relevant course information. It is essential that you consult Moodle on a regular basis, as it will provide you with crucial information and handouts, etc. I will not be giving out hard copies of most handouts – they will all be available on Moodle.

Attendance:

Because of the heavy emphasis on active learning, you are expected to arrive ***on time*** for every class. I will be taking attendance daily (using the "clickers") *usually at the start of class*, and part of your grade includes in-class work and attendance. Doing well in this area is an easy way to boost your course grade! Although 5% may not seem like a lot, doing well in this category can bump you up into another grade range, or make the difference between a plus and a minus! Make-up exams will not be given. If you must miss an exam, your grade on the final exam will replace the missed exam grade. Since this is a laboratory-based course, **attendance at every lab session is mandatory. Missing MORE THAN ONE laboratory activity will result in a failing grade for the course.** In addition, labs may not be made up or carried out on another day outside of your assigned lab period. Sickness or other valid excuses *may* be considered on a case-by-case basis. Participation in extracurricular activities and athletic events will NOT be considered excused absences. It is against Dickinson College policy for an instructor, military commander, or athletic coach to require you to miss a class or lab.

*****Note well that although classroom attendance falls within a category that is worth 5% of your grade, excessive absences from class will affect your grade in a more serious manner. I consider three class absences to be getting into the serious range, since at that point an entire week of the semester has been missed. The most important thing to remember is that good grades come from good study habits and BEING IN CLASS EVERY DAY!**

Text: *Chemistry,* First edition, Julia Burdge (with significant contributions from Raymond Chang), McGraw Hill, 2009.

(note: this is the same textbook you used last semester.)

Other Required Resources:

- Laboratory notebook (purchased from College bookstore)
- Safety glasses/goggles (Z87)
- Clicker (to be rented from the Chemistry Department office.)

Grading: There will be a total of 1000 points possible in the course:

Classroom Component (750 points total)

▪ Three 50-minute semester exams*	400 pts, (125,125,150)	(40%)
▪ Five Quizzes	150 pts (30 pts. Each)	(15%)
▪ Final Exam	150 pts	(15%)
▪ Clicker Questions (attendance)	50 pts.	(5%)

(note: I use the clickers to take attendance. If you do not have your clicker but are in class, you will be considered to be absent! Be sure to bring your clicker daily. The clicker also helps me to gauge student understanding, so I consider the clicker questions to be very important!)

FOR ALL STUDENTS, YOUR GRADE ON THE FINAL EXAM CAN REPLACE YOUR LOWEST EXAM GRADE. This allows for one "bad day" or absence.

*Note well: Exam averages below 75% will be normalized to bring the class average to 75. **TO RECEIVE A PASSING GRADE IN THIS COURSE, YOUR SCALED EXAM AVERAGE (including 3 exams plus the final) MUST BE > 60%. (note: this does not apply to the quizzes.)**

Laboratory Component (250 pts total) - SEE LABORATORY SYLLABUS FOR DETAILS

*note: although there are separate categories for lab and classroom components, lab and classroom material overlaps and *laboratory work/material will be represented on the exams.*

Also note that **missing more than one laboratory period will result in a failing grade for the course.**

The following scale will be used to assign final grades:

900-1000 = A	700-799 = C	<600 = F
800-899 = B	600-699 = D	

Plusses and minuses will be used. The instructor reserves the right to make minor changes to this scale if deemed appropriate.

Miscellaneous:

For this course, the definition of plagiarism is that in the *Dickinson College 2004-2005 Code of Conduct and Disciplinary System* publication.

Although you will be working in groups to do most of the laboratory activities, you are responsible for your own work. This means that although you may perform an initial draft of calculations with group members, you must then go off on your own and be sure the work is correct. I am not sympathetic to finding that all group members have made the same mistake and no one picked it up on their own. I highly recommend doing all of the work on your own after working with your group. This will be explained in more detail in the laboratory syllabus.

If you have a *diagnosed* learning disability that requires an accommodation, please see me and present me with the necessary paperwork. If one of those accommodations is extra time on exams, you *must see me ahead of time before each exam and remind me.*

YOU MUST BRING A SIMPLE CALCULATOR TO THE EXAMS AND QUIZES. YOU MAY NOT USE A COMPLEX CALCULATOR (i.e. ONE THAT IS CAPABLE OF BEING PROGRAMMED OR STORING DATA) ON QUIZES OR EXAMS. Also, I will not consider re-grading a question on a quiz or exam that was written in pencil.