GENERAL CHEMISTRY LABORATORY
Chemistry 131, Fall 2011
Foster Science 117
Tues. 1:30-5:20, Wed. 1:00-4:50, or Thurs. 1:30-5:20

Tues. Instructor: Dr. Cynthia Powell
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(before 9 PM)

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W 2:00-4:00
Th 2:00-4:00
F 9:00-11:00

Wed./Thurs. Instructor: Dr. Eric Hardegree
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Office: Foster Science Building 179
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T 4:00-5:00
W 9:00 - 11:00
F 9:00-10:00, 3:00-4:00

Chemistry 131 is the laboratory portion of General Chemistry II. The lecture part of the course is Chemistry 131. Simultaneous enrollment in CHEM 133 and 131 is required and all prerequisites for Chem 133 must be fulfilled for enrollment in 131.

The purposes of this laboratory course include the following:

- to reinforce the student's understanding of chemical principles covered in CHEM 133
- to give each student an opportunity for hands-on experience in working with laboratory equipment and in conducting laboratory investigations
- to teach the student the fundamentals of communicating effectively in scientific writing

To achieve these objectives in the most effective way, the following policies have been established.

I. *Attendance*
You are expected to attend laboratory on each assigned day. Please be on time. There is an opportunity to make up ONE lab day missed earlier in the semester after you have taken the final exam during lab on the week of November 29th. You may only attend the make-up lab if you have previously missed a laboratory session. If you must miss lab on your scheduled day but could attend another scheduled day during the same week, this MAY be arranged if there is an opening. Please check with your instructor as early as possible. Students will not be permitted to change laboratory sections during the week of fall break!

II. *Research Groups*
Each student will be assigned to a 3-4 member research team. You will have assigned roles within these groups that will rotate weekly so that each person has equal opportunity to fully participate. Be prepared for the fact that most lab activities will last for the full scheduled lab time and that all students are expected to stay and work with their groups until all assignments have been completed.

III. *Safety*

A laboratory is a safe place to work. It may become unsafe due to carelessness or ignorance. In order to do your part to ensure an accident-free term, please print out, read and sign the Safety Agreement. This is due before lab on the day of the second lab meeting. If you have safety questions it is always best to ask your instructor!

IV. *Pre-Lab Assignments*

Prior to each lab meeting check the FILES menu for this course. The "class info" folder will contain a folder labeled for each week. In the week # folder you will find a laboratory procedure document that specifically outlines what you need to prepare before you come to class. This will be posted the Friday before your scheduled lab session. Each student's pre-lab assignment will be checked for completeness at the beginning of class and the group lab report will be assigned one point for each completed pre-lab assignment (one per person). Guidelines will be provided. No credit will be given for pre-lab assignments that are not completed by the beginning of the laboratory session.

V. *Laboratory Reports/Laboratory Notebooks*

A written report of your laboratory work prepared by your research **team** is due at the end of each lab period following the completion of the work. You will complete the portion of the team report that is assigned for the team "role" you fulfill during the lab experiment and submit the report electronically. A very specific grading rubric will be used for grading and will serve as your guide for completion of the laboratory reports.

Each individual is required to keep experiment notes in a lab notebook. Your notes should include a brief summary of the experiment planned by your research team, a neat record of all data collected during the laboratory, example calculations that you will be able to use and follow to complete similar calculations, Using these notes, each **individual** will electronically submit a "reflections" section due on the Sunday night after the completed lab at 11:59 PM. This should be submitted electronically to the lab section electronic drop box. Guidelines will be provided.

The laboratory notebook and may be used when taking laboratory quizzes and exams. The lab notebook format will be discussed in class.

VI. *Tests* and *Quizzes*

There will be one major test during the semester: a **comprehensive** final examination given during the week of November 15th. A quiz will be given at the end of each lab session.

VII. *Grades*

The semester averages will be computed as follows:

60% Team Lab Reports and Individual Student Reflections (weighted by point values)
20% Quizzes
20% Lab Final exam

Course grades will be assigned on the following scale.
(A = 90-100, B = 80-89.99, C = 70-79.99, D = 60-69.99, F = below 60)

VIII. *Format*

This class will be taught in an inquiry format. This means that we (the instructor and the TAs) will be working very hard to help you think through the material and come to your own understanding. This also means that we will not simply tell you how to do things. We will often ask questions to help you think through your procedures and analysis of data. It will take a few weeks to adjust to the format, but we feel that this approach provides many benefits. For those of you considering a career in health professions you will find it interesting that many MCAT questions are lab scenario based; for those of you interested in other careers in science, learning to experiment in the lab is essential. We'll always be available to help you think through the material, but you'll get to do the thinking! Our goal is to help you learn as much as possible and to help you gain a deep understanding of the concepts we are studying.

X. *Calendar*

Lab experiments	
Week 1 (beginning 8/30)	Introduction / Sig Figs problem session
Week 2 (beginning 9/6)	Compound composition
Week 3 (begninning 9/13)	Effects of T, P and V on gases
Week 4 (beginning 9/20)	Relationship of T, V, P and moles of a gas
Week 5 (beginning 9/27)	A Precipitate Reaction
Week 6 (beginning 10/4)	Atomic Structure
Week 7 (beginning 10/11)	Periodic trends / observing reactions of metals
Week 8 (beginning 10/18)	Titration problem session / titration procedure
Week 9 (beginning 10/25)	Titration antacid experiment
Week 10 (beginning 11/1)	Alum / synthesis and investigating properties
Week 11 (beginning 11/8)	Soap / synthesis and investigating properties
Week 12 (beginning 11/15)	Molecular Models
Week 13 (beginning 11/22)	THANKSGVING HOLIDAY
Week 14 (beginning 11/29)	Final Exam / Make-up Lab