

SUL ROSS STATE UNIVERSITY  
GENERAL CHEMISTRY 1111 LAB SYLLABUS  
SUMMER 2015

LAB: General Chemistry 1111

Material: Freshman Chemistry Lab Manual

Room: WSB 307

Times: Monday/Wednesday 1:30-4:30

TA: Jessi Nichols

Office: WSB 308

Hours: Friday 1-4

Email: jroach@sulross.edu

## OBJECTIVES

### *Program Learning Objectives (PLO):*

A student graduating with the chemistry major is expected to demonstrate that (s)he is able to:

1. Explain atomic & molecular structures, bonding, thermodynamics, chemical equilibria & kinetics, stoichiometry, and electrochemical processes;
2. Write and explain organic reactions, stereochemistry, and reactions in biological systems;
3. Use essential modern instruments to perform chemistry experiments in the laboratory;
4. Write a review on a topic of his/her choice using recent literatures; and
5. Summarize basic principles of research design and analyze experimental data using appropriate computer programs (e.g. Excel, Sigma-plot, etc.) in regards to the chemistry discipline.

### *Core Objectives (CO):*

- A. **Critical Thinking Skills** – Students will gain/improve their critical thinking ability by solving real life chemistry problems through inquiry, analysis, and evaluation of available information. Students will be tested on their critical thinking ability in exams and through lab experiments
- B. **Communication Skills** – Students will have the opportunity to improve communication skills through oral discussion and writing reports (i.e. observation, explanation, and conclusion etc.) on the experiments done in the lab sessions.

- C. **Empirical and Quantitative Skills** – students will use the mathematical skills needed to manipulate and analyze numerical data obtained through experimentation in order to form conclusions
- D. **Teamwork** – students will use team-spirit and consider different points of view to work effectively while conducting experiments as a team working toward a shared purpose or goal

**Lecture sessions are designed to fulfill PLO 1, CO -A, B & C, and lab sessions are designed to fulfill PLO 3, CO A-D.**

Expectations:

- Read over the experiment before lab
- Follow all safety procedures:
  - Shorts and open-toed shoes are **NOT** allowed in lab. If you come to class without appropriate clothing, you will be asked to leave. **NO EXCEPTIONS!**
  - No food, drinks, or chewing gum are allowed in lab
- **SHOW YOUR WORK!**

Attendance:

Coming to lab is mandatory. Be on time and SIGN IN at the beginning of the lab period. Plan to spend the entire period in lab. The TA may deduct points for students who arrive late or leave early. **NOTE:** Missing two lab periods during the summer session will result in failure of the course.

Assignments:

Lab Manual Assignments:

- Pre-Lab: Due at the beginning of the lab that the experiment will be performed
- Data Sheet: Due the lab period after the lab is done

Written Assignments:

- Pre-Lab Write Up: Due at the beginning of the lab that the experiment is performed
- Lab Report: Due the lab period after the lab is done
- Guidelines for written work are found on the following page

Lab Grading:

- Each experiment is worth 30 points
- These points will come from:
  - The pre-lab definitions (5)
  - The experiment work in the manual (25)

- Points will be deducted for not turning in **lab report and write up**
- Assignments must be completed and turned in on time
  - Assignments must be legible
  - Assignments and reports will be due the following lab period
  - 10% of the grade will be deducted for assignments not turned in at the beginning of lab. An additional 10% will be deducted for each day that the assignment is late

#### Pre-Lab Write Up:

- *Purpose:* Here you will state the goal of the experiment (in your own words)
- *Reagents:* You will make a list of all of the chemicals used in the experiment along with relevant data (grams, volume, molarity etc.). This is how much the manual calls for.
- *Apparatus:* In this section, you will list all of the equipment that you will use.
- *Procedure:* This is where you will outline the steps in the experiment. The steps will be put in your own words.

#### Lab Report:

- *Purpose:* Here you will state the goal of the experiment (in your own words)
- *Reagents:* You will make a list of all of the chemicals used in the experiment along with relevant data (grams, volume, molarity etc.). This is how much **YOU** used, not how much the manual calls for.
- *Apparatus:* In this section, you will list all of the equipment that you used.
- *Procedure:* This is where you will outline the steps in the experiment. Be sure to note any differences between what you did and what the manual said to do.
- *Observations:* Note the observations that you made during the experiment.
- *Data:* What are your findings? (percent yield etc.)
- *Conclusions:* What do you think of the results? Are they what you expected? Why?

**Students with Special Needs:** *Sul Ross State University is committed to equal access in compliance with the Americans With Disabilities Act of 1973. It is the student's responsibility to initiate a request for accessibility services. Students seeking accessibility services must contact Mary Schwartze in Counseling and Accessibility Services, Ferguson Hall, Room 112. The mailing address is P.O. Box C-171, Sul Ross State University, Alpine, Texas 79832. Telephone: 432-837-8203.*

**Scholastic Dishonesty:** Students who violate the University rules on scholastic dishonesty are subject to penalties, including the possibility of an **F** in the course and/or dismissal from the University.

# Chemistry 1111 Lab Schedule

<u>Week of</u>	<u>EXPERIMENT</u>
June 3	Safety Practices and Procedures (Exp. 1) and Chemical Calculations and Symbols (Exp. 2)
June 8	Naming of Chemical Compounds (Exp. 5) and Balancing Chemical Equations (Exp. 6)
June 10	Recrystallization of Impure Benzoic Acid (Handout) and Growing Crystals (Handout)
June 15	Metathesis Reactions (Exp. 7)
June 17	Synthesis of Aspirin (Exp. 12) and Addition of Bromine to an Alkene (Handout)
June 22	Chemical Analysis by Chromatography (Exp. 8) and Tomato Juice Rainbow (Handout)
June 24	Analysis of Antacid Tablets (Exp. 11)
June 29	Water Hardness (Handout)
July 1	Lab Final and Make Up Lab