

## Lab for General Chemistry II

Year Course Offered: 2015  
Semester Course Offered: Spring  
Department: NS  
Course Number: Chem1112  
Name of Course: Lab for General Chemistry II  
Name of Instructor: Chemistry faculty

\*\*\*\*\*  
The information contained in this class syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course.  
\*\*\*\*\*

### Learning Objectives (LO)

Upon successful completion of this course, students will be able to

1. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.
2. Demonstrate safe and proper handling of laboratory equipment and chemicals.
3. Conduct basic laboratory experiments with proper laboratory techniques.
4. Make careful and accurate experimental observations.
5. Relate physical observations and measurements to theoretical principles.
6. Interpret laboratory results and experimental data, and reach logical conclusions.
7. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.
8. Design fundamental experiments involving principles of chemistry and chemical instrumentation.
9. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

### Core Objectives (CO)

General Chemistry Lab addresses the following core objectives to ensure students develop the essential knowledge and skills they need to be successful in college, in a career, in their communities, and in their lives. The core objectives meet the Texas Core Curriculum objectives for the Social and Behavioral Sciences Foundational Component Area.

- Critical Thinking Skills - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- Communication Skills - to include effective development, interpretation and expression of ideas through written, oral and visual communication

- Empirical and Quantitative Skills - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- Social Responsibility - to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities

| <b>Learning Outcomes</b>  | <b>CO</b>    | <b>Assessment Methods</b>  | <b>Criteria/Targets</b>   |
|---|--------------|--|---|
| 1. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory. Demonstrate safe and proper handling of laboratory equipment and chemicals. Conduct basic laboratory experiments with proper laboratory techniques. Make careful and accurate experimental observations. Relate physical observations and measurements to theoretical principles. | CT, EQS      | Exams and quiz   | Students will be able to use basic apparatus and apply experimental methodologies used in the chemistry laboratory. Demonstrate safe and proper handling of laboratory equipment and chemicals. Conduct basic laboratory experiments with proper laboratory techniques. Make careful and accurate experimental observations. Relate physical observations and measurements to theoretical principles. |
| 2. Interpret laboratory results and experimental data, and reach logical conclusions. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.   | CT, EQS, COM | Assignment and tests.  | Students will be able to interpret laboratory results and experimental data, and reach logical conclusions. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.   |
| 3. Design fundamental experiments involving principles of chemistry and chemical instrumentation. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.  | SR, COM      | Students will be evaluated based on quiz, questions and answers. | Students will be able to design fundamental experiments involving principles of chemistry and chemical instrumentation. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.  |

## **Tentative List of Topics**

Check in, Safety,

Basic lab techniques

Recitations

Colligative properties

Determination of the Rate Law

Rates of Chemical Reactions II: Decomposition of Hydrogen Peroxide

Colorimetric Determination of an Equilibrium Constant

Acid-Base Titrations

Weak Acids and Bases and their Salts

Hydrolysis of salts and pH of Buffer Solutions

Determination of Dissociation Constant of a Weak Acid

Determination of the Solubility Product Constant for a Sparingly Soluble salt

Oxidation reduction Titrations: Determination of Oxalate

Recitations

Electrochemical cells & Thermodynamics & Checkout