

**Common Course Outline**  
**CHEM 122**  
**General Chemistry I Laboratory**  
**1 Credit**

**The Community College of Baltimore County**

**Course Description**

**CHEM 122 – 1 Credit – General Chemistry I Laboratory** serves as a laboratory course to accompany CHEM 121; develops knowledge of chemical concepts, experimentation and of laboratory instruments and techniques introduced in CHEM 121. 1 credit with laboratory hours.

**Prerequisite:** Minimum grade of C or concurrent enrollment in CHEM 121.

**Overall Course Objectives**

Upon completion of this course students will be able to:

1. work safely according to US Chemical Society Standards in a chemistry laboratory setting;
2. use chemicals safely and dispose of wastes in a proper manner with particular emphasis on avoidance of environmental pollution;
3. make proper measurements using common laboratory measuring devices such as electronic balances, volumetric glass wares, and spectrophotometers;
4. record data and observations of chemical experiments in a manner consistent with academic standards and ethics in chemistry;
5. complete calculations with data obtained from experiments correctly;
6. present chemistry information in writing by writing formal laboratory reports displaying ethics and academic integrity;
7. experimentally determine selected physical constants such as molar volume of a gas;
8. use physical methods such as chromatography to separate and analyze components of a mixture;
9. synthesize and determine physical properties of an inorganic compound;
10. collect and graph data manually and using Excel;
11. apply quantitative techniques (volumetric, gravimetric, and instrumental) to analyze selected substances;
12. measure the enthalpy changes associated with physical and chemical processes;
13. use molecular models to deduce molecular geometry of simple molecular compounds and polyatomic ions, and
14. evaluate how chemical processes can influence individuals and/or societies and address local and global diversity concerns .

**Major Topics**

- I. Safety in the Chemistry Laboratory
- II. Density of Solids and Liquids

- III. Separation and Identification of Chemicals using Chromatographic or Other Physical Methods
- IV. Synthesis of Compounds/Complexes and Percent Yield Determination
- V. Single and Double Replacement Reactions
- VI. Titration
- VII. Thermochemistry
- VIII. Spectroscopy
- IX. Molecular Geometry
- X. Molar Volume of Gases
- XI. Universality of application of chemical principles

### **Course Requirements**

Grading procedures will be determined by the individual faculty member but will include the following:

### **Grading**

- Assessment of experimental results by grading a minimum of ten informal laboratory reports;
- Between three to five pre-lab and post-lab questions related to each and every laboratory experiment;
- A minimum of two formal laboratory reports;
- Laboratory Final Examination that can be given as a closed book examination or a mix of both practical and written examination.

**Writing:** Multiple assignments will infuse CCBC General Education Program objectives; at least one assignment worth a minimum 5% of the total course grade will allow students to demonstrate at least 5 of the 7 General Education Program outcomes.

### **Other Course Information**

This course, with CHEM 121, may be used to fulfill 4 credits of the General Education Requirement in the Biological and Physical Science Category. Please refer to the current CCBC Catalog for General Education course criteria and outcomes.

Date Revised: [Please enter the date in a MM/DD/YY format]