CHEM A081N: LAB SKILLS FOR GENERAL CHEMISTRY A

Item	Value
Curriculum Committee Approval Date	12/08/2021
Top Code	493062 - Secondary Education (Grades 9-12) and G.E.D.
Units	0 Total Units
Hours	18 Total Hours (Lecture Hours 18)
Total Outside of Class Hours	0
Course Credit Status	Noncredit (N)
Material Fee	No
Basic Skills	Basic Skills (B)
Repeatable	Yes; Repeat Limit 99
Grading Policy	P/NP/SP Non-Credit (D)

Course Description

This is a course designed to provide additional instruction and practice of the lab skills taught in CHEM A180 - General Chemistry. Students will develop skills necessary to successfully demonstrate competency in CHEM A180 Laboratory. This course will be part of the Chemistry Skills Certificate of Competency and is expected to increase student retention and success in CHEM A180. Noncredit. NOT DEGREE APPLICABLE. COREQUISITE: CHEM A180 or CHEM A185. Not Transferable.

Course Level Student Learning Outcome(s)

1. Apply proper safety practices during laboratory procedures.
2. Apply proper mathematics to chemistry laboratory problems.
3. Master technical skills involving laboratory equipment.
4. Learn how to make and record proper observations.

Course Objectives

- 1. Apply basic math skills to chemistry laboratory problems.
- 2. Apply basic problem solving skills to chemistry laboratory problems.
- 3. Have basic chemistry lab skills.

Lecture Content

I Remediation of Basic Math Skills: I.1. Apply statistical analysis to experimental data. I.2. Apply algebraic substitution and manipulation to chemical equations in lab. I.3. Apply qualitative and quantitative error analysis to experimental results. I.4. Apply proper mathematics to eliminate statistical outlier data points. I.5. Learn to calculate solutions concentrations. I.6. Learn fundamental and advanced titration calculations. II Remediation of Basic Chemistry Lab Skills: II.1. Learn to make proper laboratory measurements. II.2. Learn proper fundamental analytical laboratory techniques. II.3. Master technical skills involving common laboratory equipment including barometers, manometers, glassware, burets and balances. II.4. Learn to properly calibrate laboratory devices. II.5. Learn how to make and record proper observations. II.6. Master solution preparation skills. II.7. Apply proper safety practices during laboratory procedures. III Remediation of Basic Problem Solving Skills III.1. Learn to interpolate values from data tables. III.2. Learn fundamental problem solving in lab chemical calculations.

Method(s) of Instruction

- Enhanced NC Lect (NC1)

Instructional Techniques

The primary mode of instruction will be the lecture/demonstration method, followed by student practicing.

Reading Assignments

Each topic discussed will include a written description which can be referred to while completing assignments.

Writing Assignments

Worksheet completion will include the need to write explanations of work.

Out-of-class Assignments

Completion of worksheets introduced in class.

Demonstration of Critical Thinking

Graded worksheets will demonstrate abilities to explain concepts and describe principles in writing as well as the development of problem solving skills.

Required Writing, Problem Solving, Skills Demonstration

Quizzes will include some questions requiring writing of sentence explanations and/or descriptions. Students will be expected to analyze questions and generate answers. Some answers will be in the language of mathematics and others will be in English. Some questions will require the use of principles to synthesize an answer which was not previously taught.

Eligible Disciplines

Chemistry: Masters degree in chemistry OR bachelors degree in chemistry or biochemistry AND masters degree in biochemistry, chemical engineering, chemical physics, physics, molecular biology, or geochemistry OR the equivalent. Masters degree required.

Other Resources

1. All printed material will be provided as a workbook produced by the Chemistry Department.