

Bossier Parish Community College
Master Syllabus

Course Prefix and Number: CHEM 102L

Credit Hours: 1

Course Title: General Chemistry II Lab

Course Prerequisites: CHEM 101 and current or previous enrollment in CHEM 102

Textbooks: Chemistry Educational Resources Laboratory Handbook
Chemical Education Resources Modular Lab Program in Chemistry

Course Description:

Content includes safety and basic laboratory techniques related to topics in CHEM 102 (science majors). Withdrawal from lecture mandates withdrawal from lab.

Learning Outcomes:

At the end of the course the student will:

- A. demonstrate acceptable and appropriate safety measures in the chemistry laboratory;
- B. collect, analyze, and report laboratory data and utilize data into solutions of laboratory problems; and
- C. utilize knowledge of chemical principles and laboratory skills and techniques to perform assigned laboratory experiments.

To achieve the learning outcomes, the student will

- 1. review safety procedures for working in the chemistry lab. (A)
- 2. determine the solubility of an unknown inorganic salt in water at a various temperature. (C)
- 3. evaluate the molal freezing point depression constant for water and its dependence on such factors as the nature and concentration of the solute. (C)
- 4. determine the rate law for the reaction of crystal violet with hydroxide ions in aqueous solution. (C)
- 5. determine the rate law, activation energy, and collision frequency factor for a chemical reaction and how the rate constant can be altered by the addition of a catalyst. (C)
- 6. determine the effect of a change in a reaction condition of a chemical system at equilibrium and correlate the observed responses with LeChatelier's principle. (C)
- 7. determine the total hardness in a water sample by titrating with EDTA solution. (C)
- 8. compare calculated and measured pH of several solutions, including strong acids, weak acids and buffer solutions. (C)

9. prepare titration curves from collected data and use titration curves and calculations to compare the behavior of strong and weak acids (C)
10. prepare and standardize a NaOH solution to use for the titration of an unknown weak acid and use the titration data to determine the equivalent mass, PK, and identify of the weak acid. (C)
11. determine the formula and K_d of a complex ion through the use of coupled reactions and an understanding of K_{sp} . (C)
12. measure the solubility of a salt in water at various temperatures in order to plot a solubility-temperature curve. (B)
13. determine the reduction potentials for three half-reactions from appropriate cell potentials and a selected standard reduction half-reaction. (C)
14. prepare various solutions and calculate the molarity, molality, mole fraction, and mass percent of the solute. (B,C)
15. prepare laboratory reports which require the utilization and interpretation of laboratory data. (B)
16. separate mixture using gas chromatography and identify the components of the mixture.

Course Requirements

In order to receive a grade of “C” the student must earn 70% of the total possible points for the courses and achieve all of the following course requirements.

- minimum of 80% on lab safety quiz
- demonstrated safe practices in the chemistry laboratory
- minimum average of 70% on laboratory reports and quizzes
- minimum average of 70% on the mid-term and final practical tests
- satisfactorily perform a minimum of 10 assigned laboratory experiments, which require the proficient utilization of computers

Course Grading Scale:

- A- 90% or more of total possible points on pre-lab quizzes and laboratory reports and a minimum of 80% on the lab safety quiz and a minimum of 70% average on the mid-term and final practical tests and safely performing a minimum of 10 assigned laboratory experiments
- B- 80% or more of total possible points on pre-lab quizzes and laboratory reports and a minimum of 80% on the lab safety quiz and a minimum of 70% average on the mid-term and final practical tests and safely performing a minimum of 10 assigned laboratory experiments
- C- 70% or more of total possible points on pre-lab quizzes and laboratory reports and a minimum of 80% on the lab safety quiz and a minimum of 70% average on the

mid-term and final practical tests and safely performing a minimum of 10 assigned laboratory experiments

D- 60% or more of total possible points on pre-lab quizzes and laboratory reports and a minimum of 80% on the lab safety quiz and a minimum of 60% average on the mid-term and final practical tests and safely performing a minimum of 10 assigned laboratory experiments

F- less than 60% of total possible points on pre-lab quizzes and laboratory reports or less than 80% on the lab safety quiz or less than 60% average on the mid-term and final practical tests or failure to safely perform at least 10 assigned laboratory experiments.

Attendance Policy: The college attendance policy is available at <http://www.bpcc.edu/catalog/current/academicpolicies.html>

Course Fees: This course is accompanied with an additional non-refundable fee for supplemental materials, laboratory supplies, certification exams and/or clinical fees.

Nondiscrimination Statement

Bossier Parish Community College does not discriminate on the basis of race, color, national origin, gender, age, religion, qualified disability, marital status, veteran's status, or sexual orientation in admission to its programs, services, or activities, in access to them, in treatment of individuals, or in any aspect of its operations. Bossier Parish Community College does not discriminate in its hiring or employment practices.

COORDINATOR FOR SECTION 504 AND ADA

Angie Cao, Student and Disability Services Specialist

Disability Services, F254, 6220 East Texas Street, Bossier City, LA 71111

318-678-6511

acao@bpcc.edu

Hours: 8:00 a.m.-4:30 p.m. Monday - Friday, excluding holidays and weekends.

Equity/Compliance Coordinator

Teri Bashara, Director of Human Resources

Human Resources Office, A-105

6220 East Texas Street

Bossier City, LA 71111

Phone: 318-678-6056

Hours: 8:00 a.m.-4:30 p.m. Monday - Friday, excluding holidays and weekends.

Reviewed by D. Hoston 04/2022