

CAPITAL COMMUNIT COLLEGE

Course Outline for

CHEMISTRY II

SECTION I

SUBJECT AREA AND COURSE NUMBER: CHE 122

COURSE TITLE: General Chemistry II

CATALOG DESCRIPTION:

Builds on the knowledge learned in General Chemistry I. Topics includes intermolecular forces, liquids, solutions, colligative properties, reaction rates, equilibrium, pH, solubility, thermodynamics, electrochemistry, and nuclear chemistry.

LECTURE HOURS PER WEEK: 3

LABORATORY HOURS PER WEEK: 3

CREDITS: 4

PREREQUISITE:

Chemistry 121, or permission of the department.

SECTION II

- A. SCOPE:** The objective of chemistry II is to provide students with a background in general chemistry which will enable them to better understand the world around them and to prepare the students for academic programs in science, medicine, engineering and related fields.
- B. REQUIRED WORK:** determined by the instructor.
- C. ATTENDANCE AND PARTICIPATION:** Students are expected to attend class and to participate in class activities. It is particularly important that students attend laboratory. Students must take examinations at the scheduled time and must hand in any reports, homework or other assignment at the time requested by the instructor.
- D. METHODS OF INSTRUCTION:** This course will involve students in active learning. They will solve problems, conduct laboratory experiments and work as a member of a group in order to be successful. Other methods of instruction may include but are not limited to lecture, discussion, student presentations, computer instruction or exercises which make use of computers.

E. OBJECTIVES, OUTCOMES and ASSESSMENT

The following objectives and outcomes represent the department's core requirements for student achievement.

Learning Objectives	Outcomes	Assessment
To demonstrate an understanding of:	Student will:	As measured by:
Intermolecular forces	Investigate the relationship between molecular structure and boiling points.	Lab experiment, test
Colligative properties	Predict melting points of solutions	1. Written in class tests, quizzes and examinations
Reaction kinetics	Demonstrate understanding of factors that affect rate of reaction.	2. Graded laboratory reports and/or laboratory examinations
Chemical equilibrium	Demonstrate understanding of factors that affect equilibrium and calculate equilibrium constant	Lab experiment, written test
pH	Calculate the pH of a solution.	Lab experiment, written test.
Thermodynamics	Demonstrate understanding of 1 st , 2 nd , and 3 rd law of thermodynamics and their applications	
Problem solving using mathematics	Use algebra, dimensional analysis, graphing, logic and other techniques to solve problems in Chemistry	Written in class tests, quizzes and examinations
Relationship between theoretical concepts and practical problems.	a. Use theoretical information to solve practical problems. b. Use collected data to make generalizations. c. Perform assigned experiments in the laboratory, collect the required data and draw appropriate conclusions.	2. Graded laboratory reports and/or laboratory examinations

F. TEXTS AND MATERIALS: Chemistry the Central Science by Brown, LeMay and Bursten, publisher: Prentice Hall ; Chemical Principles in the Laboratory by Slowinski, Wolsey and Masterton publisher: Saunders College Publishing

G. INFORMATION TECHNOLOGY: calculator, computer.