CAPITAL COMMUNITY COLLEGE

Course Outline for

PRINCIPLES OF CHEMISTRY

SECTION I

SUBJECT AREA AND COURSE NUMBER: Chemistry 111

COURSE TITLE: Principles of Chemistry

CATALOG DESCRIPTION:

Basic principles governing chemical changes. Topics include atomic structure, chemical bonding, stoichiometry, states of matter and solution chemistry. Three hours of lecture and two hours of laboratory per week.

LECTURE HOURS PER WEEK: **3** **LABORATORY HOURS PER WEEK: 2**

CREDITS: 4

PREREQUISITE:

Math 094 or Mathematics Placement Test

SECTION II

A. SCOPE: Principles of chemistry is intended to provide a general back ground in chemistry for those who have limited experience with the subject. Students interested in nursing or other health related careers often take this course.

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. Students will solve problems and conduct laboratory experiments. They will have opportunities to work alone as well as opportunities to work as members of a group. Other methods of instruction may include lecture, discussion, student presentations 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. Individual instructors will add other topics, thus each section of this course will be unique while at the same time assure that student will be well prepared in core area.

Learning Objectives	**Outcomes**	**Assessment**
To demonstrate an understanding of:	**Student will:**	**As measured by:**
Measurement and Applied Mathematics in Chemistry	Student will do the following: A. Measure mass, volume and length, temperature and other physical properties of matter. B. Use the concept of the mole to find empirical formulas, carry out stiochiometric and other similar calculations. C. Use algebra, dimensional analysis, graphing, logic and other techniques to solve chemical problems.	1. Written in class tests, quizzes and examinations
Structure of Matter	Student will do the following: A. Acquire a basic understanding of the structure of matter, including the structure of the atom, general properties of elements and compounds, states of matter and chemical and physical changes. B. Understand the meaning of and be able to write simple chemical formulas. C. Understand what occurs in a chemical reaction and be able to write equations to describe simple reactions.	2. Graded laboratory reports and/or laboratory examinations
Relationship between theoretical concepts and practical problems.	The student will: 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.	3. Other methods may include graded homework assignments, reports, presentations or projects

F. TEXTS AND MATERIALS*: A Conceptual Introduction to Chemistry,* Bauer, Birk, and Marks, 2007, McGraw-Hill.
G. INFORMATION TECHNOLOGY: Scientific calculator