

## COURSE OUTLINE

Revision: Joan Stover, February 2008

DEPARTMENT:	Academic Programs
CURRICULUM:	The Natural World
COURSE TITLE:	General Chemistry with Lab I
COURSE NUMBER:	CHEM& 161
TYPE OF COURSE:	Academic Transfer
Special Requirement Met:	Mathematics/Quantitative Reasoning
AREA(S) OF KNOWLEDGE:	The Physical Universe
COURSE LENGTH:	1 quarter
CREDIT HOURS:	6
LECTURE HOURS:	44
LAB HOURS:	44
CLASS SIZE:	27
PREREQUISITES:	CHEM& 139 (General Chemistry Prep) or passing score on chemistry placement exam, and MATH& 141 (Pre-Calculus I)

## COURSE DESCRIPTION:

First of a three quarter sequence for science majors. Chemistry principles, structure of matter, atomic and molecular theory, the elements, quantitative relationships, nuclear chemistry, aqueous solutions, kinetics, chemical thermodynamics, oxidation and reduction, electrochemistry, periodicity, equilibrium systems, qualitative analysis and organic chemistry. Lab included.

CHEM& 161 General Chemistry with Lab I  
February 2008

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Communication – Read and listen actively to learn and communicate. Speak and write effectively for personal, academic and career purposes.
2. Computation – Use arithmetic and other basic mathematical operations as required by program of study. Apply quantitative skills for personal, academic and career purposes. Identify, interpret, and utilize higher level mathematical and cognitive skills.
3. Human Relations – Use social interactive skills to work in groups effectively.
4. Critical Thinking and Problem Solving - Think critically in evaluating information, solving problems and making decisions.
5. Technology – Select and use appropriate technological tools for personal, academic and career tasks.
6. Personal Responsibility - Be motivated and able to continue learning and adapt to change. Value one's own skills, abilities, ideas and art. Take pride in one's work. Manage personal health and safety. Be aware of civic and environmental issues.
7. Information Literacy – Access and evaluate information from a variety of sources and contexts, including technology.

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Gain a clear, direct understanding of chemistry by applications of the scientific method.
2. Connect basic concepts with applications.
3. Use laboratory activities thoughtfully to gain knowledge of basic concepts from experience.
4. Develop problem solving and critical thinking skills in area of scientific interest and/or public concern.
5. Learn to organize, evaluate and report data and observations.

CHEM& 161 General Chemistry with Lab I  
February 2008

TOPICAL OUTLINE:

I.	Matter and measurement	9
II.	Atoms, molecules, and ions	10
III.	Formulas, equations and moles	10
IV.	Reactions in aqueous solutions	10
V.	Periodicity and atomic structure	10
VI.	Ionic bonds and some main-group chemistry	10
VII.	Covalent bonds and molecular structure	10
VIII.	Thermochemistry: Chemical energy	10
IX.	Gasses: Their properties and behavior	9
	Total hours	88

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DATE: February 2008

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SLO #	Included in Course Objective Number	SSCC Student Learning Outcomes
SLO 1.1		Communication - Read and listen actively
SLO 1.2	5	Communication - Speak and write effectively
SLO 2.1		Computation - Use mathematical operations
SLO 2.2		Computation - Apply quantitative skills
SLO 2.3	2	Computation - Identify, interpret, and utilize higher level mathematical and cognitive skills
SLO 3.1		Human Relations - Use social interactive skills to work in groups effectively
SLO 3.2		Human Relations - Recognize the diversity of cultural influences and values
SLO 4.1	1, 2	Critical Thinking and Problem Solving -
SLO 5.1	2, 3	Technology - Select and use appropriate technological tools
SLO 6.1		Personal Responsibility - Be motivated and able to continue learning and adapt to change
SLO 6.2		Personal Responsibility - Value one's own skills, abilities, ideas and art
SLO 6.3		Personal Responsibility - Take pride in one's work
SLO 6.4		Personal Responsibility - Manage personal health and safety
SLO 6.5	4	Personal Responsibility - Be aware of civic and environmental issues
SLO 7.1		Information Literacy - Access and evaluate information
SLO 7.2		Information Literacy - Use information to achieve personal, academic, and career goals, as well as to participate in a democratic society

PREPARED BY: J. Stover  
DATE: May 2008