SYLLABUS

Course: General Chemistry I: CHEM-1030-003 (call #16279)

Lecture: 9:00-10:25AM Mon.-Wed.; Room 6118

Recitation: 1 hour per week: Mon.; 12:00-1:00 Room 3066

Laboratory: 3 hours per week: Mon.; 1:00-4:00 Room 3066

Course Requirements

Text: **General Chemistry**
10th Edition, Chang, 2010

Laboratory Manual: The lab experiments are on the CCRI chemistry website: under academic departments. Click on "Faculty and Staff", then to "R. Kreiser", then to labs. The individual experiments can be downloaded as needed at CCRI or at home. You will need Adobe Acrobat Reader to open and print the lab experiments.

Homework Disks: Chem. Skill Builder is to be used for homework credit. It is found online at www.chemskillbuilder.com
(Get details for access in class)

Laboratory: Department Approved Safety Glasses
Scientific Calculator

Instructor: Dr. Ralph Kreiser
Room 3290

Introduction: This course is the first semester of General Chemistry for science, pharmacy, or engineering students. The lectures cover such topics such as chemical bonding, chemical reactions, solids, liquids, and gases. This material covers chapters 1-12 of the text. Three exams (given during the lecture period) and a cumulative final are given. The lowest exam grade is dropped. Weekly quizzes (given by the lab instructor) covering current lecture material are given. The lowest quiz grade will be dropped. In the one hour recitation before the lab the quiz will be given, questions answered, and current experiment discussed.

The lab experiments coordinate with the lecture material. There is a prelab assignment (prestudy), which must be done and handed in before the lab. Points are deducted if late. Lab reports involve filling in the report sheets in the lab manual and are due no later than a week after the lab is done. The lowest prestudy and lab report grades are dropped.

ChemSkill Builder, an online homework set is required and is worth an exam grade. The assigned topics must be done by the due dates for full credit.

No makeups are given for missed exams, quizzes or lab experiments. They will count as a drop.

Spring 2012

SAVE THIS SYLLABUS FOR REFERENCE DURING THE SEMESTER.

COMMUNITY COLLEGE OF RHODE ISLAND
CHEM-1030-003

General Information

Office: Room 3290, Third floor
Phone and Voice Mail: (401) 825-2261
Office Hours: Monday and Tuesday: 8:30-9:30
10:30-11:00
Wednesday and Thursday 8:30-9:30
10:30-11:00

Chemistry Secretary: (401) 825-2257

EMAIL: rkreiser@ccri.edu

School Cancellations: (401) 825-2344

Chemistry Website: http:// ccri.edu/chemistry

Laboratories cancelled due to snow etc will not be made up.

The due dates for laboratory prestudies and laboratory reports will be assigned by and handed in to the individual laboratory instructor.

Quizzes are given at the beginning of the recitation class by the individual laboratory instructor and are usually on the previous weeks lectures material.

Exams are given during the normal lecture period.

No make-ups are given for missed quizzes, prestudies, exams, or labs. One quiz, prestudy, and lab are dropped. No quizzes are given the recitation period following an hour exam.

Grading Scheme

The final grade is based on the following point distribution:

	Assignments	Maximum Points*
a.	Assigned Homework from disks	100 Points
b.	Best 9/10 Quizzes	90 Points
c.	Best 2/3-Hour exams	200 Points
d.	Best 12/13 Prestudies	120 Points
e.	Best 12/13 Laboratory	240 Points
f.	Comprehensive Final Exam	200 Points
	Total Maximum Points	950 Points

Percentage of Maximum Total Points

A ; 93+	C+; 77-79
A-; 90-92	C ; 70-76
B+; 87-89	D+; 67-69
B ; 83-86	D ; 60-66
B-; 80-82	F ; 59 -

COMMUNITY COLLEGE OF RHODE ISLAND
CHEM-1030-003

Lecture Topics	**Text Topics**
I. Matter and Measurement	1.1 thru
Physical and chemical changes and properties	1.9
Measurement, metric system, SI units	
Significant figures and dimensional analysis	
Experimental basis of chemistry	
Specific Heat (Chapter. 6: 6.5)	
II. Atoms and Elements	
Atomic theory and atomic structure	2.1
Electrons, protons, neutrons, and isotopes	thru
Atomic Mass	2.7
The Periodic Table of Elements	
Variation of chemical and physical properties	
Chemical formulas and nomenclature	
Writing and balancing chemical equations	
III. Stoichiometry	
The mole and Avogadro's number	3.1
Mole to mass conversions	thru
Percent composition of substances	3.10
Empirical and molecular formulas	
Mass relationships in chemical reactions	
Limiting reagent problems	
Percent yield	

Exam No.1 Wednesday, Feb.22, 2012

IV. Chemical Reactions	
Molecular, ionic, and net-ionic reactions	4.1
Precipitation reactions: Solubility rules	thru
Acid base reactions: Neutralization	4.3
Molarity and dilution	4.5
Gravimetric and volumetric analysis	thru
Titration and standardization	4.7

		Text Topics
V.	Gases	
	Properties of gases	5.1
	Boyle's Charle's Avogadro's, Ideal Gas Laws	thru
	Dalton's law of partial pressures	5.8
	Density and gram molecular weights of gases	
	Molecular speeds and rates of effusion	
VI.	Thermochemistry	
	Kinetic and Potential energy	6.1
	Units of energy	thru
	Enthalpy changes in chemical reactions	6.7
	Hess's Law	
	Enthalpy of formation	
VII.	Atomic Structure	
	Electromagnetic radiation	7.1
	Bohr theory of the hydrogen atom	thru
	Electron transition calculations in hydrogen atom	7.9
	Wave mechanical model of the atom	
	Quantum numbers	
	Shape of atomic orbitals	
	Spectroscopic notation and orbital diagrams	
	Electron configuration and quantum numbers	
VIII.	Periodic Table	
	Ionization energy and electron affinity	8.1
	Relative sizes of atoms and ions	thru
		8.6

Exam No.2 Wednesday, April 4,2012

IX.	Chemical Bonding	
	Lewis dot structures	9.1
	Bonding and nonbonding electrons	thru
	Single, double, and triple bonds	9.10
	Octet rule	
	Resonance	
	Exceptions to octet rule	

		Text Topics
X.	Molecular Geometry	
	VSEPR theory	10.1
	Prediction of molecular geometry	thru
	Lone electron pairs and molecular shapes	10.8
	Polar bonds, dipole moments, and electronegativity	
	Hybrid orbitals	
	Sigma and pi bonds	
XI.	Liquids and Solids	
	Intermolecular forces in liquids	11.1
	Heating and cooling curves	thru
	Fusion and vaporization	11.9
	Vapor pressure of liquids and solids	
	Phase diagrams	
	Structure and properties of solids	
XII.	Solutions	
	Solution concentration	12.1
	Molarity, molality, mole fraction, % by mass	thru
	Solubility of solids and gases	12.8
	Colligative properties of solutions	
	Vapor pressure lowering	
	Boiling point elevation	
	Freezing point depression	

Exam No.3 Wednesday May 2, 2012

Comprehensive Final Exam: Week of May. 8-11
(Exact date and room location will be announced)

The final exam covers all twelve chapters.
Copies of old exams I,II,and III with answers are on reserve in the Learning Center. They may be xeroxed but not taken out of the library. No copies of the final exam are available.