

COURSE: CHEMISTRY 101: General Chemistry I

DESCRIPTION: Introduces the fundamental theories of inorganic chemistry, such as atomic structure, nuclear processes, chemical bonding, kinetic molecular theory, energy and equilibria, gas laws, liquids and solids, oxidation and reduction, solutions, acids and bases, electrolytes and bioinorganic chemistry. Correlates laboratory and lecture topics.

RECOMMENDED TEXT: Frederick Bettelheim, William H. Brown and Jerry March , Introduction to General, Organic, and Biochemistry, 5th edition, 2004. Brooks Cole Publishing. ISBN: 0534401880.

FORMAT: The challenge exam has four parts.

PART I - 5 Equations (2 points each)	10 points
PART II - 2 Essays (5 points each)	10 points
PART III - 60 Multiple choice (1 point each)	60 points
PART IV - 10 Calculations (2 points each)	20 points
TOTAL	100 points

Student will be supplied with a periodic table, but must bring a calculator to complete the exam.

GRADING: Students must receive a “C” (73-76) in order to receive credit for a course taken as a Challenge Exam.

TOPICS FOR STUDY

Acid/Base chemistry	Electronic configuration	Medical Uses of
Acid/Base theories	Electronic structure of	radioactive Materials
Acidosis and alkaosis	atoms	Molecular collision
Activation energy	Energy	Moles
Antacids	Equilibrium	Naming inorganic
Atomic theory	Fission	compounds
Atoms	Formula weight	Normality
Biologically important	Fusion	Osmotic pressure
ions	Gas laws	Oxidation-reduction
Buffers	Haber process	Percentage yield
Cat and Nmr scans	Half-life	Periodic table
Characteristic of radiation	Heat	pH
Chemical equations	Heat of reaction	Phase changes
Colligative properties	Hemoglobin	Physical and chemical
Colloids	Intermolecular forces	properties
Concentration units	Ionic bonds	Polyatomic ions
Constants	Ionic reactions	Pressure
Coordinate covalent bonds	Ions	Radioactive dating
Covalent bonds	Isotopes	Radioactive Fallout
Density	LeChatelies Principle	Radioactivity
Electronegativity	Matter	Radon

Rates of reactions
Reactions of acids
Shapes of molecules
Size of atoms
Solubility

Titration
Types of reactions
Types of solutions
Unit conversions

Weight relationships in
Equations
Writing inorganic
Compounds