

General Chemistry

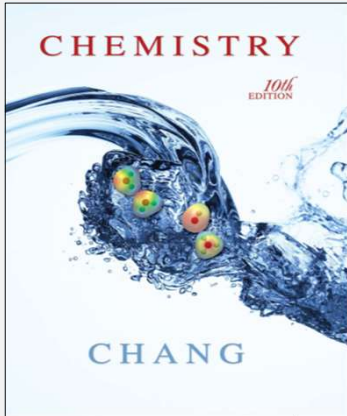
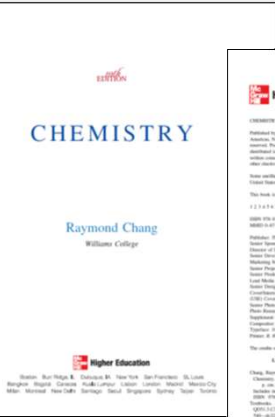

CHEM 101
(3+1+0)

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Reference

Topics Pages:
“Raymond Chang, Chemistry, 10th edition, 2010”

CHEM 101 CURRICULUM		
Text book: Raymond Chang, Chemistry, 10th edition, 2010		
Topics	Text book pages	Number of Lectures
Chapter 1: Chemistry: The Study of Change		
1.4. Classifications of Matter: substances and mixtures, elements and compounds 1.5. The Three States of Matter 1.6. Physical and Chemical properties of Matter: intensive and extensive properties 1.7. Measurement: SI units, mass and weight, volume, density, temperature scales 1.8. Handling Numbers: scientific notation, significant figures, accuracy and precision 1.9. Dimensional Analysis in Solving Problems: conversion factors, a note on problem solving	10 - 30	9
Review and Exercises		
Chapter 2: Atoms, Molecules and Ions		
2.2. The Structure of the Atoms: the electron, radioactivity, the proton and the nucleus, the neutron 2.3. Atomic Number, Mass Number and Isotopes 2.4. The Periodic Table 2.5. Molecules and Ions: molecules, ions 2.6. Chemical Formulas: molecular formulas, empirical formulas, formula of ionic compound 2.7. Naming Compounds: ionic compound, molecular compound, acids and bases, familiar inorganic compound	43 - 68	7
Review and Exercises		
FIRST MIDTERM EXAM (15 GRADS)		

CHEM 101 CURRICULUM		
Text book: Raymond Chang, Chemistry, 10th edition, 2010		
Topics	Text book pages	Number of Lectures
Chapter 3: Mass Relationships in Chemical Reactions		
3.1. Atomic Mass: average atomic mass 3.2. Avogadro's Number and the Molar Mass of an Element 3.3. Molecular Mass	80 - 87	8
3.5. Percent Composition of Compounds 3.6. Experimental Determination of Empirical Formulas: determination of molecular formulas 3.7. Chemical Reactions and Chemical Equations: writing chemical equations, balancing chemical equations 3.8. Amounts of reactants and products 3.9. Limiting Reagents 3.10. Reaction Yield	88 - 107	
Review and Exercises		
Chapter 4: Reactions in Aqueous Solutions		
4.4. Only combination reactions, decomposition reactions, combustion reactions	139 - 141	1
4.5. Concentration of solution	147 - 149	
Review and Exercises		

CHEM 101 CURRICULUM		
Text book: Raymond Chang, Chemistry, 10th edition, 2010		
Topics	Text book pages	Number of Lectures
Chapter 5: Gases		
5.1. Substances That Exist as Gases 5.2. Pressure of a Gas: SI units of pressure, atmospheric pressure, 5.3. The Gas Laws: the pressure-volume relationship: Boyle's Law, the temperature-volume relationship: Charles's and Gay-Lussac's law, the volume-amount relationship: Avogadro's Law 5.4. The Ideal Gas Equation: density calculation, the molar mass of a gaseous substance 5.5. Gas Stoichiometry 5.6. Dalton's law of Partial Pressures	174 - 201	5
Review and Exercises		
SECOND MIDTERM EXAM (15 GRADS)		

CHEM 101 CURRICULUM		
Text book: Raymond Chang, Chemistry, 10th edition, 2010		
Topics	Text book pages	Number of Lectures
Chapter 6: Thermochemistry		
6.1. The Nature of Energy and Types of Energy 6.2. Energy Changes in Chemical Reactions 6.3. Introduction to Thermodynamics: the first law of thermodynamics, work and heat 6.4. Enthalpy of Chemical Reactions: enthalpy, enthalpy of reactions, thermochemical equations, a comparison of ΔH and ΔE 6.5. Calorimetry: Only specific heat and heat capacity	230 - 246	5
6.6. Standard Enthalpy of Formation and Reaction: the direct method, the indirect method (Hess's law)	252 - 258	
Review and Exercises		
Chapter 12: Physical Properties of Solutions		
12.1. Types of Solutions 12.2. A Molecular View of the Solution Process 12.3. Concentration Units: types of concentration units, comparison of concentration units 12.4. The Effect of Temperature on Solubility: solid solubility and temperature, gas solubility and temperature 12.5. The Effect of Pressure on the Solubility of Gases 12.6. Colligative Properties of Nonelectrolyte Solutions: vapor-pressure lowering (Raoult's Law), boiling-point elevation, freezing-point depression, osmotic pressure, using colligative properties to determine molar mass	514 - 539	7
Review and Exercises		
TOTAL HOURS		42

DISTRIBUTION OF THE 100 GRADES OVER SEMESTER:

	Grades	
Practical		30
1st midterm	15	30
2nd midterm	15	
Final exam		40
Total		100

FINAL EXAM WILL BE IN ALL TOPICS

الإختبار النهائي سيكون في جميع مواضيع المقرر