

CHEM 101 SYLLABUS		
Text book: Raymond Chang, Chemistry, 10 th edition, 2010		
Topics	Text book pages	Number of Lecture
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		
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 <u>Only</u> combination reactions, decomposition reactions, combustion reactions	139 - 141	1
4.5 Concentration of solution	147 - 149	
Review and Exercises		

<i>Chapter 5: Gases</i>		
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
<i>Review and Exercises</i>		
SECOND MIDTERM EXAM		
<i>Chapter 6: Thermochemistry</i>		
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	
<i>Review and Exercises</i>		
<i>Chapter 12: Physical Properties of Solutions</i>		
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 od 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
<i>Review and Exercises</i>		
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