



Korea University International Summer Campus (KU ISC) 2023

Embark on a unique summer

June 27, 2023 ~ August 3, 2023

ISC107 – General Chemistry I

I. Instructor

Professor	:	Prof. Neil E. Schore
E-mail	:	neschore@ucdavis.edu
Home Institution	:	University of California, Davis
Class Time	:	Period 2, 10:50 – 12:30 KST
Office	:	305 Woodang Hall (if in person, when not teaching)
Office Hours	:	Available by email all the time

II. Textbook

Required Textbook	:	Petrucci et al., General Chemistry, 10 th Edition or later (Pearson 2011) ISBN-13: 978-0132064521 (or any comparable textbook)
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III. Course Description and Objectives

A one-semester lecture-only course in General Chemistry suitable for students majoring in all disciplines. Upon completing this course students should comprehend what we mean by atoms and elements, how they combine into chemical compounds, and how to distinguish compounds from mixtures. Students should gain facility with the methods of measurement, with special emphasis on the mole concept. They should be able to recognize types of chemical change and how to set up and balance chemical equations. Students should be able to handle calculations involving the behavior of gases under various conditions of temperature and pressure. Students should be able to specify the detailed make up of atoms and the distribution of electrons in orbitals with specified quantum numbers. They should be able to read the electron configurations of the atoms of the elements from their position in the periodic table and qualitatively predict the physical nature of each element and its chemical behavior. Students should be able to describe the types and electronic makeup of the chemical bonds in compounds, with special emphasis on the Lewis model of bonding. They should be able to predict the geometry about an atom in a molecule using the VSEPR concept. Students should be able to relate VSEPR geometry to orbital hybridization and the types of atomic orbitals involved. They should be able to construct simple molecular orbital schemes for homodiatomic molecules of the first- and second-row elements. Students should be able to describe the thermodynamics of a system using the concepts of heat, work, and enthalpy. They should know the properties of solids, liquids and gases, their interconversions, and the principles that apply to solutions. They should know the meaning of equilibrium and be able to determine the direction and extent that a reaction proceeds using Le Chatelier's principle and ICE tables.

IV. Grading

Exam I	:	33 1/3%
Exam II	:	33 1/3%
Exam III	:	33 1/3%

V. Class Outline (timing of chapter coverage is approximate)

Time permitting, review sessions based on old exams will be held during the class immediately preceding each exam day. **In order to make this possible, we may move faster through some chapters than this schedule indicates.**

Date	Topic	Chapter	Remarks
June 27 (Tue)	Orientation Day (no classes)		
June 28 (Wed)	Matter: Properties and Measurement; Atoms	1, 2	
June 29 (Thu)	Atoms and Atomic Theory	2	
June 30 (Fri)	Chemical Compounds	3	
July 3 (Mon)	Chemical Compounds; Chemical Reactions	3, 4	
July 4 (Tue)	Reactions in Aqueous Solutions	5	
July 5 (Wed)	Reactions in Aqueous Solutions; Gases	6	
July 6 (Thu)	Gases; Review for Exam I	6	
July 7 (Fri)	TENTATIVE: Additional Review for Exam 1	1-6	
July 10 (Mon)	Exam I	1-6	
July 11 (Tue)	Electrons in Atoms	7	
July 12 (Wed)	Electrons in Atoms; The Periodic Table	7, 8	
July 13 (Thu)	The Periodic Table	8	
July 17 (Mon)	Chemical Bonding I	9	
July 18 (Tue)	Chemical Bonding II	10	
July 19 (Wed)	Chemical Bonding II; Thermochemistry	10, 11	
July 20 (Thu)	Thermochemistry; Review for Exam II	7-11	
July 24 (Mon)	Exam II	7-11	
July 25 (Tue)	Intermolecular Forces: Liquids and Solids	12	
July 26 (Wed)	Intermolecular Forces: Liquids and Solids	12	
July 27 (Thu)	Solutions and their Physical Properties	13	
July 31 (Mon)	Solutions; Principles of Chemical Equilibrium	13, 14	
Aug 1 (Tue)	Principles of Chem. Equilibrium; Review for Exam III	12-14	
Aug 2 (Wed)	Exam III	12-14	
Aug 3 (Thu)	Graduation (Available both online/offline); no class		