

V25.0109001: General Chemistry I (Honors)

Fall 2009, TR 9:30 - 10:45, 1003 Silver

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Table 1: Approximate lecture/exam schedule

Date	Chapter	Topic
Sep 8		Introduction and Origins of Atoms and Molecules
Sep 10	1	Physical principles underlying modern chemistry
Sep 15	1	Experimental evidence of atomic structure
Sep 17	1	Review of stoichiometry
Sep 22	2	Introduction to quantum mechanics: Failure of classical mechanics
Sep 24	2	Postulates of quantum mechanics
Sep 29	2	Wave mechanics and the Schrödinger equation
Oct 1	App B	The particle-in-a-box model
Oct 6	App B	The particle-in-a-box model
Oct 8	App B	Multi-dimensional boxes and identical particles in a box
Oct 13	3	The hydrogen atom and electronic wave functions
Oct 15	3	The hydrogen atom and electronic wave functions
Oct 16		First Midterm Examination (Chapters 1-3, App B)
Oct 20	4	Electron spin and multi-electron atoms
Oct 22	4	Aufbau principle, Hartree-Fock, and the periodic table
Oct 27	5-7	Classical theory of chemical bonding: Energetics
Oct 29	5-7	Classical theory: Ionic bonding and covalent bonding
Nov 3	5-7	Lewis structures
Nov 5	5-7	Molecular geometry, VSEPR, coordinates, dipole moments
Nov 10	5-7	The quantum hydrogen molecule ion
Nov 12	5-7	LCAO theory for homonuclear diatomics
Nov 13		Second Midterm Examination (Chapters 4-7)
Nov 17	5-7	LCAO theory for homonuclear diatomics
Nov 19	5-7	LCAO theory for heteronuclear diatomics
Nov 24	5-7	Valence bond theory and orbital hybridization
Nov 26		Thanksgiving recess (no class)
Dec 1	18	Introduction to organic chemistry
Dec 3	18	Introduction to organic chemistry
Dec 5	8	Overview of molecular spectroscopy and rotational energy levels
Dec 8	8	Rotational and vibrational energy levels: Rotors and harmonic oscillators
Dec 10	8	Measuring spectra: The Beer-Lambert law
Dec 15	8	Measuring spectra: Types of spectroscopy
Dec 21		Final Examination (Comprehensive)