

Fall 2009 General Chemistry I Syllabus

- Three lessons (four lecture hours) per week + one recitation session per week
- 38 lectures, three tests, and one review lesson
- Dates reflect M, T, R lecture days for Fall 2009 semester

Course Texts: *Chemical Principles: The Quest for Insight, 4th Ed, Atkins & Jones, 2008*

<u>Lecture Date</u>	<u>Topic Examined (Self Tests to Pre-Learn)</u>	<u>Text Sections (HW Problems)</u>
L1 8/25	Matter and Energy (A1-A5)	A.1-A.3 (13, 21, 22, 25, 27, 29, 33)
L2 8/27	EMR and Atomic Spectra (1-2)	1.1-1.3 (3, 4, 5, 6)
L3 8/31	Radiation, Photon Energies, and Photoelectric Effect (3-6)	1.4-1.5 (7, 9, 11, 15, 17)
L4 9/1	Wavefunctions & Energy Levels (1.7-1.8)	1.7 (21, 109, 114a)
L5 9/3	The Hydrogen Atom (9-10)	1.8-1.11 (31, 33, 49, 59)
L6 9/7	Many-Electron Atoms (11-12)	1.12-1.14 (63, 69, 71, 75, 79)
L7 9/8	Periodicity of Atomic Properties (13-15)	1.15-1.22, 2.12 (85, 87, 91, 93, 99, 101)
L8 9/10	Ionic and Covalent Bonds (1-6)	2.1-2.6 (1, 3, 9, 19, 29, 33, 35)
L9 9/14	Lewis Structures and Bond Lengths (7-12)	2.7-2.16 (41, 45, 49, 63, 73, 77)
L10 9/15	Molecular Structure and Shape (1-9)	3.1-3.7 (9, 11, 25, 33, 35, 41)
L11 9/17	MO Theory and Band Structure (10-12)	3.8-3.14 (49, 51, 55, 65, 67)
L12 9/21	Intermolecular Forces and Liquids (1-2)	5.1-5.7 (1, 3, 7, 11, 13, 17, 21, 23, 28)
Test 1 9/22	Chapters 1-3	
L13 9/24	Solids (4-7)	5.8-5.17 (31, 33, 39, 49, 63)
L14 9/28	Systems, States, and Energies (1-6)	6.1-6.7 (3, 7, 17, 21)
L15 9/29	Enthalpy (7-8)	6.8-6.12 (25, 31, 35, 39)
L16 10/1	The Enthalpy of Chemical Change (9-19)	6.13-6.21 (45, 67, 73, 85)
L17 10/5	Entropy (1-13)	7.1-7.8 (1, 3, 7, 11, 15, 23, 25)
L18 10/6	Global Changes in Entropy (14-17)	7.9-7.11 (41, 45)
L19 10/8	Gibbs Free Energy (18-23)	7.12-7.16 (51, 53, 63, 65)
L20 10/12	Phases and Phase Transitions (1-6)	8.1-8.7 (1, 5, 7, 9)
L21 10/13	Solubility (7)	8.8-8.13 (19, 25, 27, 31)
L22 10/15	Colligative Properties (8-17)	8.14-8.22 (35, 47, 53, 65, 71)

L23 10/22

Reactions at Equilibrium ()

L24 10/26

Equilibrium Calculations ()

L25 10/27

Equilibrium Response to Changes ()

Test 2 10/29

Chapters 5-9

L26 11/2

The Nature of Acids and Bases ()

L27 11/3

Weak Acids and Bases ()

L28 11/5

Mixed Solutions and Buffers ()

L29 11/9

Acid Base Titrations ()

L30 11/10

Redox Reactions ()

L31 11/12

Galvanic Cells ()

L32 11/16

Nernst Equation and Electrolysis ()

L33 11/17

Coordination Compounds ()

L34 11/19

Electronic Structure of Complexes ()

L35 11/23

Reaction Rates ()

L36 11/24

Reaction Concentrations and Time ()

L37 11/30

Reaction Mechanisms ()

L38 12/1

Models of Reactions and Catalysis ()

Test 3 12/3

Chapters 10,11,12,16,13

Review 12/7

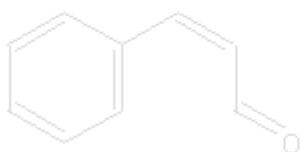
Chapters ()

Final Exam 12/

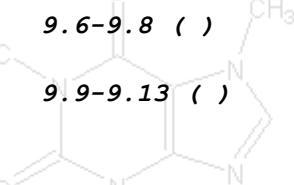
AM Sims105

Assigned Problem Sets:

PS-I:



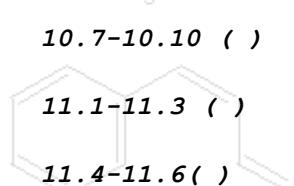
9.1-9.5 ()



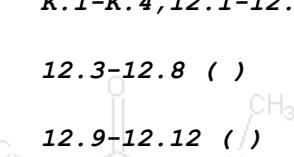
9.6-9.8 ()



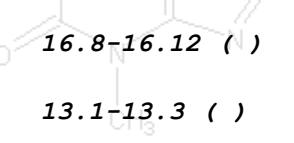
9.9-9.13 ()



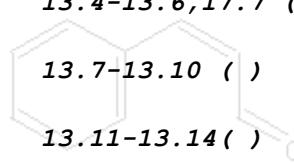
10.1-10.6 ()



10.7-10.10 ()



11.1-11.3 ()



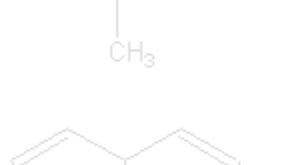
11.4-11.6 ()



K.1-K.4,12.1-12.2 ()



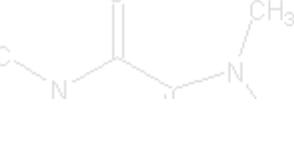
12.3-12.8 ()



12.9-12.12 ()



16.5-16.7 ()



16.8-16.12 ()

13.1-13.3 ()

13.4-13.6,17.7 ()

13.7-13.10 ()

13.11-13.14 ()

