

Fall 2012 CHEM105H General Chemistry I (Owens) Syllabus Schedule: Dates reflect M, T, R lectures; W Recitation Session

| Lecture Date | Topic Examined (Self Tests to Pre-Learn) | Text Sections (HW Problems) |
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| L1 8/21 | Matter and Energy (A1-A5) | A.1-A.3 (13,15,19,23,29,31,33,34) |
| L2 8/23 | EMR and Atomic Spectra (1-2) | 1.1-1.3 (3,4,5,7,10) |
| L3 8/27 PS1 Due | Radiation, Energies, Photoelectric (3-6) | 1.4-1.6 (15,17,19,23,25) |
| L4 8/28 Quiz 1 | Nuclear Decay (B2,17.1-4) | B2-B3, 17.1-17.5 (1,7,9,13,19) |
| L5 8/30 | Nuclear Radiation (5-6) | 17.6-17.8 (27,31,35,39,47,54) |
| L6 9/3 PS2 Due | Nuclear Energy (7-8) | 17.9-17.12 (59,61,63,68) |
| L7 9/4 Quiz 2 | Wavefunctions & Energy Levels (1.7-1.8) | 1.7 (29,31,33,114) |
| L8 9/6 | The Hydrogen Atom (9-10) | 1.8-1.11 (11,43,49,51,61) |
| L9 9/10 | Many-Electron Atoms (11-12) | 1.12-1.14 (65,71,73,77,81) |
| L10 9/11 | Periodicity of Atomic Properties (13-15) | 1.15-1.21,2.12 (87,89,93,95,103,105,123,129) |
| L11 9/13 Quiz 3 | Ionic and Covalent Bonds (1-6) | 2.1-2.6 (5,15,25,29,33,35) |
| L12 9/17 Quiz 4 | Lewis Structures and Bond Lengths (7-12) | 2.7-2.16 (37,39,43,47,51,57,61,71,79,83) |
| L13 9/18 HW Prob | Molecular Structure and Shape (1-9) | 3.1-3.8 (9,11,25,33,35,41) |
| T1 9/20 Test 1 | Chapters 1-3,17 | |
| L14 9/24 | Intermolecular Forces and Liquids (1-2) | 5.1-5.8(1,3,5,7,13,15,17,21,25,29) |
| L15 9/25 | Solids (4-7) | 5.9-5.16 (41,43,45,53,57,67) |
| L16 9/27 | Metals, Alloys, Ceramics | 6.1-6.11 |
| L17 10/1 Quiz 5 | Semiconductors, Composites, Quantum Dots | 6.12-6.20 |
| L18 10/2 | Systems, States, and Energies (1-6) | 7.1-7.7 (3,7,17,21) |
| L19 10/4 PS3 Due | Enthalpy (7-8) | 7.8-7.12 (25,31,35,39) |
| L20 10/8 PS4 Q6 | The Enthalpy of Chemical Change(9-19) | 7.13-7.21 (43,47,53,67,71,83) |
| L21 10/9 | Entropy (1-13) | 8.1-8.8 (1,3,7,17,21,29,31) |
| L22 10/11 | Global Changes in Entropy (14-17) | 8.9-8.11 (45,49) |
| L23 10/16 PS5 Q7 | Gibbs Free Energy (18-23) | 8.12-8.16 (55,73,67,69) |
| L24 10/18 | Phases and Phase Transitions (1-6) | 9.1-9.7 (1,7,9,11) |
| L25 10/22 | Solubility (7) | 9.8-9.13 (21,27,29,33) |
| L26 10/23 Quiz 8 | Colligative Properties (8-17) | 9.14-9.22 (37,49,55,69,75) |
| T2 10/25 Test 2 | Chapters 5-9, Test 2 Review Problems | |
| L27 10/29 | Reactions at Equilibrium (1-6) | 10.1-10.5 (7,9,11,19,23) |
| L28 10/30 | Equilibrium Calculations(7-10) | 10.6-10.8 (27,29,57,61,63) |
| L29 11/1 | Equilibrium Response to Changes (11-15) | 10.9-10.13 (71,73,75,79,85) |
| L30 11/5 | The Nature of Acids and Bases (1-5) | 11.1-11.6 (1,3,5,13,15,17,19,21,25,33) |
| L31 11/8 | Weak Acids and Bases(6-8) | 11.7-11.10 (37,39,41,47,53) |
| L32 11/12 PS6 Q9 | Acid Base Buffers and Titrations(1-7) | 12.1-12.5 (3,7,9,15,17,21) |
| L33 11/13 | Redox Reactions (K1-K4,12.1-12.2) | K.1-K.4,13.1-13.2 (1,3,5,7) |
| L34 11/15 | Galvanic Cells (1-10) | 13.3-13.8 (9,17,21,23,31,37) |
| L35 11/19 | Nernst Equation and Electrolysis (11-16) | 13.9-13.12 (57,59,65,71) |
| L36 11/20 | Reaction Rates (1-4) | 14.1-14.3 (1,9,17,19) |
| L37 11/26 | Reaction Concentrations and Time(5-9) | 14.4-14.6,17.7 (21,23,27,33) |
| L38 11/27 | Models of Reactions (12-13) | 14.10-14.13 (57,59,63) |
| L39 11/29 | Catalysis and Enzymes(14) | 14.14-14.15(65,67,93) |
| T3 12/3 Test 3 | Chapters 6-9,10,11,12,13 Review Problems | |
| Rev 12/4 Review | Chapters (1-3,5-14,17) | |