SUMMER_2019_CHEM 161_Syllabus_B1-B9

All readings and assignments are in "*Chemistry: Structure and Properties*" by Nivaldo J. Tro, Custom edition for Rutgers University General Chemistry. Exact pace of topics and associated problems subject to change, as determined in lecture.

Date	**Reading**	**Topic**	**Homework** to be discussed in recitation
5/28/T	**E1 – E9**	Measurement, accuracy, precision, significant figures, SI units, unit conversion, density, energy, mole concept, Problem solving strategies, dimensional analysis	**E:** 21,23,25,27,33,35,37,39,41,43, 47, 49, 51, 61, 63, 71,85
5/29/W	1.1–1.10	Classification of matter, law of conservation of mass, law of definite and multiple proportions, model of the atom, isotopes, ions	Math Sheet **1**: 35, 41, 45, 47, 53, 59, 61, 65, 69, 73, 75, 77, 91
5/30/Th	2.1–2.4	Quantum mechanical model of the atom: nature of light, photoelectric effect, atomic spectra, Bohr model of the atom	**2**: 37, 39, 41, 43, 69, 71, 73, 78, 85, 97
6/3/M	2.5–2.9	Wave-particle duality, quantum numbers, orbitals, electron configurations	**2**: 51, 53, 57, 59, 61
6/4/T	3.1-3.4	Periodic properties of the element: Periodic table, periodic trends-atomic radius, periodic trends: ionization energy, electron affinity	**3**: 45,49,51, 53, 57, 59, 61, 69
6/5/W	3.5–3.8	Periodic properties of the element: Periodic table, periodic trends-atomic radius, periodic trends: ionization energy, electron affinity	**3**: 59, 61, 63, 65, 71, 73, 75, 83, 85, 87, 89, 91, 93 **QUIZ 1 Chapter E, 1 and chapter 2 till 2.4**
6/6/Th	4.1–4.9	Molecules and compounds: ionic and covalent bonding, Lewis symbol, lattice energy, ionic compounds: formulas and names, polyatomic ions, molecular compounds: formulas and names, mole concept, molar mass	**4**: 29, 39, 41, 43, 45, 47 **4**: 49, 51, 53, 55, 57, 59, 63, 65, 67, 69, 71, 73, 77, 79
6/10/M	4.10 –4.12	Composition of compounds, chemical formula and percent composition, mass-mole-molecules conversion, chemical formula from experimental data, combustion analysis,	**5**: 97, 99, 103, 105, 107, 109, 111, 113, 121, 123, 125
6/11/T		**EXAM I (E and Chapter 1-4.10)**	**No recitation**
6/12/W	5.1–5.6	Electronegativity, bond polarity, Lewis structures, formal charge, Resonance, exceptions to octet rule, bond energy, bond length	**5**: 23, 27, 29, 31, 33, 35, 37, 39 ,41, 43, 45, 47, 49, 51, 75, 81, 83, 85, 97
6/13/Th	5.7– 5.10 6.1–6.3	VSEPR, Molecular shape and polarity, Hybridization, sigma and pi bonds	**5**: 53, 55, 57, 59, 61, 63, 67, 69, 71, 73 **6**: 31, 37, 39, 41, 43, 45
6/17/M	7.1–7.6	Chemical equations, stoichiometry, limiting reactant, percent yield, examples of chemical reactions	**7**: 15, 17, 25, 27, 29, 31, 33, 35, 37, 39 **7**: 41, 43, 45, 47, 49, 51, 59, 61, 63, 65, 67, 71
6/18/T	8.1–8.9	Solutions, electrolytes, molarity, dilution problems, molecular, ionic, and net ionic equations, precipitation reactions, acid-base reactions, redox reactions	**8**: 21, 23, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 50, 83 **8**: 51, 53, 55, 57, 59, 61, 65, 67, 69
6/19/W	9.1-9.8	Energy, energy transfer, first law of thermodynamics, calorimetry, enthalpy, Hess's law	**9**: 33, 35, 41, 43, 45, 47, 49, 51, 53, 55, 61, 63, 67, 69, 71, 73, 75. **QUIZ 2 Chapter 5 , 6.1 to 6.3**
6/20/Th	9.9–9.11	Bond energies, heats of formation, enthalpies of reactions, Born-Haber cycle	**9**: 77, 79, 81, 83, 85, 89, 91, 93, 95, 96
6/24/M	10.1–10.6	Nature of gases, gas pressure, gas laws, ideal gas equation, molar mass, density, mixture of gases, partial pressure	**10**: 25, 27, 29, 31, 37, 39, 41, 43, 51, 55, 57, 59, 63, 65, 69
6/25/T		**EXAM II (Chapter 5 – 9.8)**	**No recitation**
6/26/W	10.7–10.11	Kinetic molecular theory of gases, molecular, velocities, effusion-diffusion, gas stoichiometry	**10**: 71, 73, 75, 77, 79, 81, 83, 85, 91, 92
6/27/Th	11.1–11.7	States of matter, nature of intermolecular forces, surface tension, vapor pressure, heating curves, phase diagrams	**11**: 33, 35, 37, 39, 41, 45, 47, 51, 53, 55, 57, 63, 65, 67
7/1/M	12.1–12.7	Phase diagrams, unit cells, type of solids	**12**:19, 27, 29, 31, 35. **QUIZ 3 Chapter 10**.7 to 10.11, Chapter 11
7/2/T		Review	**Review**
7/3/W		**FINAL EXAM (Chapter 1–12) and E**	

Date	**Quiz**	**Material Covered**		**Date**	**Exam**	**Material covered**
5 June	Quiz 1	Sections E and 1.1–2.4		11 June	Exam I	E and Chapter 1 -4
19 June	Quiz 2	Chapter 5 , 6.1 to 6.3		25 June	Exam II	5 – 9.8
1 July	Quiz 3	Sections 9.9 to 10.11		3 July	Final	1–12