

CEM 141 CALENDAR & SYLLABUS -- SPRING 2001

Date	Day	Lecture	Topic	z & Treichel	CAPA
				Chapter and sections	Problems

Introduction

Jan 8	M	1	Introduction & review; units of measurement; calculations	1	1.6 to 1.8
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Atoms & Elements, Molecules & Compounds, Ions

Jan 10	W	2	Matter; elements & atoms; compounds & molecules; chemical c		1.1 to 1.5
Jan 12	F	3	Atomic theory; atomic number, isotopes, atomic mass, Periodic	2	2.1 to 2.7

Jan 15	M	<i>Martin Luther King Day - No Classes</i>			
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Stoichiometry & the Mole Concept

Jan 17	W	4	Molecules and compounds, formulas, ionic compounds, n	3	3.1 to 3.5
Jan 19	F	5	The mole concept, molar mass, stoichiometry		3.6
Jan 22	M	6	Calculation of formulas for compounds	4	3.7 to 3.8
Jan 24	W	7	Stoichiometric calculations in equations; limiting reactants		4.1 to 4.4
Jan 26	F	8	More stoichiometric calculations; percent yield		4.5 to 4.6

Jan 29	M	FIRST HOUR EXAMINATION - 6:30-7:30 pm			
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Jan 31	W	9	Reactions in solution; acids & bases; types of reactions	5	5.1 to 5.6
Feb 2	F	<i>End of 100% refund period</i>			
Feb 2	F	10	Redox reactions; stoichiometry of reactions in solution; molarity		5.7 to 5.9

Energy & Chemical Reactions

Feb 5	M	11	Energy & work; units; specific heat; 1st law of thermodyna	6	6.1 to 6.3
Feb 7	W	12	Specific heat and heat capacity; changes of state; enthalpy		6.4 to 6.6
Feb 9	F	13	Hess's law; heats of formation; bond energies		6.7 to 6.11

Structure of Atoms & Electronic Configurations

Feb 12	M	14	Electronic structure of the atom; quantization of energy; lin	7	7.2 to 7.3
Feb 14	W	15	Wave properties; electromagnetic spectrum		7.1, 7.4
Feb 16	F	16	Heisenberg & Schrodinger; wave-like behavior of electrons; qu		7.5
Feb 19	M	17	The shapes and energies of atomic orbitals; electron spin		7.6, 8.1
Feb 21	W	18	Electron configurations of atoms; Periodic Table	8	8.2 to 8.5
Feb 23	F	19	Periodic properties of the elements; introduction to chemical b	8.6 to 8.7, 9.1 to 9	Set 5 due

Feb 26	M	SECOND HOUR EXAMINATION - 6:30-7:30 pm			
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Feb 28	W	<i>Mid-semester; last day for dropping with no grade reported</i>			
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Chemical Bonding					
Feb 28	W	20	Valence electrons, covalent bonding; Lewis dot structures	9	9.4
Mar 2	F	21	Multiple bonds; resonance; bond energies		9.5 to 9.6

Mar 5-9	SPRING Break (no lectures Mon Mar 5th to Fri Mar 9th)				
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Mar 12	M	22	Valence shell electron pair repulsion theory		9.7
Mar 14	W	23	Polarity of molecules; valence bond theory & hybridization	10	9.8, 10.1 to 10.2
Mar 16	F	24	Multiple bonding; sigma & pi bonds; delocalization of pi electron		10.3
					Set 6 due

States of Matter					
Mar 19	M	25	Properties of gases; pressure, volume, & temperature; the	12	12.1 to 12.3
Mar 21	W	26	Mixtures of gases; partial pressure		12.4 to 12.5
Mar 23	F	27	Kinetic molecular theory; diffusion; nonideal behavior		12.6 to 12.9
Mar 26	M	28	Bonding in the solid state; intermolecular bonding	13	13.1 to 13.2
Mar 28	W	29	Crystalline structure; metallic & ionic solids		13.4-13.5
Mar 30	F	30	Introduction to free energy and entropy; 2nd law of thermo	20	20.2 to 20.3
Apr 2	M	31	Vapor pressure, phase diagrams; changes of state		13.3; 13.6 to 13.7
					Set 8 due

Solutions & their Behavior					
Apr 4	W	32	Solutions & units of concentration; the solution process	14	14.1 to 14.2
Apr 6	F	33	Raoult's law; colligative properties		14.3
					Set 9 due

Apr 9	M		THIRD HOUR EXAMINATION - 6:30-7:30 pm		
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Chemical Equilibria					
Apr 11	W	34	Introduction to chemical kinetics and chemical & physical eq	15	15.1 to 15.2
Apr 13	F	35	Equilibrium constant and reaction quotient; LeChatelier's pri	16	16.1 to 16.6
Apr 16	M	36	Aqueous equilibria; acids and bases		17.1 to 17.3; 17.11
Apr 18	W	37	Bronsted-Lowry acid-base equilibria; pH	17	17.4 to 17.6
Apr 20	F	38	Hydrolysis of salts, salts of polyprotic acids		17.8 to 17.9
Apr 23	M	39	Equilibria involving weak acids, weak bases, and salts		17.7
Apr 25	W	40	Calculations involving aqueous equilibria		
Apr 27	F	41	Review for the final examination		
					Set 11 due

May 1	T		FINAL EXAMINATION - 7:45-9:45 am (morning)		
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