TENTATIVE 5.112 SYLLABUS
FALL, 2004

LECTURE		DATE	DUE	TOPIC
1	W	Sep. 8		Evolution of atomic theory, discovery of electron
Rec.	Th	Sep. 9		
2	F	Sep. 10		Discovery of nucleus, need for quantum mechanics
3	M	Sep. 13		Wave-particle duality of light, photoelectric effect
Rec.	Tu	Sep. 14		
4	W	Sep. 15		Wave-particle duality of matter
Rec.	Th	Sep. 16		
5	F	Sep. 17	PS #1	Wave equation, H atom energy levels
6	M	Sep. 20		Wave functions for H atom
Rec.	Tu	Sep. 21		
7	W	Sep. 22		Physical significance of wave functions
Forum	W	Sep. 22		5-6 pm in 6-233 for one volunteer from each recitation section
Rec.	Th	Sep. 23		
8	F	Sep. 24	PS #2	Wave functions and energy levels for multielectron atoms
9	M	Sep. 27		Electronic structure of multielectron atoms, photoelectron spectra
Rec.	Tu	Sep. 28		
10	W	Sep. 29		Trends in ionization energy, electron affinity, electronegativity
Rec.	Th	Sep. 30		
11	F	Oct. 1	PS #3	Covalent bonds, dipole moments
12	M	Oct. 4		Ionic bonds
Forum	M	Oct. 4		5-6 pm in 6-233 for one volunteer from each recitation section
Rec.	Tu	Oct. 5		
13	W	Oct. 6		Kinetic theory, Maxwell-Boltzmann distribution
Rec.	Th	Oct. 7		
	F	Oct. 8		FIRST HOUR EXAM - PS #1-3, Lectures #1-10
	M	Oct. 11		HOLIDAY

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LECTURE		DATE	DUE	TOPIC
Rec.	Tu	Oct. 12		
14	W	Oct. 13		Intermolecular forces, H-bonding, liquids
Rec.	Th	Oct. 14		
15	F	Oct. 15	PS #4	Vibrational and rotational spectroscopy
16	M	Oct. 18		Enthalpy and Gibb's free energy, second law of thermodynamics
Rec.	Tu	Oct. 19		
17	W	Oct. 20		Chemical equilibrium
Forum	W	Oct. 20		5-6 pm in 6-233 for one volunteer from each recitation section
Rec.	Th	Oct. 21		
18	F	Oct. 22	PS #5	Molecular description of acids and bases
19	M	Oct. 25		Chemical equilibrium: Environmental acid-base chemistry
Rec.	Tu	Oct. 26		
	W	Oct. 27		SECOND HOUR EXAM - PS #4-5, Lectures #11-17
Rec.	Th	Oct. 28		
20	F	Oct. 29		Indicator molecules and titration curves
21	M	Nov. 1		Electrons in chemistry: Redox processes
Forum	M	Nov. 1		5-6 pm in 6-233 for one volunteer from each recitation section
Rec.	Tu	Nov. 2		
22	W	Nov. 3		Cell potentials and free energy
Rec.	Th	Nov. 4		
23	F	Nov. 5	PS #6	Theory of molecular shapes
24	M	Nov. 8		Valence bond theory
Forum	M	Nov. 8		5-6 pm in 6-233 for one volunteer from each recitation section
Rec.	Tu	Nov. 9		
25	W	Nov. 10		Molecular orbital theory
	Th	Nov. 11		VETERANS DAY
26	F	Nov. 12	PS #7	Molecular orbital theory for diatomic molecules
27	M	Nov. 15		Molecular orbital theory for polyatomic molecules

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LECTURE		DATE	DUE	TOPIC
Rec.	Tu	Nov. 16		
	W	Nov. 17		THIRD HOUR EXAM - PS #6-7, Lectures #18-25
Rec.	Th	Nov. 18		
28	F	Nov. 19		Coordination complexes and ligands
29	M	Nov. 22		Crystal field theory
Rec.	Tu	Nov. 23		
30	W	Nov. 24	PS #8	Color and magnetism of coordination complexes
	Th	Nov. 25		THANKSGIVING
	F	Nov. 26		HOLIDAY
31	M	Nov. 29		Ligand substitution reactions: Kinetics
Forum	M	Nov. 29		5-6 pm in 6-233 for one volunteer from each recitation section
Rec.	Tu	Nov. 30		
32	W	Dec. 1		Molecular orbital theory for octahedral complexes
Rec.	Th	Dec. 2		
33	F	Dec. 3	PS #9	Bonding in metals and semiconductors
34	M	Dec. 6		Nature's ligands: Metals in biology
Rec.	Tu	Dec. 7		
35	W	Dec. 8		Nuclear chemistry and the Cardiolite® story