Course Lecture Outline (Material for the First Exam)

Date	Topic	Textbook Reference
01/10	Introduction; Begin Symmetry	Chapter 7
01/12	Symmetry Elements / Operations	Chapter 7.1
01/15	Assigning Point Groups	Chapter 7.2
01/17	Matrix Representations	Further Info (FI) 7.1
01/19	Properties of Character Tables	Chapter 7.5, FI 7.1
01/22	Using Character Tables	Chapter 7.5, FI 7.1
01/24	Symmetry Applications	Chapter 7.3, 7.4. 7.9
01/26	Molecular Vibrations	Chapter 7.8, 7.9
01/29	Introduction to Atomic Theory	Chapter 1, Movie
01/31	Quantum Mechanics Primer	Chapter 1.4-1.6
02/02	Effective Nuclear Charge	Chapter 1.7-1.8
02/05	Periodic Trends	Chapter 1.3, 1.9
02/07	Valence Bond Theory	Chapter 2.1-2.4
02/09	VB and MO Theories	Chapter 2.4-2.7
02/14	MO Theory of Diatomics	Chapter 2.7-2.9
02/16	***First Exam***	

Course Lecture Outline (Material for the Second Exam)

Date	Topic	Textbook Reference
02/19	VB and MO Theories (Note that Some of this Material was Covered before the First Exam)	Chapter 2.1-2.6
02/21	MO Diagrams of Diatomics	Chapter 2.7-2.10
02/23	Heteronuclear Diatomics	Chapter 2.7-2.10
02/26	MOs of Polyatomic Compounds	Chapter 2.11
02/28	Sigma Bonding in Polyatomics	Chapter 2.11, 7.6, 7.7
03/02	Pi Bonding, Non-Bonding, & Generating MO Diagrams[†]	Chapter 7.6, 7.7, and Notes
03/05	Acids & Bases; Solvent Leveling	Chapter 4.1, 4.2
03/07	Acids/Base Characteristics	Chapter 4.3-4.7, Notes
03/09	A/B Reactivity & HSAB Theory	Chapter 4.8-4.13
03/12	Main Group Chemistry Trends	Notes
03/14	Main Group Chemistry Trends	Notes
03/26	TM Complexes & Nomenclature*	Chapter 8.1-8.4
03/28	TM Complexes & Isomerism*	Chapter 8.5-8.10
03/30	***Second Exam***	

[†]You should also be able to construct pictures that illustrate how orbitals between the central atom & the SALCs lead to the formation of σ, σ^*, π, π^*, and non-bonding MOs. (I will provide you with Resource Section 5 images.)

*Denotes material that will not be included on Exam 2.

Course Lecture Outline (Transition Metal Chemistry)

Date	Topic	Textbook Reference
04/02	Main Group Presentations	
04/04	Main Group Presentations	
04/06	***Good Friday***	***No Class***
04/09	TM Electronic Structure	Chapter 19.1
04/11	Crystal Field Theory of TM	Chapter 19.1, 19.2
04/13	Ligand Field Theory of TM	Chapter 19.2
04/16	Angular-Overlap Model	19.2 & Notes
04/18	Ligand Substitution Rxns/Rates	Chapter 20.1-20.5
04/20	Ligand Substitution Rxns/Rates	Chapter 20.6-20.10
04/23	Redox Chemistry	Chapter 20.11-20.13
04/25	Photochemical Reactions	Chapter 20.14-20.16
04/27	***Cumulative Final Exam***	