

Chem 175/275
Spring 2009
Physical Inorganic Chemistry

Tuesdays and Thursdays, 2:00-3:15 Phelps 1445

Instructor: Trevor Hayton, hayton@chem.ucsb.edu
Office: Chem 3225

Office Hours: Thursdays, 3:30-4:40pm

Useful references:

Cotton & Wilkinson, Advanced Inorganic Chemistry
Crabtree, The Organometallic Chemistry of the Transition Metals
Cotton, Chemical Applications of Group Theory
Russell Drago, Physical Methods in Chemistry
Andrew Derome, Modern NMR Techniques for Chemistry Research
Horst Friebolin, Basic One- and Two-Dimensional NMR Spectroscopy
Harris and Mann, Eds., NMR and the Periodic Table

Grading

Problem Set 1	10%
Problem Set 2	10%
Problem Set 3	10%
Midterm (Thursday April 30 th)	30%
Final (Tuesday June 9 th 4pm)	40%

Topics

Week	Topics
1	IR and Raman Spectroscopy, Molecular Symmetry
2	Group Theory and Character Tables
3	UV-Vis spectroscopy, NMR spectroscopy
4	NMR spectroscopy (cont.), T_1 and T_2 , Rotating frame of reference
5	Multi-nuclear NMR, Midterm
6	Dynamic NMR, NMR spectroscopy of dihydrogen and hydride complexes
7	2D NMR
8	ESR spectroscopy
9	X-ray spectroscopy (XANES, EXAFS)
10	Magnetism, Electrochemical techniques