

Chemistry 451 - Theoretical Inorganic Chemistry - Fall 2007

- Instructor:** Prof. Cindy Schauer, A606 Kenan, 2-0808, schauer@unc.edu
- Class Time:** 8:00 – 9:15 am: T, R; Stone Center 210 (across South Rd. from the Chemistry Buildings)
- Text:** Robert L. Carter, "Molecular Symmetry and Group Theory", John Wiley & Sons, 1998.
- Web Site:** Problems sets, keys, and other class information will be disseminated via the course website maintained in blackboard. <http://blackboard.unc.edu>

Other Reference Books:

- F. Albert Cotton, "Chemical Applications of Group Theory", 3rd Edition, John Wiley & Sons, 1990.
- Daniel C. Harris and Michael D. Bertolucci, "Symmetry and Spectroscopy, An Introduction to Vibrational and Electronic Spectroscopy", Dover, 1978.
- Bodie E. Douglas, Charles A. Hollingsworth, "Symmetry in Bonding and Spectra, An Introduction", Academic Press, 1985.

Outline of Topics:

Group Theory Principles

Selected Topics: Properties of Groups, Mathematics of Groups, Classification of Molecules into Point Groups, Character Tables.

Group Theory Applications

Selected Topics: Molecular Vibrations; Crystal Field Theory; Molecular Orbital Theory with an emphasis on symmetry considerations and bonding in transition metal complexes.

Problem Sets:

Problem sets will be assigned frequently. You are expected to keep the worked problems in a notebook. Your notebooks will be collected twice over the semester. There will be occasional in-class pop quizzes.

Exam Dates:

On or about Tuesday, September 11	In-class exam, fundamentals	10%
On or about Tuesday, October 16	Proposed Evening exam, 7-9 pm	20%
On or about Tuesday, November 20	Proposed Evening exam, 7-9 pm	20%
Thursday, December 13	Comprehensive Final exam, 8 am, ST 210	40%

Grading:

Exams (90%, see above), Problem sets and quizzes (10%)