

CHEM 6172

Physical Methods in Chemistry

MWF 9:05 am, Room G021 (MoSE)

Instructor: Z. John Zhang; Room 1100N, phone: 4-6368; Office Hours: by appointment
Administrative Assistant: Ms. Walaa Compton, Room 1100C, Phone: 5-6049

Textbook:

- 1) D.M. Bishop; Group Theory and Chemistry; Dover, 1993
- 2) E.A.V. Ebsworth, D.W.H. Rankin, S. Cradock; Structural Methods in Inorganic Chemistry; 2nd edition, CRC Press, 1991

Reference Book:

- A. F. Cotton; Chemical Applications of Group Theory, 3rd Ed. Wiley, 1990
- B. Russell S. Drago, Physical Methods for Chemists, 2nd Ed. Saunders, 1992

Grade:

All tests will be close-book and close-notes ones.

- 1) There will be one QUIZ each Friday except the first and last week of the class, and the weeks having Hour Exam. Total number of Quizzes will be ten, and the best eight ones will count for 10% of the final grade.
- 2) There will be three HOUR EXAMS hold in class during the semester. The tentative dates for Hour Exams are September 26th Wednesday, October 31st, Wednesday, and November 30th, Friday. Each exam will count for 20% of the final grade.
- 3) The final exam will be on December 14th at 9 am and will contribute 30% of the final grade.

Topics to be discussed:

1. Applications of Group Theory in Chemistry
(Bishop's book)
2. Measurement of Magnetic Properties
(Chapt. 11, Drago' book)
3. Nuclear Magnetic Resonance Spectroscopy
(Chapt. 2)
4. Electron Paramagnetic Resonance Spectroscopy
(Chapt. 3)
5. Powder X-ray and Neutron Diffraction
(Chapt. 8)
6. Photoelectron Spectroscopy
(Chapt. 6)
7. Mössbauer Spectroscopy
(Chapt. 7)
8. Mass Spectrometry
(Chapt. 9)