

CHM 6626

Physical Methods in Inorganic Chemistry

Fall, 2024

Section: 10986 (3 credits)

Class Times: M, F period 8 (3:00 – 3:50pm)
W periods 8 & 9 (3:00 – 4:55)

Classroom: Flint Hall, room 109

Contact: Prof. G. Christou CLB 408
Email: christou@chem.ufl.edu

Office Hours: Wed 10 - noon, and
by appointment

Course Description

There is no prerequisite. The course will be an introduction to symmetry and group theory, and their applications to a variety of spectroscopic techniques. For the latter, the major emphasis will be on learning how to extract information from spectra of inorganic compounds, rather than on the theory of the techniques themselves, although the latter will be covered briefly. The rough course coverage is as follows:

- | | |
|--------------------------------------------|-------------------------------------|
| 1) Symmetry and the Point Groups | 5) NMR Spectroscopy |
| 2) Group Theory and Character Tables | 6) EPR Spectroscopy |
| 3) Introduction to Spectroscopy | 7) Electronic (UV/vis) spectroscopy |
| 4) Vibrational Spectroscopy (IR and Raman) | 8) Mössbauer Spectroscopy |

Grades

Grades will (probably) be based on two exams (early October and November), and a final exam (40%).

Final Exam: 12.30 - 2:30 pm, Friday, 13th December, 2024.

Required Text

There is no required text. Handouts will be provided, supplemented by recommended reference texts listed below, and references to literature reviews and other sources.

- “Physical Methods for Chemists” by R. S. Drago, 1st or 2nd editions.
- “Chemical Applications of Group Theory” by F. A. Cotton, any edition.
- “Molecular Symmetry and Group Theory” by A. Vincent, any edition.
- “Structural Methods in Inorganic Chemistry” by E.A.V. Ebsworth, *et al.*
- “NMR, NQR, EPR, and Mossbauer Spectroscopy in Inorganic Chemistry”
by R. V. Parish

Attendance and Absence Policy

Attendance is not mandatory, and it is not used as part of the student grade assessment. However, you are advised to attend all classes, if possible, and remember that you are responsible for being aware of all announcements made and material distributed in class. If

an unexpected emergency or illness will prevent you taking an exam, you should notify the instructor as soon as possible.

Exam Grade Disputes: All exam grade disputes must be completed within one week of the exam date.

Academic Honesty: Students must be honest in their coursework, not talk or use their phones or notes during exams, and properly cite all sources they consulted for their projects. Any act of academic dishonesty may result in failure of the assignment and/or the course. The link to the UF honor code is given at the end of the syllabus.

Counseling and Mental Health Resources

Students facing difficulties completing the course or who are in need of counseling or urgent help should call the on-campus Counseling and Wellness Center (352-392-1575); <https://counseling.ufl.edu/>

Students with Disabilities: Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <http://www.dso.ufl.edu/drc/>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. The student is responsible for scheduling the exam dates with the DRC. Students with disabilities should follow this procedure as early as possible.

Additional Information:

1. UF Student Honor and Conduct Codes: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>
2. Students with Disabilities: see <https://disability.ufl.edu/>
3. Counseling and Health Care: see <https://counseling.ufl.edu/>