Aims

The course aims at introducing the student to vibrational, electronic and magnetic spectroscopy making extensive use of group theory and quantum mechanics as essential tools to the modern practice of spectroscopy for transition metal complexes. The course is complemented by lab practices for the synthesis and the characterization of several transition metal complexes enabling the students to acquire skills in the experimental practice of an advanced inorganic chemistry lab, and in the application of the theoretical concepts introduced in the course to the interpretation of experimental spectra.

Contents


Detailed program


**Prerequisites**

Knowledge of quantum mechanics.

**Teaching form**

Lectures in the class with PowerPoint presentations and practical exercises in the computational lab. Lectures are in english.

**Textbook and teaching resource**

Teaching resources in terms of slides and notes.

Textbooks: Symmetry and spectroscopy by D. C. Harris and M. D. Bertolucci (Dover).

Physical methods in chemistry by R. S. Drago (Saunders).

**Semester**

Second semester.

**Assessment method**

The reports must be delivered at least one week before the date of the exam session.

The reports on the exercises and practicals, both the computational ones carried out in the computer lab, and the experimental ones carried out in the chemical laboratory are evaluated with a score in thirtieths. This assessment must be equal to or higher than 18/30 to be admitted to the oral exam.

The oral exam consists of a first part of discussion on possible errors or lacks present in the reports. Subsequently, some questions are asked of both a general nature or more detailed on the topics developed in the classroom during the lectures or on the contents of the lab exercises.
Office hours

The professor receives appointment.