School of Chemistry

Aims and Objectives: Session: 2023-2024, Semester 1

Module CH2501: Inorganic Chemistry 2 (Laboratory)

Duration: 37 hours (27 hours of laboratory work + 5 hours of workshops + 5 hours of pre-laboratory activities).

Staff: Dr B. E. Bode, Dr B. A. Chalmers*, Dr D. B. Cordes, Dr D. M. Dawson, Dr J. A. McNulty and Dr P. B. Webb.

(*Co-ordinator)

Aims: The inorganic laboratory class consists of a series of experiments designed to be completed in one, two or four sessions. The course is designed to illustrate and reinforce concepts covered in the lecture-based part of the course. The students will be introduced to key synthetic techniques and will regularly employ spectroscopic techniques to determine the outcome of experiments.

Objectives: To perform three experiments that include: Main Group chemistry, transition metal chemistry and crystal field theory. To become familiar with equipment and standard laboratory techniques for carrying out reactions and purification of products. To gain experience in recording spectroscopic data needed for the identification of compounds (NMR, IR, UV-vis, melting point, conductivity, magnetic susceptibility…). To complete two data handling exercises using data provided. To take part in a seminar on the interpretation of the spectroscopic data (week 1) and to complete the associated assessment. To take part in the solid-state structures seminar and to complete the associated assessment. To take part in pre-laboratory activities, including Safety Test, introducing key concepts and techniques of the experiment.

Main Group Chemistry:
Synthesis of triphenylphosphine sulfide

Transition Metal Chemistry:
Preparation of a photoluminescent and triboluminescent copper(I) complex

Crystal field theory:
Exploring the spectrochemical series through the synthesis of copper complexes

Solid-state chemistry:
Solid-state structure visualisation seminar