

CBC739 - Graduate Basic and Technical Inorganic Chemistry

Aims and Objectives

The objective of this course is to revisit some of the basic concepts and techniques in current Inorganic Chemistry research. It will be conducted in the form of a weekly series of workshop-type discussion and reflection (assessed).

At the end of this course, students should:

- Have a re-appreciation of structure and bonding in coordination and organometallic complexes.
- Understand the principles and use of inert atmosphere techniques.
- Be able to describe, interpret and use pulse NMR techniques in structural elucidation and kinetic studies.
- Have a simple understanding of crystallography and be able to interpret and use the contents of crystallographic tables.
- Know some of the basic concepts in catalysis, such as, TON, ToF and rate-limiting step, and techniques use in both homogeneous and heterogeneous catalysis.
- Be able to appreciate how computational chemistry can be used fruitfully in inorganic chemistry research, including some basic tools that can be used.

Syllabus

The topics to be covered are:

- Structure and bonding in inorganic compounds
- Experimental techniques in inorganic research
- Solution-state structures and NMR techniques
- Solid-state structures and X-ray crystallography
- Transition metal catalysis
- Computational chemistry

Assessment

Continuous Assessment: 100%

- Weekly reflections (Individual assessment): 100%