

School of Chemistry

Aims and Objectives: Session 2022-2023

Module CH5614: Chemical Biology

Duration: 20 hours

Lecturers: Professor N. J. Westwood*

(*Module Convenor)

Aims: The aim of this course is to introduce and discuss modern approaches in chemical biology and drug development. The multidisciplinary nature of the process will be emphasised and several examples will be highlighted. A balance of subjects at the interface of chemistry and biology will be discussed. This course will be suitable for anyone with an interest in applied organic chemistry and/or drug discovery and/or methods in chemical biology.

1. An overview of chemical biology and its synergistic relationship with drug discovery.
2. Examples of the use of chemical tools to study biological processes.
3. Approaches used in the discovery of chemical tools including the essential roles of protein crystallography, screening methods, fragment-based methods and chemical library generation from a range of sources.
4. Challenges associated with the discovery and use of chemical tools: Issues raised will include protein specificity, target identification and successfully mining chemical space.
5. Contrasting the properties of chemical tools with compounds of importance in medicinal chemistry and drug discovery.
6. Examples of drug discovery projects including state of the art applications recently published by industry in anti-cancer, anti-bacterial, anti-viral and anti-parasitic drug discovery.
7. Other research topics within the provided definition of chemical biology will be discussed in detail with a specific literature example being given in each case.