

## School of Chemistry

### Module Aims: Session 2022-2023

#### Module CH4456: Chemistry Distance Learning (Organic Chemistry) (CH4614)

**Lecturers:** Dr E. R. Kay\* and Dr R. A. Aitken

(\*Module Convenor)

**Aims:** This course offers the material covered by module CH4614 in a distance learning mode to students on the MChem one year placement. It aims to build on the students' fundamental knowledge of organic chemistry.

The module covers the important areas of heterocyclic and pericyclic chemistry in detail. In heterocyclic chemistry, the nomenclature and numbering of single and fused ring systems, and structure, synthesis and applications of the main five and six-membered ring systems with one and two heteroatoms will be covered. Selected industrial syntheses of heterocyclic medicinal compounds are used to illustrate the basic principles as well as the factors to be considered in large-scale synthesis. In pericyclic chemistry, both a frontier molecular orbital approach and the concept of conservation of orbital symmetry will be applied to explain the observed reactivity and stereochemistry for this class of reactions. The Woodward–Hoffman rules governing all pericyclic processes will be developed and their use to predict the outcome of cycloadditions, electrocyclic processes, sigmatropic rearrangements and group transfer reactions will be demonstrated. Synthetic applications of these processes will also be illustrated.