

## School of Chemistry

### Aims and Objectives: Session 2023-2024, Semester 2

#### Module CH2601: Organic Chemistry 2

**Course Title:** Introduction to Organic Synthesis

**Duration:** 11 hours

**Lecturer:** Dr G. J. Florence

**Aims:** To introduce students to the chemistry of carbonyl compounds including structure and reactivity, 1,2- and 1,4-addition and enols and enolates. Introduction to elementary synthetic strategy including retrosynthetic analysis. Detailed description of syntheses based upon carbonyl reactivity, difunctional compounds and ring synthesis methods.

**Objectives:**

1. Understand the structure, bonding and reactivity of the carbonyl group.
2. Know the main reactions involving 1,2-addition to C=O: hydration, formation of acetals, imines and cyanohydrins, addition of hydride and organometallic reagents (organolithiums and Grignard reagents).
3. Know about 1,4-addition to unsaturated carbonyl compounds.
4. Understand the formation and reactivity of enols and enolates. pKa and delocalisation, structure and reactivity of enolates, enols and enol ethers.
5. Reactions of enolates and specific enolate equivalents (enolate alkylation, aldol reactions, Claisen condensation conjugate addition).
6. Introduce concept of retrosynthesis and its application in devising strategies to synthesise organic compounds. Recognise functional group relationships; 1,2-1,3-, 1,4-, 1,5-related compounds and their synthesis.