

School of Chemistry

Aims and Objectives: Session 2023-2024, Semester 2

Module CH1601: Organic and Biological Chemistry 1 (Laboratory)

Duration: 15 (5 × 3) hours laboratory work, self-study pre-laboratory work and spectroscopy exercises.

Staff: Dr I. A. Smellie (Co-ordinator), Dr H. J. Mitchell and Dr C. M. Young.

Aims: The organic and biological laboratory class consists of a series of experiments, designed to be completed in either one or two sessions. Assessments focused on notable features of each experiment and the significance of the data will be completed. The course is designed to illustrate and reinforce concepts covered in the lecture-based part of the course. The students will be introduced to basic synthetic techniques and the theoretical and practical aspects of nuclear magnetic resonance and infra-red. Students will gain experience in performing solo tasks and working as part of a small group. Aspects of “Good Laboratory Practice” (GLP) and safety will be covered as a series of online pre-laboratory exercises.

Objectives: To perform four experiments that are intended as an introduction to basic practical techniques in the context of organic synthesis. To learn how to purify chemical compounds from simple reactions. To perform analysis by ^{13}C NMR spectroscopy, IR spectroscopy and thin-layer chromatography.

Practical activities:

1. Recrystallisation and melting point analysis
2. Synthesis and characterisation of some unknown esters
3. Reduction using metal hydrides

Aspects of “Good Laboratory Practice” (GLP) and safety will be covered as a series of online pre-laboratory exercises. Introduction to ^{13}C NMR spectroscopy and IR spectroscopy will be delivered as a short online self-study course. These online activities serve as an introduction to the basic theory behind key spectroscopic techniques and their application in the identification and characterisation of organic compounds.