

Liverpool John Moores University

Title: PRACTICAL LABORATORIES 3
Status: Definitive
Code: **5003APCHEM** (121131)
Version Start Date: 01-08-2021

Owning School/Faculty: Pharmacy & Biomolecular Sciences
Teaching School/Faculty: Pharmacy & Biomolecular Sciences

| Team | Leader |
|-----------------|--------|
| Steve Enoch | Y |
| Mark Wainwright | |
| Linda Seton | |
| Raymond Fox | |

Academic Level: FHEQ5 **Credit Value:** 20 **Total Delivered Hours:** 77
Total Learning Hours: 200 **Private Study:** 123

Delivery Options

Course typically offered: Semester 1

| Component | Contact Hours |
|-----------|---------------|
| Practical | 77 |

Grading Basis: 40 %

Assessment Details

| Category | Short Description | Description | Weighting (%) | Exam Duration |
|----------|-------------------|------------------|---------------|---------------|
| Test | Test | Online Test | 50 | |
| Report | Report | Practical Report | 50 | |

Aims

Building on Level 4 practical modules, the course will focus on more complex molecular/compound synthesis, thus entailing the use of chromatographic and spectroscopic analytical techniques.

Learning Outcomes

After completing the module the student should be able to:

- 1 Rationalise and demonstrate functional group interconversion.
- 2 Demonstrate and explain the involvement of inorganic compounds in organic synthesis.
- 3 Select the correct methods of analysis for organic and inorganic compounds and interpret the resulting data.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

| | | | |
|------------------|---|---|---|
| Online Test | 1 | 2 | 3 |
| Practical Report | 1 | 2 | 3 |

Outline Syllabus

Carbonyl chemistry; heterocyclic chemistry; organometallic chemistry; chromatographic purification and analysis; structural elucidation; transition metal chemistry; kinetics and thermodynamics of chemical processes. Areas covered will include the synthesis and reactions of carbonyl, heterocyclic, organometallic compounds and metal complexes; physical measurements involving more complex kinetics.

Learning Activities

Laboratory classes in Organic and Inorganic synthesis, physical and analytical assay

Notes

The course provides exposure to intermediate synthetic approaches and compound analysis, building on work carried out in the Level 4 practical modules. Work will include multi-step synthesis, based on reactions of the carbonyl group and will introduce the facility of organometallic reagents and complexes in synthesis. The industrially-important area of heterocyclic synthesis will also be covered, as well as methods of physical measurement of kinetics and thermodynamics.