

# CH222-30 Practical and Professional Chemistry Skills II

**23/24**

**Department**

Chemistry

**Level**

Undergraduate Level 2

**Module leader**

Stephen Bromfield

**Credit value**

30

**Module duration**

20 weeks

**Assessment**

100% coursework

**Study location**

University of Warwick main campus, Coventry

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## Description

### Introductory description

N/A.

[Module web page](#)

### Module aims

Following on from the corresponding Year 1 module, students are given opportunity to consolidate and advance chemistry-relevant practical skills in, and related-to, laboratory work. By undertaking this module, students will gain confidence, greater experience and ultimately become upskilled in:

- Planning experiments which are operationally relevant, safe and effective.
- Synthesis of 'inorganic' and 'organic' compounds.
- Using spectroscopy to support synthetic work (e.g. structural elucidation).
- Using contemporary methods and equipment in the area of physical chemistry.
- Computational chemistry techniques.
- Presenting and communicating experimental progress and outcomes using relevant spoken and written formats.

The tasks undertaken in this module exemplify chemistry concepts encountered in core

modules and, where possible, set practical work in an interdisciplinary context at interfaces between related disciplines.

## **Outline syllabus**

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

A range of practical experiments are undertaken in the areas of physical, inorganic, organic and computational chemistry to highlight important areas covered in other core modules. The spectroscopy component is devoted to detailed interpretation of spectroscopic evidence to elucidate molecular structure. The professional skills component contextualises relevant employability skills within the framework of presenting or addressing chemistry-focused problems.

## **Learning outcomes**

By the end of the module, students should be able to:

- The student should be able to work collegially to effectively solve chemistry-centred problems.
- The student should be able to work competently and safely in a chemistry laboratory.
- The student should be able to recognise relevant hazards associated with practical work and plan approaches to minimise their risks.
- The student should be able to carry out multi-step syntheses to produce 'organic' and 'inorganic' compounds.
- The student should be able to isolate and purify compound(s) using a variety of techniques.
- The student should be able to set up and monitor instrumentation/computational software to record relevant data.
- The student should be able to process data (e.g. using Excel) in order to critically evaluate experimental findings and draw conclusions.
- The student should be able to communicate the progress and outcome of experiments through relevant spoken and written formats (e.g. useful experimental notes, appropriately structured written submissions, presentations etc).

## **Indicative reading list**

Spectroscopic Methods in Organic Chemistry by D Williams and I Flemming

Extensive on-line support materials, references and links on Moodle.

## **Research element**

e.g. essay, dissertation, individual or group research, research skills activity, etc.

## **Interdisciplinary**

e.g. co taught with another department or with an industry perspective, bridges two or more disciplinary concepts, ideas, etc.

## Subject specific skills

Problem solving  
Teamwork  
Organisation and time management

## Transferable skills

Problem solving  
Teamwork  
Organisation and time management

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## Study

### Study time

Type	Required	Optional
Lectures	10 sessions of 1 hour (3%)	4 sessions of 1 hour
Practical classes	20 sessions of 6 hours 30 minutes (43%)	
Other activity	16 hours (5%)	
Private study	144 hours (48%)	
Total	300 hours	

### Private study description

Pre-lab work; write-up of associated professional skills submissions.

### Other activity description

Spectroscopy workshops

## Costs

No further costs have been identified for this module.

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## Assessment

You do not need to pass all assessment components to pass the module.

Students can register for this module without taking any assessment.

## Assessment group A5

	Weighting	Study time
Laboratory work and/or associated submissions	73%	
Full Report	10%	
Presentation	7%	
Journal Article	10%	

## Feedback on assessment

Feedback on in-lab practical work and associated written/spoken submissions

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## Availability

### Pre-requisites

To take this module, you must have passed:

- All of
  - [CH155-30 Practical and Professional Chemistry Skills I](#)

### Post-requisite modules

If you pass this module, you can take:

- CH3F2-15 Advanced Analytical Chemistry
- CH3G2-120 Intercalated Year Report (BSc)
- CH3C3-30 International Placement Project (MChem)
- CH3D7-30 Placement Project (BSc)
- CH3G0-15 Extended Laboratory
- CH3G1-120 Intercalated Year Report (MChem)

## Courses

This module is Core for:

- UCHA-4 Undergraduate Chemistry (with Intercalated Year) Variants
  - Year 2 of F101 Chemistry (with Intercalated Year)
  - Year 2 of F122 Chemistry with Medicinal Chemistry (with Intercalated Year)
- UCHA-3 Undergraduate Chemistry 3 Year Variants
  - Year 2 of F100 Chemistry
  - Year 2 of F100 Chemistry
  - Year 2 of F121 Chemistry with Medicinal Chemistry

- UCHA-F110 Undergraduate Master of Chemistry (with Industrial Placement)
  - Year 2 of F100 Chemistry
  - Year 2 of F110 MChem Chemistry (with Industrial Placement)
  - Year 2 of F112 MChem Chemistry with Medicinal Chemistry with Industrial Placement
- Year 2 of UCHA-F107 Undergraduate Master of Chemistry (with Intercalated Year)
- UCHA-F109 Undergraduate Master of Chemistry (with International Placement)
  - Year 2 of F109 MChem Chemistry (with International Placement)
  - Year 2 of F111 MChem Chemistry with Medicinal Chemistry (with International Placement)
- UCHA-4M Undergraduate Master of Chemistry Variants
  - Year 2 of F100 Chemistry
  - Year 2 of F105 Chemistry
  - Year 2 of F110 MChem Chemistry (with Industrial Placement)
  - Year 2 of F109 MChem Chemistry (with International Placement)
  - Year 2 of F126 MChem Chemistry with Med Chem (with Prof Exp)
  - Year 2 of F125 MChem Chemistry with Medicinal Chemistry
  - Year 2 of F106 MChem Chemistry with Professional Experience
- Year 2 of UCHA-F127 Undergraduate Master of Chemistry with Medicinal Chemistry (with Intercalated Year)