Accessibility statement

Core 4b: Theory, Analysis & Mechanisms - CHE00017I

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- **Department**: Chemistry
- **Module co-ordinator**: Dr. Moray Stark
- **Credit value**: 20 credits
- **Credit level**: I
- **Academic year of delivery**: 2020-21
  - See module specification for other years: 2018-19 2019-20

Module will run

Occurrence	Teaching cycle
A	Autumn Term 2020-21

Module aims

This module introduces some advanced theory of molecular structure and reactivity. The subject matter explored in this module is covered at a more advanced level compared to the foundations courses delivered as part of stage 1 and serves to signal to the students how their understanding of chemistry will be expected to develop in its sophistication throughout the course.

Module learning outcomes

At the end of this module students will have:

- an understanding of inorganic, physical and analytical chemistry at an intermediate level.
- developed key mathematical skills for chemical applications of matrices and determinants.
- developed written and verbal communication skills in small group tutorials and workshops.
- applied the principles taught in the module to solve unseen problems in small group tutorials and workshops
- developed new laboratory skills in synthetic Inorganic and Organic chemistry.
- performed data analysis through the use of specialist laboratory software.
- developed skills to effectively report data obtained in a synthetic chemistry experiment in a written fashion.

Module content

Module content:

- Mass spectrometry (BJK, 6 lectures, college workshop)
- Symmetry and group theory (DWB, 6 lectures, central workshop and college tutorial)
- Metal-ligand bonding and inorganic mechanisms (RED, 10 lectures, college tutorial)
- Quantum mechanics (PBK, 6 lectures, college tutorial)
- Matrices and Determinants (PBK & MEH, 4 1½ hour workshops, assessed workshop)
- Advanced Synthesis Practical (NDL/PAC, 5 days)

Assessment

Task	Length	% of module mark
24 hour open exam Core Module 4b	N/A	8
Practical Advanced Synthesis Practical	N/A	1.3
Practical Assessed workshop : Matrices & Determinants	N/A	0.8

Special assessment rules

Non-reassessable

Additional assessment information

Additional assessment info for:

Advanced Synthesis Practical:

- 4 practical reports
  - Submission deadline typically week after practical

Core 4b Closed Exam: Theory, Analysis & Mechanisms

- answer one compulsory question and two out of three other questions.

Matrices and Determinants are assessed by an assessed workshop

Reassessment

Task	Length	% of module mark
24 hour open exam Core Module 4b	N/A	8
Practical Assessed workshop : Matrices & Determinants	N/A	0.8

Module feedback

In Feedback to Students

- Tutorials/workshops: written feedback will be given for tutorial work within a week. Written and/or oral feedback for workshops will be given either during the sessions or within a week.
- Practicals: written feedback will be provided on all summative practical work within 20 working days. Students will also receive immediate feedback on their performance in the practicals, and the marked and annotated practical scripts will be returned before the end of term.
- Exams: closed exam results with per-question breakdown are returned to the students via supervisors within 5 weeks. Outline answers are made available via the Chemistry web pages when the students receive their marks, so that they can assess their own detailed progress/achievement. The examiners' reports for each question are made available to the students via the Chemistry web pages

Indicative reading

Atkins, Overton, Rourke, Weller and Armstrong, "Shriver and Atkin's Inorganic Chemistry", Oxford University Press.

Clayden, Greeves, Warren and Wothers, "Organic Chemistry", Oxford University Press.

Atkins, de Paula, "Atkins' Physical Chemistry", Oxford University Press.

Skoog, West, Holler and Crouch, "Fundamentals of Analytical Chemistry", Thomson/Brooks/Cole.

Coronavirus (COVID-19): changes to courses

The 2020/21 academic year will start in September. We aim to deliver as much face-to-face teaching as we can, supported by high quality online alternatives where we must.

Find details of the measures we're planning to protect our community.

Course changes for new students