Module Specification

Chemistry in Practice

Version: 2025-26, v2.0, Approved

Contents

Part 1: Information

Module title: Chemistry in Practice

Module code: USSKCK-30-0

Level: Level 3

For implementation from: 2025-26

UWE credit rating: 30

ECTS credit rating: 15

College: College of Health, Science & Society

School: CHSS School of Applied Sciences

Partner institutions: None

Field: Applied Sciences

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Chemistry in Practice provides a core foundation of essential chemical concepts, skills and practical techniques, in preparation for degree-level study.

Features: Not applicable

Educational aims: This module equips students with essential theoretical knowledge and understanding, practical expertise, and academic confidence in the chemical sciences, ensuring they are well-prepared for success at Level 4 in any

Applied Sciences program.

The content is equivalent to UK A-level and BTEC Chemistry courses and covers core chemical principals, theories and calculations, along with key practical techniques and procedures used in a chemistry laboratory.

Students will also learn fundamental scientific skills including data analysis, confidence in mathematics, independent and group working, and the communication of science through lab reports and other written assessments.

Outline syllabus: The indicative syllabus is as follows:

SUBJECT CONTENT
Inorganic Chemistry:

Basics Principles of Chemistry (Elements, Compounds and Atomic Structure)
Electron Configurations and Electronic Structure
Types of Bonding
The Periodic Table
Crystal Chemistry
Redox Reactions
Acids and Bases
Forensic Chemistry

Organic Chemistry:

Functional Groups in Nature
Chemical Analysis
Isomerism
Polymers
Biological Chemistry

Physical Chemistry:

Electrochemistry
Energy and Matter
Enthalpy
Entropy
Gibbs Free Energy
Chemical Kinetics
Nuclear Chemistry

SKILLS
Use and application of chemical methods and practices.

Conducting scientific investigations with safe and appropriate use of instruments and equipment, including recrystallisations, titrations, sample preparations and data handling.

Making and retaining accurate and reliable records and scientific measurements.

Data collection, processing, analysis, interpretation and presentation.

Part 3: Teaching and learning methods

Teaching and learning methods: Lectures:
Covering key chemical ideas, theories and processes. Problem solving skills are also incorporated here.

Tutorials:
Smaller, classroom-based sessions building upon and applying material from lectures, with opportunities for questions and feedback. Including taught content, discussion, group work and practice exercises.

Practicals:
Developing proficiency and confidence with basic chemical laboratory skills, techniques, data collection and handling.

Support sessions:
Optional sessions providing more in-depth and individualised support.

Pre-and post-session work:
Students will be directed to specific pre-session reading or other preparation materials, plus post-session materials to consolidate learning and deepen understanding.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Demonstrate knowledge and understanding of relevant chemical ideas, theories and processes

MO2 Apply knowledge and understanding of relevant chemical ideas, processes, techniques and procedures in a practical laboratory context

MO3 Analyse, interpret and evaluate chemical information, data and other evidence to make judgements and reach conclusions

MO4 Demonstrate awareness of how chemistry can be applied broadly across disciplines (e.g. to biological, forensic, and natural sciences)

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 228 hours

Face-to-face learning = 72 hours

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com/modules/usskck-30-0.html

Part 4: Assessment

Assessment strategy: Assessment 1: Portfolio

A practical workbook with one set of exercises per practical to be completed individually, during or after timetabled classes. Tasks will vary in style and will together form a portfolio of work across the module, covering key aspects of practical investigations such as experimental design; data collection, handling, manipulation and interpretation; and analysis and discussion of results.

The assessment authentically develops the important scientific skills of maintaining accurate records, interpreting and communicating results. Students will be supported by exemplar materials, worked examples and verbal formative feedback during practical classes.
The best five marks from a possible eight will be used to calculate a final mark, allowing for some unavoidable absence.

Assessment 2: Set Exercise (2 hours)

A written test assessing learning across the year, comprising a combination of multiple-choice questions, data handling and interpretation tasks and a choice of synoptic questions.

Students will be supported to succeed in multiple ways. The format of the test will be shared and explained in advance, and there will be opportunities throughout the year for support and formative feedback through practice exercises, worked examples, and tutorial sessions. Optional support sessions will provide additional chances to ask questions and receive individualised support and feedback.

Questions will use real-world chemical examples and data and allow students to demonstrate knowledge and proficiency suitable for success in chemistry-related degree-level study.

Assessment tasks:

Portfolio (First Sit)
Description: A workbook with one task per practical, completed individually during or after the timetabled sessions.

Weighting: 60 %
Final assessment: No
Group work: No
Learning outcomes tested: MO2, MO3, MO4

Set Exercise (First Sit)
Description: Written test comprising MCQs, data interpretation tasks and synoptic questions. (2 hours)
Weighting: 40 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO3, MO4

Portfolio (Resit)
Description: A workbook with one task per practical, completed individually during or after the timetabled sessions.
Weighting: 60 %
Final assessment: No
Group work: No
Learning outcomes tested: MO2, MO3, MO4

Set Exercise (Resit)
Description: Written test comprising MCQs, data interpretation tasks and synoptic questions. (2 hours)
Weighting: 40 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO3, MO4

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Environmental Science {Foundation} [Frenchay] BSc (Hons) 2025-26

Wildlife Ecology and Conservation Science {Foundation} [Frenchay] BSc (Hons) 2025-26

Forensic Science {Foundation} [Frenchay] BSc (Hons) 2025-26

Biological Sciences {Foundation} [Frenchay] BSc (Hons) 2025-26

Biomedical Science {Foundation} [Frenchay] BSc (Hons) 2025-26

Biological Sciences {Foundation} [Frenchay] BSc (Hons) 2025-26

Environmental Science {Foundation} [Frenchay] BSc (Hons) 2025-26