Module Specification

Core Chemistry

Version: 2023-24, v2.0, 22 Mar 2023

Contents

Part 1: Information

Module title: Core Chemistry

Module code: USSKNE-15-1

Level: Level 4

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Health & Applied Sciences

Department: HAS Dept 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: Not applicable

Features: Not applicable

Educational aims: See Learning Outcomes

Outline syllabus: This module will cover the following topics within the area of chemical science:

Structure and bonding:
Why do atoms combine into complex molecules and materials, and how does this influence their chemical and physical properties? Chemical combinations - origins of ionic and covalent bonding related to atomic structure and the Periodic Table; electronegativity, polar bonds and intermolecular forces. Naming and structures of important organic and inorganic compounds.

Chemical reactions:
Nature and order of chemical reactions. Redox and acid-base reactions. Neutralisation and titration procedure. Introduction to stability of atoms, molecules and mixtures. Enthalpy of combustion. Factors influencing the rate of a chemical reaction. Experimental and mathematical methods for rates of reactions.

Organic chemistry:
Identifying organic functional groups and ring systems. Synthesis and reactivity of aromatic and non-aromatic ring systems. Fundamental stereochemistry in the context of drugs and biochemistry - structural isomers and stereoisomers. Common synthetic reactions in organic synthesis.

Part 3: Teaching and learning methods

Teaching and learning methods: This module aims to deliver specialist knowledge through taught lectures, seminars and practical sessions to promote application of knowledge acquired, analytical and problem-solving skills.

Independent learning includes hours engaged with essential reading, assignment preparation and completion.

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

MO1 Apply mathematical skills to the analysis of experimental data

MO2 Apply practical techniques encountered in chemistry and analyse, evaluate and present data in a controlled environment

MO3 Apply problem solving and critical thinking skills to theoretical tasks covering various chemistry topics

MO4 Demonstrate understanding of various concepts encountered in chemistry

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 105 hours

Face-to-face learning = 45 hours

Total = 150

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/index.html

Part 4: Assessment

Assessment strategy: The assessment strategy has been designed to support and enhance the development of subject-based knowledge and practical skills, whilst ensuring that the learning outcomes are achieved.

The controlled part of the assessment is a 2-hour practical exam (Assessment Task 1). This assessment task will include demonstration of practical skills and application of problem-solving, evaluative and mathematical skills to perform a laboratory procedure.

The coursework (Assessment Task 2) comprises a workbook consisting of problem solving and data analysis tasks. This assessment task will enable students to develop critical thinking and problem solving skills, as well as deepen their understanding of chemistry.

Opportunities for formative feedback are built into teaching and practical sessions. Students are provided with formative feed-forward for their practical exam through laboratory sessions and seminars.

Assessment tasks:

Examination (First Sit)
Description: Practical exam (2 hours)
Weighting: 50 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2

Written Assignment (First Sit)
Description: Workbook
Weighting: 50 %
Final assessment: No
Group work: No
Learning outcomes tested: MO3, MO4

Examination (Resit)
Description: Practical exam (2 hours)
Weighting: 50 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2

Written Assignment (Resit)
Description: Workbook
Weighting: 50 %
Final assessment: No
Group work: No
Learning outcomes tested: MO3, MO4

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Biological Laboratory Sciences [UCW] FdSc 2023-24