

University of the West of Scotland
Module Descriptor

Session:2024/25

Title of Module: Structure of Chemistry			
Code: CHEM07003	SCQF Level: 7 (Scottish Credit and Qualifications Framework)	Credit Points: 20	ECTS: 10 (European Credit Transfer Scheme)
School:	School of Computing, Engineering and Physical Sciences		
Module Co-ordinator:	Andrew McLean		
Summary of Module			
<p>This module is an essential module for students wishing to take degree courses in chemistry, chemical engineering, and forensic science. It covers many fundamental issues relating to physical, organic and inorganic chemistry such as atomic and molecular structure, atomic and molecular orbitals, intramolecular and intermolecular bonding, hybridization, electronegativity, VSEPR theory, stoichiometric and titration calculations, pH, balancing chemical equations, Redox reactions, basic spectroscopy, oxidation numbers, Lewis structures, stereochemistry, isomers, functional groups, and the nomenclature of organic and inorganic compounds. There is a pre-laboratory programme associated with the module which provides exercises aimed at developing basic skills of spectroscopic analysis, structural drawing, health and safety, literature searching and reporting. The module is not available by distance learning. The graduate attributes relevant to this module are;</p> <ul style="list-style-type: none"> • Academic: Critical thinker, analytical, inquiring, knowledgeable, literate, problem solver, autonomous. • Personal: Effective communicator, influential, motivated, team-worker. • Professional: collaborative. 			

Module Delivery Method					
Face-To-Face	Blended	Fully Online	HybridC	HybridO	Work-based Learning
✓					

Face-To-Face

Term used to describe the traditional classroom environment where the students and the lecturer meet synchronously in the same room for the whole provision.

Blended

A mode of delivery of a module or a programme that involves online and face-to-face delivery of learning, teaching and assessment activities, student support and feedback. A programme may be considered "blended" if it includes a combination of face-to-face, online and blended modules. If an online programme has any compulsory face-to-face and campus elements it must be described as blended with clearly articulated delivery information to manage student expectations

Fully Online

Instruction that is solely delivered by web-based or internet-based technologies. This term is used to describe the previously used terms distance learning and e learning.

HybridC

Online with mandatory face-to-face learning on Campus

HybridO

Online with optional face-to-face learning on Campus

Work-based Learning

Learning activities where the main location for the learning experience is in the workplace.

Campus(es) for Module Delivery

The module will **normally** be offered on the following campuses / or by Distance/Online Learning: (Provided viable student numbers permit)

Paisley:	Ayr:	Dumfries:	Lanarkshire:	London:	Distance/Online Learning:	Other:
✓						

Term(s) for Module Delivery

(Provided viable student numbers permit).

Term 1		Term 2		Term 3	
	✓				

Learning Outcomes: (maximum of 5 statements)

On successful completion of this module the student will be able to:

L1. Demonstrate an outline knowledge of the fundamental concepts, language and structure of Chemistry

L2. Display an ability to apply basic chemical knowledge to a range of problems

L3. Develop proficiency in carrying out basic spectroscopic analyses and risk assessment

Employability Skills and Personal Development Planning (PDP) Skills

SCQF Headings	During completion of this module, there will be an opportunity to achieve core skills in:
Knowledge and Understanding (K and U)	SCQF Level 7. Demonstrating a broad knowledge of some of the main theories, concepts and principles involved in chemistry with a particular emphasis on atomic and molecular structure.
Practice: Applied Knowledge and Understanding	SCQF Level 7. Using the knowledge and understanding gained from lecture material in order to tackle set problems and tasks provided on a weekly basis through short tests and workshops Gaining knowledge and understanding of spectroscopic analysis and an appreciation of health and safety issues relating to a laboratory environment

Generic Cognitive skills	SCQF Level 7. Using a range of approaches to addressing problems and exercises issued at weekly workshop sessions
Communication, ICT and Numeracy Skills	SCQF Level 7. Using standard procedures to process and analyse spectroscopic data Communicating with others within a team environment during weekly workshop sessions Applying numerical skills in tackling set problems and exercises during weekly sessions

Autonomy, Accountability and Working with others	SCQF Level 7. Exercising some initiative and independence in carrying out independent learning through workshops and short tests Working with others in a team environment to tackle defined problems in chemistry workshops Appreciating and applying a professional attitude to individual safety and to the safety of others within a laboratory environment
Pre-requisites:	Before undertaking this module the student should have undertaken the following:
	Module Code:
	Module Title:
	Other:
Co-requisites	Module Code:
	Module Title:

* Indicates that module descriptor is not published.

Learning and Teaching	
This module covers a wide variety of theoretical, conceptual and practical areas, which require a range of knowledge and skills to be displayed and exercised. Delivery of its syllabus content therefore involves a diversity of teaching and assessment methods suitable to the learning outcomes of the module; these include formal lectures, structured tutorials (work closely integrated with the lecture material), laboratory exercises to develop practical skills and familiarisation with equipment and experimental techniques, completion and submission of written coursework making use of appropriate forms of IT and VLE, and independent study	
Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	Student Learning Hours (Normally totalling 200 hours): (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture/Core Content Delivery	14
Tutorial/Synchronous Support Activity	10
Laboratory/Practical Demonstration/Workshop	24
Independent Study	152

	200 Hours Total
**Indicative Resources: (eg. Core text, journals, internet access)	
<p>The following materials form essential underpinning for the module content and ultimately for the learning outcomes:</p> <p>D D Ebbing and S D Gammon, General Chemistry, Houghton Mifflin, 11th Edition, 2016</p> <p>G L Patrick, Beginning Organic Chemistry 1, Oxford University Press, 1997</p> <p>Module Handbook, Workshop Manual, Self Learning Text and Laboratory Manual provided in house</p>	
<p>Hart, Craine, Hart, Hadad, Organic Chemistry - A Short Course, Houghton Mifflin, 12th Edition, 2007</p> <p>Notes on Organic Chemistry, available on CD in house</p>	
<p>(**N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)</p>	
Engagement Requirements	
<p>In line with the Academic Engagement Procedure, Students are defined as academically engaged if they are regularly engaged with timetabled teaching sessions, course-related learning resources including those in the Library and on the relevant learning platform, and complete assessments and submit these on time. Please refer to the Academic Engagement Procedure at the following link: Academic engagement procedure</p>	

Supplemental Information

Programme Board	Physical Sciences
Assessment Results(Pass/Fai)	No
Subject Panel	Physical Sciences
Moderator	Dr Callum McHugh
External Examiner	Prof M Paterson
Accreditation Details	This module is accredited by the Royal Society of Chemistry (RSC) as part of the BSc (Hons) Chemistry Programme. This module is accredited by IBMS as part of BSc (Hons) Biomedical Science; accredited by IBMS and approved by HPC as part of BSc (Hons) Advanced Biomedical Science. This module is accredited by IChemE as part of BEng (Hons) Chemical Engineering.
Changes/Version Number	3.06

Assessment: (also refer to Assessment Outcomes Grids below)

Assessment 1; **Class test - unseen (50 %)**

Assessment 2: Coursework (50%)

(N.B. (i) **Assessment Outcomes Grids** for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed.
(ii) An **indicative schedule** listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Handbook.)

Assessment Outcome Grids (Footnote A)

Component 1					
Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Unseen closed book (standard)	✓	✓		50	2
Component 2					
Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Report of practical/ field/ clinical work	✓	✓	✓	50	0
Combined Total For All Components				100%	2 hours

Footnotes

- A. Referred to within Assessment Section above
 B. Identified in the Learning Outcome Section above

Note(s):

1. More than one assessment method can be used to assess individual learning outcomes.
2. Schools are responsible for determining student contact hours. Please refer to University Policy on contact hours (extract contained within section 10 of the Module Descriptor guidance note).
This will normally be variable across Schools, dependent on Programmes &/or Professional requirements.

Equality and Diversity

This module is suitable for any student with appropriate chemistry background, however it should be noted that in order for you to complete this module the laboratory element of coursework will require to be undertaken, disability support can be provided where necessary, consequently, if disability support is needed to complete this part of the module, then the University's Health and Safety Officer should be consulted to make sure that safety in the laboratory is not compromised.

Current University Policy on Equality and Diversity applies.

[UWS Equality and Diversity Policy](#)

(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)