Module Descriptor

Title	Structure of Chemistry		
Session	2025/26	**Status**	Published
Code	CHEM07003	**SCQF Level**	7
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Dr A McLean		

Summary of Module

This module covers 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, literatrue searching and reporting.

The graduate attributes relevant to this module are;

Academic: Critical thinker, analytical, inquiring, knowledgeable, literate, problem solver, autonomous.

Personal: Effective communicator, influential, motivated, team-worker.

Professional: collaborative.

Module Delivery Method	**On-Campus[1]**	**Hybrid[2]**	**Online[3]**	**Work -Based Learning[4]**
	☒	☐	☐	☐

[1] Where contact hours are synchronous/ live and take place fully on campus. Campus-based learning is focused on providing an interactive learning experience supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus contact hours will be clearly articulated to students.

[2] The module includes a combination of synchronous/ live on-campus and online learning events. These will be supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus and online contact hours will be clearly articulated to students.

[3] Where all learning is solely delivered by web-based or internet-based technologies and the participants can engage in all learning activities through these means. All required contact hours will be clearly articulated to students.

[4] Learning activities where the main location for the learning experience is in the workplace. All required contact hours, whether online or on campus, will be clearly articulated to students

Campuses for Module Delivery	☐ Ayr ☐ Dumfries		☐ Lanarkshire ☐ London ☒ Paisley		☐ Online / Distance Learning ☐ Other (specify)	
Terms for Module Delivery	Term 1	☒	Term 2	☐	Term 3	☐
Long-thin Delivery over more than one Term	Term 1 – Term 2	☐	Term 2 – Term 3	☐	Term 3 – Term 1	☐

Learning Outcomes	
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, structure drawing and appreciation of the needs and requirements of graphical presentation and analysis of chemical ideas
L4	
L5	

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 7** Demonstrating a broad knowledge of some of the main theories, concepts and principles involved in chemistry with a particular emphasis on the basics of atomic and molecular structure.
Practice: Applied Knowledge and Understanding	**SCQF 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 the requirements to represent chemical information in a graphical manner.
Generic Cognitive skills	**SCQF 7** Using a range of approaches to addressing problems and exercises issued at weekly workshop sessions
Communication, ICT and Numeracy Skills	**SCQF 7** 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	**Please select SCQF Level** Exercising some initiative and independence in carrying out independent learning through workshops and short tests

and Working with Others	Working with others in a team environment to tackle defined problems in chemistry workshops

Prerequisites	**Module Code**	**Module Title**
	Other a pass at Higher Chemistry or its equivalent.	
Co-requisites	**Module Code**	**Module Title**

Learning and Teaching

In line with current learning and teaching principles, a 20-credit module includes 200 learning hours, normally including a minimum of 36 contact hours and maximum of 48 contact hours.

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), dry-laboratory exercises to develop practical skills and familiarisation with techniques of graphical representation of chemical information, 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** (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
Please select	
Please select	
TOTAL	200

Indicative Resources

The following materials form essential underpinning for the module content and ultimately for the learning outcomes:

D D Ebbing and S D Gammon, General Chemistry, Houghton Miffin, 11th Edition, 2016 G L Patrick, Beginning Organic Chemistry 1, Oxford University Press, 1997

Module Handbook, Workshop Manual, Self Learning Text and Laboratory Manual provided in house

(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)

Attendance and Engagement Requirements

In line with the Student Attendance and Engagement Procedure, Students are academically engaged if they are regularly attending and participating in timetabled on-campus and online teaching sessions, asynchronous online learning activities, course-related learning resources, and complete assessments and submit these on time.

For the purposes of this module, academic engagement equates to the following:

The School of Computing, Engineering and Physical Sciences considers attendance and engagement to mean a commitment to attending, and engaging in, timetabled sessions. You will scan your attendance via the scanners each time you are on-campus and you will login to the VLE several times per week. Where you are unable to attend a timetabled learning session due to illness or other circumstance, you should notify the Programme Leader that you cannot attend. Across the School an 80% attendance threshold is set. If you fall below this, you will be referred to the Student Success Team to see how we can best support your studies.

Equality and Diversity
The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: UWS Equality, Diversity and Human Rights Code. Aligned with the University's commitment to equality and diversity, this module supports equality of opportunity for students from all backgrounds and learning needs. Using the VLE, material will be presented electronically in formats that allow flexible access and manipulation of content. This module complies with University regulations and guidance on inclusive learning and teaching practice. This module has lab-based teaching and as such you are advised to speak to the Module Co-ordinator to ensure that specialist assistive equipment, support provision and adjustment to assessment practice can be put in place, in accordance with the University's policies and regulations.
(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)

Supplemental Information

Divisional Programme Board	**Engineering Physical Sciences**
Overall Assessment Results	☐ **Pass / Fail** ☒ **Graded**
Module Eligible for Compensation	☐ **Yes** ☒ **No** **If this module is eligible for compensation, there may be cases where compensation is not permitted due to programme accreditation requirements. Please check the associated programme specification for details.**
School Assessment Board	Physical Sciences
Moderator	Dr C 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 and the Chartered Society of Forensic Sciences (CSFS) as part of the BSc (Hons) Forensic Science programme
Module Appears in CPD catalogue	☒ **Yes** ☐ **No**
Changes / Version Number	4.00 Introduced LO3 to make explicit taught dry-lab elements assoc with prod of chemically rel graphics.

	Removed some refs to wet-labs as these are taught in CHEM07011 in T2. Updates to Att & Eng and Div & Eq reqs.

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
Unseen class test (50 %)
Assessment 2
Coursework, incl dry-lab work (50%)
Assessment 3
(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 Module Handbook.)

Component 1							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Unseen class test	☒	☒	☐	☐	☐	50	2

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Coursework inc Dry-Lab	☒	☒	☒	☐	☐	50	

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		
Combined total for all components						100%	2 hours

Change Control

What	**When**	**Who**
Introduced LO3 to make explicit taught dry-lab elements assoc with prod of chemically rel graphics.	March 2025	Dr A McLean
Updates to Att & Eng and Div & Eq reqs.	March 2025	Dr A McLean

Removed some confusing refs to wet-labs from Mod Summary and T&L as dry-labs are used in T1, wet-labs taught in t2, chem07011	March 2025	Dr A McLean