

**University of the West of Scotland
Module Descriptor**

Session: 2023/24

Title of Module: Physical Chemistry 2			
Code: CHEM08001	SCQF Level: 8 (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>Physical Chemistry is concerned with theories, measurements and interpretations of experimental information to gain an understanding of the nature of matter and of the rates and equilibrium positions in reactions and processes. The lecture course will cover aspects of kinetics, spectroscopy, thermodynamics, electrochemistry and phase equilibria. The emphasis will be on the application of techniques and of theories to practical situations. This will involve both tutorial (workshop) activities and a laboratory programme designed to complement and illustrate the lecture materials.</p> <p>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
			✓		
<p>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.</p> <p>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</p> <p>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.</p> <p>HybridC Online with mandatory face-to-face learning on Campus</p> <p>HybridO Online with optional face-to-face learning on Campus</p> <p>Work-based Learning Learning activities where the main location for the learning experience is in the workplace.</p>					

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 familiarity with and application of basic principles and methodologies of kinetics, thermodynamics, electrochemistry, spectroscopy and phase behaviour

L2. Apply knowledge and understanding of principles and concepts of physical chemistry to investigation and problem solving

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 8. A broad knowledge of the main areas of physical chemistry, with a detailed knowledge of selected aspects of the subject.
Practice: Applied Knowledge and Understanding	SCQF Level 8. Use a range of laboratory and numerical skills to explore the applications of theory. Carry out routine investigations into aspects of the subject and of relevant issues.
Generic Cognitive skills	SCQF Level 8. Undertake critical analysis, evaluation and synthesis of ideas using concepts and information within relevant areas of physical chemistry. Use a range of approaches to tackle and solve routine problems in physical chemistry Critically evaluate information and approaches to the solution of problems in physical chemistry.
Communication, ICT and Numeracy Skills	SCQF Level 8. Use a range of standard applications to the evaluation of numerical information Present complex information in a variety of forms
Autonomy, Accountability and Working with others	SCQF Level 8. Exercise autonomy and initiative in investigation and processing of relevant materials.

	Operate in group situations taking account of own and others' roles and contributions.	
Pre-requisites:	Before undertaking this module the student should have undertaken the following:	
	Module Code: CHEM07011	Module Title: Chemistry & Reactions
	Other:	Or ,suitable appropriate background
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	22
Tutorial/Synchronous Support Activity	10
Laboratory/Practical Demonstration/Workshop	16
Independent Study	152
	200 Hours Total
**Indicative Resources: (eg. Core text, journals, internet access)	
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: P Atkins and J de Paula, Atkins' "Elements of Physical Chemistry" Oxford University Press, 7th Edition, 2016. Physical Chemistry II, Reference Booklet, University of the West of Scotland. 2017.	
(**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)	
Engagement Requirements	

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](#)

Supplemental Information

Programme Board	Physical Sciences
Assessment Results (Pass/Fail)	No
Subject Panel	Physical Sciences
Moderator	Dr Jorge Chacon
External Examiner	M Paterson
Accreditation Details	This module is accredited by IChemE as part of BEng(Hons) Chemical Engineering programme. This module is accredited by the Royal Society of Chemistry (RSC) as part of the BSc (Hons) Chemistry Programme.
Changes/Version Number	3.13 updating of indicative resources

Assessment: (also refer to Assessment Outcomes Grids below)

(a) final written exam worth 50% of the final mark

(b) continuous assessment worth 50% of the final mark

The continuous assessment component in this module will consist of the following elements: (i) one written assignments worth 10% of the final mark, (ii) Tutorial/Workshops worth 10% of the final mark, (iii) Short-Class Test worth 10% of the final mark, and (iv) Laboratory Reports worth 20% of the final mark.

(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)	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)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Class test (written)	✓	✓	10	2
Essay	✓	✓	10	0
Workbook/ Laboratory notebook/ Diary/ Training log/ Learning log	✓	✓	10	0
Clinical/ Fieldwork/ Practical skills assessment/ Debate/ Interview/ Viva voce/ Oral	✓	✓	20	0
Combined Total For All Components			100%	4 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)