

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

**Session: 2023/24**

<b>Title of Module: Chemical Laboratory Techniques</b>			
<b>Code: CHEM08013</b>	<b>SCQF Level: 8</b> (Scottish Credit and Qualifications Framework)	<b>Credit Points: 20</b>	<b>ECTS: 10</b> (European Credit Transfer Scheme)
<b>School:</b>	School of Computing, Engineering and Physical Sciences		
<b>Module Co-ordinator:</b>	Mohammed Yaseen		
<b>Summary of Module</b>			
<p>Chemistry based laboratory techniques are vital in areas such as forensic science, food production, the environmental science and medical research. A wide variety of core chemical techniques are commonly used in all these areas. This module aims to give students experience of a selection of these methods and also to develop transferable skills.</p> <p>The module is mainly laboratory based and will initially involve carrying out a selection of laboratory exercises aimed to give experience of the fundamental lab techniques of titration, synthesis, recrystallisation, chromatography, solvent extraction, distillation and spectroscopy. Students will also use specialist chemistry software and Excel to analyse and present data. The latter part of the module will involve an open ended group project which will feature an exercise relevant to either forensic science or chemistry.</p> <p>PDP activities are incorporated into this module by way of the group laboratory investigation. Students will have to research the project, plan and execute the piece of lab work, produce a written report and make a short presentation.</p> <p>This module will develop the following UWS graduate attributes: critical thinking, team work, numeracy, practical skills, analysis and application.</p>			

<b>Module Delivery Method</b>					
<b>Face-To-Face</b>	<b>Blended</b>	<b>Fully Online</b>	<b>HybridC</b>	<b>HybridO</b>	<b>Work-based Learning</b>
			✓		
<p><b>Face-To-Face</b> 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><b>Blended</b> 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><b>Fully Online</b> 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><b>HybridC</b> Online with mandatory face-to-face learning on Campus</p> <p><b>HybridO</b> Online with optional face-to-face learning on Campus</p> <p><b>Work-based Learning</b> Learning activities where the main location for the learning experience is in the workplace.</p>					

<b>Campus(es) for Module Delivery</b>
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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	
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#### Learning Outcomes: (maximum of 5 statements)

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

L1. Demonstrate the ability to carry out a range of chemical laboratory techniques.

L2. Demonstrate the ability to accurately report and discuss the results of practical laboratory work in the appropriate format

L3. As part of a group be able to plan, execute and report on a laboratory investigation.

#### Employability Skills and Personal Development Planning (PDP) Skills

<b>SCQF Headings</b>	During completion of this module, there will be an opportunity to achieve core skills in:
Knowledge and Understanding (K and U)	SCQF Level 8. Knowledge of the principal methods of laboratory analysis important to sectors such as the food and drug industry. Knowledge of the capability and limitations of laboratory analysis.
Practice: Applied Knowledge and Understanding	SCQF Level 8. Learn a selection of the core techniques used in the laboratory to prepare, purify and analyse food, drugs and other chemicals. Be able to interpret and explain the results of laboratory work with food and drugs. Understanding of the operation of health and safety procedures in the laboratory.
Generic Cognitive skills	SCQF Level 8. Planning of practical laboratory work. Keeping contemporaneous laboratory records. Analysis of results of laboratory work.
Communication, ICT and Numeracy Skills	SCQF Level 8. Use of Excel to present experimental data. Use of Wordprocessing to prepare reports. Use of chemical structure drawing software. Deliver a powerpoint presentation on project work and answer questions from audience.
Autonomy, Accountability and Working with others	SCQF Level 8. Prepare for practical lab work with individual and group library research work. Successfully plan and carry out practical work as part of a group.

<b>Pre-requisites:</b>	Before undertaking this module the student should have undertaken the following:	
	<b>Module Code:</b> CHEM07003 CHEM07013	<b>Module Title:</b> Structure of Chemistry Molecules of Life
	<b>Other:</b>	or equivalent
<b>Co-requisites</b>	<b>Module Code:</b>	<b>Module Title:</b>

\* Indicates that module descriptor is not published.

<b>Learning and Teaching</b>	
<p>The module is mainly laboratory based and will initially involve carrying out a selection of laboratory exercises aimed to give experience of the fundamental lab techniques of titration, synthesis, recrystallisation, chromatography, solvent extraction, distillation and spectroscopy. Students will also use specialist chemistry software and Excel to analyse and present data. The latter part of the module will involve an open ended group project which will feature an exercise relevant to either forensic science or chemistry.</p> <p>PDP activities are incorporated into this module by way of the group laboratory investigation where students will have to research the project, plan and execute the piece of lab work, produce a written report and make a short presentation.</p>	
<b>Learning Activities</b> During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	<b>Student Learning Hours</b> (Normally totalling 200 hours): (Note: Learning hours include both contact hours and hours spent on other learning activities)
Laboratory/Practical Demonstration/Workshop	48
Independent Study	152
	200 Hours Total
<b>**Indicative Resources: (eg. Core text, journals, internet access)</b>	
<p>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 Mifflin, , 10th edition, 2012 ISBN-10 ? : ? 1285051378</p> <p>Hart, Craine, Hart, Hadad, Organic Chemistry - A Short Course, Houghton Mifflin, 12th Edition, 2007</p> <p>Module Handbook and Workshop Manual, provided in house</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)	
<b>Engagement Requirements</b>	
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

<b>Programme Board</b>	Physical Sciences
<b>Assessment Results (Pass/Fail)</b>	No
<b>Subject Panel</b>	Physical Sciences
<b>Moderator</b>	Dr Jorge Chacon
<b>External Examiner</b>	M Symes
<b>Accreditation Details</b>	This module is accredited by the Royal Society of Chemistry (RSC) as part of the BSc (Hons) Chemistry Programme.
<b>Changes/Version Number</b>	3.07 Update of Module Delivery (Section 9), to include some compulsory face-to-face sessions. Hybrid Online with mandatory face-to-face learning on Campus, into T1 & T2

### Assessment: (also refer to Assessment Outcomes Grids below)

Laboratory Reports 70%  
Written Assignment 25%  
PDP related activities 5%

(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.)

<b>Component 1</b>					
<b>Assessment Type (Footnote B.)</b>	<b>Learning Outcome (1)</b>	<b>Learning Outcome (2)</b>	<b>Learning Outcome (3)</b>	<b>Weighting (%) of Assessment Element</b>	<b>Timetabled Contact Hours</b>
Dissertation/ Project report/ Thesis	✓	✓	✓	25	5
Laboratory/ Clinical/ Field notebook	✓	✓	✓	70	32
Portfolio of written work			✓	5	3
<b>Combined Total For All Components</b>				100%	40 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)