Module Descriptor

Title	Chemical Laboratory Techniques		
Session	2025/26	**Status**	Published
Code	CHEM08013	**SCQF Level**	8
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Dr Mohammed Yaseen		

Summary of Module

Chemistry based laboratory techniques are vital in areas such as forensic science, food production, 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.

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.

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.

This module will develop the following UWS graduate attributes: critical thinking, teamwork, numeracy, practical skills, analysis and application.

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 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.
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 8** Knowledge of the principal methods of laboratory analysis is 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 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 8** Planning of practical laboratory work. Keeping contemporaneous laboratory records. Analysis of results of laboratory work.
Communication, ICT and Numeracy Skills	**SCQF 8** Use of Excel to present experimental data. Use of Word processing 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 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.

Prerequisites	**Module Code** CHEM07003 CHEM07013	**Module Title** Structure of Chemistry Molecules of Life
	Other or 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. 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. 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.

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)
Laboratory / Practical Demonstration / Workshop	48
Independent Study	152
Please select	
Please select	
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, 10th edition, 2012 ISBN-10 1285051378

Hart, Craine, Hart, Hadad, Organic Chemistry - A Short Course, Houghton Miffin, 12th Edition, 2007

Module Handbook and Workshop 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. Specialist assistive equipment, support provision and adjustment to assessment practice 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 Ciaran Ewins
External Examiner	G Patrick
Accreditation Details	This module is accredited by the Royal Society of Chemistry (RSC) as part of the BSc (Hons) Chemistry Programme.
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	3.07

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
Coursework Laboratory Reports 70%
Assessment 2
Coursework Written Assignment 25% PDP related activities 5%
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**
Laboratory	☒	☒	☒	☐	☐	70	32

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
written report and presentation.	☐	☒	☒	☐	☐	30	8

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		
Combined total for all components						100%	40 hours

Change Control

What	When	Who