

# University of the West of Scotland

## Module Descriptor

Session: 2023/24

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Status: Published

**Title of Module: Chemistry for Environmental & Biosciences**

<b>Code: BIOL07022</b>	<b>SCQF Level: 7</b> (Scottish Credit and Qualifications Framework)	<b>Credit Points: 20</b>	<b>ECTS: 10</b> (European Credit Transfer Scheme)
<b>School:</b>	School of Health and Life Sciences		
<b>Module Co-ordinator:</b>	David Thompson		

### Summary of Module

This module serves as an introduction to the fundamentals of chemistry within the biosciences. Chemistry underpins all biology and students will be introduced to the basics of atomic structure, bonding, the periodic table and chemical reactions. As the course progresses more bioscience-specific aspects such as amino acids and pH will be taught as well as an introduction to the analysis of biological molecules through spectroscopy.

This module will also help prepare students for further coursework in their degree by covering transferable skills through an excel workbook and a data formatting submission.

This is a long-thin module and is taught in terms 1 & 2.

This module will help to create graduates who are critical thinkers, analytical and knowledgeable whilst also being literate, autonomous problem solvers. They will be influential, motivated effective communicators.

### 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	
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### 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 and language of chemistry.
- L2. Display an ability to apply basic chemical knowledge to a range of bioscientific problems.
- L3. Demonstrate an ability to communicate chemical knowledge and information both qualitatively and quantitatively.
- L4. Demonstrate an appreciation of work in a laboratory environment and chemical reactions, tasks and methods

### 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 7. Demonstrating a broad knowledge of some of the main theories, concepts and principles involved in chemistry within the biosciences.
Practice: Applied Knowledge and Understanding	SCQF Level 7. Developing a knowledge of fundamental laboratory techniques and safe practice and the interpretation and presentation of results in laboratory report. Using the knowledge and understanding gained from lecture material in order to tackle set problems and tasks provided in quizzes and workshops. The use of basic calculations in developing a quantitative understanding of basic chemical systems.
Generic Cognitive skills	SCQF Level 7. Accurate record keeping and report writing. Using a range of approaches to addressing problems and exercises issued during the module.
Communication, ICT and Numeracy Skills	SCQF Level 7. The ability to compile, evaluate, interpret and present information from a wide variety of sources.  The use of basic numerical and graph skills.  The ability to produce written reports using word and excel.

Autonomy, Accountability and Working with others	SCQF Level 7. Exercising some initiative and independence in carrying out independent learning through workshops and quizzes. Appreciating and applying a professional attitude to individual safety and to the safety of others within a laboratory environment.	
<b>Pre-requisites:</b>	Before undertaking this module the student should have undertaken the following:	
	<b>Module Code:</b>	<b>Module Title:</b>
	<b>Other:</b>	
<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>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</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)
Lecture/Core Content Delivery	18
Tutorial/Synchronous Support Activity	18
Laboratory/Practical Demonstration/Workshop	12
Asynchronous Class Activity	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:</p> <p>Chemistry for the biosciences: the essential concepts / Jonathan Crowe, Tony Bradshaw. New York : Oxford University Press, 2010. 2nd ed</p> <p>General chemistry / Darrell D. Ebbing, Steven D. Gammon. Boston, Mass. : Cengage Learning, c2017. 11th ed</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>	
<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](#)

Where a module has Professional, Statutory or Regulatory Body requirements these will be listed here: This module has a practical element as part of the Royal Society of Biology accreditation which must be attended

### Supplemental Information

<b>Programme Board</b>	Biological Sciences and Health
<b>Assessment Results (Pass/Fail)</b>	No
<b>Subject Panel</b>	Biology L7-L11
<b>Moderator</b>	Kiri Rodgers
<b>External Examiner</b>	A Tsaousis
<b>Accreditation Details</b>	
<b>Changes/Version Number</b>	1

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

Assessment 1: Portfolio of Written work. Students will complete four quizzes and four workshops spread evenly throughout the module (two of each in term 1 and two in term 2).  
 Quizzes. The four quizzes will be five questions each and be designed to ensure the student is developing their fundamental chemistry knowledge. The quizzes will be open book tests, hosted online synchronously.  
 Workshops. Four workshops will assess the student's learning and will cover the use of Microsoft Excel, Data Formatting, maths and chemistry.

60% weighting.

Assessment 2: Report of practical/ field/ clinical work. Students will undertake four laboratory sessions and complete proformas and reports based on those sessions. Two labs will be taken in term 1 and two in term 2.

40% weighting

(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

<b>Assessment Type (Footnote B.)</b>	<b>Learning Outcome (1)</b>	<b>Learning Outcome (2)</b>	<b>Learning Outcome (3)</b>	<b>Learning Outcome (4)</b>	<b>Weighting (%) of Assessment Element</b>	<b>Timetabled Contact Hours</b>
Portfolio of written work	✓	✓	✓		60	10

#### Component 2

Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Learning Outcome (4)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Portfolio of practical work		✓	✓	✓	40	16
<b>Combined Total For All Components</b>					100%	26 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**

UWS Equality and Diversity Policy

In line with current legislation (Equality Act, 2010) and the UWS Equality, Diversity, and Human Rights Code, our modules are accessible and inclusive, with reasonable adjustment for different needs where appropriate. Module materials comply with University guidance on inclusive learning and teaching, and specialist assistive equipment, support provision and adjustment to assessment practice will be made in accordance with UWS policy and regulations. Where modules require practical and/or laboratory-based learning or assessment required to meet accrediting body requirements the University will make reasonable adjustment such as adjustable height benches or assistance of a 'buddy' or helper. Please refer to the UWS Equality and Diversity Policy at the following link: [UWS Equality and Diversity Policy](#)

**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)