Module Descriptor

Title	Organic Chemistry 3		
Session	2025/26	**Status**	Published
Code	CHEM09004	**SCQF Level**	9
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Ciaran Ewins		

Summary of Module

The first section of the module will deals with the important reactions; nucleophilic substitution reactions (SN1 and SN2), alkene forming elimination reactions (E1 and E2 and E1cb), formation and hydrolysis of esters. There is a study of carbanions and enolate ions and their characteristic reactions such as Adol and Claisen reactions and their importance in organic synthesis. The section on carbanions is then extended to include the synthetic importance of acetoacetic ester and diethyl malonate as well as Michael additions. The concept of the use of protecting and blocking groups in organic chemistry will then be introduced with particular application to the synthesis of peptides.

Structure and properties of man-made and naturally occurring polymers including common addition and condensation polymers, carbohydrates and proteins. Stereochemistry and application of polarimetry will be covered. Applications of spectroscopy and computer modelling in organic chemistry will be introduced.

Those who complete this module will have developed competencies in report writing, working to deadlines.

There is a lab programme which includes the aldol condensation, pyrrole and coumarin synthesis formation and a green Wittig reaction. The important organic chemistry techniques of purification, chromatography and spectroscopy are used extensively in these labs.

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 competence in applying the key principles and theories relating to stereochemistry and mechanisms of organic chemical reactions
L2	Display a critical understanding of the use of carbanions in organic synthesis
L3	Display a detailed knowledge of man-made and natural polymers.
L4	Display a detailed knowledge of the use of spectroscopy in substance identification
L5	Describe common organic chemistry laboratory procedures

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 9** Students should demonstrate a broad and integrated knowledge of general organic mechanisms, carbanions and their applications in organic synthesis, ,the importance of protecting and blocking groups, and the chemistry of selected heterocyclic molecules. They should also demonstrate a critical knowledge of the underlying principals and concepts behind these topics.
Practice: Applied Knowledge and Understanding	**Please select SCQF Level** Students should be able to describe a selection of principal skills and practices in the chemical laboratory in order to carry out a series of laboratory investigations
Generic Cognitive skills	**Please select SCQF Level** Use the concepts and information provided to analyse problems in organic synthesis
Communication, ICT and Numeracy Skills	**Please select SCQF Level** Students should be able to use a range of IT skills to retrieve and present in written form information from scientific data bases to support their studies. Students should be able to demonstrate the use of specialist Chemical software
Autonomy, Accountability and Working with Others	**Please select SCQF Level** Students exercise autonomy and initiative in using IT skills in the production of coursework

Prerequisites	**Module Code** CHEM08002	**Module Title** Organic Chemistry 2
	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.	
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	24
Laboratory / Practical Demonstration / Workshop	24
Independent Study	152
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: Organic Chemistry 9th Edition, John McMurray (2015), Brooks/Cole ISBN-13:978-1305080485 ChemDraw Professional - Revvity Signals Ltd
(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 Scienes
Moderator	Callum McHugh
External Examiner	Graham L 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	2.19

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
Component 1 - Class test 50%
Assessment 2
Component 2 -Lab Reports 30%
Assessment 3
Component 2 -Coursework 20%
(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**
Class Test	☒	☒	☒	☒	☐	50	2

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

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

Change Control

What	**When**	**Who**