Module Descriptor

Title	Scientific Investigation		
Session	2025/26	**Status**	Published
Code	CHEM07009	**SCQF Level**	7
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Mostafa Rateb		

Summary of Module

This module adopts a student-centred learning approach to the general introduction of scientific investigation with a focus in authentic topic areas appropriate to the degree programme being followed. The development of information retrieval and presentation skills play a key role in this module. Both generic and cohort specific delivery and assessment of the module will undertaken be through a selection of activities such as lectures, case studies, lab-based exercises, reports and presentations.

Authentic information retrieval tasks are set throughout the module, with support provided to enable the production of the required outputs.The context within which the material is delivered will vary according to the student's degree programme and area of interest.

The general areas covered and assessed are as follows:

1. The importance of scientific investigation and methodology.

2. Practical skills in scientific investigation, including (but not limited to) data recording, report writing and presentation skills both oral and written.

3. Personal Development Planning and reflective practice appropriate to each student's scientific discipline.

Activities underpinning Personal Development Planning (PDP) are integrated throughout the module and students are required to consider their own reflective practice.

The graduate attributes relevant to this module are given below:

- Academic: Critical thinker, analytical, enquiring, knowledgeable, digitally literate, problem solver, autonomous, incisive, innovative
- Personal: Effective communicator, influential, motivated, team player
- Professional: Collaborative, research-minded, enterprising, ambitious, driven

Module Delivery Method	On-Campus[1] ☒	Hybrid[2] ☐	Online[3] ☐	Work -Based Learning[4] ☐
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	Display knowledge of the basic principles, techniques and applications of scientific investigation methodology.
L2	Demonstrate the development of skills in researching, assembling and presenting information relevant to a specific scientific discipline.
L3	Present information gathered from studies based on specific topics appropriate to the student's interests.
L4	Demonstrate reflective practice in the evaluation and planning of personal development.
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 7** Developing a basic understanding of the role of scientific methodology. Developing an appreciation of the various scientific techniques and disciplines involved in investigative scientific procedures in a range of contexts, including forensic science, chemistry, biology, physics, psychology, environmental and health-related disciplines. Developing an understanding of what is required in scientific report writing and the quality, use and accurate citation of reference materials.

[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

Practice: Applied Knowledge and Understanding	**SCQF 7** An appreciation of the use of scientific techniques (such as chromatography, DNA fingerprinting, trace analysis in forensic science). A basic understanding of how they work in routine and non routine contexts. An understanding of the basic requirements and structure of a scientific report.
Generic Cognitive skills	**SCQF 7** Gathering, evaluating and presenting information, formulating arguments based on evidence, use of word processing in structured report writing, use and citation of references.
Communication, ICT and Numeracy Skills	**SCQF 7** Information retrieval from a variety of sources, its assessment and integration. Structured report writing. Presentation of information in a variety of formats using a range of methods.
Autonomy, Accountability and Working with Others	**SCQF 7** Working to deadlines and working with others to achieve outcomes within a defined context and timescale. Developing a student centered approach to learning and the application of reflective practice in PDP.

Prerequisites	**Module Code**	**Module Title**
	Other Or, suitable appropriate background	
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. 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 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), 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** (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture / Core Content Delivery	12
Tutorial / Synchronous Support Activity	24
Laboratory / Practical Demonstration / Workshop	0
Independent Study	164
Please select	
Please select	

TOTAL	200

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Access to library materials (internet, e-journals, books) relevant to individual projects Access to internet sources relevant to individual projects.
(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 Sciences
Moderator	Callum McHugh
External Examiner	TBC
Accreditation Details	This module is accredited by IBMS as part of BSc (Hons) Biomedical Science; accredited by IBMS and approved by HPC as part of BSc (Hons) Advanced Biomedical Science; accredited by REHIS as part of BSc (Hons) Environmental Health; accredited by IOSH as part of BSc Occupational Safety and Health. Accredited by Royal Society of Chemistry (RSC) as part of BSc (Hons) Chemistry programme.
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	2.21 Attendance and Engagement statements updated Equality statement updated

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
Continuous assessment (100%)
Assessment 2
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**
Continuous assessment	☒	☒	☒	☒	☐	75	0

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Continuous assessment	☒	☒	☒	☒	☐	25	0

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		
Combined total for all components						100%	0 hours

Change Control

What	**When**	**Who**
Attendance and engagement statements updated	March 2025	M. Rateb
Equality statement updated	March 205	M. Rateb