Module Descriptor

Title	Advanced Laboratory Techniques		
Session	2025/26	**Status**	Published
Code	BIOL11025	**SCQF Level**	11
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Health and Life Sciences**		
Module Co-ordinator	Steven Kelly		

Summary of Module

This module provides the foundation for the execution of good research in biotechnology or research laboratories.

This module will allow students to carry out a wide range of practical techniques (or equivalents) in an array of disciplines and introduce key concepts in research methodologies, health and safety and good laboratory practice critical to laboratory work .

Topics covered include laboratory health & safety, risk assessment, principles of experimental design, COSHH, Good Laboratory Practice, and notebook keeping.

This module will work to develop a number of the key "I am UWS" Graduate Attributes to make those who complete the module (e.g.) Universal Work Ready Successful. These will include students who complete the module being; Analytical, Inquiring, Digitally literate, Autonomous, Effective communicator, Collaborative, Research-minded and 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)	

[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

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 a critical awareness of the Health and Safety issues involved in working in a life science laboratory.
L2	Demonstrate a critical understanding of the main requirements of GLP
L3	Demonstrate a critical understanding of issues related to data production and analysis
L4	Show proficiency (practical or knowledge-based) in carrying out a range of laboratory techniques
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 11** Demonstrate a critical awareness of current research skills and practical (or virtual equivalent) techniques used in research or biotechnology laboratories. Demonstrate a critical awareness of Health and Safety requirements within the research sector or biotechnology industry.
Practice: Applied Knowledge and Understanding	**SCQF 11** Apply a range of standard and specialised research or practical (or virtual equivalent) techniques and techniques of enquiry. Plan and execute a significant project of research, investigation or development.
Generic Cognitive skills	**SCQF 11** Apply critical analysis, evaluation and synthesis to data obtained from laboratory techniques which are at the forefront of, or informed by, developments at the forefront of research or biotechnology.
Communication, ICT and Numeracy Skills	**SCQF 11** Undertake critical evaluations of a wide range of numerical and graphical data.
Autonomy, Accountability and Working with Others	**SCQF 11** Exercise substantial autonomy and initiative in professional and research activities.

Prerequisites	**Module Code**	**Module Title**
	Other	
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 will be delivered by a mix of tutorials, workshops and laboratory sessions. ICT will be used extensively to analyse and present experimental data.

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)
Tutorial / Synchronous Support Activity	12
Laboratory / Practical Demonstration / Workshop	36
Independent Study	152
n/a	
n/a	
n/a	
TOTAL	200

Indicative Resources

The following materials form essential underpinning for the module content and ultimately for the learning outcomes:

Ruxton, G D and Colegrave, N. (2016), Experimental Design for the Life Science; 4th edition. Oxford University Press

Whitlock, M and Schluter, D (2014), The Analysis of Biological Data; 2nd edition. W.H.Freeman & Co Ltd

Advanced Laboratory Techniques VLE Site

(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:

Attendance at synchronous sessions (lectures, workshops, practical, and tutorials), completion of asynchronous activities, and submission of assessments to meet the learning outcomes of the module.

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. 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.
(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	**Biological Sciences Health**
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	Biology
Moderator	Gail McGarvie
External Examiner	A Tsaousis
Accreditation Details	
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	2

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
A laboratory report portfolio on the practical (or virtual equivalent) sessions (70%)
Assessment 2
A logbook completed using GLP (30%)
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**	**Timetabled Contact**

						Element (%)	Hours
Report of practical/ field/ clinical work	☐	☐	☒	☒	☐	70	2

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Laboratory/ Clinical/ Field notebook	☒	☒	☐	☐	☐	30	1

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

Change Control

What	When	Who