

University of the West of Scotland

Module Descriptor

Session: 2022/23

Last modified: 12/04/2022 15:27:58

Status: Published

Title of Module: Advanced Laboratory Techniques

Code: BIOL11025	SCQF Level: 11 (Scottish Credit and Qualifications Framework)	Credit Points: 20	ECTS: 10 (European Credit Transfer Scheme)
School:	School of 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

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
	✓	

Learning Outcomes: (maximum of 5 statements)

On successful completion of this module the student will be able to:

- 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

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 Level 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 Level 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 Level 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 Level 11. Undertake critical evaluations of a wide range of numerical and graphical data.
Autonomy, Accountability and Working with others	SCQF Level 11. Exercise substantial autonomy and initiative in professional and research activities.

Pre-requisites:

Before undertaking this module the student should have undertaken the following:

Module Code:

Module Title:

	Other:	
Co-requisites	Module Code:	Module Title:

* Indicates that module descriptor is not published.

Learning and Teaching

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

(Normally totalling 200 hours):

(Note: Learning hours include both contact hours and hours spent on other learning activities)

Lecture/Core Content Delivery	6
Tutorial/Synchronous Support Activity	4
Laboratory/Practical Demonstration/Workshop	30
Independent Study	160
	200 Hours Total

**Indicative Resources: (eg. Core text, journals, internet access)

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)

Engagement Requirements

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: 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.

Supplemental Information

Programme Board	Biological Sciences and Health
Assessment Results (Pass/Fail)	No
Subject Panel	Biology L7-11
Moderator	Gail McGarvie
External Examiner	A Tsaousis
Accreditation Details	
Changes/Version Number	1

Assessment: (also refer to Assessment Outcomes Grids below)

A laboratory report portfolio on the practical (or virtual equivalent) sessions (70%)

A logbook completed using GLP (30%)

(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**

Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Learning Outcome (4)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Report of practical/ field/ clinical work			✓	✓	70	2

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
Laboratory/ Clinical/ Field notebook	✓	✓			30	1
Combined Total For All Components					100%	3 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

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](#)

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(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)