Module Descriptor

Title	Research Design		
Session	2025/26	**Status**	Published
Code	BIOL11007	**SCQF Level**	11
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Health and Life Sciences**		
Module Co-ordinator	Roderick Williams		

Summary of Module

In this module provides the foundation for the execution of good research. Well-planned research is the basis for increasing knowledge in the field of biomedical and life sciences and understanding of the processes involved is essential for the execution of a successful research project. These fundamentals include the ability to read and critically assess previous work, an understanding of the application and limitations of statistical techniques and the competence to describe and to write, following accepted scientific practice, a comprehensive research proposal.

Topics to be covered in the module include academic writing, practical statistical analysis, ethics, risk assessment, COSHH, principles of experimental design – validity and efficiency of experiments, requirements of a rigorous research proposal, assessment of research proposals.

The fully online/distance learning version of the module is available only to students currently employed by an appropriate UK-based healthcare provider (e.g. IBMS-approved training site).

This module will work to develop a number of the key "I am UWS" Graduate Attributes to make those who complete the module, have Universal skills, that will make them Work Ready and Successful.

Students undertaking an IBMS-accredited degree are required to complete the class test for this module under closed-book, invigilated conditions. For distance learning students, this may be arranged either on campus or through pre-approved workplace invigilation. If neither option is possible, students may sit the test in their own space. However, in such cases, they must subsequently participate in an Integrity Check (a live oral discussion with the assessment team to verify the integrity of their test performance). If the assessment team determines that the oral explanations do not adequately support the written submission, the matter will be referred to the Academic Integrity Panel, and disciplinary action may follow.

Please contact the IBMS-accredited programme lead with any queries.

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	Design and use a spreadsheet to help with statistical calculations to critically evaluate laboratory data.
L2	Demonstrate a critical awareness of the Health and Safety issues involved in working in a life science laboratory.
L3	Demonstrate critical understanding of the ethical considerations appropriate to the field of study.
L4	Construct a rigorous research proposal.
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** Evaluating and planning a research proposal, taking account of any ethical considerations.
Practice: Applied Knowledge and Understanding	**SCQF 11** Recording, presenting and analysing data by means of modern statistical methods
Generic Cognitive skills	**SCQF 11** Carrying out detailed risk and COSHH assessments for work in the biomedical and life science industry

[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

Communication, ICT and Numeracy Skills	**SCQF 11** Using IT (especially Microsoft Office, Excel and Word) for the preparation of a research proposal
Autonomy, Accountability and Working with Others	**SCQF 11** Collaboratively planning work activities and deciding on individual responsibilities.

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 means of lectures, practical computing sessions and tutorials.

Students will be required to access lecture notes, links to reference sources and other support materials on VLE. This will provide students with core material which forms the basis of the syllabus and extensive supplementary material to broaden their reading within the subject.

Lectures will deliver fundamental information which will assist students in understanding key concepts relevant to research design, including ethics and health and safety considerations. Practical computing sessions will facilitate learning in statistical methods and experience of using statistical software.

Assessment for the module will be based on a statistics assignment (30%) and a fully detailed research proposal and PowerPoint presentation (70%), to include introduction, scientific hypothesis to be tested, capabilities, information on sample preparation (including risk and COSHH assessments), a discussion of techniques to be used, analysis of costs and ethical requirements of proposed work.

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
Tutorial / Synchronous Support Activity	12
Independent Study	164
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: The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Bioethics for Scientists, J. Bryant., L Baggott la Velle & J. Searle (Eds), Wiley (2002) ISBN-10: 0471495328 Bioethics: An introduction for the Biosciences, B. Mepham, OUP Oxford (2008) ISBN-10: 0199214301
(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, tutorials and practicals), completion of asynchronous activities, and submission of assessments to meet the learning outcomes of the module. Attendance at synchronous sessions is not required for students undertaking the distance learning version 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	Andrew MacKenzie
External Examiner	A Khan
Accreditation Details	IBMS
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	2.12

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
Assessment for the module will be based on a statistics assignment (30%)
Assessment 2
Fully detailed research proposal and PowerPoint presentation (70%), to include introduction, scientific hypothesis to be tested, capabilities, information on sample preparation (including risk and COSHH assessments), a discussion of techniques to be used, analysis of costs and ethical requirements of proposed work.
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**
Class test (written)	☒	☒	☒	☒	☐	30	2

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Presentation	☐	☒	☒	☒	☐	70	2

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐	0	0
Combined total for all components						100%	4 hours

Change Control

What	When	Who