

University of the West of Scotland

Module Descriptor

Session: 2023/24

Last modified: 14/02/2023 10:36:26

Status: Published

Title of Module: Fundamentals of Life

Code: BIOL07023	SCQF Level: 7 (Scottish Credit and Qualifications Framework)	Credit Points: 40	ECTS: 20 (European Credit Transfer Scheme)
School:	School of Health and Life Sciences		
Module Co-ordinator:	Robin William Freeburn		

Summary of Module

This module is designed as part of a common Level 7 year for all programmes in the Life Science portfolio. As such, it introduces the basic concepts of life and provides underpinning for future study in any area of life sciences including Biosciences, Biomedical Science, Environmental or Occupational Health science.

Topics will include;

- An introduction to the nature and scope of biology, and to the scientific method.
- Cell structure and function including the chemical composition and role of macromolecules (carbohydrates, lipids, proteins and nucleic acids) in the cell.
- Energy acquisition and use will be considered in photosynthesis and respiration, along with the role of enzymes and metabolic pathways.
- The processes of DNA replication, transcription and translation at an introductory level.
- Cell division processes will be investigated by describing the importance of the cell cycle, and the processes of mitosis and meiosis.

An introduction to the range of cells, both prokaryotic and eukaryotic, will serve to introduce students to the concept of diversity at the cellular level, and the role of cells as components of multicellular organisms will be outlined.

The teaching and learning of skills and graduate attributes will be an integral part of this module with laboratory classes incorporating planning, H&S, data analysis, and laboratory skills a key theme. Additionally blended learning, group work and student-led sessions will be at the centre of the student experience.

- To build a background knowledge and understanding of the basics of cellular life.
- To teach basic skills in a bioscience laboratory.

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. Outline the features of biological systems at the biochemical and cellular levels.
- L2. Demonstrate the development of skills in researching, assembling and presenting information relevant to a specific scientific discipline.
- L3. Design, Perform and report on fundamental laboratory procedures and demonstrate practical skills in performing basic laboratory procedures and assays.
- L4. Demonstrate reflective practice in the evaluation and planning of personal development.
- L5. Use a range of techniques, including appropriate computer software, to analyse and display scientific data.

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 7. Demonstrate knowledge of cell structure and function, the importance of energy and metabolic pathways, and the central role of cell division in the continuity of life.
Practice: Applied Knowledge and Understanding	SCQF Level 7. Develop an appreciation of the role of the biosciences in society, and the importance of cell and molecular biology in the context of basic science, and in medical and biotechnological applications.
Generic Cognitive skills	SCQF Level 7. Use a range of approaches to develop analytical skills in theoretical and practical aspects of cell and molecular biology.

Communication, ICT and Numeracy Skills	SCQF Level 7. Develop skills in gathering and analysing information in the biosciences, from a range of sources, using IT skills as appropriate.
Autonomy, Accountability and Working with others	SCQF Level 7. Work with others in the investigation of laboratory-based exercises in a range of topics in cellular and molecular aspects of the biosciences. Plan and implement scientific practice in a laboratory setting including all health & safety, technical and data analysis steps.

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	
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	20
Tutorial/Synchronous Support Activity	10
Laboratory/Practical Demonstration/Workshop	30
Asynchronous Class Activity	46
Independent Study	294
	400 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:

Textbook: Biology (Openstax - Free online textbook) (<https://openstax.org/details/books/biology>).

Alternative Textbook: Raven, Johnson, Mason, Losos and Stinger. (2018) Biology (11th edition). McGraw-Hill education (ISBN 978-1-259-25476-5).

VLE: Lecture summaries, seminar and other module information will be available in the Virtual Learning Environment. VLE material based on Biology (Openstax) will be provided.

Laboratory manual / Guidance.

(**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.

This module has a practical element as part of the Royal Society of Biology accreditation which must be attended.

Supplemental Information

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

Assessment: (also refer to Assessment Outcomes Grids below)

Coursework 1 - Laboratory based work will be assessed using competency-based testing which will be scheduled into the lab sessions. Practice sessions and multiple opportunities to practice techniques and skills will be provided before summative examination (Pass/Fail outcome which must be passed to complete the module assessment).

Coursework 2 - Structured learning aimed at completing a series of tasks. This will be as part of timetabled sessions using a range of teaching spaces (Computer lab, technology-enabled learning-suites, Collaborative zones) that will enable students to amass a portfolio of written work (Presentations, Essay, workbooks, case studies) both individually and as part of group working. This will demonstrate both knowledge and skill acquisition commensurate with their level and programme of study. Laboratory skills will also be included through a Workbook/portfolio of completed techniques and skills.

Coursework 3 - A series of short focused tests aimed at building basic biological knowledge. These tests will be completed asynchronously within blocks of the module with the opportunity for formative practice tests also provided to students.

(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)	Learning Outcome (5)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Clinical/ Fieldwork/ Practical skills assessment/ Debate/ Interview/ Viva voce/ Oral			✓			0	12

Component 2

Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Learning Outcome (4)	Learning Outcome (5)	Weighting (% of Assessment Element)	Timetabled Contact Hours
Portfolio of written work	✓	✓		✓	✓	70	3

Component 3

Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Learning Outcome (4)	Learning Outcome (5)	Weighting (% of Assessment Element)	Timetabled Contact Hours
Class test (written)	✓	✓			✓	30	0
Combined Total For All Components						100%	15 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)