Module Descriptor

Title	Cells & Sugars		
Session	2026/27	**Status**	Published
Code	BIOL08005	**SCQF Level**	8
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Health and Life Sciences**		
Module Co-ordinator	Gary Boyd		

Summary of Module

This module begins with revision of basic chemical ideas and an introduction to sugars and macromolecules. It covers the energy metabolism of the cell, particularly with regard to carbohydrates: glycolysis and fermentation of glucose; the tricarboxylic acid cycle; gluconeogenesis; glycogen metabolism, including an introduction to metabolic control mechanisms. Aspects of cell structure are studied with particular relationship to energy metabolism, including the role of mitochondria in oxidative phosphorylation. Non-carbohydrate energy sources (triacylglycerols and amino acids) are introduced. The module is taught using lectures, tutorials and practical work related to the lecture material.

This module will work to develop a number of the key "I am UWS" Graduate Attributes to make those who complete the module; Universal (Analytical, collaborative), Work Ready (Knowledgeable, digitally literate, effective communicator) and Successful (Autonomous).

Module Delivery Method	**On-Campus[1]**	**Hybrid[2]**	**Online[3]**	**Work -Based Learning[4]**
	☒	☐	☐	☐

Campuses for Module Delivery			
	☐ Ayr	☒ Lanarkshire	☐ Online / Distance Learning
	☐ Dumfries	☐ London	☐ Other (specify)
		☐ Paisley	

[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	Describe the key pathways of carbohydrate metabolism and their control.
L2	Explain cellular structures in relation to energy metabolism.
L3	Perform and report on laboratory procedures in cell biology and biochemistry.
L4	
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 8** A broad knowledge of metabolic processes and cell structure. Detailed knowledge and understanding of pathways of carbohydrate metabolism.
Practice: Applied Knowledge and Understanding	**SCQF 8** Use of laboratory techniques in biochemistry and cell structure.
Generic Cognitive skills	**SCQF 8** Collate and evaluate material from lectures and literature to develop an understanding of areas of biochemistry and cell structure. Analyse and evaluate material gained from practical sessions.
Communication, ICT and Numeracy Skills	**SCQF 8** Communicating information in laboratory reports using word processing and spreadsheet skills for text, tabular information, calculations and graphs.
Autonomy, Accountability and Working with Others	**SCQF 8** Work effectively in groups in laboratory situations. Contribute to and lead in group discussions in tutorials.

Prerequisites	**Module Code** BIOL07023	**Module Title** Fundamentals of Life
	Other BIOL07022 Chemistry with Environmental and Biosciences	
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 using a blended approach with lectures, tutorials and practical sessions. Students will be required to access lecture content, links to reference sources and other support materials on the 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.

Practical sessions are extremely important in this module and groups will be created within the cohort in order to accommodate laboratory learning. Research skills, academic writing, presentation and practical skills will be enhanced during this module.

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	31
Tutorial / Synchronous Support Activity	8
Laboratory / Practical Demonstration / Workshop	9
Independent Study	152
n/a	
n/a	
TOTAL	200

Indicative Resources

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

Biochemistry – Berg, Tymoczko & Stryer, (2023) 10th. Ed. Freeman

Raven P.H. et al (Eds) 2022 Biology, 13th Edition. McGraw Hill.

Laboratory handbook, UWS.

(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 attending and participating in all timetabled programme activities including on-campus and online teaching sessions, asynchronous online learning activities, placement, work-based elements, 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 all synchronous sessions (lectures, tutorials and practicals), completion of asynchronous activities, and submission of assessments to meet the learning outcomes of the module. This module has a practical element which must be attended.

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	Robin Freeburn
External Examiner	J Butcher
Accreditation Details	IBMS/ HCPC/ RSB
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	3

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
Exam 60% of final mark
Assessment 2
Coursework 40% of final mark
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
Unseen closed book (standard)	☒	☒	☐	☐	☐	60	2

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Report of practical/ field/ clinical work	☒	☒	☒	☐	☐	40	3

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		
Combined total for all components						100%	5 hours

Change Control

What	When	Who
Indicative Resources	July 2025	F Menzies