Module Descriptor

Title	Intermediate Blood Sciences		
Session	2026/27	**Status**	Published
Code	BIOL09032	**SCQF Level**	9
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Health and Life Sciences**		
Module Co-ordinator	Robin Freeburn		

Summary of Module

The module expands upon the clinical chemistry and blood sciences covered in Core Biomedical Science (BIOL08019).

We build upon the QA/QC work in Core Biomedical Science introducing ROC curves and PPV/NPV. Westgard analysis and Levey-Jennings plots are discussed.

In the clinical chemistry component the following topics are covered; Fluid and electrolyte balance. Plasma proteins along with their respective functions and pathologies such as hypo-and hypergammaglobinopathies. Disorders of carbohydrate metabolism will be examined followed by plasma lipids disorders. The endocrinology of hypothalamus/pituitary, thyroid, adrenal and gonadal glands and the role of the biomedical scientist in diagnosing endocrinological pathologies discussed. Disorders of calcium and phosphate metabolism will also be introduced. The module will also include cover therapeutic drug monitoring and chemical toxicology.

The second part of this module details haematological aspects including the components of blood and the structure and function of blood cells. It provides an in depth guide to processes in haemopoiesis, structure and role of haemoglobin, haemostasis and an insight into some of the more common haemopoietic disorders. From a laboratory perspective the student will gain experience in performing, microscopic analysis of cells in the blood, Blood grouping techniques, transfusion science, measuring RBC indicies and identifying haemolytic red cell disorders. The laboratory sessions provide an introduction to good laboratory practice, use of Point of Care Testing (PoCT) and safety around blood handling.

During this module, the student will gain an appreciation for scientific evidence supporting concepts and our knowledge of the subject area. Students will be encouraged to utilise research literature and gain skills in literature searching and acquisition.

To provide an introductory level knowledge and experience in Clinical Chemistry and Haematology.

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 - Analytical, Inquiring, Collaborative and Research Minded. Work Ready - Knowledgeable, Problem-solver, Motivated Successful - Incisive, Imaginative, Resilient, 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)	

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 an appreciation of some of the elementary concepts and language employed in Clinical Biochemistry to enable a broad and integrated comprehension of the role of Chemistry in a clinical and pathological setting.
L2	Develop a detailed knowledge and appreciation of the normal functioning of the blood, including the genetics and clinical importance of the major blood group systems, and of the mechanisms of haemostasis.
L3	Demonstrate a critical awareness of the importance of data handling and interpretation.
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 9** A broad and integrated knowledge of clinical biochemistry, the relevant background physiology and biochemistry, and its application in clinical diagnosis and forensic science. A critical understanding of the analytical techniques used in diagnosis.
Practice: Applied Knowledge and Understanding	**SCQF 9**

[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

	To utilize a selection of the practices and methodology taught in the module to carry out a series of laboratory and theoretical investigations relevant to clinical diagnosis and forensic science.
Generic Cognitive skills	**SCQF 9** To undertake a critical analysis of pathological data presented to form a diagnosis.
Communication, ICT and Numeracy Skills	**SCQF 9** To use a range of IT skills such as the use of scientific data bases to support and enhance studies.
Autonomy, Accountability and Working with Others	**SCQF 9** To exercise autonomy and initiative in preparing reports and solving individual case studies and realize the importance of this in a professional setting.

Prerequisites	**Module Code** BIOL08019 BIOL08005 BIOL08030	**Module Title** Core Biomedical Science Cells & Sugars IBMS Human Biology
	Other Only Available for students on the Programmes BSc (Hons) Applied Biomedical Science) and BSc (Hons) Biomedical Science	
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. During completion of this module, the learning activities undertaken to achieve the module learning outcomes will include formal lectures, structured tutorials, laboratory classes and independent study. VLE-based support materials will be available to support the 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	22
Tutorial / Synchronous Support Activity	6
Laboratory / Practical Demonstration / Workshop	12
Asynchronous Class Activity	8
Independent Study	152
n/a	
TOTAL	200

Indicative Resources

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

Biomedical Science Practice (Fundamentals of Biomedical Science) 3rd Ed. Glencross H., Ahmed N. & Wang Q. (2022) OUP, ISBN: 978-0198831228

Clinical Biochemistry 3rd ed.(Fundamentals of Biomedical Science): Ahmed N. (2025) OUP, ISBN: 9780198845645

Haematology 3e (Fundamentals of Biomedical Science): Moore G., Knight G. & Blann A. (2021) ISBN: 978198826095

Hoffbrand's Essential Haematology (9th Edition) Hoffbrand A.V. (2024) Wiley Blackwell, ISBN: 97801394168156

Data Handling & Analysis (Fundamentals of Biomedical Science). Blann, A (2015) Oxford University Press.

Transplantation and Transfusion Science (Fundamentals of Biomedical Science) 2nd Edition. Avent, N (2018) Oxford University Press

Tietz Fundamentals of Clinical Chemistry and Molecular Diagnostics 8th Ed. Burtis, C. (2018) Elsevier.

(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 teaching 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 Institute of Biomedical Science 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	Farah Jaber
External Examiner	S Haliti
Accreditation Details	IBMS/ HCPC
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	3

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
In order to meet IBMS accreditation requirements, to pass students must achieve an aggregate mark of at least 40%, with no component of assessment lower than 40%. Class Tests (x2) 50%
Assessment 2
Coursework 50%
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)	☒	☒	☐	☐	☐	50	3

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Workbook/ Laboratory	☒	☒	☒	☐	☐	50	0

notebook/ Diary/ Training log/ Learning log							

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**
Moderator Changed Assessment Description updated - 'Written' removed -Component 1- Case Study added component 2 Resource List updated Changed to on campus	Jan 2026	Robin Freeburn