Module Descriptor

Title	Molecular & Cellular Pathology		
Session	2026/27	**Status**	Published
Code	BIOL09033	**SCQF Level**	9
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Health and Life Sciences**		
Module Co-ordinator	Farah Jaber		

Summary of Module

The module will look at the role of molecular and cellular based diagnosis in a range of pathological conditions.

The history and development of cellular pathology will be introduced along with a review of increasing use of molecular based techniques to supplement existing diagnostic methods.

The student will be given an overview of processes involved in diagnosis using cell and tissue specimens. In particular, rationale of fixation will be discussed with particular reference to autolysis and putrefaction. The processing of samples from arrival at specimen reception to preparation of a stained, mounted specimen will be will be outlined, highlighting the importance of quality control. There will be reference to specific staining techniques including haematoxylin and eosin and selected special stains. The important role of immunohistochemistry in cellular pathology will be discussed with reference, for example, to identification of tumour type.

The role of cytology will be introduced, both in general terms and with particular reference to gynaecological cytology.

The role of genetic based techniques in pathology will be analysed and demonstrated, with the increasing importance of diagnostic techniques based on molecular biology. Some examples include specifically in situ hybridisation, PCR and sequencing emphasised by combining technical presentations with examples of applications currently used in a pathology laboratory. Examples of point of care testing (PoCT) will be discussed where applicable. Laboratory classes will be an integral part of this module and will typically involve problem based scenarios related as closely as possible to the clinical situation.

The module will be supported by external practitioners who will deliver lectures for selected parts of the module.

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 - Critical thinker, Analytical, Ethically-minded, Inquiring, Collaborative and Research Minded. Work Ready - Knowledgeable, Digitally Literate, Problem-solver, effective communicator. Successful - Autonomous, Innovative, Imaginative, Creative, Daring.

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 a broad knowledge and understanding of the scope and application of diagnostic pathology in a clinical setting.
L2	Show an ability to analyse, evaluate and interpret case studies in pathology.
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 critical understanding of the molecular and cellular based analytical techniques used in the diagnosis of pathological conditions.
Practice: Applied Knowledge and Understanding	**SCQF 9** To utilise 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.
Generic Cognitive skills	**SCQF 9** To undertake a critical analysis of pathological data presented to form a diagnosis.

[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 9** Communicate effectively orally and in writing. 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**	**Module Title**
	BIOL08012	Genetics
	BIOL08019	Core Biomedical Science
	BIOL08030	IBMS Human Biology
	Other Only Available for students on Programme Codes C910 P BSc/ABS (Applied Biomedical Science), B940 P BSc/BiomS (Biomedical Science) and BSc (Hons) 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. The module will be presented using a mix of traditional and modern learning styles. Formal lectures, Tutorials, laboratory classes and blended learning techniques (Videos, animations, self-assessment questions, external links) will be used to introduce topics including much of the theory behind the techniques used in Pathology. External experts will also contribute to the module delivery, providing real-life examples and experience of pathology in a modern diagnostic laboratory setting.	
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	16
Tutorial / Synchronous Support Activity	16
Laboratory / Practical Demonstration / Workshop	16
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:

Cytopathology (Fundamentals of Biomedical Science) 2nd Edition. Shambayati B. (2018) OUP, ISBN: 978-0199533923

Histopathology (Fundamentals of Biomedical Science) 2nd Edition. Orchard G. & Nation B. (2017) OUP, ISBN: 978-0199574346

Biology (13th edition). Raven, Johnson, Mason, Losos and Stinger (2022) McGraw-Hill education (ISBN 9781265628338).

Benjamin A. Pierce. "Genetics: A Conceptual Approach", 7th Edition, Freeman W. H. & Company, (2020). ISBN: 9781319308315

Subject area Journals i.e. Genetics, Journal of Medical Genetics, Journal of Pathology, Journal of Clinical Pathology.

(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 on-campus for all sessions unless otherwise stated.

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	S Haliti
Accreditation Details	IBMS/ HCPC
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	1

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%. Coursework 1 - 50% of Total Module Marks (comprised as below) Laboratory Final Report (30%) of Total module marks) Laboratory Results Presentation (20% of Total module Marks)
Assessment 2
Case Studies Portfolio (50% of Total Module Marks)
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**
Report of practical/ field/ clinical work	☒	☒	☒	☐	☐	50	0

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Case study	☒	☒	☒	☐	☐	50	2

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		
Combined total for all components						100%	2 hours

Change Control

What	When	Who
External examiner: added Shpresa Haliti	January 2025	F Jaber
Compensation information updated Summary of module updated Indicative resources updated	July 2025	F Menzies