Module Descriptor

Title	IBMS Infection and Immunity		
Session	2026/27	**Status**	Published
Code	BIOL09041	**SCQF Level**	9
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, students will explore microorganisms that pose a threat to human health, gaining insight through a combination of lectures and practical laboratory sessions. They will learn how these pathogens are detected in clinical specimens and examine the quality control measures essential to accurate diagnosis. The module also explores advancements in Point-of-Care Testing (PoCT) relevant to clinical microbiology, including technologies such as lateral flow assays and urinalysis.

Emphasis will be placed on:

Commensals, pathogenic and opportunistic pathogens

Healthcare associated infections

Virulence factors associated with pathogenic microorganisms

Methods used for microbial isolation and dentification

Host immune response to infections from pathogenic microorganisms

The use of chemotherapy, propylaxis and vaccinations for curative and preventive strategies

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.

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	Understand the virulence factors associated with microbial infections.
L2	Critically evaluate ways by which microorganisms can be isolated, identified and treated.
L3	Carry out standard microbiological and cytotoxicity protocols, hands-on and virtually, important for isolation and identification of microorganisms, preventive and curative strategies with emphasis on safely as defined in the local microbiological safety regulations.
L4	Understand the principles of immunology, in particular the immunological response to infection.
L5	Understand immunological response can be used for the identification of microorganisms.

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** Demonstrate knowledge and understanding of essential facts and principles in respect of medical microbiology including the life cycle of selected pathogens; the infection cycle, demonstrate an awareness of inter-relationships between pathogens and host for the development of preventive and curative strategies.

[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

Practice: Applied Knowledge and Understanding	**SCQF 9** Use a range of standard and specialised practical skills to culture bacteria and undertake cytotoxicity assays in a safe working environment.
Generic Cognitive skills	**SCQF 9** Link together different content strands when writing standard scientific reports and laboratory logbook.
Communication, ICT and Numeracy Skills	**SCQF 9** Be able to communicate effectively in writing scientific reports using data analysis and statistics and be able to communicate key findings orally.
Autonomy, Accountability and Working with Others	**SCQF 9** Be able to work individually or in teams as appropriate; show initiative in preparation of laboratory reports and demonstrate an ability to manage time to meet specific deadlines.

Prerequisites	**Module Code** BIOL08031	**Module Title** IBMS Introductory Microbiology
	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. The mode of delivery will be blended, and its content is divided into two components: Infection and Immunity. Lectures will deliver fundamental information which will assist students to understand key concepts and terminologies relevant to the diversity of infectious microorganism, their infection cycle, host immunological response to infection and strategies for preventive and curative treatment. Due to the nature of the highly specialised subjects of microbiology and immunology, there will be a number of new terminologies to learn and understand its significance. Specific language and terminology which will be addressed during the learning environment. Students will be required to access lecture notes, links to reference sources, tutorials, and other support materials on the VLE. Practical sessions will be in the microbiological laboratory at the Lanarkshire campus such as the use selective/differential media to isolate microorganisms from mock samples, identify them using a variety of biochemical and serological tests and use cytotoxicity assays for identifying drugs for curative treatments. Virtual labs will be available to develop skills in disease transmission by cross contamination and synthetic epidemic and the development of preventive strategies to stop or delay transmission of infectious disease e.g., vaccination. A scientific laboratory report will be prepared by students of the virtual and wet laboratory sessions, will provide students with the opportunity to develop skills in data handling, data analysis, the use of statistics for comparative analysis and the ability to use information from research articles, adapt and transfer the knowledge into the new context provided by the practical sessions. All activities in the wet practical sessions should be documented in a logbook. Tutorials will be provided to support development of the skills required to complete the scientific laboratory report.

There will be two online class tests for the infection and immunity components of this module which will provide students with the opportunity to demonstrate theoretical knowledge and critical analytical skill related to the utilisation.

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	8
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:

Madigan, M.T., Aiyer, J., Buckley, D.H., Sattley, W.M., and Stahl, D.A. (2021). Brock Biology of Microorganisms, 15th Edition (Pearson Education).

OpenStax Microbiology available at https://openstax.org/details/books/microbiology

Cappuccino, J.G., and Welsh, C.T. (2017).

Microbiology: A Laboratory Manual, Global Edition (Pearson Education).

Mims, C.A., Dockrell, H.M., Goering, R.V., Roitt, I., Wakelin, D., & Zuckerman, M. Medical Microbiology (6th edition)

Greenwood, D., Slack, R., Barer, M., & Irving, W. (2002) Medical Microbiology: A Guide to Microbial Infections. 16th Edition.

Levy, S.B. (2002). The antibiotic paradox: how the misuse of antibiotics destroys their curative powers.

Walsh, C. Antibiotics: Actions, Origins, Resistance (2003) Oxford Blackwell.

Medical Microbiology 3e (Fundamentals of Biomedical Science), Ford, M (2019) Oxford University Press

Punt, J., Stranford, S.A., Jones, P.P., Owen, J.A. Kuby Immunology (8th Edition) MacMillan Education (2019)

Basic Immunology by Abul K. Abbas and Andrew H. Lichtman; Saunders Publisher, 7th Ed, 2024.

(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 as part of the Royal Society of Biology (RBS) and the Instutute of Biomedical Science (IBMS) accreditation 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	Fiona Menzies
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%.

Two written class/lab Tests on the Infection (30%) and Immunity (30%) components, 60% of final mark
Assessment 2
Coursework, Scientific report (30%) and logbook (10%), 40% of final 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**
Class test (written)	☒	☒	☒	☒	☒	60	4

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Laboratory/ Clinical/ Field notebook	☒	☒	☒	☐	☐	40	0

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

Change Control

What	**When**	**Who**
Summary of module Indicative resources	July 2025	F Menzies