

Module Details	
Module Title	Introductory Microbiology
Module Code	BIS4013-B
Academic Year	2024/5
Credits	20
School	School of Chemistry and Biosciences
FHEQ Level	FHEQ Level 4

Contact Hours	
Type	Hours
Lectures	26
Practical Classes or Workshops	5
Laboratories	9
Directed Study	160

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Semester 2

Module Aims
<p>The importance of microbiology has recently come into sharp focus with the COVID-19 pandemic. This has led to prioritisation of microbiology research and major healthcare developments in this area.</p> <p>This module supports the programme by developing learners' knowledge of the underlying concepts and core principles of Biomedical Science (PLO1) through the development of an understanding of microbial structure, growth and adaptation to new environments. The impact of this on human health will be introduced and built upon further by the Level 5 module Medical Microbiology and Infection Control.</p> <p>This module will support those students who wish to develop a career in either medical or industrial microbiology. It will provide fundamental practical experience of aseptic techniques and bacterial identification.</p>

Outline Syllabus

Academic content:

Structure; function; classification; identification techniques; growth, nutritional and physiological requirements; pathogenesis mechanisms of medically relevant bacteria and fungi.

Bacterial genetics, including structure and replication of prokaryotic DNA; transcription; translation; mutations; plasmids and horizontal gene transfer.

The structure and function of viruses including bacteriophage.

Introduction to basic innate and acquired immunity.

Life cycles and pathological effects of key protozoa and parasites.

Industrial microbiology including food and biotechnology applications.

Laboratory practical classes on the isolation and growth dynamics; identification of bacteria and fungi; aseptic techniques.

Employability and enterprise skills:

Biomedical knowledge and understanding

Health and safety

Record keeping and data entry

Laboratory skills

Critical thinking

Learning Outcomes

Outcome Number	Description
01	On successful completion of this module, students will be able to: Show evidence of breadth and depth of understanding of the fundamental concepts of microbiology (HCPC standard 13).
02	Show evidence of understanding the structure and function of the human body relevant to microbiology, and explain the relationship between health, disease, disorder, and dysfunction (HCPC standard 13).
03	Conduct basic microbiological experiments in a safe and effective manner, following clear instructions and accurately record data using appropriate scientific conventions (HCPC standards 3, 15)
04	Demonstrate personal responsibility for self-directed learning, including self-management of workload and resources (HCPC standards 1, 3).

Learning, Teaching and Assessment Strategy

The LTA strategy encompasses education for employability and equal opportunities for learners.

Concepts, principles and knowledge will be explored in lectures that are characterised by active learning concepts. This theoretical knowledge will be supported by hands-on learning and practical laboratory experience working in small groups. Learners will record and interpret microbiological data and work to deadlines to complete a written report.

The following statement applies to learners that are completing this module as part of an Apprenticeship.

The apprentice must meet all the required standards when measured against each individual learning outcome for the module (as mapped below):

Healthcare Science Practitioner: 5.1, 5.5

This module will be assessed by a closed-book MCQ exam and an assessed practical.

Formative MCQ tests will be made available via the virtual learning environment (VLE) at the completion of each teaching block as well as at the end of each semester, providing immediate feedback for learners to self-assess their understanding and progress. Formative feedback on the laboratory skills will be provided in-class.

Private study will be facilitated and supported via the use of the VLE which will provide coursework advice and feedback, and revision support.

The assessed practical will encompass a skills aspect and a subsequent written and data interpretative piece comprising a coursework portfolio.

Reassessment of failed elements will be as per the initial method of assessment. Where reassessment of the practical element is required, students will be given a data set or an opportunity to complete the practical on an alternative occasion, whichever is more appropriate.

Mode of Assessment

Type	Method	Description	Weighting
Summative	Coursework - Written	Assessment of Lab skills and written report (coursework portfolio)	50%
Summative	Examination - MCQ	Formal exam assessing knowledge obtained through lectures and directed study. (90 mins)	50%

Reading List

To access the reading list for this module, please visit <https://bradford.rl.talis.com/index.html>

Please note:

This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.