



## MODULE SPECIFICATION

<b>Academic Year (student cohort covered by specification)</b>	2024-25
<b>Module Code</b>	3121
<b>Module Title</b>	Bacteriology & Virology
<b>Module Organiser(s)</b>	Dr Ozan Gundogdu, Professor Martin Hibberd, Dr Eliza Gil
<b>Faculty</b>	Infectious & Tropical Diseases
<b>FHEQ Level</b>	Level 7
<b>Credit Value</b>	<b>CATS:</b> 50 <b>ECTS:</b> 25
<b>HECoS Code</b>	100345:100265:100948 (1:1:1)
<b>Term of Delivery</b>	Term 1
<b>Mode of Delivery</b>	<p>For 2024-25 this module will be delivered by predominantly face-to-face teaching modes.</p> <p>Where specific teaching methods (lectures, seminars, discussion groups) are noted in this module specification these will be delivered by predominantly face-to-face sessions. There will be a combination of live and interactive activities (synchronous learning) as well as recorded or self-directed study (asynchronous learning), plus face-to-face laboratory classes.</p>
<b>Mode of Study</b>	Full-time
<b>Language of Study</b>	English
<b>Pre-Requisites</b>	None
<b>Accreditation by Professional Statutory and Regulatory Body</b>	None
<b>Module Cap (Indicative number of students)</b>	25
<b>Target Audience</b>	Bacteriology & Virology is intended for students, molecular biologists, biochemists and clinically trained graduates intending to work in the field of general medical and molecular bacteriology and virology. For most students, the theoretical part of the module will update and extend their knowledge from their first degree and laboratory and bioinformatics practical classes will provide working knowledge of the "tools of the trade".

<b>Module Description</b>	This module provides a systematic understanding of knowledge, and a critical awareness of current problems and/or new insights of bacteria and viruses and their impact on health. The module provides a comprehensive understanding of techniques used to identify and classify bacteria and viruses, which are covered in lectures and practical classes. Key examples of selected bacteria and viruses highlight diversity and clinical impact, reinforcing understanding of the global impact. The module will provide a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge.	
<b>Duration</b>	10 weeks at 4 days per week	
<b>Timetabling slot</b>	Term 1	
<b>Last Revised (e.g. year changes approved)</b>	July 2024	
<b>Programme(s)</b> This module is linked to the following programme(s)	<b>Status</b>	
MSc Medical Microbiology	Compulsory	

## Module Aim and Intended Learning Outcomes

<b>Overall aim of the module</b>
The overall module aim is to: <ul style="list-style-type: none"> <li>provide a foundation of essential and current knowledge of bacteria, viruses and the host response to them.</li> </ul>
<b>Module Intended Learning Outcomes</b>
Upon successful completion of the module a student will be able to: <ol style="list-style-type: none"> <li>Differentiate the classes of medically important viruses and describe the biological and genomic characteristics of the major groups,</li> <li>Differentiate the classes of medically important bacteria and describe the characteristics of the major groups,</li> <li>Compare and contrast the principles of the pathogenesis of infections and the immune responses to different bacteria and viruses,</li> <li>Describe the principles and applications of genome sequences and genomics,</li> <li>Demonstrate knowledge of and apply a range of laboratory techniques for the isolation, characterisation and laboratory diagnosis of bacteria and viruses, including in vitro growth, purification and detection of proteins and nucleic acids,</li> <li>Implement relevant precautions and safety procedures in a medical microbiology laboratory.</li> </ol>



## Indicative Syllabus

### Session Content

The module is expected to cover the following topics:

#### **Bacteriology**

- Bacterial structure
- Bacterial function
- Bacterial metabolism
- Genetics and genomics
- Classification of bacteria
- Identification strategies
- Diagnostic approaches
- Mechanisms of pathogenesis
- Immune response to bacteria
- Antibiotics and antibiotic resistance

#### **Virology**

- Classification of viruses
- Structure/function of viral nucleic acids
- Viral proteins and virus genetics
- Virus-host cell interactions
- Immune response to viruses
- Virus transmission
- Viral pathogenesis
- Anti-viral therapy
- Laboratory diagnosis of human viral infections

## Teaching and Learning

### Notional Learning Hours

Type of Learning Time	Number of Hours	Expressed as Percentage (%)
Contact time	100	20
Directed self-study	140	28
Self-directed learning	190	38
Assessment, review and revision	70	14
<b>Total</b>	<b>500</b>	<b>100</b>

Student contact time refers to the tutor-mediated time allocated to teaching, provision of guidance and feedback to students. This time includes activities that take place in face-to-face contexts such as lectures, seminars, demonstrations, tutorials, supervised laboratory workshops, practical classes, project supervision as well as where tutors are available for one-to-one discussions and interaction by email.

The division of notional learning hours listed above is indicative and is designed to inform students as to the relative split between interactive and self-directed study.

### Teaching and Learning Strategy

Teaching will consist of formal lectures, group learning/review sessions and tutorials, which will be complemented by online and hands-on practical exercises in the laboratory. Time for private study will be allocated in the timetable, but students will be expected to read around the subjects outside working hours.

## Assessment

### Assessment Strategy

During Term 1, there will be:

- Two equally weighted (25% each) laboratory practical skill assessments, one covering Bacteriology and one covering Virology (combined these make 50% of the module GPA).
- Six equally weighted MCQ assessments, three focussed on Bacteriology and three focussed on Virology: the average of the best 5 scores are taken to calculate the GPA for this assessment (overall weight 10% of the module GPA).

In January, the week preceding the start of Term 2, there will be two further assessments:

- Two timed, unseen written assessments. These will consist of equally weighted (20% each) Bacteriology and Virology sections. The combined GPA for these assessments counts for 40% of the module GPA.

## Summative Assessment

Assessment Type	Assessment Length (i.e. Word Count, Length of presentation in minutes)	Weighting (%)	Intended Module Learning Outcomes Tested
Unseen Written Assessments (Bacteriology & Virology)	2 x 1.5 hours	40 (20% each)	1 – 4
Practical Laboratory Assessments (Bacteriology & Virology)	2 x 3 hours	50 (25% each)	5 & 6
Timed Tests (In-module MCQs)	6 x 20 minutes	10%	1 – 4

### Resitting assessment

Resits will accord with [Chapter 8a](#) of the LSHTM Academic Manual

For students resitting an assessment there will be an approved alternative assessment as detailed below.

Assessment being replaced	Approved Alternative Assessment Type	Approved Alternative Assessment Length (i.e. Word Count, Length of presentation in minutes)
Timed Tests (In-module MCQs)	Written coursework	3,000 words
Practical Laboratory Assessments	For Bacteriology or Virology. Spot test questions on diagnostic techniques. Laboratory based calculations. Short answer questions relating to laboratory techniques and theory.	2 hrs
Written Assessments	Written coursework	3,000 words



## Resources

N/A

## Teaching for Disabilities and Learning Differences

The module addresses students with disabilities or learning differences through the use of Panopto to record live lectures and provision of pre-recorded/online teaching materials which are accessible throughout the programme of study. There will be provision of notes, slides and/or handouts to accompany lectures/seminars. Teaching materials are assessed to ensure they conform to current accessibility guidance.