MODULE SPECIFICATION

Academic Year (student cohort covered by specification)	2021-22
Module Code	3121
Module Title	Bacteriology & Virology
Module Organiser(s)	Dr Richard Stabler, Dr Teresa Cortes, Dr David Allen, Professor Martin Hibberd
Faculty	Infectious & Tropical Diseases
FHEQ Level	Level 7
Credit Value	**CATS:** 50 **ECTS:** 25
HECoS Code	100345:100265:100948 (1:1:1)
Term of Delivery	Term 1
Mode of Delivery	For 2021-22 this module will be delivered both on campus and online. Where specific teaching methods (lectures, seminars, discussion groups) are noted in this module specification these will be delivered using a blended learning approach using either face-to-face or through an online platform. 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 practical classes.
Mode of Study	Full-time
Language of Study	English
Pre-Requisites	None
Accreditation by Professional Statutory and Regulatory Body	None
Module Cap (Indicative number of students)	21
Target Audience	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".

Module Description	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.
Duration	10 weeks at 4 days per week
Timetabling slot	Term 1
Last Revised (e.g. year changes approved)	July 2021

Programme(s) This module is linked to the following programme(s)	**Status**
MSc Medical Microbiology	Compulsory

Module Aim and Intended Learning Outcomes

Overall aim of the module
The overall module aim is to: • provide a foundation of essential and current knowledge of bacteria, viruses and the host response to them.

Module Intended Learning Outcomes
Upon successful completion of the module a student will be able to: 1. Differentiate the classes of medically important viruses and describe the biological and genomic characteristics of the major groups; 2. Differentiate the classes of medically important bacteria and describe the characteristics of the major groups; 3. Compare and contrast the principles of the pathogenesis of infections and the immune responses to different bacteria and viruses; 4. Describe the principles and applications of genome sequences and genomics; 5. 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; 6. Implement relevant precautions and safety procedures in a medical microbiology laboratory.

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 **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
Total	**500**	**100**

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 or online, 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. Student contact time also includes tutor-mediated activities that take place in online environments, which may be synchronous (using real-time digital tools such as Zoom or Blackboard Collaborate Ultra) or asynchronous (using digital tools such as tutor-moderated discussion forums or blogs often delivered through the School's virtual learning environment, Moodle).

The division of notional learning hours listed above is indicative and is designed to inform students as to the relative split between interactive (online or on-campus) 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 laboratory assessments: a practical skills assessment for both bacteriology and for virology (30% of the module GPA). Additionally, there will be six equally weighted MCQ assessments, the average of the best 5 scores giving the GPA (10% of the module GPA). The module will also be assessed by two timed, unseen written assessments in January. These will consist of equally weighted bacteriology and virology sections. The combined GPA counts for 60% 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	60 (30% each)	1 – 4
Practical Laboratory Assessments (Bacteriology & Virology)	2 x 3 hours	30 (15% each)	5 & 6
Timed Tests (In-module MCQs)	6 x 20 minutes	10 (1.66% each)	1 – 4

Resitting assessment
Resits will accord with the LSHTM's Resits Policy 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
Unseen Written Assessments	For Bacteriology or Virology. Unseen Written Assessment.	1.5 hrs timed, unseen written assessment

Resources

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.