MODULE SPECIFICATION

Academic Year (student cohort covered by specification)	2021-22
Module Code	3140
Module Title	Molecular Virology
Module Organiser(s)	Dr David Allen, Professor Martin Hibberd and
Faculty	Infectious & Tropical Diseases
FHEQ Level	Level 7
Credit Value	**CATS:** 15 **ECTS:** 7.5
HECoS Code	100345:100265:100948 (1:1:1)
Term of Delivery	Term 2
Mode of Delivery	It is anticipated that this module will take place both online and on-campus, with content delivered through a combination of lectures and seminars, and computer practical classes. In the event that it becomes necessary to change delivery of the module due to COVID-19, or other external factors, this module would be switched to 100% online delivery. Teaching will comprise a combination of live and interactive activities (synchronous learning) as well as recorded or self-directed study (asynchronous learning).
Mode of Study	Full-time
Language of Study	English
Pre-Requisites	Students should have a basic understanding of biochemistry and genetics.
Accreditation by Professional Statutory and Regulatory Body	None
Module Cap (Indicative number of students)	15-20 (numbers may be capped due to limitations in facilities or staffing)
Target Audience	For students with a basic background in both virology and molecular biology (i.e. have attended the Virology (in Bacteriology & Virology) and Molecular Biology modules in Term 1 or have equivalent training).

Module Description	This module explores the molecular-level mechanisms by which viruses interact with their hosts. Teaching and learning on this module use lectures and classroom-based sessions in parallel with computer laboratory sessions to understand the drivers of virus evolution and emergence, particularly in the context of applications towards virus surveillance, countermeasures, and disease control.
Duration	5 weeks at 2.5 days per week
Timetabling slot	Slot C2
Last Revised (e.g. year changes approved)	August 2021

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

Module Aim and Intended Learning Outcomes

Overall aim of the module
The overall module aim is to: • explore the molecular-level mechanisms by which viruses interact with their hosts, that drive the evolution and emergence of important human viral pathogens, and in parallel, develop practical bioinformatic skills for analysis of virus genome information, together in the context of applications towards virus surveillance, interventions and disease control.

Module Intended Learning Outcomes
Upon successful completion of the module a student will be able to:
1. Compare molecular mechanisms used by viruses to exploit their hosts and the relationship of these to current paradigms in virus pathogenesis;
2. Analyse and evaluate experimental design and related data to answer contemporary questions in virus research;
3. Employ appropriate bioinformatic tools to analyse virus genome data with application to current public health questions;
4. Research literature and databases on relevant topics and present the data;
5. Critically assess data and findings of current publications on virus research.

Indicative Syllabus

Session Content
The module is expected to cover the following topics: • Antiviral therapy and resistance; • Protective immunity, immune evasion and vaccines; • Virus receptors, tissue tropism, virulence and infection; • Molecular evolution and phylogenetics; • Sequence analysis, virus genomics; • Emerging infections.

Teaching and Learning

Notional Learning Hours

Type of Learning Time	Number of Hours	Expressed as Percentage (%)
Contact time	42	28
Directed self-study	30	20
Self-directed learning	30	20
Assessment, review and revision	50	32
Total	**152**	**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 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 includes: lectures followed by discussion; journal club with presentations of research articles; problem-based activities; computer-based bioinformatics laboratory classes.

Assessment

Assessment Strategy

The assessment for this module has been designed to measure student learning against the module intended learning outcomes (ILOs) as listed above. Formative assessment methods may be used to measure students' progress. The grade for summative assessment(s) only will go towards the overall award GPA.
 	
One presentation and one written assignment:
    i.   Oral presentation - 40%
    ii.   Written assignment on bioinformatics and literature-based research question - 60%.
 	
For both assessments, materials for assessment will be submitted via Moodle.

Summative Assessment

Assessment Type	Assessment Length (i.e. Word Count, Length of presentation in minutes)	Weighting (%)	Intended Module Learning Outcomes Tested
Coursework	3000 words	60	1, 2, 3, 4, 5
Individual Presentation	10-minute presentation	40	1, 2, 4, 5

Resitting assessment
Resits will accord with the LSHTM's Resits Policy For individual students resitting the tasks will be written forms of in-class assignments.

Resources

Students taking 3140 will need access to suitable IT infrastructure, both internet and a computer device suitable for basic bioinformatics analysis of sequence data.

Teaching for Disabilities and Learning Differences

The module-specific site on Moodle gives students access to lecture notes and copies of the slides used during the lecture. Where appropriate, lectures are recorded and made available on Moodle. All materials posted on Moodle, including computer-based sessions, have been made accessible where possible.

LSHTM Moodle is accessible to the widest possible audience, regardless of specific needs or disabilities. More detail can be found in the Moodle Accessibility Statement which can also be found within the footer of the Moodle pages. All students have access to "SensusAccess" software which allows conversion of files into alternative formats.

Student Support Services can arrange learning or assessment adjustments for students where needed. Details and how to request support can be found on the LSHTM Disability Support pages.