



MODULE SPECIFICATION

Academic Year (student cohort covered by specification)	2022-23
Module Code	3260
Module Title	Molecular and Cell Biology of Infectious Diseases
Module Organiser(s)	Dr Theresa Ward and Dr Rob Moon
Faculty	Infectious & Tropical Diseases
FHEQ Level	Level 7
Credit Value	CATS: 15 ECTS: 7.5
HECoS Code	100822:100265 (1:1)
Term of Delivery	Term 2
Mode of Delivery	For 2022-23 this module will be delivered by predominantly face-to-face teaching modes. 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.
Mode of Study	Full-time
Language of Study	English
Pre-Requisites	A basic understanding of cell and/or molecular biology is required.
Accreditation by Professional Statutory and Regulatory Body	None
Module Cap (Indicative number of students)	20 (numbers may be capped due to limitations in facilities or staffing).
Target Audience	This module is intended for students wishing to focus on the study of cell and molecular biology of pathogens, host cells and how they interact. Students will extend their understanding of host and pathogen biology, with a particular emphasis on cutting edge genetic and imaging techniques and technologies.
Module Description	The module will cover tools, techniques and general methodological approaches being used at the forefront of research into the molecular and cellular biology of infectious



	diseases. This will be further explored in the context of a spectrum of pathogen infections, from bacteria and viruses to parasites, as well as the fundamental cell biology of the host cells they infect.
Duration	5 weeks at 2.5 days per week
Timetabling slot	Slot D2
Last Revised (e.g. year changes approved)	July 2022

Programme(s)	Status
This module is linked to the following programme(s)	
MSc Immunology of Infectious Diseases	Recommended Option
MSc Medical Parasitology	Recommended Option
MSc Medical Microbiology	Recommended Option

Module Aim and Intended Learning Outcomes

Overall aim of the module
The overall module aim is to: <ul style="list-style-type: none"> provide students with an understanding of how to apply cutting edge research tools to study the molecular and cellular biology of infectious diseases, as well as developing knowledge of key aspects of host and pathogen cellular processes.

Module Intended Learning Outcomes
Upon successful completion of the module a student will be able to: <ol style="list-style-type: none"> Demonstrate knowledge and understanding of recent research advances and future prospects for selected topics in the molecular and cellular biology of infectious diseases; Demonstrate an understanding of the cytoskeleton and cellular events it regulates; Distinguish the triggers and mechanisms of endocytosis / phagocytosis and of the secretory pathway; Compare how microbes utilise, distort, subvert, or are influenced by the host cell biology during infection, either by the host cell cycle or by membrane trafficking; Critically assess and analyse the methodology for studying molecular cell biology and infection, particularly current imaging technologies

Indicative Syllabus

Session Content
The module is expected to cover the following topics in the context of host cells and pathogens:



Session Content

- Genetic engineering methods and applications;
- Transcriptomics and proteomics;
- Endocytosis, phagocytosis and vacuoles;
- Exocytosis and cytoskeleton;
- Trypanosomes and cell survival mechanisms;
- Imaging methods and *in vivo* models in infectious disease research;
- Ethics of data analysis and presentation.

The module is designed to give students a broad exposure to active research in the Department of Infection Biology at the LSHTM as well as other institutions, through participation of external lecturers. There is a strong focus on experimental techniques and technologies with examples of applications across viral, bacterial, parasitic pathogens.

Teaching and Learning

Notional Learning Hours

Type of Learning Time	Number of Hours	Expressed as Percentage (%)
Contact time	40	27
Directed self-study	32	21
Self-directed learning	33	22
Assessment, review and revision	45	30
Total	150	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.

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

Primarily by in person lectures, for introductory material, and by structured discussion involving student presentations. Practical sessions will include one microscopy practical demonstration and problem session held on campus.

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.

The assessment for this module will be on campus.

Assessment will be a short answer test at the end of the module based on data analysis and material covered in lectures and presentations.

Summative Assessment

Assessment Type	Assessment Length (i.e. Word Count, Length of presentation in minutes)	Weighting (%)	Intended Module Learning Outcomes Tested
Timed Test (Short Answer Questions)	1.5 hours	100	1 - 6

Resitting assessment

Resits will accord with the LSHTM's [Resits Policy](#)

The Resit assessment will be the same assessment type as the first attempt (see previous table).

Resources

n/a



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](#).