

MODULE SPECIFICATION

Academic Year (student cohort covered by specification)	2022-23
Module Code	EPM301
Module Title	Epidemiology of Infectious Diseases
Module Organiser(s)	Matt Cairns, Katherine Horton, Paul Milligan
Contact	<p>The LSHTM distance learning programmes and modules are run in collaboration with the University of London International Programmes. Enquiries may be made via their Student Advice Centre at: https://london.ac.uk/contact-us</p> <p>(Enquiries from face-to-face i.e. London-based LSHTM MSc or research students regarding study of DL modules should be emailed to distance@lshtm.ac.uk)</p>
Faculty	Faculty of Epidemiology and Population Health London School of Hygiene & Tropical Medicine https://www.lshtm.ac.uk/research/faculties/eph
FHEQ Level	Level 7
Credit Value	CATS 15 ECTS 7.5
HECoS Code	101335 : 100473 : 100962
Mode of Delivery	Distance Learning
Mode of Study	Directed self-study, through online materials via the Virtual Learning Environment
Language of Study	English

<p>Pre-Requisites</p>	<p>Epidemiology students must have passed EPM101 <i>Fundamentals of Epidemiology</i> and EPM102 <i>Statistics for Epidemiology</i>, and should have studied EPM103 <i>Practical Epidemiology</i> and EPM105 <i>Writing and Reviewing Epidemiological Papers</i> prior to studying this module.</p> <p>Clinical Trials students must ensure that they have studied CTM207 <i>Design and Analysis of Epidemiological Studies</i> or EPM101 <i>Fundamentals of Epidemiology</i> before studying this module or must obtain Programme Director approval before registration.</p> <p>Demography & Health students should have studied and have an understanding of EPM101 <i>Fundamentals of Epidemiology</i> and EPM102 <i>Statistics for Epidemiology</i>.</p> <p>Students studying this module as an individual module must have basic epidemiological knowledge and skills equivalent to EPM101 <i>Fundamentals of Epidemiology</i> and EPM102 <i>Statistics for Epidemiology</i>.</p> <p>The material is at an advanced level and includes some interpretation of mathematical formulae.</p> <p>Those wishing to study this module must also be able to access the internet at least 3 times per week throughout the assessed outbreak exercise. This runs on two occasions, for 7 weeks, usually between November and December, and January to February/March (exact dates confirmed early in the academic year). 6 weeks are allocated to the group work, and one week for the individual summary.</p>
<p>Accreditation by Professional Statutory and Regulatory Body</p>	<p>Not currently accredited by any other body.</p>
<p>Module Cap (Maximum number of students)</p>	<p>There is no cap on the number of students who can register for this distance learning module.</p>
<p>Target Audience</p>	<p>This module is intended for students interested in the epidemiology and control of infectious diseases in either low and middle income or high income countries.</p>
<p>Module Description</p>	<p>Infectious diseases continue to dominate the list of global public health threats. Understanding the transmission of infections and the principles underlying their effective control is an increasingly</p>

	<p>important global public health issue. This module on infectious disease epidemiology takes a quantitative, methodological focus, aiming to apply epidemiological principles and methods specifically to the study of infectious diseases, including how to determine whether diseases have an infectious cause, how to measure transmissibility of infections, how to conduct outbreak investigations, and how to measure vaccine efficacy. Examples of a wide range of infectious diseases are covered, including COVID-19, with more detailed study of three of the key global infectious diseases: HIV, TB and Malaria.</p>
Duration	<p>Students may start their studies at any time from receipt of study materials (made available annually usually during September depending on date of registration) and are advised to work through the compulsory core study material by the end of March (although any assessment submission deadlines which are earlier than this (e.g. outbreak exercise AA) must be observed).</p> <p>To allow time for students to register for specific dates to carry out the outbreak exercise, module registration after 30 September is not normally allowed. If you are given permission to register for the module in October you should note that introductory messages, and some online activities (for example discussion forums and/or real-time welcome sessions) may have already taken place before you get access to the Virtual Learning Environment (Moodle). All such messages and recordings (where applicable) will be available to access throughout the study year.</p>
Last Revised (e.g. year changes approved)	March 2022

Programme(s)	Status
This module is linked to the following programme(s)	
PGCert/PGDip/MSc Epidemiology (Distance Learning - University of London Worldwide)	Elective
PGDip/MSc Clinical Trials (Distance Learning - University of London Worldwide)	Elective
PGDip/MSc Demography and Health (Distance Learning - University of London Worldwide)	Elective

Module Aim and Intended Learning Outcomes

Overall aim of the module

The overall module aim is to:

- provide students with an in-depth knowledge of important concepts in the epidemiology of infectious diseases, and many of the skills to apply these concepts in practice.

Module Intended Learning Outcomes

Upon successful completion of the module a student will be able to:

1. Explain key concepts, terms and epidemiological measures used to describe the frequency, distribution and transmissibility of infectious diseases, and how these measures are estimated in practice.
2. Design, conduct, analyse, interpret and report an outbreak investigation.
3. Explain the principles underlying simple mathematical models of infectious diseases, and the application of these models to epidemiological data.
4. Explain how vaccine effectiveness is measured, and factors influencing the effectiveness of different vaccination strategies.
5. Explain key features of the epidemiology and control of infectious diseases of global importance, including COVID-19 and other emerging infections, malaria, TB and HIV.

Indicative Syllabus

Session Content

The module is expected to cover the following topics:

- Introduction
- Is the disease infectious?
- Measuring transmissibility
- Investigating an outbreak
- Outbreak exercise (assessed assignment), conducted through the Moodle VLE
- Emerging infections
- Introduction to modelling infectious diseases
- Vaccine evaluation
- Epidemiology of malaria
- Epidemiology of HIV/AIDS
- Epidemiology of tuberculosis

Session Content

These sessions are expected to be followed by two optional sessions:

- Infectious disease modelling (optional extra material)
- Introduction to molecular epidemiology of infectious diseases

Teaching and Learning

Notional Learning Hours

Type of Learning Time	Number of Hours	Expressed as Percentage (%)
Directed self-study	70	47
Self-directed learning	30	20
Assessment, review and revision	50	33
Total	150	100

Teaching and Learning Strategy

Learning is self-directed against a detailed set of learning objectives using the materials provided. The key learning methods are:

- Reading and reflecting on CAL (computer-assisted learning) materials and recorded lectures, which introduce, explain and apply the principles and methods covered in the module.
- Reading and reflecting on provided materials which support the learning in the CAL sessions. This will include making use of the LSHTM online library resources.
- Participating in a real-time group exercise. This is a large proportion of the study time and is spent on an outbreak investigation exercise leading to the assessed assignment report. During this time, students work with a small group of fellow students over a six week period using an assigned discussion group on the web-based discussion forum. An additional week, following the group work, will be spent on preparing an individual executive summary of the outbreak investigation.
- Accessing academic support which is available from the module tutors through the web-based discussion forums and occasional online webinars in which students are encouraged to participate.

Assessment

Assessment Strategy

Formal assessment of this module is based on two components:

1. Group Work [40% of the total for the module], comprised of
 - a group-work report (one grade for the group) after the 6-week outbreak exercise AA [30%],
 - an individually-assessed written executive summary of the outbreak exercise AA [10%].
2. Short-answer AA [60% of the total for the module]
 - an open book short-answer style assessed assignment undertaken in April [60%].

If students fail the module overall, they are allowed one further attempt at the failed element (either assignment, or, if registered prior to 2022/23, the examination; see below for details).

NB Students who enrolled on this module prior to 2022/23 and who need to resit or who are partially through the existing method of assessment (i.e. having sat the exam but not the AA or vice versa) will be required to still complete the existing method of assessment i.e. one assessed assignment (30%) and a formal unseen, closed-book written examination (70%). Note that the unseen written examination (70%) will only be available to take in 2022/23 and 2023/24. After this time, students who have not completed both forms of module assessment must transfer to the new method of assessment (60% open book, short answer style AA + 30% outbreak exercise assessed assignment group report + 10% outbreak exercise assessed assignment individually assessed executive summary).

Summative Assessment

Assessment Type	Assessment Length (i.e. Word Count, Length of presentation in minutes)	Weighting (%)	Intended Module Learning Outcomes Tested
Outbreak Exercise: Group Work – Group Report Group Work - Individual Summary	1400 word report (not including tables/figures) 500 word abstract	30 10	1, 2 1, 2
Short-answer AA:	1500-2500 words approx.; exact limit to be confirmed (expected time to complete 2-4hrs).	60	1, 3, 4, 5

Resitting assessment

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

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

If students fail the individual summary component, they will be able to revise and resubmit in the same academic year.

Assessment being replaced	Approved Alternative Assessment Type	Approved Alternative Assessment Length
Outbreak exercise (group assessed assignment)	Resit similar outbreak exercise in following academic year	Group report (1400 word limit)

Assessment submission deadlines

The Outbreak Exercise Assessed Assignment must be submitted no later than 6 weeks following the completion of the outbreak exercise.

The Short-Answer Assessed Assignment must be submitted no later than 30th April.

Both AAs can only be submitted once and must be submitted via the online Assignment Management System.

Resources

Indicative reading list

[Beral V. Cancer of the cervix: a sexually transmitted infection? The Lancet. 1974;303\(7865\):1037-40.](#)

[Borchert M, Mutyaba I, Van Kerkhove M, Lutwama J, Luwaga H, Bisoborwa G, et al. Ebola haemorrhagic fever outbreak in Masindi District, Uganda: outbreak description and lessons learned. BMC Infectious Diseases. 2011;11\(1\):357.](#)

[Dixon M, Taylor M, Dee J, Hakim A, Cantey P, Lim T et al, Contact Tracing Activities during the Ebola Virus Disease Epidemic in Kindia and Faranah, Guinea, 2014. Emerging Infectious Diseases. 2015; 21\(11\)](#)

Anderson, RM and May, RM *Infectious Diseases of Humans: Dynamics and control*. Oxford University Press 1992.

<https://www.unaids.org/en/resources/documents/2019/2019-UNAIDS-data>

Other resources

The Moodle Virtual Learning Environment (VLE) contains the key materials and resources for EPM301 as follows:

- Interactive study material, referred to as Computer Assisted Learning (CAL), which is the key learning material for the module. The CAL sessions are also available to download.
- Recorded lectures
- Readings (via the LSHTM online library)
- Discussion forums
- Assignment: Outbreak Exercise
- Past examination papers and examiner reports.

The following resources are also provided:

- Stata software (if not already provided for core modules)
- EpiData and ODK Installation Instructions (online download).

Moodle can be accessed from the first week of October, after module registration.

Students who are taking this as an individual module or as part of the MSc/PG Diploma Clinical Trials programme will also have online access to the EPM1 computer-based sessions (this access will exclude tutor support and associated readings / textbooks).



Teaching for Disabilities and Learning Differences

The module-specific site on Moodle provides students with access to the module learning materials, including a study guide and online reading list (containing both essential and recommended readings), and additional resources including supplementary exercises and optional lecture recordings. All materials posted up on Moodle areas, including computer-based sessions, have been made accessible where possible (this includes an accessible printable version of each session). The LSHTM Moodle has been made accessible to the widest possible audience, using a VLE that allows for up to 300% zoom, permits navigation via keyboard and use of speech recognition software, and that allows listening through a screen reader. All students have access to "SensusAccess" software which allows conversion of files into alternative formats.

For students with special needs, reasonable adjustments and support can be arranged – details and how to request support can be found on the University of London Worldwide website at <https://london.ac.uk/applications/how-it-works/inclusive-practice-access-arrangements>.