MODULE SPECIFICATION

Academic Year (student cohort covered by specification)	2022-23
Module Code	2437
Module Title	Epidemiology of Infectious Diseases
Module Organiser(s)	Professor Francesco Checchi, Dr Adam Kucharski, Dr Palwasha Khan, Dr Christinah Mukandavire
Faculty	Epidemiology & Population Health
FHEQ Level	Level 7
Credit Value	**CATS:** 15 **ECTS:** 7.5
HECoS Code	101335
Term of Delivery	Term 2
Mode of Delivery	For 2022-23 this module is currently planned as a mixture of self-directed (minority) and face to face (majority) teaching. About half of lectures will be pre-recorded with others taking place live and recorded; all will be available to view online. Other sessions, including practical sessions, will mostly be held in person, with a minority offered as self-directed learning. Office hours or smaller-group recap sessions will be offered to review challenging material.
Mode of Study	Full-time
Language of Study	English
Pre-Requisites	To benefit from the module students will need to have an understanding of basic epidemiological and statistical methods as covered in Term 1. Familiarity with the Open Data Kit (ODK) software package is non-essential but encouraged: students enrolled for the module and who are not familiar with this package are likewise encouraged to sign up for an online ODK training offered during the reading week immediately before the module starts.
Accreditation by Professional Statutory and Regulatory Body	None
Module Cap (indicative number of students)	200 (numbers may be capped due to limitations in facilities or staffing)

Target Audience	This module is intended for students interested in the fundamental epidemiology (host-pathogen interactions; transmission dynamics; surveillance; epidemiological mechanisms of control interventions) of infectious diseases in either low- and middle-income and/or high-income settings. The module does not focus on the clinical and diagnostic aspects of particular diseases, and is likewise not appropriate for students mostly interested in the public policy aspects of infectious diseases or the practical design and implementation of control programmes.
Module Description	This module will provide foundational knowledge on the epidemiology of infectious diseases: basic concepts and methods for describing and quantifying transmission of infections at different scales; epidemiological aspects of vaccination; surveillance and outbreak investigation; specific epidemiological features of representative infectious diseases; and key challenges such as antimicrobial resistance and eradication.
Duration	5 weeks at 2.5 days per week (Wed 14h00 to Fri 17h00)
Timetabling slot	Slot D2
Last Revised (e.g. year changes approved)	August 2022

Programme(s) This module is linked to the following programme(s)	**Status**
MSc Epidemiology	Recommended
MSc Control of Infectious Diseases	Recommended
MSc Health Policy, Planning & Finance	Recommended
MSc One Health: Ecosystems, Humans and Animals	Recommended
MSc Public Health	Recommended
MSc Public Health (Health Promotion)	Recommended
MSc Public Health for Development	Recommended
MSc Tropical Medicine & International Health	Recommended
MSc Veterinary Epidemiology	Compulsory

Module Aim and Intended Learning Outcomes

Overall aim of the module
The overall module aim is to: • provide foundational knowledge on the epidemiology of infectious diseases, including basic concepts and methods to describe and quantify transmission at different scales; epidemiological aspects of vaccination; surveillance and outbreak investigation; specific features of the epidemiology of important representative infectious diseases; and insight into key global challenges for infectious disease control.

Module Intended Learning Outcomes
Upon successful completion of the module a student will be able to: 1. Explain key concepts, terms and quantities used to describe the frequency, distribution and transmissibility of infectious diseases 2. Explain the principles underlying simple transmission dynamic models of infectious diseases 3. Design, conduct, analyse, interpret and report an outbreak investigation 4. Interpret and evaluate surveillance data on infectious diseases 5. Explain how vaccines protect susceptible people and evaluate the appropriateness and effectiveness of different vaccines or strategies.

Indicative Syllabus

Session Content
The module is expected to cover the following topics: • Methods and concepts: host-pathogen interactions, transmission chains, modes of transmission, measures of transmissibility transmission dynamics at the population scale and mathematical models to investigate these, molecular and immuno-epidemiology • Outbreak investigation and surveillance: includes a simulated outbreak which student groups investigate, analyse and write-up • Vaccination: includes different effects of vaccines, methods for evaluating vaccine effectiveness and safety, vaccination programmes and vaccine confidence • Specific diseases: will include some or all of malaria / vector-borne infections, HIV and sexually transmitted infections and tuberculosis • Key challenges, including antimicrobial resistance, eradication or elimination and addressing the colonial dimensions of infectious diseases An optional three-hour directed self-study training on the ODK software package for epidemiological study data management is also offered during the reading week

Session Content
immediately prior to the course. During the module, a few optional sessions with external speakers may also be organised to provide real-life examples and illustrate challenges.

Teaching and Learning

Notional Learning Hours

Type of Learning Time	Number of Hours	Expressed as Percentage (%)
Contact time	63	42
Directed self-study	40	27
Self-directed learning	0	0
Assessment, review and revision	47	31
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
The teaching format consists of lectures taught by experts in the field followed by practicals where students can apply the knowledge learned in lecture. The practicals will allow students to assess their progress and understanding of the course material. Practicals are run by facilitators who are knowledgeable in the field, so students can interact and ask questions about material covered in the lectures. Students will be expected to work in groups to solve problems and discuss the answers together at the end. Regular Q&A sessions will be held to discuss content and address student questions. Students will also be provided with mock exam questions through Moodle following each session that they can use to test their knowledge as the course progresses. Questions are voluntary and ungraded, and can be done any time following the sessions.

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 online.

Summative Assessment

Assessment Type	Assessment Length (i.e. Word Count, Length of presentation in minutes)	Weighting (%)	Intended Module Learning Outcomes Tested
Group Work	4 pages, size 12 Times font	20	3
Timed Test (in-module test)	2-hour open book online exam with short-answer questions.	80	1, 2, 4, 5

Resitting assessment
Resits will accord with the LSHTM's Resits Policy. Resit/deferred/new attempts - There will be a written, open-book exam in mid/late September of the current academic year, about 2-3 weeks after the MSc project deadline. For individual students resitting a group assessment there will be an approved alternative assessment as detailed below to take place during the September resit days.

Assessment being replaced	Approved Alternative Assessment Type	Approved Alternative Assessment Length (i.e. Word Count, Length of presentation in minutes)
Group Work	Re-sit of the outbreak simulation can be done independently or in small groups.	4 pages, size 12 Times font.

Resources

Other resources
Moodle will contain all key resources and materials required for successful completion of the course. This includes downloads, formula sheets and training guides for Stata and ODK which are required for the outbreak simulation.

Free online courses to supplement learning:
Disease outbreaks in LMICs: https://www.futurelearn.com/courses/disease-outbreaks

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.