

Module Specification (Distance Learning)

In collaboration with the University of London International Programmes



1. Title:	Modelling and the Dynamics of Infectious Diseases						
2. Module code:	EPM302						
3. Institution:	Faculty of Epidemiology and Population Health London School of Hygiene & Tropical Medicine Keppel Street London WC1E 7HT http://www.lshtm.ac.uk/eph/						
4. Module Organisers:	Ken Eames, Rein Houben						
5. Mode of study:	Distance learning						
6. Type:	Elective						
7. Duration and dates:	<p>Deadlines if taken as part of a formal award:</p> <p>Application deadline: 30 June each year</p> <p>Registration deadline: 31 August each year</p> <p>Course registration duration: Up to 5 years</p> <p>Course starts: 1 October each year</p> <p>Examination takes place: Usually June each year (date to be confirmed)</p> <p>Deadlines if taken as an individual module (i.e. not registered for formal award):</p> <p>Application deadline: 31 August each year</p> <p>Registration deadline: 30 November each year</p> <p>Registration duration: 2 years</p> <p>Module study starts: 1 October each year</p> <p>Examination takes place: Usually June each year (date to be confirmed)</p>						
8. Credit points:	15 credit points will be awarded on successful completion of this module at Masters level (Level 7).						
9. Notional Learning Hours (NLH):	<p>The module should take about 150 hours to complete. On average students will divide these learning hours as follows:</p> <table border="0"> <tr> <td>Directed self-study</td> <td>80 hours</td> </tr> <tr> <td>Self-directed learning</td> <td>30 hours</td> </tr> <tr> <td>Assessment, review and revision</td> <td>40 hours</td> </tr> </table>	Directed self-study	80 hours	Self-directed learning	30 hours	Assessment, review and revision	40 hours
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10. Aim:	This module aims to introduce you to the modelling of infectious diseases.						
11. Learning objectives:	<p>On completion of this module students should:</p> <ul style="list-style-type: none"> • have obtained key insights into the dynamics of infectious diseases and the effect of control measures that transmission models can provide. • be able to write down difference equation or differential equation models describing the transmission dynamics of an infection and understand the key input parameters that go into models. • be able to implement simple deterministic models in Excel and Berkeley Madonna • be able to analyse seroprevalence data and use catalytic models to estimate key epidemiological statistics • be able to demonstrate an understanding of the methods and importance of incorporating non-random mixing into models when predicting the impact of control measures 						

	<ul style="list-style-type: none"> • be able to calculate the basic reproduction number, R_0, for different assumptions about contact between individuals • understand the important characteristics of sexually transmitted infections as distinguished from the characteristics of acute immunising infections.
12. Content:	<p>Module content is structured around the self-study sessions listed below:</p> <p>MD01 Basic methods for setting up models I: An introduction to difference equations</p> <p>MD02 Basic methods for setting up models II: An introduction to differential equations</p> <p>MD03 The natural dynamics of infectious diseases</p> <p>MD04 Applying modelling techniques to analyse (seroprevalence) data</p> <p>MD05 The applications of modelling: Estimating the impact of rubella vaccination in high and low transmission settings</p> <p>MD06 Methods for incorporating non-random (heterogeneous) mixing into models</p> <p>MD07 Calculating R_0 for non-randomly mixing populations</p> <p>MD08 Modelling STIs / HIV.</p>
13. Learning methods:	<p>Learning is self-directed against a detailed set of learning objectives using the materials provided. The key learning methods are:</p> <ul style="list-style-type: none"> - reading and reflecting on CAL (computer-assisted learning) materials which introduce, explain and apply the principles and methods covered in the module - reading and reflecting on paper-based materials which support the learning in the CAL sessions - completing paper and computer-based practical exercises - accessing academic support which is available from the module tutors through the web-based discussion forum in which students are encouraged to participate - completing the assessed assignment and reflecting on written feedback from module tutors - completing the formative assignment and reflecting on written feedback from module tutors.
14. Study resources provided:	<p>CD-ROM - EPM302 EPM302 Modelling and the Dynamics of Infectious Diseases Study Guide & Reader.</p> <p><u>Textbook:</u> An Introduction to Infectious Disease Modelling (Vynnycky and White)</p> <p><u>Software:</u> Berkeley Madonna</p> <p>Registered students have access to the School's online library resources.</p> <p>Students who are taking this as an individual module also have online access to the MSc EP core electronic study materials (this access will exclude tutor support and associated textbooks).</p>

15. Assessment procedures:	<p>Formal assessment of the module consists of one assessed assignment (30%) and by a two-hour unseen written examination (70%).</p> <p>Examinations are normally held in a student's country of residence, in one of over 650 examination centres worldwide. They are arranged mainly through Ministries of Education or the British Council. A local fee will be payable. A list of examination centres can be found at http://www.londoninternational.ac.uk/current_students/general_resources/exams/exam_centres/index.shtml.</p> <p>If students fail an examination at the first entry they will be allowed one further attempt, the following year.</p>
16. Prerequisites:	<p>Students wishing to study this module will need to have access to a computer that has Microsoft Excel 2007 (or later version) installed, and have a CD-ROM drive. Students who undertake this module are expected to be capable of carrying out basic functions using Excel software.</p> <p>Students should have completed EPM101 and EPM102 or have equivalent basic epidemiological knowledge and skills.</p> <p>Those wishing to study this module must have regular access to the internet to benefit from library facilities, participate in web-based conference discussions and submit assignments.</p> <p>Students must meet the standard of English required to study this course. See http://www.lshtm.ac.uk/prospectus/english.html.</p>
17. Attendance:	No maximum number
18. Selection, if applicable:	This module is available to those registered for the MSc Epidemiology course; alternatively, it can be taken as an Individual Module. It is also available to those studying for MSc Clinical Trials course, and the PG Diploma Epidemiology and Clinical Trials courses under the credit framework scheme.
19. Fees:	For current schedule of fees see http://www.londoninternational.ac.uk/fees/schedules/lshtm.pdf .
20. Scholarships:	None available
21. External accreditation:	None
22. Application process:	Applications are managed by the University of London International Programmes (website: http://www.londoninternational.ac.uk/).
23. Further enquiries:	Enquiries may be emailed to distance@lshtm.ac.uk .