

Module Specification (Distance Learning)

In collaboration with University of London International Programmes



1. Title:	Advanced Statistical Methods in Epidemiology
2. Module code:	EPM304
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:	Sian Floyd, James Lewis
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 Registration deadline: 31 August each year Course registration duration: Up to 5 years Course starts: 1 October each year 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 Registration deadline: 30 November each year Registration duration: 2 years Module study starts: 1 October each year 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> <p>Directed self-study 70 hours Self-directed learning 35 hours Assessment, review and revision 45 hours.</p>
10. Aim:	This module aims to enable students to understand, apply, and interpret the results of a range of relatively advanced techniques for the design and analysis of epidemiological studies.
11. Learning objectives:	<p>On completion of this module students should be able to:</p> <ul style="list-style-type: none"> select, apply, and interpret the results of, regression methods for the analysis of individually and frequency-matched case-control studies, cohort studies, and cluster-randomised trials, using appropriate computer software, describe the three main ways in which controls are selected in case-control studies, and when to use each method, explain the effect of lack of independence of individual observations on epidemiological analysis, and the use of statistical methods which take account of correlated data, evaluate when cluster randomised trials (CRTs) are appropriate and how to design and analyse them, compare and contrast additive and multiplicative models, and indicate

	<p>how to choose between them,</p> <ul style="list-style-type: none"> • plan a strategy of analysis for an epidemiological dataset, using an appropriate choice of methods and statistical models, • estimate the risk attributable to an exposure in a population, • review and summarise information from many studies using meta-analysis.
12. Content:	<p>Module content is structured around the self-study sessions listed below:</p> <p>AS01 Framework for regression modelling AS02 Conditional logistic regression AS03 Choice of controls in a case-control study AS04 Stratifying on time for cohort studies AS05 Further Poisson regression AS06 Cox regression AS07 Further issues for Cox regression AS08 Multiplicative and additive models AS09 Analysis of correlated data AS10 Cluster-randomised trials AS11 Population attributable fractions AS12 Meta-analysis and systematic reviews (optional).</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 formative assignment and reflecting on written feedback from module tutors. - Completing the assessed assignment and reflecting on written feedback from module tutors.
14. Study resources provided:	<p>CD-Rom - EPM304 EPM304 Advanced Statistical Methods in Epidemiology Study Guide & Reader.</p> <p><u>Software:</u> Stata</p> <p><u>Textbook:</u> Essential Medical Statistics (Kirkwood, Sterne).</p> <p>Registered students have access to the School's online library resources.</p> <p>Students who are taking this as an individual module or as part of the MSc CT course 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</p>

	<p>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 should have completed EPM101, EPM102, EPM103, EPM105 (core modules) and EPM202, or have equivalent experience.</p> <p>Epidemiology course students should note that, except with the special permission of the Course Director, students must pass EPM202 <i>Statistical Methods in Epidemiology</i> before studying this module. MSc Epidemiology students may choose to study CTM208 <i>Further Statistical Methods in Clinical Trials</i> in place of EPM304, but must apply to the Course Director for approval, and may not register for both EPM304 <i>Advanced Statistical Methods in Epidemiology</i> and CTM208.</p> <p>Clinical Trials course students must ensure that they have studied CTM207 <i>Design and Analysis of Epidemiological Studies</i> before studying this module or must obtain Course Director approval before registration. Students should also have completed EPM202 or have equivalent knowledge. MSc Clinical Trials students may choose to study EPM304 in place of CTM208 <i>Further Statistical Methods in Clinical Trials</i>, but must apply to the Course Director for approval, and may not register for both CTM208 <i>Further Statistical Methods in Clinical Trials</i> and EPM304.</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 only to those registered for the <u>MSc Epidemiology</u> or <u>Clinical Trials</u> courses; alternatively, it can be taken as an Individual Module. It is also available to those studying for 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 .