



## MODULE SPECIFICATION

<b>Academic Year (student cohort covered by specification)</b>	2020-21
<b>Module Code</b>	2468
<b>Module Title</b>	Analysing Survey and Population Data
<b>Module Organiser(s)</b>	Milly Marston and Keith Tomlin
<b>Faculty</b>	Epidemiology & Population Health
<b>FHEQ Level</b>	Level 7
<b>Credit Value</b>	<b>CATS:</b> 15 <b>ECTS:</b> 7.5
<b>HECoS Code</b>	101030
<b>Term of Delivery</b>	Term 3
<b>Mode of Delivery</b>	For 2020-21 this module is delivered online.  Teaching will comprise a combination of live and interactive activities (synchronous learning) as well as recorded or self-directed study (asynchronous learning). We do not yet know whether or not there will be any on-campus activities during Term 3. This decision will be made in February.
<b>Mode of Study</b>	Full-time
<b>Language of Study</b>	English
<b>Pre-Requisites</b>	It is assumed that students will have done, and feel comfortable with the Term 1 teaching module Statistics for EPH (2021) and have some familiarity with Stata. Students without this prerequisite should contact their Programme Director.
<b>Accreditation by Professional Statutory and Regulatory Body</b>	None
<b>Module Cap (Maximum number of students)</b>	38 (numbers may be capped due to limitations in facilities or staffing)
<b>Target Audience</b>	All students of MSc Demography & Health; or students with an interest in analysing observational/survey data, surveillance data or panel and cohort studies.
<b>Module Description</b>	This module equips students with the skills needed to prepare, analyse and interpret data from large, population-based datasets, including cross-sectional and retrospective household surveys and panel and cohort studies. The module is assessed through an analysis and reporting exercise of data.
<b>Duration</b>	5 weeks at 2.5 days per week

<b>Timetabling slot</b>	Slot E
<b>Last Revised (e.g. year changes approved)</b>	October 2020

<b>Programme(s)</b>	<b>Status</b>
This module is linked to the following programme(s)	
MSc Demography & Health	Recommended
MSc Health Policy, Planning & Financing	Recommended
MSc Reproductive & Sexual Health Research	Recommended

## Module Aim and Intended Learning Outcomes

<b>Overall aim of the module</b>
<p>The overall module aim is to:</p> <ul style="list-style-type: none"> <li>introduce students to the analysis of large, population-based datasets, including cross-sectional and retrospective household surveys, panel and cohort studies, censuses, sample registration schemes and surveillance data.</li> </ul>

<b>Module Intended Learning Outcomes</b>
<p>Upon successful completion of the module a student will be able to:</p> <ol style="list-style-type: none"> <li>Handle large datasets on a computer, and manipulate such data into the form required for different types of analysis</li> <li>Design and apply an analysis strategy using a variety of analytical approaches</li> </ol>

## Indicative Syllabus

<b>Session Content</b>
<p>The module is expected to cover the following topics:</p> <ul style="list-style-type: none"> <li>Review of data sources</li> <li>Typical data structures</li> <li>Range of analytical strategies</li> <li>Simple forms of analysis, such as tabulations, through to survival analysis</li> <li>Sophisticated techniques such as logistic, exponential and proportional hazards regression</li> <li>Weighted data</li> <li>Clustered and stratified designs</li> <li>Repeated measures</li> <li>Data handling skills, including <ul style="list-style-type: none"> <li>➤ Indexing</li> <li>➤ Merging</li> <li>➤ Re-shaping</li> <li>➤ Collapsing data files</li> </ul> </li> </ul>

## Teaching and Learning

### Notional Learning Hours

Type of Learning Time	Number of Hours	Expressed as Percentage (%)
Contact time	34	23
Directed self-study	27	18
Self-directed learning	31	21
Assessment, review and revision	58	38
<b>Total</b>	<b>150</b>	<b>100</b>

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. Student contact time also includes tutor-mediated activities that take place in online environments, which may be synchronous (using real-time digital tools such as Zoom or Blackboard Collaborate Ultra) or asynchronous (using digital tools such as tutor-moderated discussion forums or blogs often delivered through the School's virtual learning environment, Moodle).

The division of notional learning hours listed above is indicative and is designed to inform students as to the relative split between interactive (online or on-campus) and self-directed study.

### Teaching and Learning Strategy

The teaching and learning strategy is based on a combination of lectures followed by computer practical sessions. In the practical sessions students have the opportunity to apply the concepts and methods covered in the lectures. The practicals provide students with "hands on" experience in preparing, analysing and interpreting population-based data using data sets drawn from various sources. These include data from both high- and low-income countries. For each practical, students are provided with detailed solutions to the tasks set, enabling them to check their understanding of the material. Three optional review lectures (in weeks 2 to 4) take the form of a Q&A session on the previous weeks material, or summarise the material from the previous weeks' lectures and questions raised by students. The assessment task, which comes at the end of the module and involves analysing a dataset to answer structured questions, and is designed to consolidate student learning across the whole module.

## 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
Coursework	Maximum 10 pages	100	1 – 2

### Resitting assessment

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

For students who are required to resit, or granted a deferral or new attempt, the task will be in the same format as the original assessment; the next assessment deadline will be the standard School-recommended date in mid/late September.



## Resources

### Indicative reading list

There is no compulsory reading for this module, however the texts below may provide useful supplementary reading.

#### Week 1

1. Kish L. *Survey Sampling* /. Wiley classics library ed. Wiley; 1995.
2. Levy PS. *Sampling of Populations : Methods and Applications* /. 4th ed. (Lemeshow S, ed.). Wiley-Blackwell; 2008.
3. Moser C. *Survey Methods in Social Investigation* /. 2nd ed. (Kalton G, ed.). Heinemann Educational; 1971.

#### Week 2

4. Burton P, Gurrin L, Sly P. Extending the simple linear regression model to account for correlated responses: An introduction to generalized estimating equations and multi-level mixed modelling. *Statistics in Medicine*. 1998;17(11):1261-1291. doi:10.1002/(SICI)1097-0258(19980615)17:11<1261::AID-SIM846>3.0.CO;2-Z
5. Rabe-Hesketh S. *Multilevel and Longitudinal Modeling Using Stata*. 2nd ed. /. (Skrondal A, ed.); 2008.
6. Singer JD. *Applied Longitudinal Data Analysis : Modeling Change and Event Occurrence* /. (Willett JB, ed.). Oxford University Press; 2003.
7. Singer JD. *Applied Longitudinal Data Analysis : Modeling Change and Event Occurrence*. (Willett JB, ed.). Oxford University Press Incorporated; 2003:1 online resource (xx, 644 pages) :

#### Week 3

8. International Development Research Centre (Canada), INDEPTH Network., eds. *Population and Health in Developing Countries*. International Development Research Centre; 2001.  
<https://www.idrc.ca/en/book/population-and-health-developing-countries-population-health-and-survival-indepth-sites>
9. Preston S. The life table and single decrement processes. In: *Demography : Measuring and Modeling Population Processes*. Oxford, Malden, Mass. : Blackwell Publishers; 2001.  
<https://contentstore.cla.co.uk/secure/link?id=40bb5c8f-e225-e811-80cd-005056af4099>
10. Hinde A. Survival analysis. In: *Demographic Methods*. London New York: Arnold; 1998.  
<https://contentstore.cla.co.uk/secure/link?id=6eb4a8cd-e025-e811-80cd-005056af4099>



11. Morgan S, Malamba H, Maude J, et al. An HIV-1 natural history cohort and survival times in rural Uganda. *AIDS*. 1997;11(5):633-640. doi:10.1097/00002030-199705000-00011

#### **Week 4**

12. Collett D. *Modelling Survival Data in Medical Research* /. Second edition. CRC Press,; 2003:[viii], 390 pages. You may print, copy or download once up to 5% (or one chapter) of this work for the purposes of private research or study for non-commercial use. Any attempt to exceed this amount will cause publication to lock, denying all users access to this resource.

13. Allison PD. *Event History and Survival Analysis* /. Second edition. (Allison PD, ed.). SAGE,; 2014.

#### **General**

ASA statement on P-values published in 2016

Ronald L. Wasserstein & Nicole A. Lazar (2016) The ASA's Statement on p-Values: Context, Process, and Purpose, *The American Statistician*, 70:2, 129-133, DOI: 10.1080/00031305.2016.1154108

To link to this article: <http://dx.doi.org/10.1080/00031305.2016.1154108>

Comment in Nature on "statistical significance"

Amrhein V, Greenland S, McShane B (2019) Retire statistical significance. *Nature* 567:305-307.

URL:

<https://www.nature.com/magazine-assets/d41586-019-00857-9/d41586-019-00857-9.pdf>

Article giving advice on number of decimal places to use

Cole TJ (2015) Too many digits: the presentation of numerical data. *Archives of Diseases of Childhood*. URL: <http://adc.bmj.com/content/early/2015/04/15/archdischild-2014-307149.short>

#### **Other resources**

Demographic and Health Survey Program Website

<http://dhsprogram.com/>

The British Household Panel Survey Website

<https://www.iser.essex.ac.uk/bhps>

In praise of panel surveys File - Published by ISER

<https://www.iser.essex.ac.uk/files/in-praise-of-panel-surveys.pdf>

Population Analysis for Policies & Programmes – an online course <http://papp.iussp.org/>



## 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](#).