



MODULE SPECIFICATION

Academic Year (student cohort covered by specification)	2024-25
Module Code	2021
Module Title	Statistics for Epidemiology and Population Health (STEPH)
Module Organiser(s)	Dr Ananya Malhotra, Dr Julia Pescarini, Dr Charles Opondo, Dr Suping Ling
Faculty	Epidemiology and Population Health
FHEQ Level	Level 7
Credit Value	CATS: 15 ECTS: 7.5
HECoS Code	101031 : 101335
Term of Delivery	Term 1
Mode of Delivery	Lectures will be pre-recorded sessions available to view online. Other sessions, including review and Q&A sessions and practical sessions, will be held in person.
Mode of Study	Full-time
Language of Study	English
Pre-Requisites	This module does not assume any previous knowledge of statistics, but does assume basic numeracy.
Accreditation by Professional Statutory and Regulatory Body	N/A
Module Cap (Maximum number of students)	280
Target Audience	This is a compulsory module for the MSc programmes in: Epidemiology, Demography & Health, Public Health for Development, Reproductive & Sexual Health Research, Nutrition for Global Health, Global Mental Health and Veterinary Epidemiology. Other students may take this module to become acquainted with basic statistical concepts.
Module Description	This module seeks to develop an understanding of the basic statistical methods required for epidemiology and population sciences. Students will gain practical skills in making appropriate tabulations and graphical displays of data. Students will also gain experience in selecting and applying appropriate methods of statistical inference and in interpreting the results of the analyses. Skills needed to apply

	these statistical methods using Stata statistical software and optionally R statistical software will also be developed.
Duration	10 weeks of 2 half days per week
Timetabling slot	Term 1
Last Revised (e.g. year changes approved)	June 2023

Programme(s)	Status
This module is linked to the following programme(s)	
MSc Epidemiology	Compulsory
MSc Demography & Health	Compulsory
MSc Public Health for Development	Compulsory
MSc Reproductive & Sexual Health Research	Compulsory
MSc Nutrition for Global Health	Compulsory
MSc Global Mental Health	Compulsory
MSc Veterinary Epidemiology	Compulsory

Module Aim and Intended Learning Outcomes

Overall aim of the module
<p>The overall module aim is to:</p> <ul style="list-style-type: none"> introduce the basic statistical methods used in medical and public health research, and to help students develop the skills needed to apply them using the Stata or, optionally, R statistical software.

Module Intended Learning Outcomes
<p>Upon successful completion of the module a student will be able to:</p> <ol style="list-style-type: none"> Identify, calculate, present, and interpret appropriate statistics for description and for basic analysis of epidemiologic data, including with Stata (or optionally R) statistical software. Calculate, interpret and present measures of statistical uncertainty, i.e. confidence intervals and P-values, including with Stata (or optionally R) software, and describe the role of sampling variation underpinning these calculations. Apply statistical methods such as simple and multivariable regression and interpret the results from statistical analyses.

Indicative Syllabus

Session Content

The module is expected to cover the following topics:

- Summarizing and presenting data
- Sampling variation, estimation and hypothesis testing
- Measures of effect of continuous, categorical, and binary outcomes
- Regression analysis
- Power and sample size calculations
- Interpretation of the results of data analyses will be a central theme throughout the module

Teaching and Learning

Notional Learning Hours

Type of Learning Time	Number of Hours	Expressed as Percentage (%)
Contact time	50	33.3
Directed self-study	30	20
Self-directed learning	40	26.7
Assessment, review and revision	30	20
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 synchronous contexts such as online lectures and practical classes 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

Teaching is delivered through a mixture of lectures and practical sessions. Lectures will take the form of face-to-face sessions held in the lecture halls (approximately 1.5 hours each) and pre-recorded videos of 10-30 minutes in length. Practical sessions will be face-to-face (synchronous), and will involve 'pen & paper' exercises or computer exercises mainly working in small groups. Review and Q&A sessions will be held throughout the module and will be face-to-face. The emphasis will be on making appropriate tabulations and graphical displays of data and appreciating their meaning, selecting and applying appropriate methods for statistical inference, and correctly interpreting the results.

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. Two formative assessment methods will be used to measure students' progress: a multiple choice test, and a data analysis report (neither of which will count towards students' final MSc degree grades).

The summative assessment for this module (100% of GPA) will be a written timed assessment conducted in the week before the start of term 2 teaching.

Summative Assessment

Assessment Type	Assessment Length (i.e. Word Count, Length of presentation in minutes)	Weighting (%)	Intended Module Learning Outcomes Tested
Short answer questions	90 minute assessment	100%	1 – 3

Resitting assessment

Resits will accord with [Chapter 8a](#) of the LSHTM Academic Manual.

For students resitting an assessment there will be an approved alternative assessment similar in structure to the original assessment.

For students who are required to resit, or granted a deferral or new attempt, this will occur before or early in Term 3.

Resources

Indicative reading list

Essential Medical Statistics by B Kirkwood & J Sterne (Blackwell)

Other resources

Statistics Without Tears by D Rowntree (Penguin)

Statistics at Square One by T Swinscow & M Campbell (Wiley-Blackwell)

Decolonising Global Public Health

Lokugamage AU, Ahillan T, Pathberiya SDC. Decolonising ideas of healing in medical education. *Journal of Medical Ethics* 2020;46:265-272. <http://dx.doi.org/10.1136/medethics-2019-105866>

Reardon, J., & TallBear, K. (2012). "Your DNA Is Our History": Genomics, Anthropology, and the Construction of Whiteness as Property. *Current Anthropology*, 53(S5), S233–S245. <https://doi.org/10.1086/662629>

Khan M, Abimbola S, Aloudat T, et al. Decolonising global health in 2021: a roadmap to move from rhetoric to reform *BMJ Global Health* 2021;6:e005604. <http://dx.doi.org/10.1136/bmjgh-2021-005604>

Teaching for Disabilities and Learning Differences

For all lectures, students are provided with access to lecture notes, recordings/videos and copies of the slides used during the lecture prior to the lecture (in pdf format). For all practical sessions students are provided with a set of solutions for the practical.

All videos are captioned in English. All materials posted up on Moodle areas, including computer-based sessions, have been made accessible where possible.

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 who require learning or assessment adjustments and support this can be arranged through the Student Support Services – details and how to request support can be found on the [LSHTM Disability Support pages](#).