



MODULE SPECIFICATION

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| Academic Year (student cohort covered by specification) | 2022-23 |
| Module Code | 2021 |
| Module Title | Statistics for Epidemiology and Population Health (STEPH) |
| Module Organiser(s) | Dr Melissa Neuman, 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 and available to view online. Other sessions, including 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 |

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| | 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) | July 2021 |

| 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 |
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| <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 statistical software. |

Module Intended Learning Outcomes

Upon successful completion of the module a student will be able to:

1. Identify, calculate, present, and interpret appropriate statistics for description and for basic analysis of epidemiologic data, including with Stata statistical software.
2. Calculate, interpret and present measures of statistical uncertainty, i.e. confidence intervals and P-values, including with Stata software, and describe the role of sampling variation underpinning these calculations.
3. 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 | 20 | 13.3 |
| Directed self-study | 30 | 20 |
| Self-directed learning | 70 | 46.7 |
| 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 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. 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.

For students who are required to resit, or granted a deferral or new attempt, the task will be a written exam the following academic year.

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 the LSHTM's [Resits Policy](#)



Resitting assessment

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

This will take place 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)

Teaching for Disabilities and Learning Differences

For all lectures, students are provided with access to lecture notes 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.

The module-specific site on Moodle provides students with access to lecture notes and copies of the slides used during the video lectures prior to the lecture (in pdf format). 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](#).