# MODULE SPECIFICATION

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| **Academic Year (student cohort covered by specification)** | 2021-22 |
| **Module Code** | 2021 |
| **Module Title** | Statistics for Epidemiology and Population Health (STEPH) |
| **Module Organiser(s)** | Dr Melissa Neuman, Dr Ananya Malhotra, Dr Julia Pescarini, Charles Opondo, Ruth Canter |
| **Faculty** | Epidemiology and Population Health |
| **FHEQ Level** | Level 7 |
| **Credit Value** | **CATS:** 15<br>**ECTS:** 7.5 |
| **HECoS Code** | 101031 : 101335 |
| **Term of Delivery** | Term 1 |
| **Mode of Delivery** | For 2021-22 this module will be delivered online until reading week. A combination of face-to-face and online learning will be used thereafter.<br><br>Lectures will be pre-recorded lectures and available to view online. Q&A and revision sessions will be delivered using an online platform. Both self-directed and live interactive practical sessions will be used. Most live practical sessions will be held in person, but one online practical session will be available. |
| **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 (indicative 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 the Stata and R (optional) statistical software will also be developed. |
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| Duration | 10 weeks of 2 half days per week |
| Timetabling slot | Term 1 |
| Last Revised (e.g. year changes approved) | July 2021 |

| Programme(s) This module is linked to the following programme(s) | Status |
|---|---|
| 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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| The overall module aim is to:<br>• 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** |

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

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

1. Identify, calculate, and present 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 intermediate statistical methods (such as multivariable regression), describe the suitability and limitations of these methods for epidemiologic analyses, and interpret the results.

## Indicative Syllabus

| Session Content |
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| The module is expected to cover the following topics: |

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- Basic methods of presenting data
- Sampling variation, estimation and hypothesis testing
- Analysis of continuous, categorical, and binary outcomes
- Regression analysis
- Survey sampling
- 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. 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 and self-directed study.

| Teaching and Learning Strategy |
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| 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. Practicals will be both live online/face-to-face (synchronous) and offline (asynchronous). Live practicals will involve 'pen & paper' exercises or computer exercises mainly working in small groups in breakout rooms/classrooms. 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 |
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| 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 will be part of the summer exams which will be online.

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 |
|---|---|---|---|
| Exam (Paper 1) | 1 question in Paper 1 | 100% | 1 – 8 |

| Resitting assessment |
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| Resits will accord with the LSHTM's Resits Policy |

## 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.