MODULE SPECIFICATION

Academic Year (student cohort covered by specification)	2025-26
Module Code	2031
Module Title	Introduction to Statistical Computing
Module Organiser(s)	Antonio Gasparrini and Manuela Quaresma
Faculty	Epidemiology & Population Health
FHEQ Level	Level 7
Credit Value	**CATS:** 10 **ECTS:** 5
HECoS Code	100956 : 100755
Term of Delivery	Term 1
Mode of Delivery	The Stata sessions will be delivered using screencasts covering the topics from the lecture notes and face-to-face practical and Q&As sessions. The R sessions will be delivered face-to-face and include lectures on specific topics followed by exercises, review of the solutions, and time for Q&As.
Mode of Study	Full-time
Language of Study	English
Pre-Requisites	None
Accreditation by Professional Statutory and Regulatory Body	Not currently accredited by any other body
Module Cap (indicative number of students)	35 (numbers may be capped due to limitations in facilities or staffing)
Target Audience	This module is compulsory for the MSc Medical Statistics.
Module Description	An introduction to the statistical packages Stata and R.
Duration	8 weeks at 0.5 to 1.5 days per week (plus two sessions in orientation week)
Timetabling slot	Term 1
Last Revised (e.g. year changes approved)	August 2025

Programme(s) This module is linked to the following programme(s)	**Status**
MSc Medical Statistics	Compulsory

Module Aim and Intended Learning Outcomes

Overall aim of the module
The overall module aim is to: • Introduce students to the statistical packages Stata and R.

Module Intended Learning Outcomes
Upon successful completion of the module, for each of Stata and R, a student will: 1. Be familiar with the working environments 2. Be able to assess the strengths and limitations 3. Be able to create, manage and manipulate data/datasets 4. Be able to effectively communicate results in tables and figures 5. Understand good practice for managing data and statistical analysis 6. Be able to solve problems using use the help facilities 7. Be able to construct problem specific programs

Indicative Syllabus

Session Content
The module is expected to cover the following topics: • An introduction to the statistical package Stata • An introduction to the statistical package R

Teaching and Learning

Notional Learning Hours

Type of Learning Time	**Number of Hours**	**Expressed as Percentage (%)**
Contact time	30	30
Directed self-study	40	40
Self-directed learning	25	25
Assessment, review and revision	5	5
Total	**100**	**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 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.

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
Each session will consist of a series of short presentations followed by supervised computer work. The computer work will involve material that the students can work through at their own pace during each session followed by exercises.

Assessment

Assessment Strategy
This is a skills-based module and as such the content of this module is assessed through the modules that follow, and the Paper 1 and 2 exams. Those assignments involve the use of Stata/R to analyse electronic health records data to answer a given question. In future modules, students will be asked to submit their Stata/R code together with their written assignment, which this module will prepare them for. The code will be assessed for several aspects: if it runs and replicates the results presented in the assignment report and if it is well annotated.

Summative Assessment

Assessment Type	**Assessment Length (i.e. Word Count, Length of presentation in minutes)**	**Weighting** (%)	**Intended Module Learning Outcomes Tested**
Via assignments from other modules and Papers 1 & 2	Various	100%	1–7

Resitting assessment
Resits will accord with Chapter 8a of the LSHTM Academic Manual. This module has no separate assessment and so no resits.

Resources

Indicative reading list

1. The Workflow of Data Analysis Using Stata (2009); J. Scott Long, Stata Press. “Aimed at anyone who analyses data, this book presents an effective strategy for designing and doing data-analytic projects.” Several copies are stocked in the library.
2. An Introduction to Stata Programming, Second Edition (2016). Christopher Baum, Stata Press. For those who want to extend beyond introductory topics: “Great for anyone who wants to learn Stata programming.”
3. An Introduction to R, Version 4.5.1 (2025) can be accessed via the official R website https://cran.r-project.org/manuals.html, this manual gives an introduction to the language and how to use R for doing statistical analysis and graphics. A list of books is also provided on the official R website at www.r-project.org/doc/bib/R-books.html.

Other resources

Module information for each sub-module (Stata and R), including timetables, lecture notes, screencasts, practical instructions, datasets and key literature for each session will be made available via the Virtual Learning Environment (Moodle).

Teaching for Disabilities and Learning Differences

Students are provided with access to module information, lecture notes, practical exercise notes with solutions, datasets, Stata and R scripts via Moodle. The module also provides additional support for students with disabilities and learning differences in accordance with the Student Support Services section of the Student Handbook. Reasonable adjustments and support can be arranged, such as rest breaks, or any other necessary provisions discussed and agreed with the Student Advisor.

The module-specific site on Moodle provides students with access to lecture notes and copies of the slides used during the lecture prior to the lecture (in pdf format). All lectures are recorded and made available on Moodle as quickly as possible. 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.