



## MODULE SPECIFICATION

<b>Academic Year (student cohort covered by specification)</b>	2020-21
<b>Module Code</b>	3196
<b>Module Title</b>	Analysis & Design of Research Studies
<b>Module Organiser(s)</b>	Tansy Edwards and Tanya Marchant
<b>Faculty</b>	Infectious & Tropical Diseases
<b>FHEQ Level</b>	Level 7
<b>Credit Value</b>	<b>CATS:</b> 10 <b>ECTS:</b> 5
<b>HECoS Code</b>	100406
<b>Term of Delivery</b>	Term 1
<b>Mode of Delivery</b>	For 2020-21 this module will be delivered online only.  Where specific teaching methods (lectures, seminars, discussion groups) are noted in this module specification these will be delivered using an online platform. There will be a combination of live and interactive activities (synchronous learning) as well as recorded or self-directed study (asynchronous learning).
<b>Mode of Study</b>	Full-time
<b>Language of Study</b>	English
<b>Pre-Requisites</b>	None. However, some students will find the centrally organised 'Basic Maths Support' classes to be of benefit.
<b>Accreditation by Professional Statutory and Regulatory Body</b>	None
<b>Module Cap (Maximum number of students)</b>	100 (numbers may be capped due to limitations in facilities or staffing)
<b>Target Audience</b>	This module is compulsory for all students on the MSc programmes in Immunology of Infectious Diseases, Medical Entomology for Disease Control, Medical Microbiology and Medical Parasitology.
<b>Module Description</b>	This module provides an introduction to the data management and statistical analysis methods required to analyse data and generate new evidence.
<b>Duration</b>	10 weeks at 0.5 days per week
<b>Timetabling slot</b>	Term 1



<b>Last Revised (e.g. year changes approved)</b>	September 2020
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<b>Programme(s)</b>	<b>Status</b>
This module is linked to the following programme(s)	
MSc Immunology of Infectious Diseases	Compulsory
MSc Medical Entomology for Disease Control	Compulsory
MSc Medical Microbiology	Compulsory
MSc Medical Parasitology	Compulsory

## 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 the fundamental concepts, principles and techniques required to design a research study, analyse and interpret the data. Examples will be based around research themes appropriate to the MSc. This module provides a suitable foundation for students involved in laboratory and field research on which they can develop their skills for independent research.</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>Describe the key considerations and principles in the planning and design of a study;</li> <li>Construct and interpret data using graphical and tabular methods;</li> <li>Interpret the concept of sampling variation and estimate the sampling variability of a mean and proportion;</li> <li>Apply knowledge of sampling variation to construct 95% confidence intervals and test hypotheses about population means and proportions;</li> <li>Select and perform the appropriate statistical technique for the analysis of means and proportions given the research question and distribution of the data;</li> <li>Interpret the results of simple statistical analyses and communicate them in a clear, concise and appropriate manner.</li> </ol>



## Indicative Syllabus

### Session Content

The module is expected to cover the following topics:

- Variables and distributions; summarising data;
- Sampling variability of a mean;
- Analysis of quantitative data; comparing two means;
- Sampling variability of proportions;
- Analysis of categorical data; comparing two proportions;
- Data and transformations;
- ANOVA, linear regression and correlation;
- Odds and logistic regression;
- Design of experiments.

## Teaching and Learning

### Notional Learning Hours

Type of Learning Time	Number of Hours	Expressed as Percentage (%)
Contact time	30	30
Directed self-study	20	20
Self-directed learning	20	20
Assessment, review and revision	30	30
<b>Total</b>	<b>100</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

Lectures will introduce topics, and students will then be separated into smaller practical classes. These will take a variety of forms, such as analysis using a calculator, interpretation of computer results, discussion of experimental design and analyses. There will be a small number of computer sessions using STATA to provide students with basic STATA skills.

### 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 in term 1 will be online.

A formative assessment based on use of Stata to run additional exercises on a practise database is to be completed by all students towards the end of the module. Solutions will be covered in the revision session in week 10. This formative assessment will not contribute to the overall MSc grade, but all students are strongly recommended to complete it since it provides both tutors and students with valuable information about student progress.

Summative assessment will be by unseen written assessment.

#### Summative Assessment

Assessment Type	Assessment Length (i.e. Word Count, Length of presentation in minutes)	Weighting (%)	Intended Module Learning Outcomes Tested
Timed Test	Completed within 2 hours	100	1 - 6

#### Resitting assessment

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

The Resit assessment will be the same assessment type as the first attempt (see previous table).



## Resources

### **Indicative reading list**

Course materials and lecture notes will all be provided via the LSHTM learning environment, Moodle. No additional reading is required for this module.

### **Other resources**

Some students will benefit from accessing the basic maths refresher course available through Moodle.

## Teaching for Disabilities and Learning Differences

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](#).