

## MODULE SPECIFICATION

This module is a compulsory module of the new MSc Health Data Science. The module specification has been provisionally agreed as part of the validation process for the MSc. Module Organisers are currently developing the details of the teaching to ensure the best possible learning experience and therefore some changes may still be made. We anticipate that the final module specifications will be published by the end of the summer.

### 1. Overview

<b>Academic Year (student cohort covered by specification)</b>	2020-21			
<b>Module Code</b>	2491			
<b>Module Title</b>	Data Challenge			
<b>Module Organiser(s)</b>	Elizabeth Williamson & Sam Clifford			
<b>Faculty</b>	Epidemiology & Population Health			
<b>FHEQ Level</b>	Level 7			
<b>Credit Value</b>	CATS	15	ECTS	7.5
<b>HECoS Code</b>	100260			
<b>Term of Delivery</b>	Term 2			
<b>Mode of Delivery</b>	Face-to-Face			
<b>Mode of Study</b>	Full-time			
<b>Language of Study</b>	English			
<b>Pre-Requisites</b>	Students are required to have completed the modules Statistics for Health Data Science, Epidemiology for Health Data Science, Health Data Management and Programming, or equivalent. Students must be able to demonstrate familiarity with: linear regression models and generalised linear models (GLMs); R software; data management skills.			
<b>Accreditation by Professional Statutory and Regulatory Body</b>	None			
<b>Module Cap (Maximum number of students)</b>	In first year of delivery: max 20 students.			

<b>Target Audience</b>	This is a compulsory module for the programme MSc Health Data Science.
<b>Module Description</b>	This module provides students with an experience reflecting real-world practice of a health data scientist in the workforce. This module is designed to provide students with the opportunity to apply key skills and concepts that they have learned in data management, epidemiology and statistics in order to address an important health-related research question posed by a non-academic client.
<b>Duration</b>	5 weeks at 2 days per week
<b>Timetabling slot</b>	Slot C2
<b>Last Revised (e.g. year changes approved)</b>	December 2019

## 2. Programme(s) that this module is part of

<b>Programme(s)</b>	<b>Status</b>
This module is linked to the following programme(s)	
MSc Health Data Science	Compulsory

## 3. 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>• Assist students in developing the professional skills necessary for a career as a data scientist: effective teamwork, good project management, communication skills and the ability to visualise data and results from analyses.</li> <li>• Apply students' previous learning from prior modules to a real-world health data problem.</li> </ul>

### Module Intended Learning Outcomes

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

1. critically evaluate a real-world application of the whole data science process, including defining the question, obtaining a dataset, performing an analysis, and appropriately interpreting the results;
2. examine and implement strategies for effective team work and good project management within a health data science project;
3. assess different ways of visualising health data to communicate effectively with a wide audience;
4. communicate effectively within inter-disciplinary teams;
5. critically reflect on the whole data science process.

## 4. Indicative Syllabus

### Session Content

The module is expected to cover the following topics:

- Teamwork and project management
- Presentation skills and communicating to diverse audiences
- Liaising with non-academic clients to delineate a research question
- Data visualisation
- Practical experience of the whole data science process, from developing the research question to performing an analysis and interpreting the results.

## 5. Teaching and Learning

Notional Learning Hours		
Type of Learning Time	Number of Hours	Expressed as Percentage (%)
Contact time	30	20
Directed self-study	50	33
Self-directed learning	40	27
Assessment, review and revision	30	20
<b>Total</b>	<b>150</b>	<b>100</b>

### Teaching and Learning Strategy

This module will be undertaken almost entirely in student teams (which will remain the same composition throughout the module). Each team will be allocated a client (a non-academic partner), who will provide a research question of interest. The module is problem-based, with each team being guided by an advisor who will help the team identify information and resources needed to tackle the problem at hand. Students will not be given permission to complete the project as individuals.

Taught components of the module will address – via lectures, workshops and seminars – effective teamwork, communication skills, data visualisation, and other relevant skills.

Indicative Breakdown of Contact Time:

Type of delivery	Total (hours)	
Lecture	5	
Seminar	5	
Workshop	3	
Computer Practical	2	
Project Supervision	15	
<b>Total</b>	<b>30</b>	

## 6. Assessment

### Assessment Strategy

A mixture of formative and summative assessment tasks will be used.

Formative assessment will include written comments from the team's "client" about how they approached the initial briefing meeting, and comments from staff and peers regarding an initial group presentation outlining the team's research question and their plans to address it.

Summative assessment will include three components. The first will be an oral (team-based) presentation to the clients, tutors and the other teams. Each student in the team will be required to contribute orally to the presentation. Second, each team will submit a written report for the client, outlining the research question, the methodological approaches taken, the analyses and conclusions. Third, each student will submit an individually written critical reflection about how their team operated (both as a whole and as individuals), challenges encountered and how they were dealt with and lessons learned.

<b>Summative assessment</b>			
<b>Assessment Type</b>	<b>Assessment Length (i.e. Word Count, Length of presentation in minutes)</b>	<b>Weighting (%)</b>	<b>Intended Module Learning Outcomes Tested</b>
Group Presentation	30-minute presentation and 15-minute Q&A session	20	3, 4
Group Work	15 pages, excluding technical appendices	50	1, 4
Coursework	Approx. 5 pages	30	2, 5

<b>Resitting assessment</b>		
<p>Resits will accord with the LSHTM's <a href="#">Resits Policy in Chapter 8a, PGT Regulations, of the Academic Manual</a></p> <p>For individual students resitting a group assessment there will be an approved alternative assessment as detailed below. For the group presentation, students will participate in an individual Q&amp;A presentation session. For the group work assessment, students will submit an individual report on the same question and data, following written feedback on the group report.</p>		
<b>Assessment being replaced</b>	<b>Approved Alternative Assessment Type</b>	<b>Approved Alternative Assessment Length (i.e. Word Count, Length of presentation in minutes)</b>
Group Presentation	Individual Presentation	10 minutes per student
Group Work	Coursework	15 pages

## 7. Resources

### Indicative reading list

Kenett, R. and Redman, T. The Real Work of Data Science. Wiley, 2019.

Wilson, G., Bryan, J., Cranston, K., Kitzes, J., Nederbragt, L., et al. Good enough practices in scientific computing. PLOS Computational Biology, 2017, 13(6): e1005510. doi:10.1371/journal.pcbi.1005510

### Other resources

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

Data required for the project will be provided by the “clients” and will be accessed by students in a manner appropriate for the type of data.

## 8. Teaching for Disabilities and Learning Differences

- Panopto will be used to record lectures for which this is feasible (with opt-out offered to external speakers) in line with the LSHTM's policy on Lecture Recording;
- Presenters will be requested to follow the LSHTM Technology Enhanced Learning guidance on making PowerPoint presentations inclusive and to use the built-in accessibility checker;
- Lecturers/presenters will be requested to provide slides and/or handouts at least a week prior to the session.