

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

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(Student conort				
covered by				
specification)				
Module Code	2488			
Module Title	Epidemiolo	gy for Health Da	ta Science	
Module	Neil Pearce and Karin van Veldhoven			
Organiser(s)				
Faculty	Epidemiolo	Epidemiology and Population Health		
FHEQ Level	Level 7			
Credit Value	CATS	10	ECTS	5
HECoS Code	101335			
Term of Delivery	Term 1			
Mode of Delivery	Face-to-face			
Mode of Study	Full-time			
Language of Study	English			
Pre-Requisites	None, over and above those for the programme MSc			
	Health Data Science			
Accreditation by	None			
Professional				
Statutory and				
Regulatory Body				
Module Cap	In first year of delivery: max 20 students.			
(Maximum number				
of students)				
Target Audience	This is a compulsory module for the programme MSc			
_	Health Data Science			



Module	This module provides an introduction to the basic	
Description	concepts and methods of epidemiology, with a focus on	
	contexts and applications relevant to data science. Topics	
	covered include an overview of key study designs,	
	important sources of bias, and a critical comparison of	
	different study designs. These topics provide the	
	framework needed for subsequent modules. The module	
	places a focus on learning through practical examples and	
	incorporates directed learning, lectures, group discussion,	
	and group-based tutorial exercises.	
Duration	10 x 0.5 day sessions	
Timetabling slot	Term 1	
Last Revised (e.g.	December 2019	
year changes		
approved)		

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

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

3. Module Aim and Intended Learning Outcomes

Overall aim of the module

The overall module aim is to:

• provide an introduction to the basic concepts and methods of epidemiology, relevant to data science.

Module Intended Learning Outcomes

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

- assess the application of different measures of disease incidence and prevalence and measures of effect and select appropriate measures to address specific health data science questions;
- contrast the principles underlying different study designs used in health data science, including descriptive, ecological, cross-sectional, cohort, casecontrol and intervention studies and select appropriate study designs to address specific questions;
- 3. critically appraise the implications of the data collection context on the comparative strengths and limitations of the different study designs;



- 4. analyse the key concepts and implications of sampling error, bias and confounding and specific challenges that arise in the context of health data science projects;
- 5. evaluate criteria for assessing causality and critically assess their application to specific health data science settings.

4. Indicative Syllabus

Session Content

The module is expected to cover the following topics:

- Descriptive studies
- Overview of study designs
- Overview of bias
- Causal diagrams
- Cohort studies
- Case-control studies
- Cross-sectional studies
- Intervention studies
- Triangulation
- Effect modification and interaction
- Assessment of causality

5. Teaching and Learning

Notional Learning Hours			
Type of Learning Time	Number of Hours	Expressed as	
		Percentage (%)	
Contact time	25	25	
Directed self-study	30	30	
Self-directed learning	25	25	
Assessment, review and	20	20	
revision			
Total	100	100	



Teaching and Learning Strategy

Teaching will comprise a mixture of lectures, tutorials (without computer) focused on practical problems, and group discussions. Tutorial sessions will explore different study designs, and the different biases that might arise in the different designs, for addressing health questions relevant to health data science. Tutorials will largely be conducted in teams.

Indicative Breakdown of Contact Time:

Type of delivery	Total (hours)
Lecture	10
Seminar	0
Tutorial	15
Computer Practical	0
Laboratory Practical	0
Fieldwork	0
Project Supervision	0
Total	25

6. Assessment

Assessment Strategy

A mixture of formative and summative assessment will be deployed through the module.

Formative assessment will include a mid-module multiple choice question assessment, allowing the student to assess their understanding of key concepts. Tutorial sessions will include group work addressing structured questions similar to those included in the subsequent summative assessment.

Summative assessment will be via an individual oral presentation to tutors, outlining the proposed design of a study to address a given research question, with a discussion of strengths and limitations of the design chosen and potential biases.

Summative assessment			
Assessment Type	Assessment Length (i.e. Word Count, Length of presentation in minutes)	Weighting (%)	Intended Module Learning Outcomes Tested
Individual Presentation	8-10 minutes	100	1- 5



Resitting assessment

Resits will accord with the LSHTM's <u>Resits Policy in Chapter 8a, PGT Regulations,</u> of the Academic Manual

For individual students resitting a group assessment there will be an approved alternative assessment as detailed below.

Assessment being	Approved	Approved Alternative
replaced	Alternative	Assessment Length (i.e. Word
	Assessment Type	Count, Length of presentation
		in minutes)
NA – no assessed		
group work		

7. Resources

Indicative reading list

Beaglehole R, Bonita R, Kjellstrom T. Basic Epidemiology. WHO 1993. ISBN 924154446-5

Pearce, N. A Short Introduction to Epidemiology, 2nd Ed (freely downloadable).

Rothman KJ. Epidemiology: an introduction. Oxford Univ Press. 2002. ISBN 019513554-7

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).

8. Teaching for Disabilities and Learning Differences

- Lectures will be recorded using Panopto in line with the LSHTM's policy on Lecture Recording.
- The module manual will be made available in advance of the start of the module and will be produced in accessible format.
- Slides will be made available in advance of each lecture or seminar and produced in accessible format.
- All material will be made available through Moodle.