WM9M8-15 Big Data and Data Analysis for Healthcare

25/26

Department
   WMG
Level
   Taught Postgraduate Level
Module leader
   Mohannad Alajlani
Credit value
   15
Module duration
   4 weeks
Assessment
   100% exam
Study location
   University of Warwick main campus, Coventry

Description

Introductory description

This module focuses on health data, its characteristics, and the different techniques available to enable clinical and operational data-driven decision making, and how to communicate data analysis outcomes to a range of different stakeholders. Healthcare is a data-driven activity to inform clinical practice, thus it is necessary for digital health professionals to have a sound knowledge of the health data landscape and of the various methodologies and tools available to analyse, interpret and visualise data. This module also covers the management, usage and accessibility of data relating to ethical, legal standards and regulatory guidelines to maintain trust in the use of health data and new methodologies such as Artificial Intelligence for all uses.

Module aims

To develop knowledge and skills about the concepts of data analysis and interpretation of quantitative data in healthcare, to address the basic ideas underlying statistical methods at an introductory level and to utilise big data knowledge and skills to empower students in their future careers

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

- Basic principles of statistics and statistical modelling.
- principles of data analysis and analytical models
- Big data and its role in healthcare
- Ethical and legal aspects related to data use in healthcare
- Data visualisation and interpretation

Learning outcomes

By the end of the module, students should be able to:

- Appraise the different types of data, basic descriptive statistical concepts, data visualisation techniques
- Appraise how data quality affects the analysis and leads to better decisions and future planning.
- Assess the different approaches used to store data and how these affect data accessibility and analyses.
- Appraise the role of data analysis and the four analytical models (descriptive, diagnostic, predictive and prescriptive) in managerial decision making for healthcare institutions
- Assess the ethical and legal aspects of the national and international regulatory guidelines to protect patient information

Indicative reading list

TBC

Subject specific skills

- Importance of data in healthcare and the different types of data
- How decisions are made based on data analysis
- The role of data in designing clinical decision support systems.
- Knowledge about the ethical and legal aspects and guidelines

Transferable skills

- Data retrieval
- Data analysis
- Data visualisation and interpretation
- Ethical and legal aspects related to data use in healthcare

Study

Study time

Type	Required
Seminars	30 sessions of 1 hour (20%)
Private study	60 hours (40%)
Assessment	60 hours (40%)
Total	150 hours

Private study description

Guided trigger activities to support learning

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group B1

	Weighting	Study time	Eligible for self-certification
open book examination (4 hours) Data analysis interpretation and report	100%	60 hours	No

Feedback on assessment

written feedback on script and via assessment sheet on tabula

[Past exam papers for WM9M8](#)

Availability

Courses

This module is Core for:

- MSc Digital Transformation for Healthcare