

MD3B4-15 Technology & Health

20/21

Department

Warwick Medical School

Level

Undergraduate Level 3

Module leader

Leda Mirbahai

Credit value

15

Module duration

7 weeks

Assessment

100% coursework

Study location

Monash University

Description

Introductory description

MD3B4 - Technology & Health

[Module web page](#)

Module aims

To introduce students to the varied uses of technology in health and care, how these may be applied locally and globally and the complex ethical issues which may arise

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.

During this module students will be introduced to the potential benefits and barriers of using technologies in problem solving for health. The technologies covered will vary from year to year according to student interest and contemporary developments. This module will explore the advances made in information and

communication technologies (ICT) in health care and how patient safety can be improved and measured through health information technology. In addition during this module students will cover the topic of big data in health disciplines. They will cover the challenges of big data, such as data structure, security, data standardisation, storage and transfers, and managerial skills such as data governance. In addition they will also discuss the opportunities that the use of big data brings to the health care system, such as quality improvement, population management and health, early detection of disease, accessibility, improved decision making, and cost reduction. The application of several technologies in various health disciplines will also be discussed. For example, students could focus on application and impact of 3D printing in healthcare industry and the use of medical robotics in surgery, diagnosis, rehabilitation and assistive devices.

Learning outcomes

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

- To engage with the concepts of big data and analytical algorithms and explore in depth how this interacts with the use of artificial intelligence in health and care
- . To explore how new and developing technologies may be applied to global and local problems in health
- To consolidate ethical reasoning skills by application to emerging technologies in health and care
- To demonstrate an applied understanding of patient safety issues in the field of new and developing technology in health and care

Indicative reading list

Singh H and Sittig D.F. (2016) Measuring and improving patient safety through health information technology: The Health IT Safety Framework. *BMJ*. 25(4): 226-232.

2) Wachter R. (2015) *The Digital Doctor: Hope, Hype and Harm at the Dawn of Medicine's Computer Age*. McGraw-Hill Education.

3) Walker et al. (2014) Ethical issues raised by access to unapproved medical interventions: advantages, disadvantages and obligations. *American Journal of Bioethics*. 14(11):3-15.

4) Hutchison et al. (2015) Getting clearer about surgical innovation: a new definition and a new tool to support responsible practice. *Annals of Surgery*. 262(6): 949-54

5) Draper H., Sorell T. (2013) *Telecare, remote monitoring and care*. *Bioethics*. 27(7): 365-372

6) Eaton M.L and Kennedy D. (2007) *Innovation in Medical Technology: Ethical Issues and Challenges*. 1st edition. Johns Hopkins University Press.

Subject specific skills

Enabled to engage with the concepts of big data and analytical algorithms and explore in depth how this interacts with the use of artificial intelligence in health and care

Transferable skills

The transferable skills gained from the completion of this module include, discipline-specific knowledge, ability to gather and interpret information, ability to analyze data, oral communication skills, ability to make decisions and solve problems, written communication skills, ability to learn quickly, ability to manage a project, and creativity/innovative thinking.

Study

Study time

Type	Required
Lectures	10 sessions of 1 hour (7%)
Seminars	5 sessions of 1 hour (3%)
Practical classes	6 sessions of 1 hour (4%)
Other activity	9 hours (6%)
Private study	120 hours (80%)
Total	150 hours

Private study description

Students would be expected to engage in 120 hours of self-directed learning outside other learning and teaching activities outlined above.

Other activity description

Technology enhanced learning, including the use of online interactive presentations and videos, quizzes (9 hours)

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group A

	Weighting	Study time
Individual interactive presentation	50%	
<ul style="list-style-type: none">• Formative assessment: mid-module in-class peer-review activity of using interactive activity in presentations (2hrs)• Summative assessment: individual interactive presentation undertaken end of term 2 (30mins)		
Infographic	50%	
Formative assessment: mid-module in-class practice and peer-review and marking (50 min)		
Summative assessment: to submit infographic at the start of term 3 (500 words)		

Feedback on assessment

The interactive presentation and infographic will be marked using standardised rubrics. Feedback to the students (including individualised feedback) in line with WMS assessment criteria will be given to the students. Further verbal feedback will be available to students on request.

Availability

Courses

This module is Core for:

- UMDA-B990 Undergraduate Health and Medical Sciences
 - Year 3 of B990 Health and Medical Sciences
 - Year 3 of B990 Health and Medical Sciences