Faculty of Medicine

Centre for Big Data Research in Health

HDAT9100
Context of Health Data Science

COURSE OUTLINE

Trimester 1, 2019

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Course Information

For Health Data Scientists to perform their work effectively, they need a sound grounding in the health system and how data are generated and used within the system.

The Context of Health Data Science provides an introduction to how data are generated and used in a contemporary health system. We look at how health outcomes can be measured and reported in various forms of health data, and how these health data can reveal inequalities in health. The course describes the major sources of health data, including those relating to primary care, hospital stays and prescription medicines, and how this (and other) information can be used by the health data scientist to create evidence for policy and research.

Activities are structured to foster a scientific, questioning attitude in the student. Students are encouraged to think critically about how health data are recorded, what this reveals about the underlying health delivery systems, and be creative in their use of health data sources to create or critically appraise evidence.

This course is one the core courses of the MSc in Health Data Science program and has no prerequisites.

Chapter topics:

Chapter	Topic
1	Australian Health Care System
2	Health outcomes, measurement & value 1
3	Health outcomes, measurement & value 2
4	Health Data and the Admitted Patients Data Collection
5	Primary Care and MBS data
6	Medicines data
7	Practical examples of health data wrangling
8	Evidence based medicine and the hierarchy of evidence
9	Genomics and precision medicine
10	Data and health inequalities

CHAPTER INSTRUCTORS and COURSE CONVENOR

The course has been organised into 10 chapters, each with their own chapter instructor/s. These instructors have a great deal of expertise regarding the use of big data in health research, and many are based at the Centre of Big Data Research in Health (CBDRH), UNSW Sydney.

You can contact your chapter instructors (and fellow students) by flagging them in the Open Learning platform (eg: @amygibson). If the matter relates to the content of a chapter and requires an urgent response, chapter instructor emails are included below. If the matter is concerning a request for special consideration, please contact the course convenor (Amy Gibson) via email, included below.

Chapter	Chapter instructors	Email
1	Professor Sallie Pearson	sallie.pearson@unsw.edu.au
	Dr Danni Han	danni.han@unsw.edu.au
2 & 3	Associate Professor Georgina Chambers	g.chambers@unsw.edu.au
	Ms Natasha Donnolley	n.donnolley@unsw.edu.au
4	Dr Michael Falster	m.falster@unsw.edu.au
5	Dr Michael Falster	m.falster@unsw.edu.au
	Dr Amy Gibson	amy.gibson@unsw.edu.au
6	Dr Jonathan Brett	j.brett@unsw.edu.au
	Mr Benjamin Daniels	b.daniels@unsw.edu.au
7	Dr Duong Tran	danielle.tran@unsw.edu.au
	Ms Sanja Lujic	s.lujic@unsw.edu.au
8	Dr Katie Harris	katie.harris@unsw.edu.au
9	Associate Professor Claire Vajdic	claire.vajdic@unsw.edu.au
10	Professor Louisa Jorm	l.jorm@unsw.edu.au
	Dr Duong Tran	danielle.tran@unsw.edu.au

Course Convenor:

Dr Amy Gibson amy.gibson@unsw.edu.au
Centre for Big Data Research in Health
Level 1, AGSM Building (G27)
Phone: (02) 9385 0697

COURSE STRUCTURE AND TEACHING STRATEGIES

This is a blended learning course comprising of 10 chapters. Each chapter consists of approximately 10 hours of learning activities which include readings, videos and online activities. There is one three-hour, face-to-face combined lecture/ tutorial per week.

This course is equivalent to a UNSW standard 6 units-of-credit postgraduate course, which should involve about 150 hours of study and learning activities. The formal learning activities are approximately 100 hours throughout the session and students are expected (and strongly recommended) to do additional hours of self-study.

The course is hosted online on www.openlearning.com.

APPROACH TO LEARNING AND TEACHING

The learning and teaching philosophy underpinning this course is centred on student learning and aims to create an environment which interests and challenges students. The teaching is designed to be engaging and relevant in order to prepare students for future careers.

COURSE READINGS

All readings are listed in the online learning material and listed as either required or optional reading. Readings can be accessed online through the UNSW library.

COURSE LEARNING OUTCOMES

By the end of the course you should be able to meet the following learning outcomes:

1. Analyse the structure and operation of Australian health delivery systems and compare it to other global examples.
2. Understand the major data sources which are generated and used in the Australian Health System.
3. Demonstrate the use of major health data sources to conduct enquiries to inform research and policy questions.
4. Design novel solutions to complex real-world health analytics and policy problems using a variety of health data sources.
5. Communicate written findings to policy, clinical and research audiences.

COURSE EVALUATION AND DEVELOPMENT

For course evaluation, student feedback will be gathered at the completion of the course using an online anonymous student ("MyExperience") survey. Students are also able to give feedback directly to the course convenor or chapter instructors during the course. Student feedback is taken seriously, and improvements will be made to the course based, in part, on such feedback.

To close the feedback loop, students will also be informed of course changes which have occurred based on the feedback of previous students.

ASSESSMENT TASKS

Each chapter is marked using two forms of assessment: student contribution to online learning activities, and a capstone activity. Throughout the chapter content are a number of rich and engaging online activities. These activities are designed to get you thinking about data in health (uses, challenges, limitations, ethics, etc) and to share your learning with your peers. The final activity of each chapter contains a capstone activity, which is a more in-depth written activity which is designed to draw together multiple concepts taught in the chapter. All online learning activities and the capstone activity are due by 11.59pm on the last Sunday of the chapter.

The marks for the whole course are evenly weighted over the 10 chapters, so each single chapter is worth 10% of the total marks for the course. The double chapter 2 & 3 has a single capstone activity, a single student contribution mark, and contributes 20% to the total marks for the course.

Student contribution to online learning activities **20%**

Student contribution to peer learning via the online activities is highly important. Online activities include completing a series of learning activities within the course chapters, providing online feedback to the contributions of other students, and making contribution to group activities where relevant. This is marked by chapter using a rubric, according to evidence of student contributions to online learning activities.

Capstone activity **80%**

Each of the 8 single chapters and 1 double chapter has a capstone activity as its final activity. A capstone activity is generally a short, written submission of between 250-500 words, designed by the chapter instructor to bring together several concepts taught in the chapter. Capstone activities are marked by the chapter instructor according to three criteria in a rubric: evidence of adequate engagement with chapter content, evidence of critical reflection across multiple perspectives, structure and organisation of response.

Assessment due dates:

Task	Due Date
Chapter 1: All activities	Sunday 24 Feb
Chapter 2 & 3: All activities	Sunday 10 Mar
Chapter 4: All activities	Sunday 17 Mar
Chapter 5: All activities	Sunday 24 Mar
Chapter 6: All activities	Sunday 31 Mar
Chapter 7: All activities	Sunday 7 Apr
Chapter 8: All activities	Sunday 14 Apr
Chapter 9: All activities	Sunday 28 Apr
Chapter 10: All activities	Sunday 5 May

Both capstone activity and student contributions to online learning activities will be marked according to a single rubric.

Standards-based rubric for chapter assessment

CRITERIA	Exceptional - HD	Excellent - DN	Good - CR	Fair - PS	Inadequate - FL
Evidence of student contribution to online learning activities **(out of 20)**	All activities completed to an exceptional standard.	All activities completed to a high standard.	Most activities completed to a good standard.	Some activities completed.	Few activities completed.
Evidence of adequate engagement with content Demonstrate engagement with content. Examine issues and draw out key insights and concepts. **(out of 35)**	Comprehensively addresses chapter content Comprehensive and critical analysis that synthesises and critiques the key themes or issues.	Comprehensively addresses chapter content Consistent and critical analysis that synthesises key themes or issues.	Addresses chapter content Description of key themes, issues or findings.	Attempt to address chapter content, with varying success. Description of some key themes, issues or findings.	Chapter content not well addressed or addressed inaccurately Insufficient engagement with key themes
Evidence of critical reflection across multiple perspectives Perspectives may include your own, patients, researchers, health providers, the health system. **(out of 35)**	Able to identify relevant issues from different perspectives and perceptively analyse why they were significant.	Able to identify relevant issues from different perspectives, to analyse why they were significant.	Able to identify relevant issues from different perspectives, and make some observations as to why they were significant.	Reflection is evident regarding different perspectives, but with little analysis and justification as to why issues discussed were significant.	Inadequate reflection.
Structure and organisation of response Includes remaining within the word limit **(out of 10)**	Well organised and coherent throughout. Imaginative communication resulting in a unique presentation of work.	Well organised and coherent throughout. Clear consistent communication resulting in a well written response.	Moderately well organised and mostly coherent. Predominantly clear and well written.	Inconsistent structure and lacking clarity and coherence in parts.	Poorly structured and lacking clarity and coherence making it difficult to understand.
Total marks (out of 100)	**85-100 inclusive**	**75-84 inclusive**	**65-74 inclusive**	**50-64 inclusive**	**Less than 50**

GENERAL INFORMATION

Special Consideration

If you find you are going to miss an assessment due to illness, misadventure or circumstances beyond your control, you need to apply for special consideration.

To do this:

1. Tell the course convenor as soon as possible, via email: amy.gibson@unsw.edu.au. Applications for special consideration will not normally be received more than 3 days after the assessment due date.
2. Submit supporting evidence. This may include a medical certificate, a travel itinerary or a supporting email from your supervisor.

Your course convenor will consider all applications for special considerations according to the UNSW guidelines:https://student.unsw.edu.au/special-consideration. Under UNSW guidelines, work commitments are not normally considered grounds for special consideration.

If your application for special consideration is approved, your course convenor will discuss with you how you can complete your assessment.

Missing an assessment without notification or special consideration

If a request for special consideration is not approved or if no notification of a missed assessment has been received by the course convenor within 3 days after the assessment due date:

- Assessments will not be marked if submitted more than 14 days after the assessment due date and will receive a value of 0.
- 5% of the total value of that assessment will be deducted for every day late.
- For example, if you submit your assessment 5 days late, then 25% (5% x 5 days) will be deducted from the assessment mark. Thus, if your assessment was marked as 75% but was submitted 5 days late, then your final mark will be 50% only.

Academic Integrity and Plagiarism

- The UNSW Student Code outlines the standard of conduct expected of students with respect to their academic integrity and plagiarism.
- More details of what constitutes plagiarism can be found here