



BUSINESS SCHOOL
Te Kura Pakihi

Department of Information Science

DIGH703: Digital Health Technologies and Systems

Course Outline

Semester One 2023

Paper Description and Aims

The objective of this course is to learn modern approaches to designing, developing, and evaluating a digital health application or service. The course begins with students developing a 'pitch' for a new digital health app or service that includes a business model and estimated timelines and costs. Students will then learn modern software design principles and methods for using Agile principles of software development. Although this course will not involve programming, students will be supported to co-produce several development artifacts from 'wire-frame' designs to an MVP and 'version 1.0' of their app.

Learning Outcomes

Upon successful completion of this paper, you should be able to:

1. Co-design apps and services with end-users as part of the digital health app and service design process.
2. Apply 'Agile' software development principles used for developing digital health apps and services.
3. Monitor and evaluate digital health apps and services to ensure they are safe and effective for patients and clinicians
4. Develop a business plan and ensure ongoing funding to ensure digital health apps and services are financially sustainable.

Teaching Staff

Paper Coordinator

Name: Dr Chris Paton
Email: chris.paton@otago.ac.nz

Tutor

Name: Dr Meriel Bladon
Email: meriel.bladon@otago.ac.nz

Course Delivery

Lecture Day/Time: Lectures will take place on Wednesday evenings from 6pm

Delivery: Lectures will be delivered online through Microsoft Teams.

This paper is live streamed to students via the internet. There will be one session of 2 hours per week and 2-3 hours of group work. Students and the lecturers will be online and able to communicate to all participants during the live sessions. The live sessions will also be recorded for students to use as resources.

The papers will be supported using Teams chat, email and videoconferencing which can be organised individually or in small groups. Every week students must attend lectures on Wednesday evening at 6-8pm delivered online.

Lectures present the key conceptual material through discussion and interaction between teaching staff and students. Lectures are supported by readings and online videos.

Course Calendar

The course calendar (in this outline) details scheduling information. Note that this calendar may change as the course proceeds. Any changes will be announced at lectures and be detailed on Teams.

	Wednesday 6-8pm	
1st March	6pm	User Research for Digital Health
	7pm	Group work: Mock user interviews (1-1)
8th March	6pm	User Personas and Scenarios
	7pm	Group Work: Design Framework
15th March	6pm	Usability Testing for Digital Health
	7pm	Group Work: Wireframe Feedback
22nd March	6pm	Agile Software Development
	7pm	Group Work: Creating a Scrum Board with Teams
29th March	6pm	Presentations
5th April	6pm	Presentations
Mid-semester Break: 10th April – 14th April		
19th April	6pm	Design principles and systems for digital health
	7pm	Group Work: DTAC Case Study (Co-Design and Agile development)
27th April	6pm	Patient Safety and Regulation
	7pm	Group Work: DTAC Case Study (Patient Safety)
3rd May	6pm	Evaluating Digital Health Technologies
	7pm	Group Work: DTAC Case Study (Evaluation)
10th May	6pm	Cybersecurity in health
	7pm	Group Work: DTAC Case Study (Cyber-security)
17th May	6pm	Protecting healthcare data
	7pm	Group Work: DTAC Case Study (Data Protection)
24th May	6pm	Developing a business model for funding
	7pm	Group Work: Business Model Canvas
31st May	6pm	Business model presentations
	7pm	Business model presentations

Students are expected to prepare for and attend all classes to gain full benefit from the course.

These activities should be prepared for by reviewing information detailed on Teams and completing any assigned readings. Students unable to attend a lecture are expected to

catch up on missed material. Unless stated otherwise, all aspects of the course are examinable.

Expectations and Workload

Activity	Hours	
Lectures Teams Sessions	26	2 hours per week for 13 weeks
Class preparation	104	4 hours per lecture, 2 lectures per week x 13 weeks
Written assignments	120	3 assignments each requiring 25 hours research, 15 hours writing
Private study / Reading	70	7 hours week / 10 weeks
Teams chat activities	5	10 x 0.5 hour engagement
Final presentation preparation	27	Presentation preparation
Meetings with supervisor	6	6 hours total over 13 weeks
Final exam (presentation)	2	2 hours including peer evaluation
TOTAL HOURS	360	

Course Resources

Websites:

- **Ministry of Health: Digital Health:** <https://www.health.govt.nz/our-work/digital-health>
- **Health Informatics New Zealand (HINZ):** <https://www.hinz.org.nz/>
- **HINZ eHealth Forum:** <https://www.hinz.org.nz/page/eHealthFORUM>
- **NZ Health IT:** <https://www.healthit.org.nz/>
- **NHS Digital Service Manual:** <https://service-manual.nhs.uk>

Youtube Videos:

The following YouTube videos have been created by the US Office of the National Coordinator for Health IT. They provide a comprehensive (albeit US-orientated) overview of Health IT, Health Informatics and Digital Health and should be watched during the following weeks of the course (or before):

- [Introduction to Project Management](#)
- [Health Care Workflow Process Improvement](#)
- [Usability and Human Factors](#)
- [Patient-Centred Care](#)
- [Professionalism and Customer Service in the Health Environment](#)
- [Working in Teams](#)
- [Planning, Management and Leadership for Health IT](#)

Books:

About Face, 4th Edition

By Alan Cooper, Robert Reimann, David Cronin, and Christopher Noessel

[Download PDF using University of Otago login](#)

Business Model Generation

By Alexander Osterwalder and Yves Pigneur

[Download free PDF Preview](#)

How to Read a Paper

By Trisha Greenhalgh

[Download PDF using University of Otago login](#)

Testing Treatments

By Evans I, Thornton H, Chalmers I and Glasziou P

[Download Free PDF](#)

[Listen to Audiobook](#)

Technical Information

Microsoft Teams

Microsoft Teams will be used to provide you with access to the course materials and to deliver the online lectures. You will be given a Microsoft 365 account which you will need to use to log onto teams to access the materials and attend the online lectures. Please check on Teams regularly to view chat messages and announcements. You can also download the Teams app to your computer and mobile devices to ensure you are kept up to date with the course.

Student Webmail

IMPORTANT - DO THIS NOW:

Forward your University email address to an email address that you use regularly as follows:

1. [Log into your StudentMail account](#) using your student username and password
2. Click **Cog button (top right corner) > Options**
3. Under **Account**, select the **Forward your email** shortcut under the **Short Cuts** menu on the right side of the screen.
4. Under the Forwarding heading, type in the email address you want your email to be forwarded to. You can also choose to have a copy of these emails kept on your StudentMail account, so please check the box if you would like this.
5. Click the **Start forwarding** button.

Assessment

All material presented is examinable (except where stated otherwise) by assignments and the final examination. All-important assessment information such as due dates and times, content, guidelines and so on will be discussed at lectures and, where appropriate, detailed on Microsoft Teams. Students are responsible for ensuring that they are aware of this information, keeping track of their own progress, and catching up on any missed classes.

Assessment	Due date	Marks	Description
Assignment 1: User research report. 3000 words	Friday 24 th March at 5pm	25	Write a user research report that includes: Problem area (5 marks); User Persona (5 marks); Context Scenario (5 marks) and Identify the Design Requirements (10 marks).
Assignment 2: User research presentation.	Submit your PPT slides by Friday 7 th April at 5pm	25	Create a 15 minute presentation that describes how you developed your user personas, context scenarios and design requirements. Include screenshots of your wireframe designs.
Assignment 3: DTAC Part 1 3000 words	Friday 12 th May at 5pm	25	Complete the Co-Design and Patient Safety sections of the DTAC
Assignment 4: DTAC Part 2 3000 words	Friday 19 th May at 5pm	25	Complete the Evaluation and Cybersecurity sections of the DTAC

Grading System

The grading scheme used at Otago is:

A+	90-100	C+	60-64
A	85-89	C	55-59
A-	80-84	C-	50-54
B+	75-79	D	40-49
B	70-74	E	<40
B-	65-69		

Academic Integrity and Academic Misconduct (Plagiarism)

Students should ensure that all submitted work is their own. Plagiarism is a form of academic misconduct (cheating). It is defined as copying or paraphrasing another's work and presenting it as one's own. Any student found responsible for academic misconduct in any piece of work submitted for assessment shall be subject to the University's dishonest practice regulations, which may result in serious penalties, including forfeiture of marks for the piece of work submitted, a zero grade for the paper, or in extreme cases, exclusion from the University. The University of Otago reserves the right to use plagiarism detection tools.

Students are advised to inform themselves about University policies concerning dishonest practice and take up opportunities to improve their academic and information literacy. If necessary, seek advice from academic staff, or the Student Learning Centre. The guideline for students is available at this link:

<http://www.otago.ac.nz/study/academicintegrity/index.html>

Assignment Submission Procedure

Essays should be submitted through Microsoft Teams.

Late Assignments

All requests for special consideration for internal assessments must be made as early as possible to the course coordinator and will be dealt with on a case-by-case basis. Should you be unable to attend or complete any internal assessment component for medical or personal reasons, appropriate documentary evidence (such as a medical certificate) is required. Requests and associated documentation must be provided as early as possible so that alternate arrangements can be made. Any late requests are likely to be turned down. Students who wish to apply for special consideration for the final examination should contact the Registry.

Referencing Style and Style Guide

For this paper the referencing style is APA. Here is a link to the style guide:

https://otago.libguides.com/c.php?g=171590&p=1130354&_ga=2.103662976.1426091138.1612905303-209796052.1612905303

Quality Assurance

At the Otago Business School we monitor the quality of student learning and your learning experience. Your assessed work may be used for assurance of learning processes, such as evaluating the level of achievement of learning outcomes, with the aim of improving the quality of our programmes. All material used for quality assurance purposes will be treated as confidential and the outcome will not affect your grades.

Student Learning Support and Information

Student Charter

- <http://www.otago.ac.nz/about/otago005275.html>

Guidelines for Learning at Otago

- <http://hedc.otago.ac.nz/hedc/wp-content/uploads/2012/12/Guidelines-for-Learning.pdf>
- <http://hedc.otago.ac.nz/hedc/learning/>

Student Learning Centre

The Student Learning Centre, which is part of the Higher Education Development Centre, provides learning support, free of charge, to ALL enrolled students. Their services include:

- a workshop programme designed to help students to improve their learning strategies and their generic skills;
- individual assistance with learning issues;
- on-line study skills advice;
- a student leadership programme
- a student-led peer support programme for students of all ages and backgrounds.
- conversational English groups for students from a non-English speaking background

The Centre also provides two very helpful study guides, “Guidelines for Writing and Editing” and “Writing University Assignments” and these are available on the SLC website.

<http://slc.otago.ac.nz/>

Library Support

The Library website <http://www.otago.ac.nz/library> provides access to resources and services, including group room bookings, library hours and locations, past exam papers, subject guides, article databases and more.

If you need assistance either check out the self-help guides

<http://otago.libguides.com/selfhelp>, or ask Library staff at the ground floor service desks, or email ask.library@otago.ac.nz

Disability Information and Support

Students are encouraged to seek support if they are having difficulty with their studies due to disability, temporary or permanent impairment, injury or chronic illness. It is important to seek help early, through one of the contacts below:

Website: <http://www.otago.ac.nz/disabilities>

65 Albany St, West Lane, ISB, Student Services

Tel: +64 3 479 8235 Email: disabilities@otago.ac.nz

Student Feedback

We encourage your feedback. This can be in the form of contacting staff, participating in course evaluation surveys, and communicating with class representatives. Continual improvements will be made to this course based in part on student feedback.

Class Representatives

The class (or student) representative system is an avenue for encouraging communication and consultation between staff and students. It provides you with a vehicle for communicating your views on the teaching and delivery of the paper and provides staff with an opportunity to communicate information and gain constructive feedback from students. It contributes to the development of a sense of community within a department and it adds a further dimension to the range of support services offered to students.

Volunteers for the role of class representatives will be called early in the semester. The OUSA invites all class representatives to a training session, conducted by OUSA, about what it means to be a class representative and some of the possible procedures for dealing with issues that arise. They also provide information on the services that OUSA offers and the role OUSA can play in solving problems that may occur. The OUSA provides support to class representatives during the semester. Departmental staff will also meet with class representatives during the semester to discuss general issues or matters they wish to have considered.

Your class representative's name and contact details will be posted on Teams early in the semester.

Concerns about the Course

We hope you will feel comfortable coming to talk to us if you have a concern about the course. The Course Co-ordinator will be happy to discuss any concerns you may have. Alternatively, you can report your concerns to the Class Representative who will follow up with departmental staff. If, after making approaches via these channels, you do not feel that your concerns have been addressed, there are University channels that may aid resolution. For further advice or more information on these, contact the departmental administrator or head of department.

Disclaimer

While every effort is made to ensure that the information contained in this document is accurate, it is subject to change. Changes will be notified in class and via Teams. Students are encouraged to check Teams regularly. It is the student's responsibility to be informed.