



BUSINESS SCHOOL  
Te Kura Pakihi

DEPARTMENT OF INFORMATION SCIENCE

Principles of Digital Health and Informatics  
DIGH 701

COURSE OUTLINE

Semester One 2021

# Contents

Paper Description and Aims .....	1
Learning Outcomes .....	1
Teaching Staff .....	1
Course Delivery.....	2
Expectations and Workload .....	2
Course Learning Resources .....	3
Microsoft Teams .....	3
Student Webmail.....	3
Assessment.....	4
Assignment Submission Procedure.....	5
Late Assignments .....	5
Referencing Style and Style Guide .....	5
Quality Assurance .....	5
Learning Outcomes .....	6
Key Learning Outcomes.....	6
Teaching and Learning Methods to Support Learning Outcomes .....	6
Summative Assessments .....	6
(Internals and/or Final Exam*).....	6
Grading System .....	7
Academic Integrity and Academic Misconduct (Plagiarism).....	7
Course Calendar.....	8
Student Learning Support and Information .....	9
Student Charter .....	9
Guidelines for Learning at Otago .....	9
Student Learning Centre .....	9
Library Support.....	9
Kaiāwhina – Māori Student Support .....	10
OBS Pacific Student Support Facilitator (Part-time) .....	10
Disability Information and Support .....	10
Student Feedback.....	10
Class Representatives .....	10
Concerns about the Course .....	11
Disclaimer .....	11

## Paper Description and Aims

The focus of this paper is on understanding the strategies and frameworks that support the development and safe application of digital and information systems technology in healthcare.

This course will cover:

- Digital Health Strategies
- Processes enabling systems integration
- Risk mitigation strategies
- Ethical management of health data
- Applications of digital and information systems

The aim of this paper is to enable the students to develop an understanding of information systems and digital health concepts and frameworks including integrated health information system components and architecture, the electronic medical record, telehealth, artificial intelligence, health information transfer standards, future trends in digital health, and social and ethical issues. Students will gain an understanding of the different types of data collected from these systems and its potential to influence individual and population health.

## Learning Outcomes

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

1. Critically appraise Digital Health strategic goals (national and global) and articulate how digital technologies help address key public health priorities.
2. Identify and demonstrate an understanding of the frameworks and key principles in place to guide the development of digital health and technology in the health sector
3. Explain the foundational concepts in healthcare information technology; software, messaging standards, reference sets etc
4. Consider the uses for the range of data and terminologies used in the health sector, acquisition, management, storage and governance
5. Assess the ethical issues and risks associated with the application and use of digital and information technology and their mitigation

## Teaching Staff

### Paper Coordinator

Name: Dr Chris Paton  
Email: [chris.paton@otago.ac.nz](mailto:chris.paton@otago.ac.nz)

### Lecturer

Name: Prof Stephen MacDonnell  
Email: [stephen.macdonell@otago.ac.nz](mailto:stephen.macdonell@otago.ac.nz)

## Course Delivery

**Lecture Day/Time:** Lectures will take place on Tuesday and Thursday evenings from 7pm

**Room:** Lectures will be delivered online through Microsoft Teams.

This paper is live streamed to students via the internet. There will be two sessions of three hours per week. Students and the lecturers will be online and able to communicate to all participants during the sessions. The sessions will also be recorded for students to use as resources. The papers will be supported using teams chat, email and videoconferencing. Every week students must attend evening lectures on Tuesday and Thursday evenings from 7pm delivered online.

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

**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.

*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	78	6 hours per week for 13 weeks
Class preparation	52	2 hours per lecture, 2 lectures per week x 13 weeks
Written assignments	115	5 assignments each requiring 15 hours research, 8 hours writing
Private study / Reading	70	7 hours week / 10 weeks
Discussion board activities	5	10 x 0.5 hour engagement
Final exam preparation	32	Presentation preparation
Meetings with supervisor	6	6 hours total over 13 weeks
Final exam (presentation)	2	2 hours including peer evaluation
<b>TOTAL HOURS</b>	<b>360</b>	

## Course Learning Resources

3-5 required readings for each week will be posted on the Teams site. Further optional pre-recorded videos, audio lectures and lecture notes will be posted for each week for further study.

## 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	% of final grade	Requirements to pass this paper
Assignment 1: Research paper analysis.	March 12	15	Select a research paper that discusses the potential for digital health relevant to your area of work. Use an appropriate systematic approach to critique the paper, including what are the drivers for digital health and the current major challenges in your area of work.
Assignment 2: Analysis of a local initiative.	March 26	15	Discuss an issue or problem in your work or local context that could be addressed by applying an existing Digital Health solution; describe the technology and any standards included in the solution.
Assignment 3 Ethical management of health data	April 16	15	Essay on the ethical use of digital health technology and data. Draw on the example in Assignment 2 to discuss the ethical dilemmas that arise relating to the use of data collected from the system.
Assignment 4: Clinical usability report	April 30	15	Write up the results of a usability test of a Digital Health system conducted with 3-4 other students. Use qualitative and quantitative data and appropriate descriptive statistics of the results.
Assignment 5: Application of digital and information systems	May 16	15	Choose a topic from the list below and explain the potential of the development and the risks with inappropriate or premature use of technology:

			<ul style="list-style-type: none"> <li>• digital therapeutics</li> <li>• medical robotics</li> <li>• artificial intelligence</li> <li>• virtual/augmented reality</li> <li>• precision health</li> <li>• other (discuss with lecturer)</li> </ul>
Presentation	May 29	25	<p>Choose one of your assignments to develop into a 20 minute oral presentation to the rest of the class in the style of a conference presentation. Provide an abstract/synopsis of the presentation to the lecturer 1 week prior to the scheduled presentation.</p>

## Assignment Submission Procedure

Essays will 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](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.

## Learning Outcomes

Key Learning Outcomes	Teaching and Learning Methods to Support Learning Outcomes	Summative Assessments (Internals and/or Final Exam*)
Critically appraise Digital Health strategic goals (national and global) and articulate how digital technologies help address key public health priorities.	Lectures, In-class discussion and Group work	Assignments and presentation
Identify and demonstrate an understanding of the frameworks and key principles in place to guide the development of digital health and technology in the health sector	Lectures, In-class discussion and Group work	Assignments and presentation
Explain the foundational concepts in healthcare information technology; software, messaging standards, reference sets etc	Lectures, In-class discussion and Group work	Assignments and presentation
Consider the uses for the range of data and terminologies used in the health sector, acquisition, management, storage and governance	Lectures, In-class discussion and Group work	Assignments and presentation
Assess the ethical issues and risks associated with the application and use of digital and information technology and their mitigation	Lectures, In-class discussion and Group work	Assignments and presentation



## 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>

## Course Calendar

	Lecture session 1 (Tuesday Evenings 7pm)	Lecture session 2 (Thursday Evenings 7pm)
<b>Week 1</b>	Introduction to Digital Health	Principles of Digital Health
<b>Week 2</b>	Types of Healthcare Information Systems	Clinical Decision Support and Registries
<b>Week 3</b>	Interoperability of Digital Health systems	Terminologies and Enterprise Architecture
<b>Week 4</b>	International and NZ Digital Health Standards	Applications of Health IT standards
<b>Week 5</b>	Ethics and Security, Privacy and Trust	Governance Legislation and Data Protection
<b>Mid-Semester Break 2<sup>nd</sup> April – 12 April</b>		
<b>Week 6</b>	Quality Improvement and Health Service Development	New Zealand Major Health IT Projects
<b>Week 7</b>	Digital Technologies for Health System Transformation	Usability of Digital Health Systems
<b>Week 8</b>	Theories of Informatics in the Design and Implementation of Information Systems	Investment, Innovation and Entrepreneurship in DH
<b>Week 9</b>	Digital Learning for Healthcare Professionals	Global Digital Health and the Digital Divide
<b>Week 10</b>	Recording, Analysing and Interpreting Data	Recording, Analysing and Interpreting Data
<b>Week 11</b>	Procurement and Implementation of Digital Health Systems	Digital Health Project Management
<b>Week 12</b>	Future Digital Health Technologies	Presentations
<b>Week 13</b>	Presentations	Presentations

**Lectures end Friday 29<sup>th</sup> May 2020**  
**University Exam Period First Semester Begins Wednesday 3<sup>rd</sup> June 2020**  
**End Saturday 17 June 2020**

# Student Learning Support and Information

## Student Charter

<http://www.otago.ac.nz/about/otago0005275.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](mailto:ask.library@otago.ac.nz)

## Kaiāwhina – Māori Student Support

Ko Te Atua o Taiehu te Mauka, Ko Ōtākou te Tai, Ko Ōtākou te Marae, Ko Kai Tahu , Taranaki ka iwi. Ko Taikawa Brett Taiaroa Karetai Tamati-Elliffe ahau.

Papaki kau ana ngā tai o mihi, ko Taikawa ahau. He wheako ōku kia poipoi, akiaki ia koutou nga taurira o Te Kura Pākihi.

Taikawa Tamati-Elliffe (Kai Tahu, Taranaki) is the Kaiāwhina Māori (Māori student support) for Te Kura Pākihi (Business School). He can help with questions about your academic studies as well as providing information on scholarships, pastoral, financial and other campus services. Taikawa also offers support to those studying away from their whanau, hapū and iwi, to feel safe and supported.

Tel: 03 479 5342

Email: [kaiarahi.obs@otago.ac.nz](mailto:kaiarahi.obs@otago.ac.nz) | [taikawa.tamati-elliffe@otago.ac.nz](mailto:taikawa.tamati-elliffe@otago.ac.nz)

## OBS Pacific Student Support Facilitator (Part-time)

Mary Jane's role is to **liaise with** Academic Departments and Student Services relating to Pacific students and their course of study. Mary Jane is based in the Pacifica room on the **OBS Ground Floor**. As she works part time, it is best to email her to make an appointment.

Email: [mary-jane.kivalu@otago.ac.nz](mailto:mary-jane.kivalu@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](mailto: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 Blackboard 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.