



UiO : **Department of Informatics**
University of Oslo

**Welcome to Digitalization in the
health sector 😊**



Agenda today

- Round of introductions
- Program overview
- Information systems research group, courses we teach
- (Administrative information?)
- Food and tour of the building

Round of introductions

- Your name
- Background
- For faculty; do you teach in this program?
Are you a (potential) supervisor?

The program at a glance!



Scan QR & join
LinkedIn group!

- Fourth class of DIGHEL starting now. Around 20-30 students each year. LinkedIn-page: [Digitalization in the Health Sector \(DIGHEL\)](#)
- Interdisciplinary ambitions (we also supervise students from other programs at IFI)
- Two year, full time study. «Long thesis» is strongly recommended

Some expectations from us

- Of the program:
 - Graduate competent students in high demand
 - Be well regarded and seen as relevant by students, government, and industry
- Of the faculty
 - Engage in digital health research projects
 - Research-based education
 - Identify relevant thesis projects with appropriate scope
- Of the students
 - Be present, and be engaged with fellow students and faculty
 - Take an active role in improving the program
 - Approach potential supervisors

Your expectations? Program, faculty, fellow students?

menti.com

Code: 4982 3452

**...how much time (per week) would
you expect to dedicate to MSc work?**

(That includes: study; research; exam
preparation...)

Code: 4982 3452

Program structure

Health background

4th semester	Master's thesis	Master's thesis	Master's thesis
3rd semester	Elective course	Master's thesis	Master's thesis
2nd semester	<u>IN4380 – Digital Transformation of Healthcare</u>	Elective course	Master's thesis
1st semester	<u>IN4340 – Engaged qualitative research methods</u>	<u>IN5210 – Information Systems</u>	<u>DIGHEL4360 – Information Technology in Health Services</u>

Informatics background

4th semester	Master's thesis	Master's thesis	Master's thesis
3rd semester	Elective course	Master's thesis	Master's thesis
2nd semester	<u>IN4380 – Digital Transformation of Healthcare – Digital Transformation of Healthcare</u>	Elective course	Master's thesis
1st semester	<u>IN4340 – Engaged qualitative research methods</u>	<u>IN5210 – Information Systems</u>	<u>DIGHEL4350 – Health Services and Information needs</u>

On courses and thesis...

- We don't offer any courses on specific technology/applications
- The master project usually offers opportunities to go into depth on this
- Long master thesis; investigating and defining the problem, coming up with research design, is an important part of the work and learning. Things are seldom clear from the start!

Which courses to select this semester?

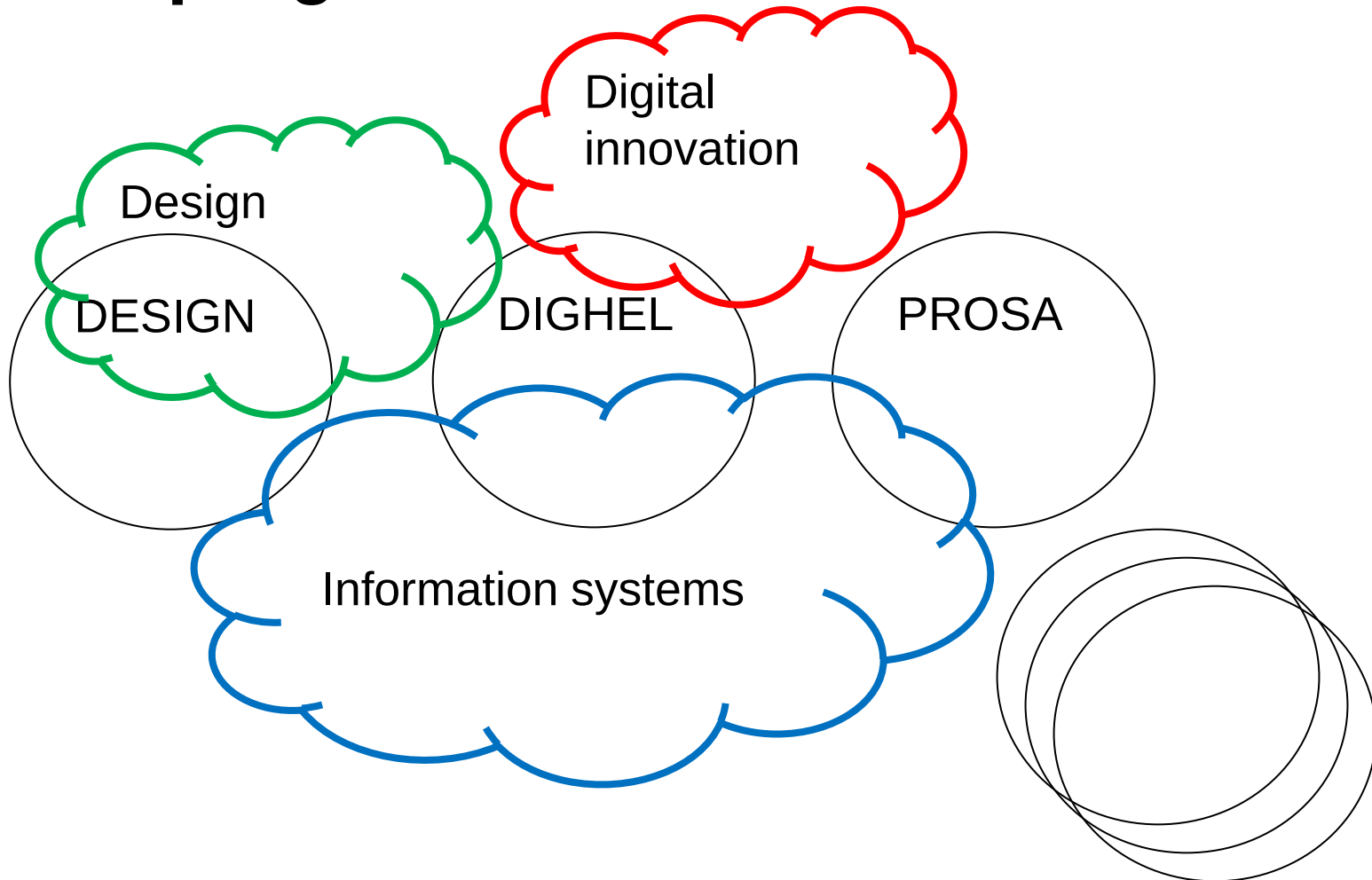
There are four compulsory courses, three of which run in the fall. We strongly recommend you to take these three now:

- IN5210 Information Systems (10 credits)
- IN4340 Engaged qualitative research methods (10 credits)
- Either
 - DIGHEL4350 Health Services and Information needs, or
 - DIGHEL4360 Informatics for health workers

Which courses to select later?

- IN4380 Digital Transformation of Healthcare (spring, compulsory)
- Discuss elective courses with your supervisor

Research groups and Master programs



Information systems group

The Information Systems research group studies **digitalisation** in the public sector with an **engaged and interventionist approach**.

A sociotechnical focus on design, use, implementation, innovation, management, and governance of information technology in organizations.

IS research focus

- **The interplay of digital technologies and associated processes, and organizations**
 - **Datafication:** the 'translation' of entities and processes into data and the consequences and challenges this has.
 - Digitalisation **governance** and the organisation of systems design, innovation, and digitalisation processes.
 - **Digital platforms and infrastructures** are networked forms of digital resources and processes designed and cultivated to enable innovation and distributed social value creation.
- **Main empirical areas**

Global health: HISP-centre and dhis2



Digital health in Norway



Illustrasjonsfoto: Thomas Berg/Helsedirektoratet

Faculties (potential supervisors)

Professors



Kristin Braa



Petter Nielsen



Sune Müller

Adjunct Professors



Eric Monteiro

Associate Professors



Johan Sæbø



Silvia Masiero



Terje Sanner



Alexander Kempton



Troels Mønsted

Postdocs

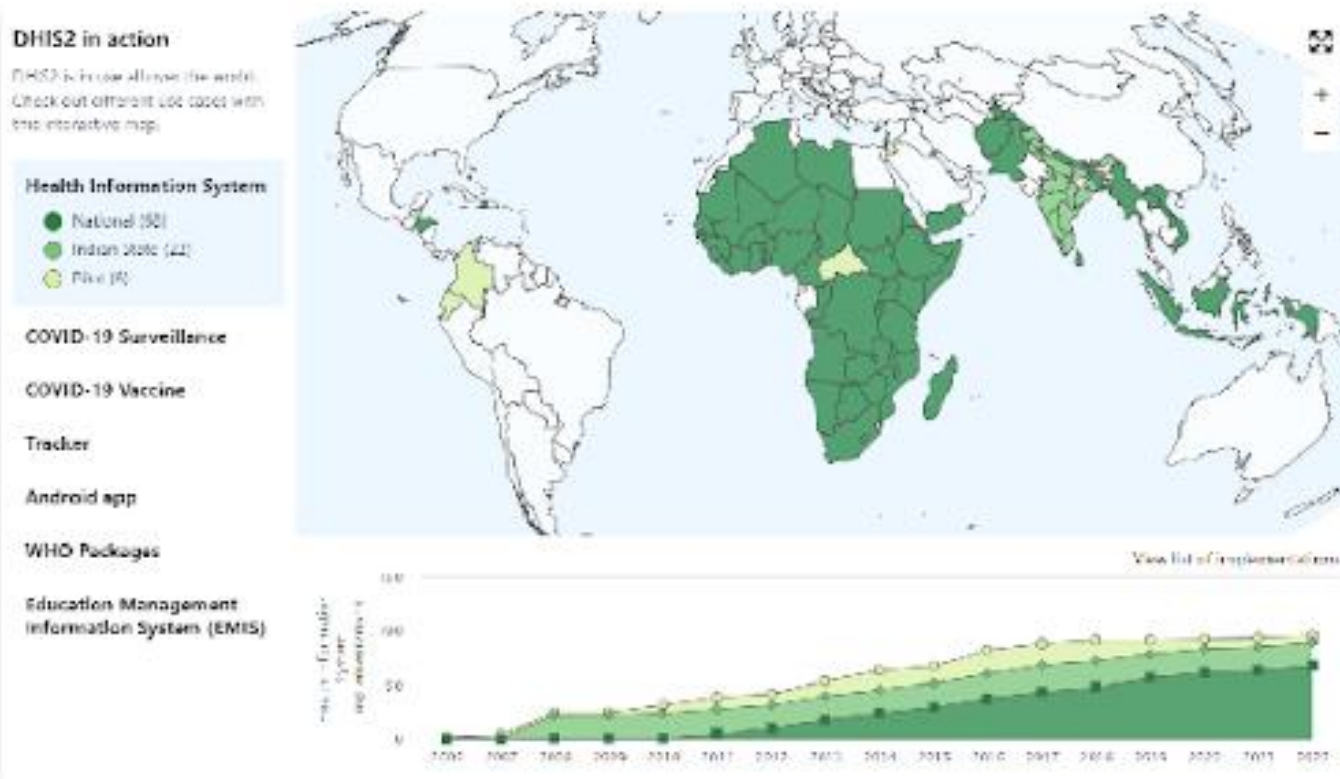


Magnus Li

26 PhD candidates



DHIS2



Global «footprint»
2.4 billion people

+ 60 NGO's, 58 PEPFAR countries, 60+ PSI
countries, 10 global organizations

Supported as a **Global Public Good**

Open source, entirely free of
licensing fees

Generic- supporting all use
cases

Global footprint: used by 73
countries

Scalability: national scale in 60
countries

In-country **ownership**

Community-driven software
roadmap

Read more on
dhis2.org/in-action and
facebook.com/dhis2

DIGHEL4350 Helsetjenester og Informasjonsbehov

Purpose of the course

- To provide students with a background in informatics with a foundational understanding of health and disease, the organization of healthcare and information needs among health professionals.

Topics:

- Basic concepts of health and disease.
- Organization of the Norwegian healthcare sector.
- Global and planetary health.
- Social determinants of health.
- Disease surveillance.
- Information needs and health data uses.

Format

- The course is organized as a reading club based on the approach 'flipped classroom'.
- Each week, students are required to (a) read the literature in advance of the session, and (b) attend a 2-hour seminar where the readings and topic will be explored in-depth through open discussions with the teachers.

Course teachers

- Sune Dueholm Müller (sunedm@ifi.uio.no)
- Troels Mønsted (monsted@ifi.uio.no)



DIGHEL4360 Informatics for health workers

Purpose of the course

- To provide students with a background in health with a foundational understanding of informatics, including programming, databases, security, and software engineering

Topics:

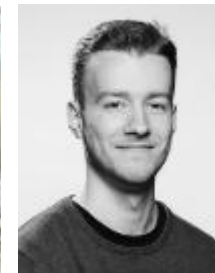
- Programming
- Databases
- Security
- Software engineering, information systems development

Format

- 2 hours lecture per week
- 2 hours seminar per week (80% compulsory attendance)
- Individual assignments for each of the 4 topics
- 4 hour written digital exam

Course teachers

- Johan Ivar Sæbø (johansa@ifi.uio.no)
- Leif Harald Karlsen (databases)
- Andre Büttner (security)
- Maja Lanestedt Thomassen (software eng.)



IN5210 Information Systems

- Broad introduction to IS research
 - Steep learning curve - lots to read, discuss and learn
 - Engaging and rewarding in terms of preparing for your master's
- Learning outcomes:
 - Know as selection of IS theories and concepts
 - How to discover them
 - How they are made
 - How to use them in own research
 - Practice reading academic papers
 - Practice academic writing
- Topics reflect ongoing research in IS and DIN

Structure

- 2+2 lectures per week 2 hours seminars per week
 - Mandatory (80%) attendance including preparations (short assignments)
- Essay (individual written home exam)



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Maja L. Thomassen
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Vette Utvik
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IN4340: Engaged Qualitative Research Methods

- Introductory course to Qualitative Research Methods
- Takes the stance of engaged research: a participatory form of research for studying complex real-world problems from the perspectives of key stakeholders
- “Engaged” course by name and fact: not only weekly lectures, but also four applied sessions in which students deal with real-life fieldwork scenaria, applying the notions learned in class
- Sharp focus on skills needed to develop your MSc thesis proposal and write your thesis
- Assessment: 100% home exam at end of semester



Course Teacher:
Silvia Masiero
silvima@ifi.uio.no

<https://www.uio.no/studier/emner/matnat/ifi/IN4340/index-eng.html>

IN4380 Digital Transformation of Healthcare

Purpose of the course

- Digital Transformation of Healthcare aims to develop students' understanding of digital health in a global context and with a key focus on the Norwegian healthcare system.
- After completing the course, students are able to identify key institutional, organizational, and (inter)personal challenges and opportunities related to digitalization of the health sector.

Themes:

The course is organized around four core themes:

- Foundational concepts of digital health.
- The institutional context for change.
- Trends and emerging technologies in healthcare.
- Change processes in digitalization of healthcare services.

During the course you will be introduced to a variety of theories and a range of empirical examples covering, for instance, electronic health records, digital health infrastructures, eHealth and telemedicine, and artificial intelligence.

Key info

- 10 ECTS
- Grading A-F based on 30-minute oral exam
- 2-hour lecture + 2-hour seminar per week.
- 4 individual mandatory assignments during the course.

Course teachers

- Sune Dueholm Müller (sunedm@ifi.uio.no)
- Troels Mønsted (monsted@ifi.uio.no)



IN5090 – Health data and decision-making

Purpose of the course

- How can health data be utilized in the health sector and the role of novel digital technologies in actualizing health data in decision-making
- Provides students with socio-technical and organizational perspectives on data and data driven decision making in health care organization.
- Gives a research-based understanding of how data is made available and used in clinical, logistical, coordinative, administrative, strategic, and research practices.

Themes:

The course focuses on how data is shared and reused across functions, departments, and health care organizations, and how people work with data to make it relevant to their contexts. This includes:

- Standards and interoperability
- Contextual characteristics of data and data work
- Organizational use of AI and data analytics

Key info

- Several guest lectures by external experts on health data
- 10 ECTS
- Grading A-F based oral exam
- 2-hour lecture + 2-hour seminar per week.
- 4-5 individual mandatory assignments during the course.

Course teachers

- Alexander Kempton (alexansk@ifi.uio.no)
- Margunn Aanestad
- Terje Sanner





IN5320 - Development in Platform Ecosystems

- Software platform represents an increasingly common way of organizing digital resources to support and promote design and innovation
- This course is about the theory and practice of Development in Platform Ecosystems
 - Governance of/in platform ecosystems
 - Design and Innovation in platform ecosystems
 - Software platform ecosystems
 - Platforms in the public sector
- Practical part of the course comprises exercises and mandatory assignments on the development of web-based applications for platforms (JavaScript, React)
- A six-week project where students in groups design and develop a web-based application

Key info

- 10 ETC
- Grading: A-F based on group work (85%) and individual midterm exam (15%)
- Lectures with readings
- Practical mandatory assignments
- Group work

Contact

- Terje Aksel Sanner (terjeasa@ifi.uio.no)



Terje Sanner



Johanne Thunes Alexander Kempton

<https://www.uio.no/studier/emner/matnat/ifi/IN5320/index.html>



IN5370 – ICTs and Global Inequalities

- Four-week intensive course: 8 September – 2 October
- Centred on the relation between information and communication technologies (ICTs) and global inequalities of economic, social, and other redistributional types.
- Research now has to face issues of harm induced by inclusion in digital systems, such as surveillance, biometric border controls, and multiple forms of data violence on vulnerable subjects.
- The course offers the conceptual and practical tools to understand ICT-induced inequalities.



DIGHEL4350: Helsetjenester og Informasjonsbehov

Purpose of the course

- To provide students with a background in informatics with a foundational understanding of health and disease, the organization of healthcare and information needs among health professionals.

Topics:

- Basic concepts of health and disease.
- Organization of the Norwegian healthcare sector.
- Global and planetary health.
- Social determinants of health.
- Disease surveillance.
- Information needs and health data uses.

Format

- The course is organized as a reading club based on the approach 'flipped classroom'.
- Each week, students are required to (a) read the literature in advance of the session, and (b) attend a 2-hour seminar where the readings and topic will be explored in-depth through open discussions with the teachers.

Course teachers

- Sune Dueholm Müller (sunedm@ifi.uio.no)
- Troels Mønsted (monsted@ifi.uio.no)

Master thesis

- You are expected to pick your courses, the topic of your thesis and your supervisor during your first semester. Information meetings will be held in September and October every year, where the different research groups will present their research and available thesis topics
- A long thesis (60 credits) should be completed over two or three semesters, but work should begin during the second semester
- A long thesis should be approximately 100 (+/- 20) pages
- Past theses can be found at duo.uio.no

Innovation and Digital Global Public Goods: A case study of digital innovation during the Covid-19 pandemic

Utirik, Velle Alvares

Master thesis

View/Open

 <https://hdl.handle.net/11250/265866>

Year
2022

Permanent link
<https://hdl.handle.net/11250/265866>

NR590313
Show metadata

Appears in the following Collection
<https://hdl.handle.net/11250/265866> [1447]

Abstract

Digital platforms are often to support innovation by facilitating interactions between the platform and the actors in an ecosystem. However, research on such platforms are often focused on commercial models of platforms where actors act as profit-loss. Little is known about digital platforms that support innovation as a digital global public good. Motivated by the context of the Covid-19 pandemic, the importance of digital innovation as responses, and the global nature of the situation, this thesis presents a qualitative case study of how a software platform supported digital innovation in two countries as a digital global public good. Two research questions are asked: How can digital global public good software platform support digital innovation?, and 2) How can the understanding of digital global public goods be enhanced by digital innovation and software platforms? The thesis finds three supporting factors of innovation, namely: 1) enabling adoption of software by being freely downloadable, modifiable, and redistributable as open source software, 2) offering scaling, customizable and generic software applications in a layered modular architecture, and 3) leveraging on local capacities, efforts and collaborations in the ecosystem. Additionally, the thesis contributes with a discussion of how digital global public goods can be understood by digital innovation and software platforms by arguing: 1) that the supporting factors of innovation in the software platform can be defined in its terms of being a DGP, and 2) using the supporting factors of innovation together, a platform ecosystem can generate positive network effects that can benefit all.

Typical themes for master theses

- Master's theses topics generally revolve around design, use, implementation, innovation, management, and governance of information technology in organizations.
- DHIS2 or other empirical contexts e.g., in Norway
- May be descriptive and explanatory, e.g., case studies or constructive and interventionist, e.g., action research.

Examples from last year:

Information sharing in welfare
technology

Introduction of new sequencing technology
for cancer research at Radiumhospitalet

Master topics will become available soon

<https://www.mn.uio.no/ifi/studier/masteroppgaver/is/>

Available Master's theses from Information Systems (IS)

<u>Sidetittel</u>	<u>Publisert</u>	<u>Veileder(e)</u>
<u>Smittesporing og sykdomsovervåking post COVID-19</u>	14. aug. 2023	▪ <u>Ragnhild Bassøe Gundersen,</u> ▪ <u>Petter Nielsen,</u> ▪ <u>Johan Ivar Sæbø</u>
<u>Actionability of climate health data in Malawi</u>	9. aug. 2023	▪ <u>Silvia Masiero</u>
<u>Overganger i digital hjemmeoppfølging</u>	9. aug. 2023	▪ <u>Johan Ivar Sæbø</u>
<u>Local routine information use in Tanzania</u>	7. aug. 2023	▪ <u>Johan Ivar Sæbø,</u> ▪ <u>Troels Sune Mønsted</u>
<u>Design of patient-centric eHealth and digital self-care technologies</u>	26. sep. 2022	▪ <u>Troels Sune Mønsted</u>
<u>Bring your own Thesis Topic!</u>	23. sep. 2022	▪ <u>Terje Aksel Sanner,</u> ▪ <u>Alexander Moltubakk</u>

The master projects (to be updated)

- More about the projects:
 - <https://www.mn.uio.no/ifi/studier/masteroppgaver/is/>
- More about the supervisors:
 - <https://www.mn.uio.no/ifi/english/research/groups/is/>
- Any questions: silvima@ifi.uio.no (or other potential supervisors)

**Look forward to two splendid years
together! 😊**