University of St.Gallen

# Course and Examination Fact Sheet: Autumn Semester 2025

# 11,807 | 12,807: Digital Health Forum

# ECTS credits: 1

## Overview examination/s

(binding regulations see below)
decentral - Written examination, Digital, Group work group grade (70%, 90 mins.)
Examination time: Term time
decentral - Presentation, Analog, Group work group grade (15%)
Examination time: Term time
decentral - Quiz, Digital, Individual work individual grade (15%)
Examination time: Term time

## Attached courses

Timetable -- Language -- Lecturer
11,807,1.00 Digital Health Forum -- English -- Kowatsch Tobias

## Course information

### Course prerequisites

Interest in **Digital Health** at the intersection of **health economics, management, information systems research, computer science**, and **behavioral medicine**.

### Learning objectives

**Generative AI Chatbot for Mental Health Treatment** (NEJM AI, 2025) **Mobile health intervention CanRelax reduces distress in people with cancer,** (npj Digital Medicine 2025) **Therabot for the treatment of mental disorders** (Nature Mental Health 2025), **A Hybrid Rule- and LLM-based Embodied Voice Assistant for Cognitive Stimulation in Older Adults** (JMIR Preprints 2025), **Success factors of growth-stage digital health companies** (BMC Health Services Research 2025) **Next-generation Wearable Sensors for Biopsychosocial Care in Mental Health** (BMJ Digital Health and AI 2025) **Digital phenotyping of diet, physical activity, and glycemia in adults** (npj Digital Medicine, 2024), **Predicting postprandial glucose excursions to personalize dietary interventions for type-2 diabetes management** (Scientific Reports 2025)

What are the **implications** and **rationale** behind the recent developments in **digital health technologies**?

**Digital health technologies (DHTs)** are used for **preventing**, **managing,** and **treating disease**. DHTs may leverage digital biomarkers, digital coaches and healthcare chatbots, telemedicine, mobile and wearable computing, self-tracking, personalized medicine, connected health, smart homes, or smart cars.

While the **20th century** saw healthcare systems primarily designed around **acute care**, the 21st century presents a new imperative: addressing the **rising burden of chronic diseases**. Today, chronic conditions account for approximately 70% of global mortality and 85% of deaths in Europe, with projected **economic losses exceeding USD 7 trillion** between 2011 and 2025. Unlike acute illnesses, chronic diseases demand a **sustained** and **preventive approach** centered on health-promoting behaviors.

Evidence consistently shows that modifiable lifestyle factors—such as nutrition, physical activity, and substance use—play a pivotal role in preventing and managing chronic conditions. Yet, despite this knowledge, effective and lasting lifestyle change is achieved by only a minority of individuals. Contributing factors include inadequate intervention strategies, limited health literacy, and sociocultural barriers. Moreover, traditional one-on-one coaching models, while potentially effective, are **neither scalable nor economically viable** at the **population level**.

To this end, the question arises of how **DHTs** allow **medical doctors** and other **caregivers** to **scale** and **tailor long-term treatments** to **individuals** in need at **sustainable costs**. At the intersection of **health economics, information systems research, computer science**, and **behavioral medicine**, this lecture aims to help **students** and **upcoming healthcare executives** interested in the **DHTs** better understand the **latest developments** in this field.

After the course, students will be able to...

1. understand the importance of DHTs for health care management
2. describe and understand a specific DHT
3. discuss the advantages and disadvantages of a specific DHT

## Course content

To reach the learning objectives, students will assess the most innovative Digital Health Technologies (DHTs) that are currently being discussed (e.g., large language model AI chatbots in healthcare, holographic physiotherapy coaches) from multiple perspectives (e.g., benefits for an aging society, regulatory aspects, ethical aspects, health economics, technology acceptance).

## Course structure and indications of the learning and teaching design

The lecture is structured in **three parts,** with **guest lectures**, **complementary online exercises**, and **group presentations**. In the first part, students in groups will pick or propose a specific DHT they will assess. In the second part, national and international **experts** from **industry** and **academia** will provide valuable input via **guest lectures** (primarily online via Zoom). Complementary **learning material and multiple-choicequestions** are provided **online**. In the third part, students will **present and discuss the results** with fellow students.

## Course literature


1. Bakoyiannis, I. Therabot for the treatment of mental disorders. *Nat. Mental Health* **3**, 485 (2025). https://doi.org/10.1038/s44220-025-00439-x
2. Barth, J., Schläpfer, S., Schneider, F., Santhanam, P., Kowatsch, T., Heinz, P., Held, U., Eicher, M., Witt, C., Mobile health intervention CanRelax reduces distress in people with cancer in a randomized controlled trial, npj Digital Medicine 8, 269 (2025), 10.1038/s41746-025-01688-x
3. Goldberg, C. B., Adams, L., Blumenthal, D. et al (2024). To do no harm — and the most good — with AI in health care. *Nature Medicine*. https://doi.org/10.1038/s41591-024-02853-7
4. Jacobson, N., Kowatsch, T., & Marsch, L. (2023). *Digital Therapeutics for Mental Health and Addiction: The State of the Science and Vision for the Future* (1st ed.). Elsevier, Academic Press. 10.1016/C2020-0-02801-X
5. Heinz M., … Jacobson Nicholas, C. (2025). Randomized Trial of a Generative AI Chatbot for Mental Health Treatment. *NEJM AI*, *2*(4), AIoa2400802. https://doi.org/10.1056/AIoa2400802
6. Kowatsch, T., & Fleisch, E. (2021). Digital Health Interventions. In O. Gassmann & F. Ferrandina (Eds.), *Connected Business: Create Value in a Networked Economy* (pp. 71-95). Springer International Publishing. 10.1007/978-3-030-76897-3_4
7. Vinay, R., Uetova, E., Tommila, N., Biller-Andorno, N., Kowatsch, T. (2025) GRACE, A Hybrid Rule- and LLM-based Embodied Voice Assistant for Cognitive Stimulation in Older Adults: A Pilot Study Assessing Technical Feasibility, Technology Acceptance, and Working Alliance, JMIR Preprints. 09/05/2025:76489, 10.2196/preprints.76489
8. Wang, C., Lee, C., & Shin, H. (2023). Digital therapeutics from bench to bedside. *npj Digital Medicine*, *6*(1), 38. 10.1038/s41746-023-00777-z


**Mandatory Material**

The mandatory material will be provided via the online learning platform.

## Additional course information

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# Examination information

## Examination sub part/s

## 1. Examination sub part (1/3)

### Examination modalities

| | |
|---|---|
| Examination type | Written examination |
| Responsible for organisation | decentral |
| Examination form | Written exam |
| Examination mode | Digital |
| Time of examination | Term time |
| Examination execution | Synchronous |
| Examination location | On Campus |
| Grading type | Group work group grade |
| Weighting | 70% |
| Duration | 90 mins. |

### Examination languages

Question language: English
Answer language: English

### Remark

Group presentation slides

### Examination-aid rule

Open Book

Students are free to choose aids, apart from the following restrictions:

- pocket calculator models which are not part of the Texas Instruments TI-30 series, as well as any programmable electronic devices that are capable of communication such as electronic dictionaries, notebooks, tablets, smartphones, headsets, additional screens, etc. are not admissible;
- there is an option for faculty members to explicitly define exceptions under supplementary aids.

Procuring any aids, as well as ensuring their working order, is the exclusive responsibility of students.

### Supplementary aids

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## 2. Examination sub part (2/3)

### Examination modalities

| | |
|---|---|
| Examination type | Presentation |
| Responsible for organisation | decentral |
| Examination form | Oral examination |
| Examination mode | Analog |
| Time of examination | Term time |
| Examination execution | Asynchronous |
| Examination location | On Campus |
| Grading type | Group work group grade |
| Weighting | 15% |
| Duration | -- |

### Examination languages

Question language: English
Answer language: English

### Remark

Group presentation

### Examination-aid rule
Free aids provision

Basically, students are free to choose aids. Any restrictions are defined by the faculty members in charge of the examination under supplementary aids.

### Supplementary aids
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## 3. Examination sub part (3/3)

### Examination modalities

| | |
|---|---|
| Examination type | Quiz |
| Responsible for organisation | decentral |
| Examination form | Written exam |
| Examination mode | Digital |
| Time of examination | Term time |
| Examination execution | Synchronous |
| Examination location | On Campus |
| Grading type | Individual work individual grade |
| Weighting | 15% |
| Duration | -- |

### Examination languages
Question language: English
Answer language: English

### Remark
Online assignments (eg multiple choice questions)

### Examination-aid rule
Open Book

Students are free to choose aids, apart from the following restrictions:

- pocket calculator models which are not part of the Texas Instruments TI-30 series, as well as any programmable electronic devices that are capable of communication such as electronic dictionaries, notebooks, tablets, smartphones, headsets, additional screens, etc. are not admissible;
- there is an option for faculty members to explicitly define exceptions under supplementary aids.

Procuring any aids, as well as ensuring their working order, is the exclusive responsibility of students.

### Supplementary aids
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## Examination content

Systematic assessment of a recent Digital Health Technology (e.g., AI chatbots in health care).

## Examination relevant literature

**Mandatory Material**

The mandatory material will be provided via the online learning platform.

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## Please note

Please note that only this fact sheet and the examination schedule published at the time of bidding are binding and takes precedence over other information, such as information on StudyNet (Canvas), on lecturers' websites and information in lectures etc.
Any references and links to third-party content within the fact sheet are only of a supplementary, informative nature and lie outside the area of responsibility of the University of St.Gallen.

Documents and materials are only relevant for central examinations if they are available by the end of the lecture period (CW51) at the latest. In the case of centrally organised mid-term examinations, the documents and materials up to CW 43 (Monday, 20. October 2025) are relevant for testing.

Binding nature of the fact sheets:

- Course information as well as examination date (organised centrally/decentrally) and form of examination: from bidding start in CW 34 (Thursday, 21 August 2025);
- Examination information (supplementary aids, examination contents, examination literature) for decentralised examinations: in CW 42 (Monday, 13. October 2025);
- Examination information (supplementary aids, examination contents, examination literature) for centrally organised mid-term examinations: in CW 43 (Monday, 20. October 2025);
- Examination information (regulations on aids, examination contents, examination literature) for centrally organised examinations: two weeks before ending with de-registration period in CW 45 (Monday, 03. November 2025).