Course syllabus for

# User Needs, Requirements Engineering and Evaluation, 10 credits

Verksamhetsanalys, användarkravhantering och utvärdering, 10 hp
This course syllabus is valid from spring 2018.
Please note that the course syllabus is available in the following versions:
Spring2018 , Spring2021 , Autumn2021 , Spring2024 , Spring2025

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| Course code | 5HI019 |
| Course name | User Needs, Requirements Engineering and Evaluation |
| Credits | 10 credits |
| Form of Education | Higher Education, study regulation 2007 |
| Main field of study | Health Informatics |
| Level | AV - Second cycle |
| Grading scale | Excellent, Very good, Good, Satisfactory, Sufficient, Fail, Fail |
| Department | Department of Learning, Informatics, Management and Ethics |
| Decided by | Education committee LIME |
| Decision date | 2017-10-25 |
| Course syllabus valid from | Spring 2018 |

## Specific entry requirements

Bachelor of science or professional qualification of at least 180 credits within health care, biomedicine, technology, data and software engineering or informatics. Furthermore, knowledge in English equivalent to English B (with at least the Pass grade) is required.

## Objectives

The purpose of this course is that the students should learn how to use the tools and methods they will need in their work as health informaticians to analyze and model needs and requirements of patients, healthcare professionals and care providers, as well as to evaluate eHealth in different contexts. On completion of the course the student should be able to:

Knowledge and understanding
- describe and discuss the importance of understanding and analyzing healthcare organizations, users' needs and requirements in different contexts
- describe and compare different methods for analysis of healthcare organizations and user needs and their application
- explain, discuss and analyze different evaluation methods and techniques to assess functionality and usability in eHealth and effects on users, organizations and outcomes

Skills
- analyze and describe health and social care as well as patients' self-care needs and work/care processes
- using different methods and techniques to describe the context and creating models or prototypes of an eHealth system
- compare, contrast and choose different evaluation methods and instruments depending on the purpose and context of an evaluation
- plan and carry out an eHealth evaluation study
- critically assess reported evaluation studies

Attitudes
- value the use of multidisciplinary work in requirements and needs analysis
- explain and motivate the need of an iterative development process and continuous user involvement
- discuss relevant ethical issues related to needs assessments, user involvement and evaluations

# Content

When developing information and communication technology (ICT) for health, social and self-care it is important to have an understanding of work routines, care processes, information needs and other central pre-conditions at the clinical and personal level. This is very context dependent and affects how eHealth needs to be designed to suit different contexts of care. This understanding must be shared between many different stakeholders, including end-users (e.g. care professionals, administrators, patients), management and system developers.

The course therefore addresses methods for analyzing health and social care organisations and user needs analysis, as well as documentation and communication of these and formulation of requirements based on the needs. Specific prerequisites for requirements engineering in health and social care are discussed. In addition, the course gives an overview over relevant methods and techniques for evaluation of e-services, computer applications and/or information systems in health, social and self-care. The course provides an understanding of the role of formative and summative evaluation during the system development lifecycle and introduces guidelines for good evaluation practice and reporting.

Different methods and tools are presented and the students get to practice these methods during the course.

# Teaching methods

Lectures/teaching sessions, seminars and group assignments. For the group assignments, groups with a mix of students with a clinical background and students with a technical background are created. In each group, the collected skills should be utilized to carry out the different assignments.

The course is given in the form of a number of blocks where different themes are treated. The blocks are structured similarly:
- lectures that introduce new theory and project assignments
- opportunities for teacher guidance for group assignments
- presentations of group assignments and reflecting seminars

# Examination

The examination consists of two parts:
- group assignments and
- an individual written exam.

The final grade for the course is based on both group assignments (30%) and the written exam (70%) and is assessed with the grading scale A-F.

The final grade for the course will be assigned when all compulsory parts have been completed.

Compulsory participation
Active participation in group work, written reports of the group assignments and participation in the seminars where the group assignments are presented is compulsory. The course director assesses if and, in that case, how absence can be compensated. Before the student has participated in all compulsory parts or compensated absence in accordance with the course director's instructions, the student's results for the course will not be registered in LADOK.

Limitation of number of occasions to write the exam
The student has the right to write the exam six times. If the student has not passed the exam after four participations he/she is encouraged to visit the study advisor.

The number of times that the student has participated in one and the same examination is regarded as an examination
session. Submission of a blank examination is regarded as an examination. An examination for which the student
registered but not participated in will not be counted as an examination.

# Transitional provisions

Examination will be provided during a time of two years after a possible cancellation of the course. Examination can take place according to an earlier literature list during a time of one year after the date when a major renewal of the literature list has been made.

# Other directives

Course evaluation will be carried out in accordance with the guidelines established by the Board of Education.

The course is given in English.

# Literature and other teaching aids

*Sharp, Helen; Preece, Jennifer; Rogers, Yvonne*
**Interaction design : beyond human-computer interaction**

4th ed. : Chichester : Wiley, cop. 2015 - xiii, 567 s.
ISBN:9781119020752 LIBRIS-ID:17023916
Library search

*Brender, Jytte*
**Handbook of evaluation methods for health informatics**

Amsterdam : Elsevier Academic Press, c2006 - xv, 361 s.
ISBN:0-12-370464-2 LIBRIS-ID:10158361
Library search

*Bittner, Kurt.; Spence, Ian*
**Use case modeling**

Boston, MA : Addison Wesley, c2003. - xix, 347 p.
ISBN:0-201-70913-9 (pbk. : alk. paper) LIBRIS-ID:12384705
Library search

*Sommerville, Ian*
**Software engineering**

Tenth edition, Global edition. : Boston : Pearson Education Limited, [2016] - 810 pages
ISBN:9781292096148-  LIBRIS-ID:19572637
Library search

*Arnowitz, Jonathan; Arent, Michael; Berger, Nevin*
**Effective prototyping for software makers**

San Francisco, CA : Morgan Kaufmann, c2007 - xxxviii, 584 p.
ISBN:0-08-046896-9  LIBRIS-ID:11954036
Library search

*Friedman, Charles P.; Wyatt, Jeremy C.*
**Evaluation methods in biomedical informatics**

Second Edition. : New York, NY : Springer Science+Business Media, Inc., 2006.
ISBN:978-0-387-30677-3  LIBRIS-ID:11423169
URL: Online access for SLU
Library search