HALMSTAD UNIVERSITY
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School of Information Technology

SYLLABUS
-translated from Swedish
Page 1 (2)
Course Code: IK8030 / 1

Research Methods for Human-Machine Cooperation 3 credits

Forskningsmetoder för människa-maskinsamverkan 3 hp

Second cycle
Main field: Informatics, Second cycle, has only first-cycle course/s as entry requirements (A1N)
Syllabus is adopted by the Research and Education Board (2023-05-10) and is valid for students admitted for the autumn semester 2023.

Placement in the Academic System

The course is given as a singe subject course.

Prerequisites and Conditions of Admission

Degree of Bachelor or Degree of Bachelor of Science in Engineering. The degree must be equivalent to a Swedish kandidatexamen or Swedish högskoleingenjörsexamen and must have been awarded from an internationally recognised university.
Applicants must have written and verbal command of the English language equivalent to English course 6 in Swedish Upper-Secondary School.

Course Objectives

The course deals with methods and principles for the design and evaluation of services based on artificial intelligence (AI).

Following successful completion of the course the student should be able to:

Knowledge and understanding

- describe and explain what characterizes AI-based services

- account for methods and principles of stakeholder-centric design of AI-based services

- account for relations between explainable AI and service design

Skills and ability

- apply frameworks for design and evaluation of AI-based services

- elicit requirements and develop mockups for AI-based services

- evaluate alternative design proposals based on current research

Judgement and approach

- evaluate and critically reflect about ethical issues associated with AI-based services

Primary Contents

The course builds on fromworks for design-oriented research and development with a focus on stakeholder-centric design. The emergence of AI-based services implies new design challenges – e.g., that a digital service changes its behavior over time, and the need for explainability of information content and recommendations. With these challenges as a backdrop, the course focuses on methods and principles for stakeholder-centric design of AI-based services.

Teaching Formats

Teaching consists of lectures, workshops, seminars, and presentations. The teaching language is English. The course is given online on the university's learning plattform.

Examination

The overall grades of Fail or Pass will be awarded for the course.
The course is examined through an individual report with literature-driven practical problem solving and reflective elements.

Name of the test		Grading
Report	3 credits	U/G

If there are special reasons, the examiner may make exceptions from the specified examination format and allow a student to be examined in another way. Special reasons can e.g. be a decision on learning support.

For elite sports students according to Riktlinjer för kombinationen studier och elitidrott vid Högskolan i Halmstad, DNR: L 2018/177, the examiner has the right to decide on an adapted examination component or let the student complete the examination in an alternative way.

Course Evaluation

Course evaluation is part of the course. This evaluation should offer guidance in the future development and planning of the course. Course evaluations should be documented and made available to the students.

Course Literature and Other Study Resources

Bingley, William J., Curtis, Caitlin., Lockey, Steven., Bialkowski, Alina., Gillespie, Nicole., Haslam, Alexander S., ... & Worthy, Peter. Where is the human in human-centered AI? Insights from developer priorities and user experiences. *Computers in Human Behavior*, (2022) 107617.

Ozmen Garibay, O., Winslow, Brent., Andolina, Salvatore., Antona, Margherita., Bodenschatz, Anja., Coursaris, Constantinos., ... & Xu, Wei. Six Human-Centered Artificial Intelligence Grand Challenges. *International Journal of Human–Computer Interaction*, (2023) 1-47.

Shneiderman, Ben. Human-centered artificial intelligence: Three fresh ideas. *AIS Transactions on Human-Computer Interaction*, 12(3),(2020), 109-124

Wärnestål, Pontus. *Designing AI-Powered Services*. Studentlitteratur. 2022

Xu, Wei., Dainoff, Marvin. J., Ge, Liezhoong., & Gao, Zaifeng. Transitioning to human interaction with AI systems: New challenges and opportunities for HCI professionals to enable human-centered AI. *International Journal of Human–Computer Interaction*, 39(3), (2023), 494-518.

Utöver angiven litteratur ska studenten i samråd med kursansvarig självständigt söka och välja kompletterande material ur högskolans databaser och/eller från källor på Internet.