KURSPLAN

Research Methods for Intelligent Systems, 7,5 högskolepoäng

Research Methods for Intelligent Systems, 7.5 credits

Kurskod:	TRIS22	**Utbildningsnivå:**	Avancerad nivå
Fastställd av:	VD 2022-03-01	**Utbildningsområde:**	Tekniska området
Reviderad av:	Utbildningschef 2024-11-28	**Ämnesgrupp:**	DT1
Gäller fr.o.m.:	2025-08-01	**Fördjupning:**	A1F
Version:	3	**Huvudområde:**	Datavetenskap

Lärandemål

After a successful course, the student shall:

Kunskap och förståelse
- display knowledge of the current state-of-the-art in AI, machine learning and data science
- demonstrate knowledge and comprehension of the main field of study, including both broad knowledge of the field and a considerable degree of specialised knowledge in certain areas of the field as well as insight into current research and development work
- display specialised methodological knowledge of the main field of study

Färdighet och förmåga
- demonstrate the ability to critically and systematically integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations even with limited information
- demonstrate the ability to identify and formulate issues critically, autonomously and creatively as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined time frames and so contribute to the formation of knowledge as well as the ability to evaluate this work

Värderingsförmåga och förhållningssätt
- demonstrate the ability to compare and evaluate different representations and algorithms for intelligent agents
- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues and also to demonstrate awareness of ethical aspects of research and development work
- demonstrate the ability to have insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used
- demonstrate the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning

Innehåll

The course comprises of lectures and seminars. The lectures broadly cover the theoretical

foundations of typical research approaches in artificial intelligence and related areas as well as common research methods and ways of reporting research findings. The seminars cover academic communication, state-of-the-art development in artificial intelligence from a scientific perspective, and open research questions and challenges.

The course includes the following elements:
- Information retrieval and literature surveys
- Qualitative and quantitative approaches to research
- Computer science as a scientific paradigm
- Research methods in computer science
- Basic and applied research in artificial intelligence
- Ethical considerations
- Assessment of scientific quality

Undervisningsformer

Lectures are conducted in the traditional format, which means that they are aimed at transmission of course content whereby the focus is on the delivery of the material by the lecturer. Each lecture is 90 minutes with 15 minutes break half-way. The seminars are planned and moderated by the students based on specifications from the course responsible and materials described in the course memo.

Undervisningen bedrivs på engelska.

Förkunskapskrav

Passed courses at least 90 credits within the major subject Computer Engineering, Computer Science, Electrical Engineering (with relevant courses in Computer Engineering), or equivalent, or passed courses at least 150 credits from the programme Computer Science and Engineering, and completed course Machine Learning, 7,5 credits or equivalent. Proof of English proficiency is required.

Examination och betyg

Kursen bedöms med betygen 5, 4, 3 eller Underkänd.

Poängregistrering av examinationen för kursen sker enligt följande system:

Examinationsmoment	Omfattning	Betyg
Seminarier	1,5 hp	U/G
Inlämningsuppgifter	1,5 hp	U/G
Akademisk rapport[I]	4,5 hp	5/4/3/U

[I] Bestämmer kursens slutbetyg vilket utfärdas först när samtliga moment godkänts.

Kurslitteratur

The literature list for the course will be provided 8 weeks before the course starts.

Scientific articles will be handed out during the course.