

Syllabus

for course at advanced level

Scalable and Responsible AI in Organizations
Skalbar och ansvarsfull AI i organisationer

**7.5 Higher Education
Credits**
7.5 ECTS credits

Course code:	ML271N
Valid from:	Spring 2022
Date of approval:	2021-10-29
Department	Department of Computer and Systems Sciences
Main field:	Computer and Systems Sciences
Specialisation:	A1N - Second cycle, has only first-cycle course/s as entry requirements

Decision

This syllabus was approved by the Head of the Department 2021-10-29.

Prerequisites and special admittance requirements

90 ECTS in Computer and Systems Sciences, including at least 7.5 ECTS NoSQL Databases (e.g. the course Big Data with NoSQL Databases 7.5 ECTS) or equivalent knowledge.
English 6 (or equivalent knowledge).

Course structure

Examination code	Name	Higher Education Credits
SAII	Scalable and Responsible AI in Organizations, assignment	3.5
SAIT	Scalable and Responsible AI in Organizations, written exam	4

Course content

The overall goal of the course is to provide the student with knowledge and tools for reasoning about responsible AI in an organisational context.

The course deals with ethical aspects of responsible AI from both designers and users perspectives. The course also deals with privacy issues as well as strategies and privacy preservation mechanisms for complying with legal regulations. Another important topic is to identify and manage bias in algorithms and data.

The course also covers the use of AI in an organisational context, which includes identifying and addressing challenges when implementing AI in an organisation. To successfully implement AI in organisations, process support is required for identification of suitable application areas, design and implementation of scalable solutions, but also for deployment, continuous monitoring and maintenance of, for example, machine learning models.

Learning outcomes

Upon successful completion of the course, the student should be able to

- describe the challenges and opportunities of implementing AI in organisations
- describe and apply processes for implementing AI in organisations
- describe and analyse responsible AI from both a designer and user perspective
- identify ethical barriers and integrity aspects when implementing AI in organisations
- propose strategies for complying with legal regulations in data processing

- describe strategies for identifying and counteracting bias in data and algorithms
- identify and apply appropriate scalable technologies designed for massive amounts of data, e.g. by analysis of streaming data or graph data.

Education

The teaching activities consist of lectures and supervised exercises. The language of instruction is English.

Forms of examination

- The course is examined through a written examination and assignments.
- The final grading of the course is based on the following grading scale related to the learning outcomes of the course: A = Excellent, B = Very Good, C = Good, D = Satisfactory, E = Sufficient, Fx = Fail, F = Fail.
- The grading criteria are communicated to the students at the start of the course.
- In order to complete the whole course segment the student must obtain at least grade E (or P with Pass/Fail grades) in all course components/examinations.
If there are multiple examinations with grading A to F, the average of the grades is calculated by converting letters into numbers in the following way: A = 4, B = 3, C = 2, D = 1, E = 0. The average is calculated relatively to the number of credits of the various components/examinations and the number of credits of the course. The final grade of the course is thus a weighted average of the course components/examinations. If the average is in between two grades, 2/3 parts of the higher grade are required in order to round up the average.
- In addition the following regulations also apply:
 - Students who obtain grade Fx in a written examination task are allowed to complete a supplementary assignment in order to elevate the grade to E.
The examiner informs the concerned students when the results of the written examination are published. The supplementary assignment has to be submitted within a given deadline and can only be utilized to elevate the grade of the actual examination task.
 - Students who obtained grade E in an examination task are not allowed to re-write the examination or resubmit the assignment in order to obtain a higher grade.
 - Students who have failed the same examination task twice are allowed to have another examiner appointed, unless there are special reasons to the contrary.

Interim

When a course is discontinued, or its contents are substantially altered, the following applies:

- Failed examination tasks are replaced with other similar examination tasks according to a specific plan.
- If no similar examination tasks can be provided, at least three examination opportunities per examination task should be offered during a period of at least three terms from the date of the decision. After this period, no examinations should be carried out on the course.

Limitations

This course may not be included in a degree together with a course, taken in Sweden or elsewhere, of identical or partially similar content.

Required reading

Information about course literature is available on the department's website - www.dsv.su.se - at least two months before the start of the course.