UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Uncertainty in knowledge representation and machine learning

2425-114R-05

Title

Uncertainty in knowledge representation and machine learning

Teacher(s)

Andrea Campagner, Davide Ciucci

Language

English

Short description

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The aim of the course is to provide an introduction to the topic of uncertainty modeling in computer science, with specific reference to artificial intelligence (knowledge representation and machine learning). To this aim, the course will provide the basic conceptual tools to understand and recognize different types of uncertainty, as well as the mathematical and computational tools underlying state-of-the-art uncertainty modeling methods.

Program (tentative)

- Knowledge Representation
  . Information and uncertainty: relationships and taxonomies
  . Tools for modeling uncertainty: probability theory, possibility theory, belief functions, fuzzy sets, rough sets
- Machine Learning
  . Uncertainty in ML: basic definitions
  . Uncertainty in the data: weakly supervised learning and learning from imprecise data
  . Uncertainty quantification in supervised learning

CFU / Hours

2/16

Teaching period

The course will start from the week of the 10th of February 2025, with the first lesson on the 11th of February 2025.

11, 13 February 14-16
18, 20, 25, 27 February 14-17

All lectures will be in room T014, with the exception of the 25 February that will be in room T024

Sustainable Development Goals