



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## COURSE SYLLABUS

### Neural Symbolic Computation

2526-114R-2-02

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#### Title

Neural Symbolic Computation

#### Teacher(s)

Guido Fiorino  
Rafael Peñaloza  
Italo Zoppis

#### Language

English

#### Short description

The aim of the course is to present the field of neuro-symbolic integration, also known as Neural-Symbolic Learning and Reasoning.

As far as possible we try to keep the course self-contained, in particular for the logical notions necessary to understand the approach.

Tentative programme:

- Non-monotonic reasoning and ASP;
- Fuzzy and Real Logics;
- Inserting and extracting knowledge from CLIP System;
- Logic Tensor Networks and, if possible, Logical Neural Networks;
- Computational Graphs.

References:

a recent book about neuro-symbolic integration:

Pascal Hitzler, Md Kamruzzaman Sarker (eds.), Neuro-Symbolic Artificial Intelligence - The State of the Art. Frontiers in Artificial Intelligence and Applications Vol 400, IOS Press, Amsterdam, 2025.

## **CFU / Hours**

2 CFU/16 Hours

## **Teaching period**

September 2026

## **Sustainable Development Goals**

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