UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

# SYLLABUS DEL CORSO

## Efficient Algorithms

**2526-114R-1-02**

### Title

Efficient Algorithms

### Teacher(s)

Gianluca Della Vedova, Raffaella Rizzi

### Language

English

### Short description

You must enrol at least one week before the first lecture.
If you are unable to enrol, send an email to the teacher(s).

The content of the course is the following

1. Introduction to text indexing: suffix trees, suffix arrays
2. Enhanced suffix arrays
3. Burrows-Wheeler Transform (BWT), FM-index

4. Dynamic programming in linear space
5. Speeding up dynamic programming: Four Russians' and Wavefront techniques
6. Dynamic programming on trees and graphs

The exam consists in exercises given during the course. The exercises can be solved by small groups of students. Each student must write individually a detailed solution of the exercises.
We expect the student to have a clear understanding of basic algorithms and data structures, such as those presented in the undergraduate Algorithms courses

## CFU / Hours

2 CFU.
The course consists of 16 hours of lectures. No lab activities is planned.

## Teaching period

January 2026

## Sustainable Development Goals

QUALITY EDUCATION