

UNIVERSITÀ DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Graph Theory and Algorithms

2223-87R-03

Title

Graph Theory and Algorithms

Teacher(s)

Prof. Gianluca della Vedova

Prof. Marco Viviani

Language

English

Short description

The course is a graduate on introduction to Graph Theory, without a specific application in mind.

Lecture plan:

- 1. Connectivity (connected components, biconnected components, SPQR trees)
- 2. Walks, Paths, Trials, Cycles (Hamiltonian cycles, Eulerian cycles, TSP)

- 3. Graph Matching on general graphs.
- 4. Cuts
- 5. Graph Decomposition (Modular decomposition, cographs)
- 6. Treewidth, pathwidth, Twin-width
- 7. Graph Compression
- 8. Graph Mining (Intro & Graph Indexing)
- 9. Graph Mining (Graph Summarization & Graph Classification)
- 10. Graph Partitioning (and Clustering) & Complex Networks (graphs to represent complex systems and networks, small-world)

CFU / Hours

2.5 credits/20 hours

Teaching period

April-June 2023

Sustainable Development Goals