



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## SYLLABUS DEL CORSO

### Complementi di Basi di Dati

2324-3-E3101Q115

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#### Aims

The course will be provided in Italian and it will allow students to have a wide and up-to-date overview of the main storage systems (relational, nosql and newSQL) and architectures (including commercial ones) . Students will be also able to understand transaction and its properties. For rdf and NoSQL the underlining data models, query languages and architecture will be also explained as well as the architectural solutions of newSQL systems.

#### Contents

Relational dbms architecture, transaction and ACID properties, Main issue on security of centralized rdbms and description of architectures of most adopted commercial RDBMS. Non relational dbms: NoSQL and newSQL; architectures and query languages

#### Detailed program

- 1 introduction and physical access structure
- 2 query optimization
- 3 concurrency control
- 4 security
- 5 architecture of commercial DBMS

6 reliability manager

7 NoSQL, models, query language and architectures

8 NewSQL available architectures and their use

## **Prerequisites**

Database

## **Teaching form**

lectures with slides, exercises and practical exercise on most important storage management system

## **Textbook and teaching resource**

P. Atzeni, S. Ceri, P. Fraternali, S. Paraboschi, R. Torlone Basi di dati: architetture e linee di evoluzione McGraw-Hill Italia,

## **Semester**

second semester

## **Assessment method**

Two are the alternative way to assess students:

1) a written exam followed by a small project. The written part is composed by a set of query related to theoretical issues explained in the course and a set of exercise related to algorithm, protocols, model, and query languages explained in the course. The small project wants to verify the capability of a given student to execute typical database administrator activities or modelling and querying NoSQL database systems

2) a project related to one of the topic related to the course.

## **Office hours**

Thursday 10-11 building U14 room 2062

# Sustainable Development Goals

QUALITY EDUCATION | INDUSTRY, INNOVATION AND INFRASTRUCTURE

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