



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## COURSE SYLLABUS

### Introduction To Databases

1920-2-E4102B069

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#### Learning objectives

This course will introduce some advanced computational tools to manage information.

A first goal is to introduce the relational model of data bases, the conceptual model, and the entity-relationship diagram.

The second goal is the introduction of the SAS system.

#### Contents

Notions and techniques for the conceptual project

The entity-relationship model

The relational model

Notions and techniques for the logic project

Introduction to SAS

Managing data with SAS

#### Detailed program

Conceptual projects. Schema and instance layers. Project goals

Project techniques: top-down, bottom-up

Entity-Relationship model. Introduction to data base design. Main ER concepts. Advanced ER concepts.

The relational model. keys and constraints. Basics of normal forms.

From the ER model to the relational model. 1-to-1 relations. 1-to-many relations. many-to-many relations

Introduction to SAS

Data step and Proc step

Reading raw data files

Managing SAS datasets

Proc Means and Proc Freq

## **Prerequisites**

None

## **Teaching methods**

Lectures

## **Assessment methods**

Written exam consisting of: (1) a SAS program written at the PC, and (2) an ER diagram. The two parts have the same weight towards the determination of the final grade. Neither of the two parts can be severely insufficient in order to pass the exam.

The grading is based on correctness, completeness, simplicity of the proposed solution.

## **Textbooks and Reading Materials**

- [“The Little SAS Book](#), SAS Institute
- “Basi di dati, Modelli e Linguaggi di interrogazione”, Atzeni, Ceri, Paraboschi, Torlone, McGraw-Hill.

## **Semester**

Second

## **Teaching language**

Italian

