UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Big Data in Economics

2122-2-F9101Q018-F9101Q018M

Learning objectives

The course aims to develop the skills to apply data analysis to economic and business problems.

Specifically, it analyzes with case studies and datasets three fundamental problems: causal effects, prediction, and unsupervised classification.

Contents

The course is divided into 4 parts.

The first part discusses the role of big data within within the firm and the new challenges. The remaining three parts of the course separately discuss the three main areas of application (causality, prediction and unsupervised classification) with specific examples mainly concerning risk management and consumer choices.

Finally, in hands-on lab students learn to develop R algorithm for data analysis.

Detailed program

1. Introduction and definition of the problem: the Big Data Challenge

2. The role of uncertainty: Cause, prediction and unsupervised classification.

3. Causal mechanisms: fundamental elements and a case study.

4. Prediction: the challenge of assessing uncertainty in predictive models.

5. Unsupervised learning: Self-Organizing-Map and marketing

6. Bonus track: the analysis of drift in business models.

7. Reporting of company results: creating a narrative around the model

Prerequisites

Teaching methods

lectures, debates, presentations, computer lab

Assessment methods

Attending students: project and written exam.

Non-attending students: written exam.

Textbooks and Reading Materials

The reading material is based on journal articles and selected book chapters. The material will be available on the e-learning platform.

Book

Data Science for Business
What You Need to Know about Data Mining and Data-Analytic Thinking
By Foster Provost, Tom Fawcett

Semester

II semester

Teaching language

English