COURSE DETAIL

DATA MINING FOR BUSINESS AND MARKET RESEARCH
Country Italy
Host Institution University of Bologna
Program(s) University of Bologna
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Statistics Computer Science Business Administration
UCEAP Course Number 144
UCEAP Course Suffix
UCEAP Official Title DATA MINING FOR BUSINESS AND MARKET RESEARCH
UCEAP Transcript Title DATA MINING
UCEAP Quarter Units 6.00
UCEAP Semester Units 4.00

Course Description

This course is part of the Laurea Magistrale degree program and is intended for advanced level students. Enrollment is by permission of the instructor. This course focuses on the main data mining methods used in knowledge discovery in business employing internal and external data. With an emphasis on data analysis and on the use of a software, special attention is devoted to techniques that help to single out the relationships of interdependence and patterns in business and market research phenomena. Students learn, hands-on, how to organize and analyze market research data. In particular, at the end of the course students are able to: independently run a complete data mining process (from data pre-processing to the interpretation of obtained results); choose the best suited statistical methodology for the problem at hand; to critically interpret empirical results.

The course content is divided as follows:

1. INTRODUCTION: data-analytic thinking, overview of Data Mining, from business problems to Data Mining tasks, the Data Mining process; real-world business challenges.

2. DATA EXPLORATION AND PREPARATION: data objects and attributes type, data matrices and their transformations, data cleaning.

3. STATISTICAL AND DATA MINING SOFTWARE: introduction to SAS; SAS LAB tutorial on data organization and data preprocessing using real datasets.

4. MULTIDIMENSIONAL DATA ANALYSIS & DIMENSIONALITY REDUCTION: Principal component analysis and its variants (e.g., PCA of ranks); Multiple Correspondence Analysis - categorical pattern detection. Theory and practice with SAS.

5. PROXIMITY MEASURES: distance and similarity for mixed data.

6. CLUSTERING: hierarchical, partitional and hybrid clustering. Understanding the Results of Clustering.

7. PROFILING: deriving typical behavioral segments.

8. CO-OCCURRENCES AND ASSOCIATIONS: Finding items that go together. Theory and application of main association rules algorithms in SAS.

9. Data Mining SCORING: Theory and practice.

10. Causal ML and Advanced Lab: causal inference fundamentals; application of causal ML algorithms in the context of business analytics for decision support; evaluate a marketing campaign using causal ML in SAS; targeting and interpreting causal results.

Language(s) of Instruction
English

Host Institution Course Number
96802

Host Institution Course Title
DATA MINING FOR BUSINESS AND MARKET RESEARCH

Host Institution Course Details
https://www.unibo.it/en/study/course-units-transferable-skills-moocs/course-uni…

Host Institution Campus
BOLOGNA

Host Institution Faculty

Host Institution Degree
LM in STATISTICS, ECONOMICS AND BUSINESS

Host Institution Department
STATISTICAL SCIENCES

Course Last Reviewed
2025-2026

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