



Course guide

240788 - 240788 - Computational Marketing

Last modified: 30/01/2024

Unit in charge: Barcelona School of Industrial Engineering
Teaching unit: **Degree:** BACHELOR'S DEGREE IN INDUSTRIAL TECHNOLOGIES AND ECONOMIC ANALYSIS (Syllabus 2018). (Optional subject).

Academic year: 2023 **ECTS Credits:** 6.0 **Languages:** English

LECTURER

Coordinating lecturer: FABRIZIO GERMANO

Others: MOHA GHADERI

PRIOR SKILLS

N/A

REQUIREMENTS

N/A

TEACHING METHODOLOGY

The integration of transformative technologies and the exponential growth of data are driving a profound shift in the business landscape. Marketing strategies are being revolutionized to leverage data for a deeper understanding of customers and the intricacies of the interconnected global environment. This course offers an overview of the burgeoning field of computational social science with a focus on the marketing domain, exploring the vast opportunities it presents. Through a blend of theory and hands-on applications, you will gain the skills to effectively utilize data analytics, enabling you to make informed marketing decisions, optimize campaigns, and unlock untapped potential for growth and innovation.

LEARNING OBJECTIVES OF THE SUBJECT

To gain the skills to effectively utilize data analytics, enabling you to make informed marketing decisions, optimize campaigns, and unlock untapped potential for growth and innovation.

CONTENTS

Computational Marketing

Description:

content english

Related activities:

- I. Computational Paradigm
 - o The scientific method
 - o Induction, deduction, and their limitations
 - o Computational science
- II. Causal Inference
 - o When and why causality matters in Marketing?
 - o Causal graphs
- III. Supervised Learning
 - o Regression models
 - o Customer selection
- IV. Unsupervised learning
 - o Market segmentation
- V. Social Networks and Simulations
 - o Centrality
 - o Information dissemination and word-of-mouth
 - o Agent-based models and heterogeneity

Full-or-part-time: 132h

Theory classes: 30h

Laboratory classes: 12h

Self study : 90h

GRADING SYSTEM

- i) Group Project 20% of the total grade
- ii) Mid-Term Exam + In-class evaluations 30% of the total grade
- iii) Final Exam (closed-book) 50% of the total grade

Group Project: Each group of 3 to 4 students will be responsible for a comprehensive analysis of an assigned project. The case for the analysis could be selected from a list of suggestions that will be given. Nevertheless, proposals outside the list are welcome, conditional on approval by the instructor of the seminar sessions. The evaluation of the final project is based on two main components: the project report that should be submitted before the project presentation (in the eighth week of the course), and the group presentation of the project that will take place in the sixth session of the seminar series. On the latter component, the assessment is based on a demonstration of good understanding of the project context, being able to answer why & how questions regarding different aspects of the project, and effective communication of the key results. Additional detailed instructions on your group project will be given during the course.

EXAMINATION RULES.

The exams are mainly based on the following two sources:

- Discussions in the class
- Selected book chapters from the course textbooks

The exam will be a combination of short case analysis, essay, true/false and multiple-choice questions.

Attendance and active participation in every session are encouraged; punctuality is a must. This component, possibly including unexpected tests, might account for up to 10% of the weight given to the second component of the evaluation criteria.



BIBLIOGRAPHY

Basic:

- Kevin P. Murphy. Probabilistic machine learning : an introduction. Cambridge, Mass.: MIT Press, 2022. ISBN 9780262046824.