Syllabus
Course description

Course title	Statistical Methods for Business Analysis
Course code	27174
Scientific sector	SECS-S/01
Degree	Master in Entrepreneurship and Innovation
Semester and academic year	2nd semester, ay 2021-22
Year	1st study year
Credits	6
Modular	No

Total lecturing hours	36
Total lab hours	24
Total exercise hours	0
Attendance	suggested, but not required
Prerequisites	not foreseen
Course page	https://www.unibz.it/de/faculties/economics-management/master-entrepreneurship-innovation/course-offering/?academicYear=2021

| Specific educational objectives | The course refers to the typical educational activities and belongs to the scientific area of Statistic-Mathematic.

This course introduces a wide range of statistical tools for making inferences and predictions from data, including regression, classification, supervised methods and unsupervised methods. All the methods covered in class are illustrated using real datasets, commonly found in business and management. Analyses will be performed within the R statistical computing environment.

At the end of the course, the students will be able to select and use properly a wide range of statistical learning and forecasting tools. They will be also able to draw conclusions from their analyses in the context of real data. |
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https://www.unibz.it/en/faculties/economics-management/academic-staff/ |
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Scientific sector of the lecturer	SECS-S/01
Teaching language	English
Office hours	please refer to the lecturer's web page
Lecturing assistant	Not foreseen
Teaching assistant	Not foreseen
Office hours	18
List of topics covered	- Principles of statistical inference: confidence intervals and hypothesis tests - Association and dependence - Introduction to statistical learning - Linear regression - Logistic regression - Model selection - Classification and cluster analysis - Statistical learning with R
Teaching format	Frontal lectures, exercises, computer labs.

Learning outcomes	Knowledge and understanding: • Knowledge and understanding of statistical models for business. • Knowledge and understanding of theory and tools of statistical analysis of markets: model selection, segmentation, forecasting. • Knowledge of quantitative models for forecasting, in particular in relation to decision management. Applying knowledge and understanding: • Ability to find and select relevant data for management and business innovation. • Ability to identify the statistical models that are suitable to analyze correctly a specific socio-economic and industrial framework. • Ability to provide forecasts about the markets. • Ability to identify segments of potential customers. • Ability to classify and analyze specific innovations and their potential development. Making judgments: Ability to select and apply appropriate models and tools of statistical analysis. Communication skills: Ability to communicate precisely the results of statistical analyses to a general audience. Learning skills: Ability to establish links among different statistical models.

Assessment	Written exam and project assignment: • written exam with exercises and review questions for both attending and non-attending students; • project done in groups during the semester for both attending and non-attending students (40% of the final grade in the course). *NOTE: Project assignments are valid for 1 academic year and cannot be carried over beyond that time-frame.*
Assessment language	English
Evaluation criteria and criteria for awarding marks	The written exam consists of several exercises and one or more review questions. The project assignment involves statistical analyses on real data related to the contents of the course using the statistical software R. To pass the exam, students must obtain a positive evaluation in both written exam and project assignment.

Required readings	James, G., Witten, D., Hastie, T., Tibshirani, R.: An Introduction to Statistical Learning with Applications in R. Springer, 2013. Free available at http://www-bcf.usc.edu/~gareth/ISL/ Lectures notes will be provided.
Supplementary readings	Agresti, A., Finlay, B.: Statistica per le Scienze Sociali. Pearson, 2009. Hyndman, R.J. and Athanasopoulos, G: Forecasting: principles and practice. Available at http://otexts.com/fpp/