



UNIVERSITÀ
CATTOLICA
del Sacro Cuore

Statistics of Arts Management

PROF. EMILIANO SIRONI

Course aims and intended learning outcomes

The aim of the course is to develop the main statistical techniques for analysing and interpreting data in the fields of arts management. The first part of the course aims at offering a gentle theoretical introduction on the main statistical tools for data analysis, reviewing the role of univariate descriptive statistics and introducing techniques and indicators exploring the relationship existing between two or more variables. The second part of the course focuses on statistical modelling, exploring the regression techniques and addressing both the cases of categorical and numerical response variables. Theoretical lectures will be combined with written exercises and by the discussion of practical cases and examples of data analyses implemented with Excel or R.

The following learning abilities are provided and expected to be achieved by participants at the end of the course:

1. Knowledge of concepts, terms and methods of descriptive statistics, probability, statistical inference and regression analysis (DD1 - Knowledge and understanding).
2. Ability to correctly apply methods of descriptive statistics, probability and statistical inference to arts management problems (DD2 - Applying knowledge and understanding).
3. Quantitative thinking addressed to make independent judgements, driven by statistical statements (DD3 - Making judgements).
4. Ability to read and interpret data and communicate results, through the extraction of qualitative information from data (DD4 - Communication).
5. Mastery of tools useful for quantitative analyses in courses later in the curriculum, as well as for simple quantitative analyses required in future careers involving management of data, rigorous reasoning and data-driven decision-making (DD5 - Lifelong learning skills).

Course content

Review of basic concepts in descriptive statistics. Numerical and categorical variables; graphical representations; frequency distributions; measures of central tendency; measures of variability.

Review of basic concepts in probability. The normal distribution and its graphical representation; the central limit theorem.

Statistical inference. Data collection and main sampling techniques, point and interval estimation, hypotheses testing.

Correlation and linear regression. Measures of association between numerical variables (covariance and correlation); the simple and multiple linear regression model; interpretation of the coefficients and inference in linear models; goodness of fit, production and interpretation of outputs using a statistical software (Excel or SPSS).

Regression models for categorical response variables. Measures of association between categorical variables (two-way tables); the simple and multiple logistic regression model; interpretation of the coefficients and inference in linear models.

Applications of statistics to arts and management. Discussion of practical cases, based on the presentation and the analysis of datasets.



UNIVERSITÀ
CATTOLICA
del Sacro Cuore

Reading list

Lecture notes uploaded in Blackboard.

P. NEWBOLD-W. CARLSON-B. THORNE, Statistics for Business and Economics 8th Ed, Pearson (chapters 1-2-3-5-6-7-9-11-12-13-14). ISBN: 978-0-13-274565-9.

A. AGRESTI, Statistical Methods for the Social Sciences 5th Ed, Pearson, (chapter 13). ISBN: 978-0-13-471397-7.

Teaching method

Frontal lecturing, exercise sessions, active sessions in a PC lab.

Assessment method and criteria

Students will be evaluated with a written exam, composed of open questions and exercises to assess their knowledge of the lecture notes and of the assigned books in the reading list.

Attending students have also the opportunity to split the exam in two parts (each part represents 50% of the final evaluation): a mid-course and a second partial examination on the books and the materials provided by the instructors. Further details and integrations will be announced by the instructor and posted on his webpage or on Blackboard at beginning of the course.