Universitat Autònoma de Barcelona

2018/2019

Descriptive Statistics

Code: 103191
ECTS Credits: 6

Degree	Type	Year	Semester
2501919 Applied Statistics	FB	1	1

Contact

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Use of languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: No

Teachers

Roger Borras Amoraga

Prerequisites

None

Objectives and Contextualisation

Learn the descriptive and exploratory techniques applied to summarize the information contained in the experimental datasets. Also the interpretation of the results and the diagrams in the context of the data.

Content

1. Preliminaries.

1.1.The goal of Descriptive Statistics.
1.2. Types of variables and measurement scales.
1.3. Rounding and scientific notation.

2. Summary of statistical data.

2.1. Frequency distributions: tables.
2.2. Grouping data into intervals.
2.3. Graphical representation.

3. Numerical measures of a variable.

3.1. Central position measures: mean, median, mode.
3.2. Other position measures: quartiles, deciles and percentiles.
3.3. Measures of dispersion: variance and standard deviation (sample and population), range, interquartile range.
3.4. Measures of relative dispersion.

3.5. Standard scores.
3.6. Measures of form: symmetry and curtosis.

4. Extra tools for the study of a variable.

4.1. Exploratory analysis: boxplot and other diagrams.
4.2. Transformation of variables.
4.3. Other means: geometric, harmonic, quadratic.
4.4. Chebyshev's inequality.

5. Comparison of a variable in two or more groups: Exploratory analysis.

5.1. Situation of independent samples.
5.2. Situation of paired samples.

6. Tabulation and representation of the joint distribution of two categorical variables.

6.1. Contingency tables (joint, marginal and conditional frequency distributions).
6.2. Descriptive analysis of the dependence between two categorical variables.

7. Numeric description of the joint distribution of two statistical variables.

7.1. Marginal and conditionañ measures.
7.2. Regression curves and correlation coefficient.
7.3. Linear fitting and prediction.

8. Introduction to time series.

8.1. The classical decomposition
8.2. Smoothing series: application of filters.

9. Index numbers.

9.1. Definitions: Simple and synthetic indexes.
9.2. Properties and calculation of indexes.
9.3. The CPI and other indexes.