



Lisbon School
of Economics
& Management
Universidade de Lisboa



QUANTITATIVE DATA ANALYSIS

Master in Management

(Academic year 2022/2023)

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OBJECTIVES

- To develop the skills and knowledge to apply a variety of data analysis techniques, ranging from simple descriptive analysis, to the construction of regression models for both sectional and panel data and for continuous or binary dependent variables;
- To understand the theoretical background of the different techniques and to be able to evaluate and interpret their results;
- To plan and to conduct empirical studies;
- Computing skills and knowledge of the econometric software Stata.

TOPICS

1. Exploratory data analysis
2. Multiple regression (including dummies, interactions, specification analysis, and heteroskedasticity robust estimation and inference)
3. Models for panel data
4. Models for binary data

TEACHING METHODOLOGY

Each class is divided into a theoretical and a practical component. Building on the theoretical topics and on the short examples presented in the first part of the class, the students are then invited to exploit real datasets, using the Stata software, in order to understand the concepts and apply, in practical terms, the methodology.

ASSESSMENT PROCESS

Normal evaluation includes

- an individual written test (proposal: 14-04-2023), in which notes on 20 A4 pages in paper version may be used by the students (weight of 50%)
 - an empirical project in groups of five students (proposal: 27-03-2023), where the students apply several techniques to analyse the data (weight of 50%).
- Students will be approved with a final classification of 10 (out of 20) or larger, but the minimum classification allowed at the written test is 7 (out of 20). Students with a classification in the written test lower than 7 (out of 20) will be considered in the exam system (written test weights 100%) and, thus, not approved.

Students may choose to do an exam in the Normal evaluation system, in which case the final written test (20-06-2023) weights 100%. Students that fail in the system that combines a written test (weight 50%) + empirical project (weight 50%) will not have access to this exam

A re-sit exam will be available. The exam is a written test (04-07-2023) that weights 100%

EMPIRICAL PROJECT: Each group will receive a dataset, together with a short variable description. Based on that dataset, the group will produce an empirical analysis, guided by a problem set provided in the last week of classes. Specifically, using the Stata software, the group will deal with the problem set in 3 hours and then submit the answers in Fenix.

MAJOR REFERENCES

- Newbold, P., Carlson, W. & Thorne, N. (2022). Statistics for Business and Economics. 10th ed. Pearson
- Wooldridge, J. (2020) Introductory Econometrics – A Modern Approach, 7th ed., Cengage Learning

PLAN

Session	Date	Topics
1	13/02	Exploratory data analysis. Introduction to STATA. Illustration 1: 1-6
2	27/02	Multiple regression with sectional data: specification, estimation, partial effects interpretation, inference. Illustration 1: 7-9. Illustration 2: 1-3
3	06/03	Multiple regression with sectional data: inference (cont.), assumptions and qualitative variables. Illustration 2: 3 (cont.)-5
4	13/03	Multiple regression with sectional data: interactions, structural break, functional form, and heteroskedasticity. Illustration 2: 6-8
5	20/03	Models for panel data. Illustration 3
6	27/03	Models for binary data. Illustration 4