STATISTICS II

Academic Year: 2025/2026, 2nd Semester

PROGRAM

1. Sampling Distributions

a) Simple Random Sampling
b) Sampling Distributions
c) Asymptotic Distributions and the Central Limit Theorem

2. Estimation

a) Definition of Estimator and Estimate
b) Properties of Estimators
c) Point Estimation: Method of Moments and Maximum Likelihood Estimation
d) Interval Estimation

3. Hypothesis Testing

a) Definition and Types of Errors
b) Steps of a Hypothesis Test: Hypotheses, Test Statistic, and Decision
c) Rejection Region and p-value
d) Parametric Hypothesis Tests for Population Parameters
e) Non-Parametric Hypothesis Tests

4. Linear Regression Model

a) Introduction to the Linear Regression Model
b) Model Assumptions
c) Estimation of Coefficients
d) Model Quality Assessment
e) Statistical Inference
f) Dummy Variables
g) Prediction

Main reference

- Newbold, P., Carlson, W., & Thorne, B. (2013). *Statistics for business and economics* (8th ed.). Pearson.

Complementary references

- Marôco, J. (2021), *Análise Estatística com o SPSS Statistics.* 8ª Ed. ReportNumber.
- Silvestre, A. L. (2007). *Análise de Dados: Estatística Descritiva.* Escolar Editora.
- Triola, M. (2022). *Elementary Statistics (*14th ed.). Pearson.
- Winston, W. (2016). *Microsoft Excel 2016 Data Analysis and Business Modeling*, Microsoft Press.

Class Schedule

- Mondays, 15:30–17:00 — Room F1 AF1
- Wednesdays, 13:30–15:00 — Room F1 AF24

Student Office Hours

Elisabete Fernandes: Thursdays, 13:30–14:30, by prior appointment at least 48 hours in advance via email (efernandes@iseg.ulisboa.pt).

Office hours are only held during weeks with classes.