



Department/Area of Study:	Economics
Discipline:	Introduction to Statistical Analysis (EA023)
Number of credits:	2
Academic hours:	30 h/a
Prerequisites:	-

1 Overview

This course revises the basic statistical methods used by economists with a strong emphasis in computational applications with R.

2 Objectives

By the end of the course students will be able to:

1. Use R for Database management and for statistical estimation.
2. Apply Basic Inference methods.
3. Model and Estimate Basic Econometric Models .

3 Contents

1. Descriptive Statistics (**DE**): : Univariate Data, Data Vectors; Measures of position; Spread; Shape; Categorical Data; Bivariate Data; Paired Data; Bivariate Categorical Data; Multivariate Data; Special functions of R over collections; Multivariate Graphics.
2. Statistical Inference(**SI**): Populations; The Central Limit Theory; Simulation; Significance tests; estimation of confidence intervals; Goodness of Fit.
3. Econometrics (**Eco**): The Linear Regression; multiple linear regression; ANOVA; ANCOVA; Logistic Regression; Nonlinear Models.
4. Advanced Topics (**AT**): Density Estimation; Survival Analysis; Longitudinal Data; Principal Components; Cluster Analysis.

4 Texts

The course follows mostly [6] as textbook. However some topics could be clearly extended by reading the complementary material (see below).



Chap.	Principal	Complementary
DE	[6, chap. 1-5]	[1], [5]
SI	[6, chap. 7-10]	[2]
Eco	[6, chap. 11-13]	[4, chap. 1-8]
AT	[4, chap. 8-21]	[3]

Table 1: List of readings

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5 Contact Information

References

- [1] Winston Chang. *R Graphics Cookbook: Practical Recipes for Visualizing Data*. O'Reilly Media, 2013.
- [2] Tilman Davies. *The Book Of R*. No Starch Press,US, 2016.
- [3] Jared P. Lander. *R for Everyone: Advanced Analytics and Graphics (Addison-Wesley Data and Analytics)*. Addison-Wesley Professional, 2013.
- [4] Brian S. Everitt Torsten Hothorn. *A Handbook of Statistical Analyses using R*. Apple Academic Press Inc., 2014.
- [5] John Verzani. *Getting Started with RStudio*. O'Reilly Media, Inc, USA, 2011.
- [6] John Verzani. *Using R for Introductory Statistics*. Taylor & Francis Inc, 2014.