

Programming in Data Analytics (m62112p)

Instructor: I. VRONTOS

Core Course, 1st semester, 5 ECTS units

Course level: Graduate (MSc)

Language: Greek (or English if foreign students attend)

Course Description

The course provides an introduction to modern applied statistics and elementary programming via the statistical programming language R. The course provides an inclusive guide to R, developing a skill set to efficiently perform technical computations, whilst at the same time covering a variety of statistical techniques to analyse data, ranging from standard material like descriptive statistics, estimation, and hypothesis testing to intermediate methods like linear regression, model selection and diagnostics.

Prerequisites

Applied Probability – Estimation. Hypothesis Testing – Linear Models.

Target Learning Outcomes

On successfully completing the module students will be able to

- demonstrate proficiency in the use of computing utilities and the statistical package R;
- show judgement in the application of R;
- make effective and well-considered use of R
- use suitable statistical methods to analyse data
- use information technology effectively for introductory data analysis including data retrieval.

Recommended Bibliography

- J. Verzani. Using R for Introductory Statistics (2nd edition, CRC Press, 2014)
- Crawley M. J. The R Book, Wiley 2009
- Chatfield, C. Problem-solving: a statistician's guide. London, Chapman and Hall. 1995
- Cox, D.R. and Snell E.J. Applied Statistics: Principles and Examples (Chapman Hall statistics text series) 1987.

Teaching and Learning Activities

24 hours of lectures and terminal classes.

75 hours independent study.

Assessment and Grading Methods

Assessment: The unit is assessed by a combination of examination and continuous assessment.

Continuous Assessment: Open book written assessment completed in independent study hours.

Examination: A final written examination in the examination period.