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**Academic Year: ( 2019 / 2020 )****Review date: 03-05-2019**

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**Department assigned to the subject: Computer Science and Engineering Department****Coordinating teacher: ALER MUR, RICARDO****Type: Compulsory ECTS Credits : 3.0****Year : 1 Semester : 1**

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## REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Programming with R

## OBJECTIVES

### COMPETENCES THAT THE STUDENT ACQUIRES WITH THIS MATTER

CB9 That students know how to communicate their conclusions and the knowledge and ultimate reasons that sustain them to specialized and non-specialized audiences in a clear and unambiguous way

CB10 That students have the learning skills that allow them to continue studying in a way that will be largely self-directed or autonomous.

CG4 Ability to synthesize the conclusions obtained from these analyzes and present them clearly and convincingly in a bilingual environment (Spanish and English) both in writing and orally.

CG6 Apply social skills for teamwork and to relate to others autonomously.

CE2 Use free software such as Python for the implementation of statistical analysis.

CE8 Apply and develop visualization techniques of collected samples with free distribution software such as Python.

### LEARNING RESULTS THAT THE STUDENT ACQUIRES

- Integration of C ++ and R via Rcpp
- Python programming language. Machine learning packages.
- Brief introduction to the STAN programming language

## DESCRIPTION OF CONTENTS: PROGRAMME

- 1) Combination of C ++ with R through Rcpp.
- 2) Python Language. Graphics in Python (matplotlib and seaborn). Machine learning packages (scikit-learn).
- 3) Brief introduction to STAN.

## LEARNING ACTIVITIES AND METHODOLOGY

### TRAINING ACTIVITIES OF THE STUDY PLAN REFERRED TO MATTERS

AF1 Theoretical class

AF2 Practical classes

AF4 Laboratory practices

AF5 Tutorials

AF6 Group work

AF7 Individual student work

AF8 Face-to-face evaluation tests

## TEACHING TRAINING METHODOLOGIES OF THE PLAN REFERRED TO MATTERS

MD1 Lectures with material and bibliography provided.

MD3 Resolution of practical cases, problems, etc.

MD5 Preparation reports individually or in groups

### ASSESSMENT SYSTEM

<b>% end-of-term-examination:</b>	30
<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	70

### ASSESSMENT SYSTEM

SE2 Individual or group work carried out during the course

SE3 Final exam

### BASIC BIBLIOGRAPHY

- Dirk Eddelbuettel Seamless R and C++ Integration with Rcpp (Use R!) , Springer, 2013
- Julian Avila scikit-learn Cookbook (2nd edition), Packt, 2017