Final Master Proyect

Academic Year: (2021 / 2022) **Review date: 08/06/2021 19:36:35**

Department assigned to the subject: Statistics Department

Coordinating teacher: MARIN DIAZARAQUE, JUAN MIGUEL

Type: Master Final Project ECTS Credits : 6.0

Year : 1 Semester : 2

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

All courses in the master.

OBJECTIVES

BASIC SKILLS:

- Possess and understand the knowledge that provides a basis or opportunity to be original in the development and/or application of ideas in a research context.
- Students will learn how to apply the acquired knowledge and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their area of ¿¿study.
- Students will be able to integrate the knowledge and face the complexity of making judgments based on information that, being incomplete or limited, includes reflections on social and ethical responsibilities linked to the application of their knowledge and judgments.
- Students will learn 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
- Students will have the learning skills that allow them to continue studying in a way that will be largely self-directed or autonomous.

GENERAL SKILLS:

- Ability to apply the techniques of analysis and representation of information, in order to adapt it to real problems.
- Ability to identify the most appropriate statistical model for each real problem and know how to apply it for the analysis, design and solution of it.
- Ability to obtain scientifically viable solutions for complex real statistical problems, both individually and as a team.
- Ability to synthesize the conclusions obtained from these analyzes and present them clearly and convincingly in a bilingual environment (Spanish and English) both with writing and orally approaches.
- Be able to generate new ideas (creativity) and anticipate new situations, in the context of data analysis and decision making.
- Apply social skills for teamwork and to interact with other people autonomously.
- Apply advanced techniques of analysis and representation of information, in order to adapt it to real problems.

SPECIFIC COMPETENCES:

- Apply in the development of methods of analysis of real problems, advanced knowledge of statistical inference.
- Use free software such as R and Python for the implementation of statistical analysis.
- Apply the advanced statistical foundations for the development and analysis of real problems, which involve the prediction of a variable response.
- Apply and develop visualization techniques of samples collected with free distribution software such as R and Python.
- Identify correctly the type of statistical analysis corresponding to certain objectives and data.
- Apply statistical modelling in the treatment of relevant problems in the scientific field.

- Formalize random phenomena and model them by means of probabilistic models.
- Apply models for supervised and unsupervised learning.
- Modelling complex data with stochastic dependence.
- Apply knowledge and advanced statistical consulting skills.
- Ability to elaborate, present and adequately defend in public a Master's Final Project, original and rigorous, related to one or some of the subjects subject to the degree. The work will be defended individually in front of a university court.

KNOWLEDGE ACQUISITION:

1) Autonomy in the development of a work or research project;
2) Ability to review literature of specific topics;
3) Domain of scientific writing;
4) Use and implementation of the statistical techniques studied in the master's degree;
5) Development and effective implementation of new techniques for data analysis. Acquisition of knowledge at the level of the state of art of a specific topic and possible input of new contributions.

DESCRIPTION OF CONTENTS: PROGRAMME

This is a subject with Final Master Project as a single subject.
The Master's Thesis is organized as an exercise in the treatment of data and its analysis to improve the performance of a relevant organization or company.
The students will be offered different alternative fields in which to complete this Thesis. They will also receive support and orientation throughout the completion of the Thesis.
The students will collect the data of interest, apply the relevant techniques to these data, and present the results in a clear and useful manner.
The Final Master Project will be presented in a public session and it will be supervised by a committee.

LEARNING ACTIVITIES AND METHODOLOGY

LEARNING ACTIVITIES
Tutorial clases
Individual work of the student

METHODOLOGY
Reading and critical commentary of texts recommended by the instructor: general articles, reports, textbooks and/or scientific journal articles. These readings should be discussed in person, or at least they should provide a basis to expand and consolidate the knowledge required to complete the Master Thesis.

ASSESSMENT SYSTEM

Publicly defense of the Master's Thesis

The University uses the Turnitin Feedback Studio program within the Aula Global for the delivery of student work. This program compares the originality of the work delivered by each student with millions of electronic resources and detects those parts of the text that are copied and pasted. If the student has correctly made the appointment and the bibliographic reference of the documents he uses as a source, Turnitin will not mark it as plagiarism.

BASIC ELECTRONIC RESOURCES

- . Useful information for the elaboration of the Work End of Master: http://uc3m.libguides.com/TFM