

Academic Year: (2022 / 2023)

Review date: 30/05/2022 13:11:23

Department assigned to the subject: Statistics Department

Coordinating teacher: JIMENEZ RECAREDO, RAUL JOSE

Type: Basic Core ECTS Credits : 6.0

Year : 1 Semester : 2

DESCRIPTION OF CONTENTS: PROGRAMME

PROGRAMME

1. Introduction.
 - 1.1. Concepts and use of Statistics.
 - 1.2. Statistical terms: populations, subpopulations, individuals and samples.
 - 1.3. Types of variables.
2. Analysis of univariate data.
 - 2.1. Representations and graphics of qualitative variables.
 - 2.2. Representations and graphics of quantitative variables.
 - 2.3. Numerical summaries.
3. Analysis of bivariate data.
 - 3.1. Representations and graphics of qualitative and discrete data.
 - 3.2. Representations and numerical summaries of quantitative data: covariance and correlation.
4. Probability.
 - 4.1. Random experiments, sample space, elemental and composite events.
 - 4.2. Definition of Probability and Properties. Conditional Probability and the multiplication Law. Independence.
 - 4.3. The law of total probability and Bayes theorem.
5. Probability models.
 - 5.1. Random variables. Discrete random variables: The probability function and the distribution function. Mean and variance of a discrete random variable.
 - 5.2. Continuous random variables: The density function and the distribution function. Mean and variance of a continuous random variable.
 - 5.3. Probability models. Discrete probability models: Bernoulli, Binomial and Poisson.
 - 5.4. Continuous probability models: Uniform, Exponential and the normal distribution.
 - 5.5. Central limit theorem.
6. Introduction to Statistical Inference.
 - 6.1. Parameter point estimation.
 - 6.2. Goodness-of-fit to a probability distribution. Graphical methods.
 - 6.3. Introduction to confidence interval estimation.

LEARNING ACTIVITIES AND METHODOLOGY

THEORETICAL PRACTICAL CLASSES.

These classes present the essential knowledge and concepts students must acquire. Student receive course notes and will have basic reference texts to facilitate following the classes and carrying out follow up work. Students partake in exercises to resolve practical problems and participate in workshops and an evaluation tests, all geared towards acquiring the necessary capabilities. Subjects with 6 ECTS are 48 hours as a general rule/ 100% classroom instruction.

TUTORING SESSIONS.

Individualized attendance (individual tutoring) or in-group (group tutoring) for students with a teacher. Subjects with 6 credits have 4 hours of tutoring/ 100% on site attendance.

STUDENT INDIVIDUAL WORK OR GROUP WORK.

Subjects with 6 credits have 98 hours/0% on-site.

ASSESSMENT SYSTEM

% end-of-term-examination/test:	40
% of continuous assessment (assignments, laboratory, practicals...):	60

40% of the course grade will be obtained through a final exam. The remaining 60% will be obtained through two midterm exams (30%+30%). The exams can contain application exercises, theoretical questions, and questions related to the computer labs.