Foundations of Statistics

Academic Year: (2022 / 2023)   **Review date: 21-06-2022**

Department assigned to the subject:

Coordinating teacher: PENA IZQUIERDO, JORGE

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 2

OBJECTIVES

The main objective of the course is to equip students with a set of basic knowledge so that they are able to understand and handle statistical data, develop graphs and descriptive tables of the data, understand basic probability models and apply basic inference.

DESCRIPTION OF CONTENTS: PROGRAMME

Unit 1. Introduction:
¿ What is statistics?
¿ Importance of Statistics;
¿ Descriptive statistics;
¿ inference;
¿ Variables;
¿ Percentiles;
¿ Distributions.

Unit 2. Graphic Analysis:
¿ Graphs for quantitative variables;
¿ Graphs for qualitative variables;
¿ Histograms.

Unit 3. Descriptive analysis
¿ Central, mean and median tendency;
¿ Variability; Shapes of distributions.
¿ Correlation.

Unit 5. Probability:
¿ Introduction to the concept of probability;
¿ Permutations and combinations;
¿ Principles of probability
¿ Properties of probability;
¿ Bivariate probability.

Unit 6: Discrete Probability Distributions:
¿ Properties of discrete probability distributions
¿ Binomial distribution;
¿ Multinomial distribution.
¿ Poisson distribution

Unit 7: Continuous Probability Distributions:
¿ Properties of continuos probability distributions
¿ Normal distribution: Introduction and importance;
¿ Normal standard;
¿ Basic inference.

LEARNING ACTIVITIES AND METHODOLOGY

Excel Practice I: Using Excel and real databases, students will apply and interpret the concepts of descriptive statistics: mean, median, mode, standard deviation, correlation, and graphic analysis.

Excel II Practice: With new databases, students in this case will learn to apply the main concepts of

probability to real data.

Excel III Practice: In the last of the Excel activities, students will apply the different probability distributions, continuous and discrete, to various real applications oriented to the social sciences.

ASSESSMENT SYSTEM
a) Partial Exam: It will be a written exam, "development" mode.
It has a value of 25% of the final grade

b) Participation in class and activities (25% of the final grade)

BASIC BIBLIOGRAPHY
- Newbold, P Statistics for Business and Economics, Pearson.