# uc3m Universidad Carlos III de Madrid

# Statistics applied to journalism

Academic Year: (2023 / 2024) Review date: 21-04-2023

Department assigned to the subject: Statistics Department Coordinating teacher: LILLO RODRIGUEZ, ROSA ELVIRA

Type: Basic Core ECTS Credits: 6.0

Year: 1 Semester: 2

Branch of knowledge: Social Sciences and Law

#### **OBJECTIVES**

#### SPECIFICS OBJECTIVES:

To gain knowledge and understanding in:

- 1. Learning to organize, synthesize and analyze univariate and bivariate data.
- 2. Understanding and interpretation of published statistical studies (samples, economic predictions, papers from INE, Eurostat, etc).
- 3. Carrying out simple statistical analyses using software.

#### TRANSVERSE OBJECTIVES:

- 1. Capacity of analysis and synthesis.
- 2. Knowing how to use statistical software.
- 3. Problem solving.
- 4. Teamwork.
- 5. Critical reasoning.
- 6. Verbal and written communication.

#### **DESCRIPTION OF CONTENTS: PROGRAMME**

- 1. Introduction.
  - 1.1. Concept and uses of statistics.
  - 1.2. Statistical terminology: populations, subpopulations, individuals and samples.
  - 1.3. Types of variable.
- 2. Analysis of univariate data.
  - 2.1. Representations and graphs of qualitative data.
  - 2.2. Representations and graphs of quantitative data.
  - 2.3. Numerical summary.
- 3. Analysis of bivariate data.
  - 3.1. Representations and graphs of qualitative and discrete data.
  - 3.2. Representations and graphs of continuous data: correlation and regression.
- 4. Probability and probability models.
  - 4.1. Random experiment, simple space, elementary and composite events.
  - 4.2. Properties of probability.
  - 4.3. Conditional probability and its properties.
  - 4.4. Random variables and their characteristics.
  - 4.5. Bernoulli trials and related distributions.
  - 4.6. The normal distribution.
- 5. Introduction to statistical inference.
  - 5.1. Ideas and objectives.
  - 5.2. Point estimation.
  - 5.3. Interval estimation.
  - 5.4. Fundamental concepts of hypothesis tests.
  - 5.5. Tests for the mean in normal populations.
  - 5.6. Tests for proportions.

# LEARNING ACTIVITIES AND METHODOLOGY

Theory (3 ECTS). Theory clases will with background materials available on AULA GLOBAL. Practical (3 ECTS) Problem solving. Computer practicals using Excel. Verbal expositions and debates.

# ASSESSMENT SYSTEM

45% of the final qualification is obtained in an exam. The remaining 55% is the result of continuous evaluation based on the acquired abilities of the student by one midterm exam (20%); carry out practical analyses and/or explain the results they have obtained (35%).

It will be necessary to obtain at least a 4 in the exam for the continuous evaluation to count.

In the extraordinary examination, the final grade will be 100% of the final exam.

% end-of-term-examination:	45
% of continuous assessment (assigments, laboratory, practicals):	55

# **BASIC BIBLIOGRAPHY**

- Remenyi, D. An introduction to statistics using Microsoft Excel, Academic Publishing, 2010
- Ross, S.M. Introductory Statistics, Elsevier, 2005

#### ADDITIONAL BIBLIOGRAPHY

- Jauset. J.A. La investigación de audiencias en televisión Fundamentos estadísticos, Editorial Paidós, 2000
- Takahishi, S. The Manga Guide to Statistics, Starch Press, 2009
- Wimmer. R. y Dominick, J. Mass media research: An introduction, International Thomson Editores, 2014