

## Survey Sampling

Academic Year: ( 2021 / 2022 )

Review date: 24-06-2021

Department assigned to the subject: Statistics Department

Coordinating teacher: MOLINA PERALTA, ISABEL

Type: Compulsory ECTS Credits : 6.0

Year : 3 Semester : 2

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

Teoría Estadística Elemental I, Teoría Estadística Elemental II

## OBJECTIVES

Knowledge, both in theory and practice, of the foundations of the main techniques of survey sampling.

Differentiation of the different types of sampling.

Ability to make inference in finite populations under complex sampling designs.

## DESCRIPTION OF CONTENTS: PROGRAMME

The course is an introduction to the basic concepts and methods of Survey Sampling.

1. Introduction.
2. Simple random sampling.
  - 2.1. Description
  - 2.2. Inference under the design
3. Stratified random sampling.
  - 3.1. Description
  - 3.2. Inference under the design
4. Ratio, regression and difference estimators.
  - 4.1. Estimators
  - 4.2. Sampling error
5. Systematic sampling.
  - 5.1. Description
  - 5.2. Inference under the design
6. Cluster sampling.
  - 6.1. Description
  - 6.2. Inference under the design
7. Determination of the sample size.
  - 7.1. From the absolute error
  - 7.2. From the relative error
8. Two-stage sampling.
  - 8.1. Description
  - 8.2. Inference under the design

## LEARNING ACTIVITIES AND METHODOLOGY

Competences will be acquired by students both through theoretical lectures and the resolution of assigned homeworks. There will also be practical classes of exercises.

## ASSESSMENT SYSTEM

Continuous evaluation (60%): Applied project based on a data set from INE and handouts of programming exercises.  
Examen final (40%): Final exam with theory and exercises.

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

## BASIC BIBLIOGRAPHY

- Cochran, W. Sampling Techniques, 3rd Edition, John Wiley., 1977
- Lohr, S. Sampling: Design and Analysis, Duxbury, 1999
- Scheaffer, R.L., Mendenhall, W., Ott, L. and Gerow, K.G. Elementary Survey Sampling, Cengage Learning, Inc, 2010
- Tillé, Y. Sampling Algorithms, Springer, 2002

## ADDITIONAL BIBLIOGRAPHY

- SCHEAFFER, R.L., MENDENHALL, W. and OTT, L. (2005) Elementary Survey Sampling, 6th Edition., Duxbury Advanced Series..
- Sarndal, C.-E., Swensson, B. and Wretman, J. Model Assisted Survey Sampling, Springer, 1992