

Academic Year: (2022 / 2023)

Review date: 22-05-2022

Department assigned to the subject: Statistics Department

Coordinating teacher: MARIN DIAZARAQUE, JUAN MIGUEL

Type: Electives ECTS Credits : 3.0

Year : 1 Semester : 2

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Probability
Statistical Inference
Programming in R

OBJECTIVES

ACQUISITION of KNOWLEDGE about:

- 1) Introduction to sample designs. Inference under a design versus inference under a model. Traditional direct and indirect sample estimators.
- 2) Sampling models at the level of small areas. Synthetic Post-stratified Estimator and Composite Estimator. Fay-Herriot area-level model. Model at the level of individuals with nested errors. EBLUP predictors.
- 3) Method and EB predictors. Extensions for categorical data models.

DESCRIPTION OF CONTENTS: PROGRAMME

Common topics to the subjects:

- 1) Sampling distributions.
- 2) Multivariate distributions.
- 3) Conditional distributions on the observed sample.

Specific topics to each subject:

- 1) Introduction to sample designs. Inference under a design versus inference under a model. Traditional direct and indirect sample estimators.
- 2) Test models at the level of small areas. Synthetic Post-stratified Estimator and Composite Estimator. Fay-Herriot area-level model. Model at the level of individuals with nested errors. EBLUP predictors.
- 3) Method and EB predictors. Nested error model. Extensions for categorical data models.

LEARNING ACTIVITIES AND METHODOLOGY

Theoretical classes
Practical classes
Laboratory practices
Tutorials
Team work
Individual students' work

ASSESSMENT SYSTEM

Class participation
Individual or group work done during the course
Final exam

% end-of-term-examination:	100
% of continuous assessment (assignments, laboratory, practicals...):	0

BASIC BIBLIOGRAPHY

- Rao, J.N.K. and Molina, I. Small Area Estimation, Wiley, 2015

ADDITIONAL BIBLIOGRAPHY

- Särndal, C.E., Swenson, B. and Wretman, J.H. Model Assisted Survey Sampling, Springer-Verlag, 1992