

Survey Sampling

Objectives

At the end of the course, the student must be able to design a sampling survey and to provide appropriate estimations and confidence intervals by using auxiliary information.

Contents

The first part of the course is dedicated to the planning of surveys. After a presentation of the general definition, the particular designs are introduced : simple random sampling, stratification, cluster sampling, multistage sampling, balanced sampling. The second part is dedicated to the problem of estimation with auxiliary information. The difference estimator, ratio estimator, regression estimator, are presented as particular case the general theory of calibration. The third part is dedicated to particular topics of survey sampling like treatment of nonresponse, small domain estimation.

Evaluation

- E : 2-hour written test during the end of semester session of exams.
- *Reexamination session (September) : 2h written test*

Textbooks

- Y. Tillé (2001). *Théorie des sondages : Echantillonnage et estimation en population finie*, Dunod, Paris.
- Y. Tillé (2006), *Sampling Algorithms*, New York, Springer-Verlag
- P. Ardilly et Y. Tillé (2005). *Sampling Methods : Exercises and Solutions*, 382 pages, Springer-Verlag, New York..

Characteristics

- 6 ECTS credits
- Compulsory course for the master in statistics
- Spring Semester
- Course : 4 hours
- Prerequisite: --.

Teaching team

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Exercises

Exercises are put into practice based on the theory taught during the course. A large part of the exercises are dedicated to simulations of sampling selection and estimation by means of the 'sampling' package of the R language.