lstat2200 2017		Survey and Sampling

4 credits	15.0 h + 5.0 h	Q2

Teacher(s)	Kestemont Marie-Paule ;
Language :	French
Place of the course	Louvain-la-Neuve
Main themes	Topics to be treated - General framework of inference in finite population; population, sampling, statistics for the inference based on experimental data, linear homogenous estimation: elementary units, complex units. - Sampling with unequal probabilities: Hansen-Hurwitz and Horvitz-Thompson estimators, for the particular case of simple random sampling. - Estimators improvement through auxiliary information: ratio estimator, regression estimator - Sampling from complex units: stratified sampling, cluster sampling, two stages sampling. - Sampling from biological populations: basic issues in sampling, estimation of the population size.
Aims	1 Objective (in terms of abilities and knowledge) This course aims at providing the student the basic knowledges on the sampling methods, with a particular, but not exclusive, emphasis on sampling from (finite) human populations. At the end of the course, the student should be able to correctly designing a simple survey and analysing the results. - - - - *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Content	Summary: Content and methods - General framework of inference in finite population; population, sampling, statistics for the inference based on experimental data, linear homogenous estimation: elementary units, complex units. - Sampling with unequal probabilities: Hansen-Hurwitz and Horvitz-Thompson estimators, for the particular case of simple random sampling. - Estimators improvement through auxiliary information: ratio estimator, regression estimator - Sampling from complex units: stratified sampling, cluster sampling, two stages sampling. - Sampling from biological populations: basic issues in sampling, estimation of the population size.
Other infos	Basic references: - Mouchart, M. and J.-M. Rolin (1981), Enquêtes et sondages, Série "Recyclage en Statistique, Vol.5, U.C.L. Louvain : Comité de statistique. - Lohr, Sharon L. (1999), Sampling : Design and Analysis, Duxburry Press: Brooks/Cole Publishing Company. - Rao Poduri, S.R.S. (2000), Sampling Methodologies with Applications, London: Chapman and Hall.
Faculty or entity in charge	LSBA

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Aims
Master [120] in Data Science Engineering	DATE2M	4		🔍
Master [120] in Statistics: General	STAT2M	4		🔍
Master [120] in Economics: General	ECON2M	4		🔍
Master [120] in data Science: Statistic	DATS2M	4		🔍
Master [120] in data Science: Information technology	DATI2M	4		🔍
Minor in Statistics and data sciences	LSTAT100I	4		🔍
Additionnal module in Statistics and data science	LSTAT100P	4		🔍