LCOPS1114

2016-2017

Statistics and Bases of Probability Theory

5.0 credits	30.0 h + 30.0 h	1q

Teacher(s) :	Kestemont Marie-Paule ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	Part 1: Descriptive statistics. This brings together methods that condense the data of a sample in a few useful characteristics or estimates. Frequency distributions, the functions of density and distribution, and parametric and non-parametric characteristics are addressed in the samples. Part 2: Bases of probability theory. Depending on the procedure for selecting the sample, these methods ensure a link between the population and the sample. The matters addressed are the rules flowing from the Kolmogorov axiom on the calculation of total, composite and conditional probability, the quantification of events in random variables, the associated distribution of probabilities, and operational characteristics (parameters). There will also be a detailed examination of censuses of experimental schemes that generate uniform, discrete, binomial, geometric and hyper-geometric laws, and Poisson's law. Part 3: Bases of statistical inference. To compare observations with hypotheses constructed on parameters of the population, the basic objectives are estimators, their characteristics, and their qualities of inference on simple plans.
Aims :	Statistics is a science that compares data from a sample (the reality of estimates or numerical data collected while observing, or experimenting with, some of the population) with theory (a statement of abstract hypotheses on parameters of the population). For the most part, effective use of this methodological tool is acquired through work. This course is an introduction to statistics. Students must be able to describe a sample, handle the bases of probability theory applied to censuses, identify simple sampling procedures, establish the operational characteristics of basis statistics (average, deviation and proportion) in these procedures, and identify qualities that will make it possible to make inferences on parameters of the population. *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 :	The course is given (1) In the lecture course (11 x 2 h), the teacher will calculate and interpret the objectives on the basis of an application, and will identify their abstract form. (2) With professorial monitoring (13 x 2 h), the teacher will hand applications/problems to the students, and propose an approach to resolving them, completed by an active involvement of the students as lectures, autonomous resolution of problems, reports of resolution of case, tests of knowledge...
Other infos :	Assessment: Three tests are organized (in October, November and December) to help the student to value his/her/its acquirements. Each of this test will permit to dispense the student of a question to the exam writes the session of January. Support : Device of help to the students in failure to the session of January: 4 x 2h of monitorats is organized by the holder between March and May, to approach the whole matter as problems and to allow the students in difficulty to acquire the reasoning of resolution. 2 x 2h of controlled exercises is also organized by the helper enters March and May, with smaller groups of students.
Faculty or entity in charge:	ESPO