mqant1221

2024

Statistical Inference

5.00 credits	45.0 h + 20.0 h	Q2

Teacher(s)	De Winne Rudy ;
Language :	French
Place of the course	Mons
Prerequisites	*The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.*
Main themes	• Definition of statistical inference and reminders about probabilities. • Sampling: population and sample, sampling methods, sampling distribution of means, sampling distribution of proportions. • Estimation of population parameters: point estimate and interval estimate, maximum likelihood estimate, confidence interval for the mean or variance of a population, confidence interval for the proportion within a population. • Hypothesis testing: making statistical hypotheses, performing hypothesis testing (one-tailed and two-tailed tests), comparison of two or more parameters (analysis of variance), fitting of theoretical distributions to frequency distributions of a sample. The course will enable students facing a question to understand how to develop an analysis and a scientific conclusion based on the data available or to be collected. Questions that arise not only in the company but also more generally require to be approached with a critical mind and using sample data. As far as possible, the exercises will put the students in a similar situation and will have to be solved based on available data. The Excel tool will be used in exercise sessions to get as close as possible to these real situations where more data (big data) is available.
Learning outcomes	**At the end of this learning unit, the student is able to :** 1 Given the « competencies referential » linked to the LSM Bachelor in Management and Business Engineering, this course mainly develops the following competencies: • 2.3. Acquire a knowledge base in quantitative, IT and digital methods. • 3.3. With the help of dedicated software tools, collate, select and analyse relevant information using basic statistical and data analysis methods. • 3.4. Analyse and interpret results or proposals, and provide a well-argued critique, for a simple but concrete management problem. • 5.4. Use software from different fields to solve a management problem. • 8.4. Using computer tools, create graphs and tables that meet scientific standards. At the end of the class, the student will be able to construct a sample, analyze the data from it and infer conclusions about the population. It will be able to identify precisely the conditions for the application of a statistical method and verify them.

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor : Business Engineering	INGM1BA	5	MQANT1113	🔍
Bachelor in Management	GESM1BA	5	MQANT1113	🔍