UCLouvain

Statistics and Probability

5.00 credits

mqant1113

2024

45.0 h + 20.0 h

Q2

Teacher(s)	Vrins Frédéric ;				
Language :	French Mons				
Place of the course					
Main themes	 One-dimensional descriptive statistics: graphical representations, central tendency, dispersion. Two-dimensional descriptive statistics: joint distribution, covariance, linear correlation, linear regression, non-linear fits. Algebra of events and combinatorial analysis. Basic rules of probability calculation: probability axioms, conditional probabilities, Bayes formula, decision trees. Discrete and continuous random variables: density function, distribution function, mathematical expectation, variance. Studies of the main probability distributions: Bernoulli, binomial, Poisson, uniform, normal. Law of large numbers, central limit theorem, sampling. 				
Learning outcomes	At the end of this learning unit, the student is able to :				
	 Given the « competencies referential » linked to the LSM Bachelor in Management and Business Engineering, this course mainly develops the following competencies: 1.1. Demonstrate the ability to reason independently and adopt a considered and critical approach to knowledge (academic and common sense). 2.3. Acquire a knowledge base in quantitative, IT and digital methods. 3.2. Apply clear and structured analytical reasoning, conceptual frameworks and science-based 				
	 models to describe and analyse a simple but concrete problem and offer a solution. • 3.4. Analyse and interpret results or proposals, and provide a well-argued critique, for a simple but concrete management problem. 				
	At the end of the class, the student will be able to:				
	 represent a random experiment using the probabilistic model. demonstrate the basic properties associated with the concepts of probability, expectation, variance, covariance, assess the probability of an event occurring in a simple random experiment. calculate a series of indicators related to one or more random variables (expectation, variance, variance, variance, variance, variance) 				
	 probability distribution, covariance, correlation). apply the central limit theorem to estimate a probability, confidence interval, maximum margin of error, or minimum sample size. 				
Bibliography	 Slides, syllabus et classeurs Excel TRIBOUT B (2013). Statistique pour economistes et gestionnaires, 2eme ed, Pearson WONNACOTT R., WONNACOTT R. (1995), Statistique, Economica, traduction de WONNACOTT R., WONNACOTT R. (1990) Introductory Statistics for Business and Economics, 4th ed., John Wiley & Sons. 				
Faculty or entity in charge	CLSM				

Programmes containing this learning unit (UE)						
Program title	Acronym	Credits	Prerequisite	Learning outcomes		
Bachelor : Business Engineering	INGM1BA	5		٩		
Bachelor in Management	GESM1BA	5		٩		