LBIR1203

2013-2014

Probabilities and statistics (I)

4.0 credits	30.0 h + 15.0 h	1q

Teacher(s) :	Bogaert Patrick ;
Language :	Français
Place of the course	Louvain-la-Neuve
Prerequisites :	LBIR1110 Math I LMAT1111E Math II
Main themes :	Introduction to the calculus of probability - Discrete and continuous random variables: probability and probability density functions, expectations, variance and other statistical properties - Principal statistical distributions - Couples of random variables and random vectors: joint, marginal and conditional distributions, independence, covariance and correlation, expectations and conditional variance - Introduction to statistics - Notions concerning estimators and estimator properties - Inference about the mean and variance: estimators, sample distributions - Notions of one-mean-confidence intervals.
Aims :	a.　Contribution of this activity to the learning outcomes referential : 1.1, 2.1 b.　Specific formulation of the learning outcomes for this activity A the end of this activity, the student is able to : ·　Name, describe and explain the theoretical concepts underlying the probability theory; ·　Use the mathematical expressions in a formal way and by using rigorous notations in order to deduce new expressions or requested theoretical results; ·　Translate mathematically textual statements using a rigorous mathematical and probabilistic framework by relying on appropriate concepts and theoretical tools; ·　Solve an applied problem by using a deductive approach that relies on a correct use of well identified properties and expressions; ·　Validate the internal consistency of the mathematical expressions and results based on theoretical properties and logical constraints that are induced by the probabilistic framework; *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".*
Teaching methods :	Regular courses and supervised practical exercises
Content :	Introduction to the calculus of probability - Discrete and continuous random variables: probability and probability density functions, expectations, variance and other statistical properties - Principal statistical distributions - Couples of random variables and random vectors: joint, marginal and conditional distributions, independence, covariance and correlation, expectations and conditional variance - Introduction to statistics - Notions concerning estimators and estimator properties - Inference about the mean and variance: estimators, sample distributions ' Notion of confidence intervals
Other infos :	The course relies on a book which is considered as mandatory and must be bought : P. Bogaert (2005). Probabilités pour scientifiques et ingénieurs. Editions De Boeck
Cycle and year of study :	> Master [120] in Environmental Science and Management > Preparatory year for Master in Statistics: Biostatistics > Bachelor in Bioengineering > Bachelor in Information and Communication > Bachelor in Philosophy > Bachelor in Pharmacy > Bachelor in Computer Science > Bachelor in Economics and Management > Bachelor in Motor skills : General > Bachelor in Human and Social Sciences > Bachelor in Sociology and Anthropology > Bachelor in Political Sciences: General > Bachelor in Mathematics > Bachelor in Biomedicine > Bachelor in Engineering > Bachelor in Religious Studies > Preparatory year for Master in Computer science

Faculty or entity in charge:	AGRO