Faculty of Biological, Agronomic and Environmental Engineering

BIR1203   Probabilities and statistics (I)

[30h+15h exercises] 4 credits

This course is taught in the 1st semester

Teacher(s):	Patrick Bogaert
Language:	French
Level:	First cycle

Aims

Initiation to the study of random phenomena and to the principles and methodology of the statistic analysis of experimental data.

Main themes

Introduction to the calculus of probability - Discreete 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.

Content and teaching methods

Introduction to the calculus of probability - Discreete 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.
The practical exercises deal with examples and applications allowing to apply the theory. Part of these exercises will deal with data processing issues in the computer room and will allow to illustrate the different statistical concepts. Use will be made of the macro-language introduced in the course BIR1202 'Informatique appliquée'. There will also be a link with the course BIR1201 'Exercices intégrés en mathématiques et informatique'.

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Precursory courses : BIR 1202 'Informatique appliquée'
Supplemental courses : BIR 1201 'Exercices intégrés en mathématiques et informatique', BIR 13XX 'Probabilités et statistiques II'
Support : Syllabus, text book and personal notes
Framing : teaching team + assistant

Other credits in programs

BIR12BA	Deuxième année de bachelier en sciences de l'ingénieur, orientation bioingénieur	(4 credits)	Mandatory
SINF12BA	Deuxième année d'études de bachelier en sciences informatiques	(4 credits)	Mandatory
SINF13BA	Troisième année d'études de bachelier en sciences informatiques	(4 credits)	
SINF1PM	Année d'études préparatoires au master en sciences informatiques (60 et 120)	(4 credits)	Mandatory