UCLouvain

wfarm2177

2020

Biostatistics

Due to the COVID-19 crisis, the information below is subject to change, in particular that concerning the teaching mode (presential, distance or in a comodal or hybrid format).

3 credits	20.0 h + 10.0 h	Q2

Teacher(s)	Elens Laure ;
Language :	French
Place of the course	Bruxelles Woluwe
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	The objective of this course is to give a basic knowledge in the statistical data processing related with the biomedical domain. The course also deals with how computer software, in particular JMP (SAS) can be used to present and analyze data.
Aims	1 This course is designed to introduce the students to the statistical and methodological issues applied to problems in the biomedical sciences and to avoid the common pitfalls in data analysis. - - - - *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	IIntroduction to statistical methodology. Summarizing and presenting data in tables and graphs - Extract and organize electronically stored data - Produce useful graphical and numerical summaries Univariate statistics - Descriptive aspect (median, standard deviation, variance, interval of confidence) - Validation aspect (test on normality of distribution, discordance tests on outliers, precision, accuracy) - Significance tests: type 1 and type 2 errors - Capability analysis Bivariate analysis: one-way and two-way ANOVA - Descriptive aspect: multiple box-plot, means or medians - Validation aspects: normal distribution of residuals, detection of outliers. - Significance tests: type 1 (t test, Tukey test or Dunnett test) and type 2 (power test). Linear regression model - Parameter determination. - Validation aspect: limit of detection and quantification. - Inverse prediction Non-linear regression - Kinetic models - Michaelis-Menten and Hill models - Pharmacokinetic models - Dissolution models MANOVA and repeated measures analysis of variance Multivariate statistical methods: Logistic regression and ROC curves Survival analysis Exercises with statistical software (JMP) - Use of an intranet site to illustrate the course (slides, JavaScript illustrations, summary) and the exercises (exercises, solutions to exercises, tables of statistics). - Connections with clinical and biomedical applications.
Other infos	Prerequisites: mathematical and basic statistical notions. Evaluation based on the treatment or the discussion of examples issued from the scientific literature in the medical or pharmaceutical field. Staff: 1 professor /20 students for the practical exercises. Teaching aided with computer, practical exercises with statistical software JMP
Faculty or entity in charge	FARM

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Aims
Master [120] in Pharmacy	FARM2M	3		🔍
Bachelor in Biomedicine	SBIM1BA	3	WSBIM1001 AND WFARM1247	🔍