Cancer, Ageing and Rejuvenation Graduate School - CARe

Master's Program

2023 - 2024

Title of the Teaching Unit (UE): Applied biostatistics : analysis of medical science data		
Semester: 2	Number of ECTS: 3	Hourly volume: 12h CM (lectures) - 2hTD (exercises) – 2h TP (practicals)– 8h project
Teaching Team	Melanie White-Koning	
Objective	The aims of this course are to enable students to - Acquire the statistical knowledge required to design a study protocol (experimental and observational studies) - Know how to write a statistical analysis plan (methodology, assessment criteria, hypothesis tests) - Know how to analyse and interpret the results of a statistical study (parametric and non-parametric tests, introduction to modelling).	
Content	Reverse teaching, lectures, practicals, individual projects of analysis of personal experimental data (R software) Chapter 1 : Main distributions and their uses Chapter 2 : Point estimates and confidence intervals Chapter 3 : General principles of hypothesis testing Chapter 4 : How to verify whether a distribution is normal (Gauss) Chapter 5 : Parametric statistical tests Chapter 6 : Linear and logistic regression (univariate and multivariate modelling) Chapter 7 : Analysis of variance (ANOVA) (introduction to experimental design) Chapter 8 : Non-parametric statistical tests Chapter 9 : Introduction to survival data	
Pre-requisites	Basic notions in descriptive statistics	
Keywords	Parametric and non-parametric statistical tests. Modelling. Analysis of survival data.	
Skills	- Know how to identify a hypothesis and set up a study protocol (experimental and observational studies) - Know how to write a statistical analysis plan (methodology, criteria, hypothesis tests,) - Be critical about the methodology of science articles and know how to correctly interpret the results of a scientific study	
Block of skills	Developing and integrating specialised knowledge (Statistics) Advanced and specialised use of numerical tools (statistical methods and specialised software) Specialised communication for the transfer of knowledge (identify, select and analyse in a critical manner)	