



Module in English

Digital Public Health Graduate Program

Université de BORDEAUX



Latent Class Mixed Models for analysis of longitudinal data in heterogeneous population (LCMM)

June 13 th , 2023 (1 day)	Location : Isped, Carreire campus University of Bordeaux
Training fees :	
Individual participation: €100	Institutional participation : €300
Coordinator : • Cécile PROUST-LIMA	

Objectives

- › Being able to identify the situations where latent class linear mixed models (LCMM) are useful
- › Understand the methodology underlying the latent class linear mixed model
- › Being able to estimate a LCMM in R
- › Being able to interpret and discuss the results from a LCMM

Program

- › Brief recap of the linear mixed model theory and longitudinal analysis
- › The latent class linear mixed model: specification, estimation, interpretation using real data examples
- › Practice session in R: how to estimate such models with R package lcmm
- › Discussion about the extensions (to handle different types of data) and of the pros and cons of LCMM

Requirements

- › Prior knowledge of the linear mixed model theory.
- › At least a basic level in R.



Module in English

Bayesian Methods for Biomedical Research (BAYES)

From June 14 th to June 16 th , 2023 (3 days)	Location : Isped, Carreire campus University of Bordeaux
Frais de formation :	
Inscription individuelle : 300 €	Inscription institutionnelle : 900 €
Coordinator : • Boris HEJBLUM	

Objectifs

- › Understand and assess a Bayesian modelling strategy, and discuss its underlying assumptions
- › Rigorously describe expert knowledge by a quantitative prior distribution
- › Perform a Bayesian regression using R, applied to meta-analysis
- › Put into perspective the results from a Bayesian analysis described in a scientific article

Programme

- › This course provides an introduction to Bayesian tools, with an emphasis on biostatistical applications, in order to familiarize students with such methods and their practical applications.
- › We will cover the following topics:
 - Bayesian modeling (prior, posterior, likelihood, Bayes theorem);
 - Bayesian estimation (Credibility Intervals, Maximum a Posteriori, Bayes factor);
 - Bayesian applications to meta-analyses;
 - Practical Bayesian Analysis with R and JAGS softwares;
 - Critical reading of medical publications. All concepts will be illustrated with real-life examples from the medical literature.

Requirements

To be able to follow this course, participants need both:

- › Some knowledge in statistics (most notably some familiarity with usual probability distributions, probability density functions, confidence intervals and Maximum Likelihood Estimation)
- › A practical knowledge of R programming (especially functional programming, for loops and "if" statements, vector allocation, linear regression).