APM-52066-EP: Statistics in Action

The objective of this course is to show students how statistics is used in practice to answer a specific question, by introducing a series of important model-based approaches.

The students will learn to select and use appropriate statistical methodologies and acquire solid and practical skills by working-out examples on real-world data sets from various areas including medicine, genomics, ecology, and others.

All analyses will be conducted with the R software. No strong knowledge of R or programming is required (only basic scripting).

A website is available with tutorials and reproducible examples:
`https://znaulet.pages.mia.inra.fr/map566/`

APM-52066-EP: Program

1. Statistical tests (x2 sessions)
   - Two-populations comparison
   - Power analysis
   - Multiple Testing

2. Regression models (x2)
   - Linear and Non Linear Regression models
   - Nonlinear regression models
   - Inference Diagnostic, Model comparison

3. Mixed effects models (x2)
   - Linear mixed effects models
   - Nonlinear mixed effects models

4. Mixture models and model-based clustering (x1)
   - Gaussian mixture models for data clustering

5. To be determined (x1)

APM-52066-EP: Conditions and Evaluation

- Course Evaluation:
  - 1 homework assignment in group: report + oral evaluation
  - 1 final exam

- Course Language: English