UCLouvain

wpmtx2004

2026

Data management in pharmacometrics

4.00 credits	22.5 h + 15.0 h	Q1

This learning unit is not open to incoming exchange students!

Teacher(s)	Bindels Laure (coordinator) ;Symul Laura ;
Language :	English
Place of the course	Bruxelles Woluwe
Main themes	*This course covers essential aspects of data handling, cleaning and documentation, including error checking, handling missing data, outliers, and inconsistencies. It emphasizes best practices for readable code, logging, and data standardization, along with exploratory data analysis and visualization. Additionally, it addresses data formatting for pharmacometrics modeling, considerations for large datasets, research data management skills, legal aspects like GDPR, and software tools for reproducible research using R and RStudio.*
Learning outcomes	
Evaluation methods	The assessment is done through a final written exam, aiming at assessing the acquisition of the learning outcomes. In the absence of tools to directly assess these competences, the student will be asked to explain in a complete manner the steps that would need to be taken to demonstrate these leanring outcomes. All steps are in English.
Teaching methods	The course is taught through face-to-face learning lectures and practical demo's which are intended to be interactive and include specific examples. Practical sessions are organised for application of concepts learned in lectures using R and Rstudio (exercises). Slides and tutorials are made available to students on the MoodleUCL platform.
Content	The student is able to: - Handle scientific quantitative research questions and data independently, effectively, creatively, and correctly using state-of-the-art methods and software tools - Efficiently explore, summarize, and visualize univariate and multivariate data - Report results of data analysis - Efficiently assemble datasets for pharmacometrics modeling and simulation (pre-processing) - Efficiently acquire and store data - Communicate effectively, both oral and written - Work in a transdisciplinary, transcultural, and international context In addition to these learning outcomes, the student is also able to: - Describe and interpret pharmacokinetics and pharmacodynamics variables that are used to measure drug effects - Explain and use basic concepts and methods in descriptive and inferential statistics - Explain and use methods for exploratory data analysis - Make useful visualizations and dashboards of data - Explain ethical and quality control considerations with respect to data management and science. - Reflect on the regulatory requirements for data management
Other infos	The student is expected to master the basics of pharmacokinetics & pharmacodynamics, statistics and R. **Specific requirement regarding R and R studio** During this course, we will be using R and RStudio. We therefore strongly encourage the student to come with your personal computer to the learning and practical session. If the student is not familiar with the basics of R and RStudio, they are expected to learn these skills autonomously. Many ressources are shared in the introductory slides of the class. Don't wait to install these tools on your personal computer. The teaching assistant will not be able to solve your software access or installation problems during the course. **Use of generative AI** One of the goals of the course is ensuring full understanding of the code written to address the scientific question and the ability to edit the code autonomously. Therefore, the use of generative AI is not allowed during the teaching and exercise sessions as well as at the exam. This interdiction will be enforced at the exam.

Faculty or entity in charge	FARM

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Advanced master in pharmacometrics	PMTX2MC	4		