

ML4MICROBIOME training school 2022 Preliminary schedule			
Day 1 9:00 -17:15 (approx) - Introduction to the microbiome and microbiome data specificities October 5th			
Aldert Zomer/Victor Moreno	8.30-9:00	Welcome + Checking setup - is the internet working for you?	
Aldert Zomer/Victor Moreno	9:00-9:15	ML4Microbiome Intro + Programme overview	
Aldert Zomer	09:15-10:00	Microbiome biology	Microbiome biology
Coffee Break	10:00-10:15	Coffee Break	
Ilze Elbere - Presented by Aldert Zomer	10:15-11:15	Microbiome sampling & wet-lab basics, study design	What is the microbiome? Aspects of wet-lab work Study design, with focus on human gut microbiome studies (16S & shotgun).
Magali Berland - Presented by Aldert Zomer/Alise Ponsoero	11:15-12:15	Metagenomic data analysis for human gut microbiota: statistical specificity of microbiome data	1. Introduction, 2. Data acquisition for statistical analysis, 3. Statistical specificity of metagenomic data, 4. Index of diversity, 5. Identify the variation factors in the microbiome (differential analysis), 6. Specificities (MoU 1.1.1, sparsity, challenges).
Lunch break	12:15 - 13:15	lunch break - is an hour enough/	
Eliana Ibrahim	13:15-14:15	Introduction to the statistical analysis of microbiome data	Univariate and multivariate community analysis
All	14:-15-15:00	networking mixer activity	5 min speeddate. What do you hope to gain from this training school and how will you apply it in your research
Tea break	15:00-15:30	Tea break	
Alise Ponsoero	15:30-16:15	An introduction to compositional data analysis	Statistical analysis and data transformation (alr/ilr/clr)
Doris Vandeputte - Recorded/Zoom	16:15-17:15	Avoiding compositionality and absolute abundance profiling	Absolute abundance profiling
Aldert Zomer/Victor Moreno	17:15	Housekeeping messages + Mentimeter questionnaire	
Day 2 9:00-17:30 - Theory and Hands on+lectures sessions unsupervised approaches - 6th of October			
Aldert Zomer/Victor Moreno	8.30-9:00	Welcome	
Alise Ponsoero	9:00-10:00	short 15 mins presentation on methods and discussion panel	What types of questions are currently answered by ML using microbiome data and what are the current limitations in this field?
Coffee Break	10:00-10:15	Coffee Break	
Matti Ruuskanen/Aleksandra Gruca	10:00-11:00	Supervised machine learning	1. Supervised methods: general description
Matti Ruuskanen/Aleksandra Gruca	11:00-12:00	Methods and Model Quality Assessment	2. Approaches to build test/training sets 3. Model quality assesment (accuracy, specificity, sensitivity)
Lunch Break	12:00-13:00	Lunch Break	
Aleksandra Gruca/Jasminka Hasic Telalovic	13:00-15:00	Supervised Machine Learning Hands-on session	2hrs
Tea break	15:00-15:15	Tea break	
Aleksandra Gruca/Jasminka Hasic Telalovic	15:15-17:15	Supervised Machine Learning Hands-on session + short wrapup	2 hrs
Aldert Zomer/Victor Moreno	17:30	Housekeeping messages + Mentimeter questionnaire	
Day 3 9:00-17:00 - Theory and hands on sessions supervised approaches 7th of October			
	8:30-9:00	Welcome	
Matti Ruuskanen		Unsupervised learning: Basic approaches	Clustering data
Coffee Break	10:00-10:15	Coffee Break	
Matti Ruuskanen/Benchakra Chouaib/Tuomas Borman	10:15-12:00	Hands on session unsupervised learning: feature selection & dimension reduction	Analysis of taxonomic profiling data, hands-on demonstrations of the new R/Bioconductor framework for multi-omic data analysis (miaverse)
Lunch break	12:00-13:00	Lunch break	
Matti Ruuskanen/Benchakra Chouaib/Tuomas Borman	13:00-15:00	Hands on session unsupervised learning: clustering & visualization	Analysis of taxonomic profiling data, hands-on demonstrations of the new R/Bioconductor framework for multi-omic data analysis (miaverse)
Coffee Break	15:00-15:15	Tea Break	
Matti Ruuskanen/Benchakra Chouaib/Tuomas Borman	15:15-16:15	Hands on session unsupervised learning: analysis & interpretation + short wrapup	Analysis of taxonomic profiling data, hands-on demonstrations of the new R/Bioconductor framework for multi-omic data analysis (miaverse)
Aldert Zomer	16:15-16:30	Concluding remarks and take home messages	
Aldert Zomer/Victor Moreno	16:30	Goodbye and thank you	