ML4MICROBIOME training school 2022 Preliminary schedule		
Day 1 9:00 -17:15 (approx) - Introduction to the microbiome and microbiome data specificities October 5th		
8.30-9:00	Welcome + Checking setup - is the internet working for you?	
9:00-9:15	ML4Microbiome Intro + Programme overview	
09:15-10:00	Microbiome biology	Microbiome biology
10:00-10:15	Coffee Break	
10:15-11:15	Microbiome sampling & wet-lab basics, study design	What is the microbiome? Aspects of wet-lab work Study design, with focus un human gut microbiome studies (16S & shotgun).
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).
12:15 - 13:15	lunch break - is an hour enough/	
13:15-14:15	Introduction to the statistical analysis of microbiome data	Univariate and multivariate community analysis
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
15:00-15:30	Tea break	
15:30-16:15	An introduction to compositional data analysis	Statistical analysis and data transformation (alr/ilr/clr)
16:15-17:15	Avoiding compositionality and absolute abundance profiling	Absolute abundance profiling
17:15	Housekeeping messages + Mentimeter questionnaire	
Day 2 and Day 3 may be switched. **Day 2 9:00-17:30 - Theory Machine Learning and Hands on+lectures sessions unsupervised approaches - 6th of October**		
8.30-9:00	Welcome	
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?
10:00-10:15	Coffee Break	
10:15-11:15	Unsupervised learning: Basic approaches	Clustering data
11:15-13:00	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)
13:00 - 14:00	Lunch break	
14:00-15:45	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)
15:45-16:00	Tea Break	
16:00-17:30	Hands on session unsupervised learning: analysis & interpretation	Analysis of taxonomic profiling data, hands-on demonstrations of the new R/Bioconductor framework for multi-omic data analysis (miaverse)
17:30	Housekeeping messages + Mentimeter questionnaire	
Day 2 and Day 3 may be switched. **Day 3 9:00-17:00 - Theory and hands on sessions supervised approaches 7th of October**		
8:30-9:00	Welcome	
9:00-10:00	Supervised machine learning	1. Supervised methods: general description
10:00-11:00	Methods and Model Quality Assessment	2. Model quality assesment (accuracy, specificity, sensitivity) 3. Approaches to build test/training sets
11:00-11:15	Coffee Break	
11:15-13:15	Supervised Machine Learning Hands-on session	2hrs
13:15-14:15	Lunch Break	
14:15-15:30	Supervised Machine Learning Hands-on session	1 hr 15 mins
15:30-15:45	Tea break	
15:45-16:45	Supervised Machine Learning Hands-on session	1 hr - extension
16:45	Concluding remarks + Mentimeter questionnaire	