

UÉVORA Summer School'21

MultiOmics for Beginners: Exploring Big Data

PROGRAMME

Day 1 19th of July

Let's start- Basics and Phylogenetics

Instructors: Esther Menéndez (MED-UÉ); Zaki Saati-Santamaria (CIALE-USAL-University of Salamanca, Spain)

14:00-15:00 Short introduction to "*Omics*"

14:45-15:15 Basics in Phylogenies: who is who and where do you belong?

15:15-15:45 Fantastic sequences and how to find them: chromatograms and databases.

15:45-16:15 Break

16:15-18:00 Hands-on: tools for creation of phylogenetic trees

Day 2 20th of July

Microbial metagenomics - Approaches, applications and data analysis

Instructors: Clarisse Brígido (MED-UE), Guest: Amaia Nogales (ISA - Instituto Superior de Agronomia)

14:00-15:00 Introduction to microbial metagenomics- Approaches and applications

15:00-16:00 Examples of case studies

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16:00-16:30 Break

16:30-18:00 Hands-on: Data analysis

Day 3 21st of July

Microbial genomics - from genes to genome

Instructors: Cláudia Vicente (MED-UE); Guest: Francisco Nascimento (iBET - Instituto de Biologia Experimental e Tecnológica)

14:00-15:15 Introduction to Microbial Genomics

15:15-15:45 Invited speaker - Microbial Genomics for Plant Improvement

15:45-16:15 Break

16:15-18:00 Hands-on: Bioinformatic tools for genome analysis

Day 4 22nd of July

Introduction to Transcriptomics - general concepts, RNAseq analysis, and differential gene expression.

Instructors: Margarida Espada (MED-UE); *Guest to be confirmed*

14:00-15:00 Introduction to Transcriptomics - RNAseq - Principles and applications

15:00-16:00 Invited speaker - Use of Transcriptomics in parasitism interactions

16:00-16:30 Break

16:30-18:00 Investigate the transcriptome: tools and data analysis

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Day 5 23rd of July

Introduction to metabolomic analysis.

Instructors - Jorge M. S. Faria (MED-UE); Dora Teixeira (HERCULES-UE); Ana Margarida Rodrigues (ITQB-NOVA)

14:00-14:45 The study of metabolites - extraction techniques

15:00-15:45 Metabolite analysis techniques

16:00-16:45 Data treatment in Metabolomics

17:00-18:00 Hands-on: Case studies and practical examples