

**Organising institution**

Università degli Studi di Padova  
Dipartimento di Agronomia Animali Alimenti Risorse naturali e Ambiente – DAFNAE  
Dr. Piergiorgio Stevanato

**Partner Institutions**

Institute of Bioinformatics and Applied Biotechnology (IBAB), India

**Course Title and Description**

**International Metagenomics Workshop**

This online winter school is to enable students with an understanding of the basics of Next-generation sequencing, genomics related data analysis of the microbiome and metagenomics. This workshop will be focused on identifying the microbial community structure, estimating microbial diversity in diverse habitats such as the animal gut, soil, plants, marine/freshwater, etc., and associated challenges in this field. The course is aimed firstly at Ph.D. students, and researchers, and technicians who wish to employ bioinformatics approaches to study microbial composition but may not have sufficient training in/awareness in this emerging area of research.

Planned activities

Day 1

Workshop Inauguration by Directors, DAFNAE and IBAB.  
Introduction to microbial genomics: Before and After NGS.  
Understanding environmental microbial metabarcoding, its powers and limits.  
A workflow for microbiome research.  
Introduction of Participants. Workshop Organization.  
Hands-on UNIX commands and installation of tools.

Day 2

16S rRNA Amplicon Metagenomics: Concepts, Tools, and Analysis.

Day 3

Hands-on QIIME pipeline to analyse existing 16SrRNA data.

Day 4

Targeted sequencing of 16SrRNA using Nanopore.

Day 5

Limitations and challenges of Amplicon and Whole Metagenome Sequencing analysis.  
Hands-on Whole Metagenome analysis.  
Concluding remarks.

**Period**

22/11/2021 – 26/11/2021

**ETCS credits**

N/A

**Course fee**

N/A

**Course Level**

Dottorato di ricerca