Capstone: End-to-End Microbiome Project — Hands-on

Bring together everything you learned across microbiome, metagenomics and AMR analytics in one end to end capstone. You will scope a realistic project, design the analysis, implement pipelines for amplicon or shotgun data, apply statistics and machine learning where appropriate, and prepare publication and FAIR ready outputs and documentation.

Capstone: End-to-End Microbiome Project

Help Desk · WhatsApp

Session Index

Session 1

Fee: Rs 8800 Apply Now

Project Scoping & Study Design

Selecting a capstone use case and framing questions

clinical, environmental or industrial scenarios **primary and secondary analysis questions** **hypotheses, endpoints and constraints**

Study design, metadata model and data audit

group structure, replication and covariates **MIxS aligned metadata checklist** **data quality scan and gap identification**

Analysis plan and workflow sketch for the project

amplicon or shotgun pipeline choices | diversity, differential and network analyses | timeline, checkpoints and risk management

Session 2

Fee: Rs 11800 Apply Now

Pipeline Implementation & QC

Raw read processing and quality control for the project

trimming, filtering and contaminant checks | negative and positive control evaluation | run level QC plots and decisions

Taxonomic and functional profiling or MAG pipeline

feature tables, taxonomy and pathway tables | resistome or virome layers if relevant | pipeline logging and parameter capture

Normalisation, filtering and data readiness for modeling

compositional aware transforms and offsets | prevalence and sparsity decisions | project data objects ready for analysis scripts

Session 3

Fee: Rs 14800 Apply Now

Ecological, Functional & ML Insights

Diversity, ordination and differential abundance views

alpha and beta diversity panels | PERMANOVA, constrained ordination and drivers | feature level contrasts and effect sizes

Functional, resistome or network style summaries

pathway, module or AMR profile plots | simple co occurrence or correlation networks | linking signals

back to project questions

Optional ML or predictive modeling for the project

train test splits and cross validation | simple classifiers or regressors where relevant | feature importance and interpretation caveats

Session 4

Fee: Rs 18800 Apply Now

Final Deliverables & Presentation

Project report and slide deck structure

background, methods, results and interpretation

Reproducible artefacts and FAIR ready packaging

notebooks or scripts with environment files | data dictionaries and codebooks | submission checklist for archives or journals

Deliverables: report, slides and project bundle

PDF or HTML project report | presentation slides or poster outline | data plus code bundle for future reuse