

Taxonomic Profiling & Diversity Metrics — Hands-on

Learn how to turn metagenomics and amplicon feature tables into interpretable community structure and diversity insights. This module covers taxonomic profiling outputs, alpha and beta diversity, ordination and basic hypothesis testing, with publication ready figures and compositional aware thinking.

Taxonomic Profiling & Diversity Metrics

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Session Index

Session 1 — Taxonomic Profiling Concepts & Pipelines | Session 2 — Alpha Diversity, Rarefaction & Richness | Session 3 — Beta Diversity, Ordination & PERMANOVA | Session 4 — Mini Capstone: Taxonomy & Diversity Report

Session 1

Fee: Rs 8800 [Apply Now](#)

Taxonomic Profiling Concepts & Pipelines

Taxonomic profiling from amplicon and shotgun data

ASV and OTU tables | **read count and relative abundance tables** | **amplicon vs shotgun resolution**

Profiler tools and reference databases

QIIME2 taxonomy from SILVA and Greengenes
Kraken2, Bracken, MetaPhlAn and mOTUs | **database choice and bias**

Feature table curation and filtering

prevalence and abundance thresholds removing
contaminants and low count features exporting to
phyloseq and R

Session 2

Fee: Rs 11800 Apply Now

Alpha Diversity, Rarefaction & Richness

Alpha diversity concepts and metrics

observed richness and Chao1 Shannon and Simpson
indices phylogenetic measures such as Faith PD

Rarefaction and normalisation strategies

rarefaction curves and depth choice relative
abundance and scaling methods limitations and
compositional thinking

Visualising alpha diversity and testing differences

boxplots and violin plots non parametric tests and
covariates reporting effect sizes and CIs

Session 3

Fee: Rs 14800 Apply Now

Beta Diversity, Ordination & PERMANOVA

Distance metrics for community dissimilarity

Bray Curtis and Jaccard UniFrac and weighted
UniFrac choosing metrics for hypotheses

Ordination and community pattern visualisation

PCoA and NMDS biplots and environmental fitting
group centroids and ellipses

PERMANOVA, dispersion and covariate handling

adonis style PERMANOVA models testing

homogeneity of dispersion **linking beta diversity to metadata**

Session 4

Fee: Rs 18800 Apply Now

Mini Capstone: Taxonomy & Diversity Report

End to end analysis of a microbiome dataset

theory plus guided practical

Key plots and tables for stakeholders

stacked taxonomy barplots **alpha diversity**

summaries **ordination plots with PERMANOVA results**

Deliverables: feature table, scripts and narrative report

QIIME2 or phyloseq objects **R or Python notebook**

PDF or HTML community profile report