Learn how to transform metagenomic and metatranscriptomic reads into interpretable gene family and pathway profiles. You will configure functional annotation workflows, normalize and stratify profiles, and build clear pathway level reports for clinical, environmental and industrial microbiome projects.

Functional Profiling Gene Families and Pathways

Help Desk · WhatsApp

Session Index

Session 1 — Gene Families, Ontologies and Databases Session 2 — Read Mapping, Quantification and Normalization Session 3 — Pathway Inference, Stratification and Plots Session 4 — Mini Capstone: Functional Reports and Pathway Stories

Session 1
Fee: Rs 8800 Apply Now
Gene Families, Ontologies and Databases

Gene family concepts in microbiome functional profiling

orthologs and paralogs gene families vs pathways strain and community context

Functional ontologies and annotation schemes

KEGG orthologs and modules EggNOG and COG style groups GO and enzyme commission links

Database selection, versions and provenance

reference build choices updates and compatibility documenting database usage

Session 2
Fee: Rs 11800 Apply Now
Read Mapping, Quantification and Normalization

Aligners and search strategies for functional mapping

translated search concepts short read mapping logic sensitivity vs speed trade offs

Gene family quantification workflows

read to family assignment copy number considerations count and coverage matrices

Normalization and compositionality aware measures

relative abundance and CPM RPK style metrics library size and depth effects

Session 3
Fee: Rs 14800 Apply Now
Pathway Inference, Stratification and Plots

Pathway reconstruction from gene families

module and pathway completion gap filling logic coverage vs abundance thinking

Stratification by taxa and sample groups

contributional analysis condition wise contrasts per taxon pathway views

Visualization of functional and pathway profiles

heat maps and bubble plots pathway score

summaries ready to export figure panels

Session 4
Fee: Rs 18800 Apply Now

Mini Capstone: Functional Reports and Pathway Stories

End to end functional profiling workflow on a cohort

Theory plus guided practical

Interpreting pathway shifts with metadata and outcomes

linking function to phenotype effect sizes and uncertainty stories for clinicians and stakeholders

Deliverables: functional tables, plots and methods text

gene family and pathway matrices publication style figures methods and parameter appendix