Data Standards, Repositories & FAIR Practices for Microbiome Studies — Hands-on

Learn how to turn microbiome projects into FAIR, repository-ready datasets. This module covers data and metadata standards, MIxS-style checklists, major repositories for amplicon and shotgun studies, and practical steps to design submission-ready packages with clear provenance, documentation and re-use potential.

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Session Index

Session 1

Fee: Rs 8800 Apply Now

Standards, Checklists & Metadata Foundations

Why standards and metadata matter in microbiome work

reproducibility and comparability
long term reuse and meta analysis
journals, funders and repository expectations

Core microbiome standards and checklists (concept level)

sample and sequencing minimal information ideas

amplicon vs shotgun metadata requirements
environment, host and technical fields overview

Metadata templates, controlled terms and codebooks

spreadsheet templates for samples and runs
controlled vocabularies and consistent coding
data dictionaries and readme files

Session 2
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Public Repositories & Submission Workflows

Repository landscape for microbiome data

sequence archives for amplicon and shotgun reads
analysis oriented resources (concepts only)
when to choose which repository

Preparing files for submission

FASTQ organisation and naming conventions
sample sheets, run tables and manifests
project, sample and experiment identifiers overview

Submission portals, releases and accession tracking

interactive vs scripted submission concepts
embargo, release and update strategies
storing accession IDs for papers and reports

Session 3
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FAIR Data Management, Provenance & Reuse

FAIR principles in microbiome projects

findable via identifiers and searchable metadata
accessible under clear conditions
interoperable and reusable in downstream work

Project structure, identifiers and versions

organising raw, intermediate and final folders stable IDs for samples and subjects versioning of code, configs and outputs (concepts)

Capturing provenance and workflow details

logs for tools, parameters and versions workflow files and container images (idea level) linking results back to raw data and methods text

Session 4

Fee: Rs 18800 Apply Now

Mini Capstone: Repository-Ready Microbiome Package

Designing a FAIR data package for one study

guided theory plus practical

Building a submission bundle

organised FASTQ and metadata sheets readme, methods summary and code pointers choosing a target repository and accession plan

Deliverables: zipped submission folder and FAIR summary

folder structure plus example files metadata template and codebook short FAIR and reuse statement for papers or reports