Longitudinal & Time Series Microbiome Statistics — Hands-on

Learn how to design, analyze and interpret longitudinal microbiome studies. From repeated measures design and data structuring to mixed effect models, trajectory clustering and visualization, you will build analysis workflows that turn time series microbiome data into interpretable ecological and clinical insights.

Longitudinal and Time Series Microbiome Statistics

Help Desk · WhatsApp

Session Index

Session 1

Fee: Rs 8800 Apply Now

Longitudinal Design & Data Structures

Longitudinal microbiome study design basics

repeated measures vs cross sectional **within subject vs between subject effects** **visit schedules and follow up duration**

Metadata planning and event timelines

interventions, exposures and outcomes **time stamped**

covariates and events | dropouts and missing visits thinking

Data structures for time series microbiome analysis

wide vs long format tables | subject ID and time indexing | aligning counts, diversity and metadata

Session 2

Fee: Rs 11800 Apply Now

Normalization, Distances & Exploratory Views

Normalization and transformation strategies over time

compositionality and log ratio ideas | variance stabilizing transforms | batch and run effects across visits

Diversity, distance and ordination for longitudinal datasets

alpha diversity trajectories | beta diversity distances over time | PCoA style plots by subject and visit

Exploratory visualization of trajectories and shifts

spaghetti plots and subject level paths | heat maps of taxa vs time | change from baseline summaries

Session 3

Fee: Rs 14800 Apply Now

Mixed Models, Trajectories & Differential Dynamics

Linear and generalized mixed model thinking

random intercepts and slopes | time varying covariates | handling unbalanced visit schedules

Longitudinal differential abundance and response curves

testing group by time interactions | spline and smooth

time effects | controlling false discovery over taxa

Trajectory clustering and pattern discovery concepts

clustering subject level trajectories | classifying taxa into dynamic patterns | linking patterns to interventions and outcomes

Session 4

Fee: Rs 18800 Apply Now

Mini Capstone: Time Series Microbiome Report

End to end longitudinal analysis on a cohort

Theory plus guided practical

Interpreting trajectories with interventions and outcomes

case style clinical and environmental examples | stability, recovery and shift patterns | caveats in causal interpretation

Deliverables: tidy tables, trajectory plots & methods block

subject time long format tables | trajectory and heat map figures | reusable longitudinal methods text