

## Capstone — End-to-End Glycomics Project — Mentored

Bring together your learning from the glycomics track in a guided end to end project. From scoping a biological or clinical question and planning a glycomics workflow through LC-MS data processing, glycan annotation, statistical analysis and reporting, you will complete a mentored mini project that generates a reusable dataset and publication ready outputs.

## Capstone — End-to-End Glycomics Project

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### Session 1

**Fee: Rs 8800** Apply Now

### Project Scoping and Study Design

Selecting a biological or clinical use case for glycomics

**immune and inflammation context** | **cancer or metabolic disease angle** | **bioprocess or quality control scenario**

Designing the end to end glycomics workflow

**sample type and platform choice (LC-MS, MALDI, NMR dataset)** | **defining controls and comparison groups** | **planning QC samples and replicates**

Setting objectives, milestones and deliverables

**primary and secondary questions** **timeline and task breakdown** **templates for data and metadata tracking**

### **Session 2**

**Fee: Rs 11800** Apply Now

## **Data Processing and Glycan Annotation**

Working with a provided raw glycomics dataset

**importing LC-MS or MALDI files** **peak detection and integration concepts** **alignment and batch checks at overview level**

Glycan identification and annotation steps

**matching to library or database** **assigning compositions and structures** **building a tidy sample by glycan matrix**

QC, normalization and feature derivation

**removing unstable or low quality features** **normalizing intensities or areas** **calculating glycan traits such as sialylation and fucosylation**

### **Session 3**

**Fee: Rs 14800** Apply Now

## **Statistics, Visualization and Interpretation**

Exploratory statistics and group comparisons

**PCA or clustering for pattern discovery** **basic differential glycan analysis** **simple multiple testing control concepts**

Visualizing glycan signatures and traits

**heatmaps and profile plots** **trait level bar and radar plots** **co variation plots with simple clinical variables**

Biological and pathway interpretation of findings

**linking changes to biosynthesis steps and enzymes**  
**relating patterns to disease or process mechanisms**  
**identifying candidate biomarkers or targets**

#### **Session 4**

**Fee: Rs 18800** Apply Now

### Final Report and FAIR Submission Pack

Structuring the project notebook and narrative

**Theory plus Practical**

Preparing figures, tables and summary slides

**key plots for main results** **summary tables of glycan**  
**traits and statistics** **short presentation deck for**  
**review**

Building a mini FAIR style data and metadata bundle

**cleaned data matrix and code files** **metadata and**  
**methods description** **list of next steps and potential**  
**manuscript outline**