

Welcome to



Join us for a comprehensive two-month hands-on training program in **Next-Generation Sequencing (NGS) Data Analysis** and **Computational Drug Designing**. Learn through live practical sessions using real biological datasets and industry-standard bioinformatics tools.

NGS Schedule

Date	Day	Topics Covered
1 August 2026	Saturday	Introduction to NGS, Transcriptomics, Linux Basics & RNA-seq Workflow
2 August 2026	Sunday	FASTQ Quality Control, Read Trimming & Data Pre-processing (FastQC, MultiQC, fastp)
8 August 2026	Saturday	Genome Indexing, RNA-seq Read Alignment (STAR) & BAM File Processing (Samtools)
9 August 2026	Sunday	Gene Expression Quantification (featureCounts) & Differential Expression Analysis using R (DESeq2)
16 August 2026	Sunday	Data Visualization, GO, KEGG & GSEA Pathway Enrichment Analysis
22 August 2026	Saturday	Introduction to Single-Cell RNA Sequencing, Cell Ranger Output & scRNA-seq Workflow
23 August 2026	Sunday	scRNA-seq Analysis in R (Seurat): Quality Control, Normalization & Feature Selection
29 August 2026	Saturday	Dimensionality Reduction, Clustering, Cell Type Annotation & Differential Expression
30 August 2026	Sunday	Advanced scRNA-seq Analysis: Cell Communication, Trajectory Analysis & Biological Interpretation
31 August 2026	Monday (<i>Special Session</i>)	Complete End-to-End RNA-seq & scRNA-seq Project, Troubleshooting & Interactive Q&A

Drug Designing and Simulation Schedule

Date	Day	Topics Covered
5 September 2026	Saturday	Introduction to Computer-Aided Drug Design (CADD), Linux Basics, Molecular Docking Workflow & Software Installation
6 September 2026	Sunday	Protein & Ligand Preparation, Binding Site Identification, Grid Box Generation & AutoDock Setup
12 September 2026	Saturday	Molecular Docking (AutoDock Vina), Result Interpretation, Binding Affinity & Interaction Analysis using PyMOL and Discovery Studio
13 September 2026	Sunday	Introduction to Molecular Dynamics Simulation, GROMACS Installation, Topology Generation, Solvation & Ion Addition
19 September 2026	Saturday	Energy Minimization, NVT & NPT Equilibration, Production MD Simulation
20 September 2026	Sunday	Trajectory Analysis: RMSD, RMSF, Radius of Gyration, SASA, Hydrogen Bonds & Energy Analysis
26 September 2026	Saturday	Principal Component Analysis (PCA), Free Energy Landscape (FEL) & MM-PBSA Binding Free Energy Calculations
27 September 2026	Sunday	End-to-End Drug Discovery Pipeline, Case Study, Troubleshooting, Publication-Quality Figures, Interactive Q&A & Certificate Assessment