

Population Genomics & Evolutionary Modeling — Hands-on

Gain expertise in population genomics and evolutionary modeling—QC, structure, demography, selection scans, and reproducible reporting for research and clinical cohorts.

Population Genomics & Evolutionary Modeling

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Session 1

Fee: Rs 6300 [Apply Now](#)

Study Design, VCF QC & Kinship

Cohort design, sequencing choices, metadata & consent schemas

Theory

VCF QC, filtering and missingness/LD pruning workflows

[bcftools](#) [vcftools](#) [PLINK 1.9/2.0](#)

Relatedness, IBD/IBS, ROH and pedigree checks

[KING](#) [PLINK --ibd/--homozyg](#) [IBDseq](#)

Session 2

Fee: Rs 8400 Apply Now

Structure: PCA, ADMIXTURE & FST

Dimensionality reduction and population stratification

PCA (EIGENSOFT) PCAngsd

Global/local ancestry and admixture proportions

ADMIXTURE fastSTRUCTURE fineSTRUCTURE

Differentiation and gene flow modeling

F_{ST} Treemix f3/f4/qpAdm

Session 3

Fee: Rs 11200 Apply Now

Demography, Selection & Phylodynamics

Demographic inference from whole genomes

PSMC/MSMC/SMC++ dadi (dadi) fastsimcoal2

Selection scans and linked selection signals

iHS/XP-EHH CMS/SDS SweepFinder2 LDhelmet

Coalescent phylogenetics and species delimitation

BEAST BPP SNAPP

Session 4

Fee: Rs 14000 Apply Now

Mini Capstone: PopGen Pipeline

Design an end-to-end popgen pipeline with full provenance

Theory

Automate QC→structure→demography→selection→report steps

Snakemake **Conda/Mamba** **Quarto/JupyterLab**

Deliver figures/tables and submission-ready metadata
(SRA/GEO/ENA)

pandas **plotly** **PLINK/ADMIXTURE**