Capstone — End-to-End Systems Biology Project — Hands-on

Consolidate everything learnt in systems biology, network medicine and pathway modeling into a single guided capstone. You will scope a realistic problem, assemble data, design and implement a mechanistic or network based workflow, perform calibration or analysis and deliver a transparent report and sharable model bundle.

Capstone — End-to-End Systems Biology Project

Help Desk · WhatsApp

Session Index

Session 1

Fee: Rs 8800 Apply Now

Problem Scoping, Data & Model Blueprint

Define a focused systems biology or network medicine question

pathway or disease mechanism of interest | **clear outcome and decision context** | **success criteria and constraints**

Select data and knowledge sources for the project

omics and literature based inputs | **network and**

pathway resources | clinical or phenotype context where relevant

Draft a model or network blueprint and workflow plan

choice of network or ODE or hybrid style | inputs outputs and evaluation plan | timeline and milestone checklist

Session 2

Fee: Rs 11800 Apply Now

Network / Mechanistic Model Construction

Assemble and curate the core network or model structure

interaction and reaction level curation | consistency with pathway databases | documented assumptions and simplifications

Implement the model in a reusable format and toolchain

SBML or equivalent script based form | notebooks or scripts for simulation | basic unit and sanity checks

Initial parameterisation or network scoring choices

literature or database based parameter guesses | initial conditions and input settings | first round simulations and quick plots

Session 3

Fee: Rs 14800 Apply Now

Calibration, Analysis & Scenario Runs

Calibrate or tune the model against selected data

simple parameter estimation loop | fit quality and residual inspection | basic sensitivity or robustness checks

Run key scenarios and summarise system behaviour

baseline and perturbation cases **network or pathway output summaries** **figures that answer the main question**

Link model readouts to potential interventions or hypotheses

prioritised levers and targets **expected qualitative or quantitative effects** **caveats and remaining uncertainties**

Session 4

Fee: Rs 18800 Apply Now

Packaging, Reporting & Presentation

Prepare a reproducible project and model bundle

scripts or notebooks with clear order **SBML or network files plus configs** **minimal environment description**

Write a concise systems biology project report

question methods and data summary **results and key figures** **interpretation and next steps**

Deliverables and oral walkthrough of the project

slide deck or summary notebook **project repository or archive file** **mentor feedback and grading rubric**