
SYLLABUS FOR BOARD OF STUDIES ADOPTION — generated from the live catalogue record

Statistical Modelling with R and Python

S-09A · 3 days (configurable 1–5 days) · Informatics · Data & Analytics · Years: 2nd, 3rd, PG

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OVERVIEW

Distributions, hypothesis testing, regression and a full statistical report on a real dataset.

Sound statistics separate real analysis from guesswork; students who can test hypotheses and model relationships bring rigour that employers across sectors need.

HOURS AND CREDIT POSITION

Contact hours: 24 Guided project: 6 Self-study: 0 Notional total: 30

Credit claim: 1

30 notional hours ÷ 30 hours per credit (NSQF track, UGC Micro-credentials Guidelines §5.3.3) = 1 credits.

COURSE OUTCOMES

CO1. Summarise a dataset using descriptive statistics and visualisation (K2)

CO2. Construct confidence intervals from a sample (K3)

CO3. Test a hypothesis and interpret the result (K4)

CO4. Fit and diagnose a regression model (K4)

CO5. Produce a statistical report on a real dataset (K5)

COURSE CONTENT — MODULES

Hours shown are the recommended format; module time scales proportionally when the engagement runs 1–5 days.

Module 1 — Descriptive statistics (4h recommended)

Theory: Distributions, central tendency, spread, visualisation

Lab: Summarise a dataset with statistics and plots

Output: Descriptive report

Module 2 — Probability and inference (4h recommended)

Theory: Sampling, confidence intervals

Lab: Construct confidence intervals from samples

Output: Inference notebook

Module 3 — Hypothesis testing (4h recommended)

Theory: t-tests, chi-square, interpreting p-values

Lab: Run and interpret hypothesis tests

Output: Testing notebook

Module 4 — Correlation and regression (4h recommended)

Theory: Linear regression, assumptions, diagnostics

Lab: Fit and diagnose a regression

Output: Regression notebook

Module 5 — Multiple regression (4h recommended)

Theory: Multiple predictors, model selection

Lab: Build a multiple-regression model

Output: Multiple-regression notebook

Module 6 — Reporting capstone (4h recommended)

Theory: A full statistical report on a real dataset

Lab: Produce a statistical report

Output: Statistical report

ASSESSMENT SCHEME (100 MARKS)

Continuous lab exercises — 40 marks

Analytical report — 40 marks

Viva voce — 20 marks

CO-PO MAPPING

CO1 !' PO4 (strength 2)

Descriptive analysis is investigation of data.

CO2 !' PO2 (strength 2)

Inference is quantitative problem analysis.

CO3 !' PO4 (strength 2)

Hypothesis testing is experimental investigation.

CO4 !' PO4 (strength 2)

Regression diagnostics are investigation.

CO5 !' PO10 (strength 2)

The statistical report is professional communication.

EVERY PARTICIPANT RECEIVES

- Certificate of completion
- Course material
- LMS access
- Interview question bank
- Mock interview & viva practice
- Optional nasscom NSQF assessment (priced per candidate on your quotation)

FEE

¹1,900 per student, incl. GST

Excludes the optional nasscom assessment where offered. Final pricing on your college's quotation.

DESIGNED BY

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