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COURSE BROCHURE

Applied Statistics for Research Studies Training Course

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Registered in the United Kingdom and Saudi Arabia

Applied Statistics for Research Studies Training Course

Applied Statistics for Research Studies is a 1-week training course for researchers, analysts and postgraduate staff who prepare a statistical analysis plan before collecting a single observation. Funders, journals and ethics boards now expect designs, sample sizes and tests to be justified in advance and results to be reproducible. Jupiter Prime Training delivers this course in applied statistics for research studies.

Why Applied Statistics for Research Studies Matters Now

Three pressures shape research statistics today. Reviewers and funders scrutinise underpowered samples and selective reporting, open science expectations ask for shared code and pre-registered hypotheses, and decision makers in health, education and industry increasingly act on study findings rather than on opinion. A research unit that plans its analysis well produces estimates others can trust and replicate; one that improvises after seeing the data invites retractions, wasted fieldwork and misleading policy advice. The course rests on established inferential practice, from null hypothesis significance testing NHST to estimation with effect sizes and confidence intervals.

Who Gains Most from Applied Statistics for Research Studies

- Those who design surveys, trials and observational studies and choose sampling frames
- Those who clean research datasets and run the statistical tests
- Those who write methods and results sections for reports and journal submissions
- Those who supervise postgraduate theses and check analytical choices
- Those who brief sponsors on what a study can and cannot conclude

A research group or analytics unit that sends several members gains most, because shared conventions for power, model checking and reporting cut rework across projects.

Applied Statistics for Research Studies Capabilities

Participants move from choosing a test by habit to matching design, variable type and research question.

- Specify a sampling strategy and calculate the sample size for a target power — the ethics and funding application
- Select and test hypotheses with t-tests, chi-square and non-parametric alternatives — the principal investigator
- Build and diagnose linear and logistic regression models — the claims made in the results section
- Apply one-way and factorial ANOVA with post hoc comparisons — the choice between competing interventions
- Calculate and interpret effect sizes and confidence intervals — readers weighing practical importance
- Design a reproducible workflow with scripted analysis and version control — co-authors and reviewers

Key Applied Statistics for Research Studies Terms

- Statistical power — the probability that a study detects an effect of a given size when that effect truly exists.
- P-value — the probability of results at least as extreme as those observed if the null hypothesis were true.
- Confidence interval — a range of plausible values for a population parameter.
- Effect size — a standardised measure of the magnitude of a difference or relationship, such as Cohen's d or an odds ratio.
- ANOVA — analysis of variance, comparing means across three or more groups.
- Statistical analysis plan — a document fixing hypotheses, variables, tests and handling of missing values before analysis begins.

Applied Statistics for Research Studies Day by Day

Day 1: Research Questions, Designs and Sampling

- PICO and Variable Mapping — Turning Questions into Measurable Outcomes
- Experimental, Quasi-Experimental and Observational Designs — Strength of Causal Claims
- Probability and Non-Probability Sampling — Generalising Findings to Populations
- Power Analysis and Sample Size Calculation — Funding and Ethics Approval
- Measurement Scales and Data Types — Choosing Valid Statistical Tests

Day 2: Describing Data and Testing Hypotheses

- Descriptive Statistics and Distribution Checks — Spotting Skew and Outliers Early
- Missing Data Patterns and Imputation — Protecting Unbiased Estimates
- T-Tests and Chi-Square Tests — Comparing Groups and Proportions
- Mann-Whitney and Kruskal-Wallis Tests — When Normality Assumptions Fail
- Type I and Type II Errors — Balancing False Alarms and Missed Effects

Day 3: Regression and Analysis of Variance

- Simple and Multiple Linear Regression — Estimating Adjusted Relationships
- Logistic Regression for Binary Outcomes — Reporting Odds Ratios Correctly
- Residual Diagnostics and Multicollinearity Checks — Trusting Model Coefficients
- One-Way and Factorial ANOVA — Comparing Several Treatment Groups
- Post Hoc Tests and Multiple Comparison Corrections — Controlling Inflated Error

Day 4: Estimation, Reporting and Reproducibility

- Effect Size Measures — Judging Practical Rather Than Statistical Significance
- Confidence Intervals for Means, Proportions and Coefficients — Communicating Uncertainty
- Tables and Figures for Results Sections — Clear Reader Interpretation
- Scripted Analysis in R or Python with Version Control — Reproducible Outputs
- Pre-Registration and Selective Reporting Risks — Credibility with Reviewers

Day 5: Practising the Statistical Analysis Plan

- Health Service and Manufacturing Case Datasets — Choosing the Right Design
- Sample Size Justification — Applying Day One Power Calculations
- Model Selection and Diagnostics — Applying Day Three Regression Checks
- Results Write-Up with Effect Sizes — Applying Day Four Reporting Rules
- Statistical Analysis Plan for a Live Study — Completing the Participant Output

Applying Applied Statistics for Research Studies After the Course

- Rerun the power calculation for a planned study and record the assumed effect size
- Convert one past analysis into a scripted, version-controlled workflow with effect sizes and intervals

Applied Statistics for Research Studies Questions FAQ

What is applied statistics for research studies, and why does it matter now?

It is the use of design, sampling, testing and estimation methods to draw sound conclusions from research data. It matters now because reviewers and funders expect justified sample sizes, transparent reporting and reproducible analysis.

Which roles gain most from applied statistics for research studies?

Researchers, analysts and postgraduate staff gain most. You plan studies, run tests and write results, whether the setting is a hospital outcome audit or a factory quality experiment.

How does applied statistics for research studies differ from a data visualisation course?

It centres on inference rather than presentation. You decide on designs, power, hypothesis tests, regression and ANOVA, while visualisation courses focus on charts and storytelling.

What do you bring back from applied statistics for research studies?

You bring back a statistical analysis plan for a live study. It fixes hypotheses, sample size, tests, model checks and reporting conventions before data collection begins.

Applied Statistics for Research Studies: The Way Forward

The statistical analysis plan first informs whether the proposed sample is large enough to answer the research question. Principal investigators use it in ethics and funding applications, analysts follow it during modelling, and supervisors check theses against it. Once results arrive, revisit the assumed effect size and the missing data rules, since real fieldwork rarely matches the plan exactly.