

Applied Research and Statistics

Applied research projects in industry and in higher education are typically structured around a research approach that includes a topic, problem statement, research questions, hypotheses, statistical testing, and analysis of the results. Quantitative, case study, and mixed methods research approaches typically follow this scientific method for research.

The purpose of this module is to teach the scientific methodology for applied research and the use of statistics for hypothesis testing.

This module is designed for anyone involved in applied research, including thesis students, doctoral students, and applied researchers.



Learning Outcomes

1. Describe the types of applied research and the use of statistics in applied research.
2. Use a data analysis tool pack and add-ons in Excel.
3. Apply basic functions in Excel.
4. Know the basic statistical terminology.
5. Calculate and report descriptive statistics for a data set.
6. Select the right inferential statistical test.
7. Apply the meaning of significance in a statistical result.
8. Create a problem statement based on a research topic.
9. Create a hypothesis pair based on the problem statement.
10. Perform the following statistical tests: Chi-square, Spearman's Rank Correlation, t-Test, ANOVA, MANOVA, and Regression.

Recommended Learners

- Thesis Students
- Dissertation Students
- Faculty and learners who must evaluate research from a statistical perspective.

What statistical test do we use? How to decide?



Let us look at the figure to the left and review what we know.

What is our research question? *Is the intended learning outcome to significantly increase the student's knowledge level for a math course being achieved?*

The t-Test assesses whether the means of two groups are statistically different from each other. They are both sample means. This analysis is appropriate whenever you want to compare the means of two groups. A paired samples t-Test is used in a pre- and post-test scenario with the same individuals.

So, the test we choose in this example is the **Paired Samples t-Test**.

An example of a learning event in our Leading Edge Learning modules. The types of instructional content within the modules include: readings, videos, transcripts, audios, interactive questions, offline application exercises, flash cards, narrated presentations, matching exercises, relevant articles, downloads, a final exam, and other activities designed to engage learners based on recognized science of learning educational concepts.

Applications and Best Practices

- ✓ Integrate into a research methodology and statistics course.
- ✓ Academic leveling for learners who may not have adequate preparation for advanced studies in statistics or analytics.
- ✓ Develop skill sets of working professionals.
- ✓ Professional development for continuing education or refresher of skills.

Pricing
Module is Approximately 22-25 Learner Hours

1-100 Learners per Year \$285 per Learner	101-500 Learners per Year \$270 per Learner	500+ Learners per Year \$255 per Learner
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