

Testing Means

Prerequisites

Specified in individual sections

- A. [Single Mean](#)
- B. [t Distribution Demo](#)
- C. [Difference between Two Means \(Independent Groups\)](#)
- D. [Robustness Simulation](#)
- E. [All Pairwise Comparisons Among Means](#)
- F. [Specific Comparisons](#)
- G. [Difference between Two Means \(Correlated Pairs\)](#)
- H. [Correlated t Simulation](#)
- I. [Specific Comparisons \(Correlated Observations\)](#)
- J. [Pairwise Comparisons \(Correlated Observations\)](#)
- K. [Exercises](#)
- L. [PDF Files](#) (in .zip archive)

Many if not most experiments are designed to compare means. The experiment may involve only one sample mean that is to be compared to a specific value. Or the experiment could be testing differences among many different experimental conditions, and the experimenter could be interested in comparing each mean with each other mean. This chapter covers methods of comparing means in many different experimental situations.

The topics covered here in sections D, E, G, and H are typically covered in other texts in a chapter on Analysis of Variance. We prefer to cover them here since they bear no necessary relationship to analysis of variance. As has been [pointed out elsewhere](#), it is not logical to consider the procedures in this chapter tests to be performed subsequent to an analysis of variance. Nor is it logical to call them post-hoc tests as some computer programs do.