Introduction to Robust Statistics using Matlab

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This course introduces students to robust statistics using the Matlab environment. The course is composed of a mix of lectures and in class exercises. Students will explore data sets using descriptive and inferential statistics, as well as graphical representations. A particular emphasis is put on robust methods and how they can help alleviate problems associated with classic parametric techniques.

The course requires students to be familiar with the Matlab environment.

Objectives

Students will be able to write and describe routines involving:

(1) robust descriptive statistics, including measures of central tendency, dispersion, and outlier detection;

(2) graphical representations;

(3) permutation and bootstrap techniques applied to independent and dependent groups;

(4) hypothesis testing and P values;

(5) robust measures of effect sizes;

(6) comparison of entire distributions using shift functions;

(7) correction for multiple comparisons.