MATH 4773 Laboratory 12: Non-Parametric Statistics

Learn how to perform the most popular forms of non parametric tests. We will major on the sign test and the Wilcoxon rank sum test.

Objectives

1. Find the meaning of "distribution free" tests and "non – parametric" methods
2. Practice the methodology

Tasks

All output made please copy and paste into this word file under the question. If you have a table to paste please use "`courier new`" font. The Lab code file should have all the code you used to answer the questions at the top of the document and all my code at the bottom. At the completion of the lab save the R file as a .txt and the word fie as a .pdf. Place both in the dropbox before due date.

- Task 1
  - Download from CANVAS the zipped data files, "Dataxls"
  - Unzip the contents into a directory on your desktop (call it LAB)
  - Make your own file "Lab12.R"
  - Place this file with the others in LAB12.
  - Start Rstudio
  - Open "lab12.r" from within Rstudio (this is an exemplar file).
  - Using hash commenting and at the top of Lab 12 place the task number eg #Task 1
  - Go to the "session" menu within Rstudio and "set working directory" to where the source files are located.
  - Copy and paste the working directory by issuing the command `getwd():` under #Task 1
- Task 2 (see page 839)
  - Explain what a "parametric" test is:
  - Explain what a "non-parametric" test is:
  - What is the branch of statistics devoted to "distribution free statistics" called?:
- Task 3
  - Carry out the test in Example 15:1 by hand in R using the Bacteria data set.
  - Go to CANVAS and find a package that contains non-parametric functions for tests
  - Carry out the sign test of example 15:1 using a function – paste results here.
- Task 4
  - Compare two populations (independent random samples)
  - Describe the Wilcoxon rank sum test page 845:
  - Using an R package – perform the analyses of example 15.2:
  - Ditto for Example 15.3