Intermediate Statistical Laboratory: Statistical Computing Packages
Stat 2183-80 (2183W-80) – Fall 2015

SYLLABUS

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Course Description: The purpose of this course is to teach the methodology and the skills needed to use the statistical package SAS to analyze data from experiments or surveys. The student is expected to be familiar with the concepts of confidence interval, hypothesis testing and the central limit theorem. In addition to presenting information on statistical packages, this course will present many new statistical techniques on an applied level. Topics to be covered include:

A) Parametric Inference
   1) Review: one sample z and t tests, including paired t-test
   2) Review: two sample z and t tests
   3) Categorical data
   4) Analysis of variance (one way and two way)
   5) Tests of independence and goodness of fit tests
   6) One, two and k sample test for the variance
   7) Regression and correlation (simple and multiple)
   8) Analysis of covariance: Principal component analysis

B) Nonparametric Inference
   1) Permutation tests
   2) One sample sign and Wilcoxon tests
   3) Two sample Wilcoxon test for location
   4) Kruskal--Wallis test
   5) Friedman test

Prerequisites: One course in statistics: Stat 51, Stat 53 or equivalent.
Learning Outcomes: The student will be expected to:

1. Know all of the above topics and be able to perform all the relevant tests.

2. Have a good understanding of SAS and be able to perform all of the tests learned during the course using SAS.

3. Be able to write statistical reports, which will include the student’s analysis of data using SAS and a summary of the conclusions.

Textbooks: 1. *An Introduction to Statistical Methods and Data Analysis, 5th* edition, by Ott and Longnecker.

2. Quick Start to Data Analysis with SAS, by DíIorio and Hardy.

Grading: Your final grade will be determined by a weighted average of assignments and exam scores:

- Assignments 40%
- Midterm 30%
- Final 30%.