THE GEORGE WASHINGTON UNIVERSITY
Department of Statistics

Intermediate Statistical Laboratory: Statistical Computing Packages
Stat 2183-80 (2183W-80) – Spring 2012

SYLLABUS

Instructor: Dalila Benachenhou
Office: Rome Hall, Room 676
Phone #: (202) 994-6357
E-mail: dalila_ben@gwu.edu
Office hours: 10:00-11:00 am. Thursday, and by appointment

Lecture: Tuesday & Thursday 11:10 a.m. – 1:00 p.m., Gelman Library, Room B01.

Course Description: The purpose of this course is to teach the methodology and the skills needed to use the statistical packages SAS and R to analyze data from experiments or surveys. In addition to presenting information on statistical packages, this course will present many new statistical techniques on an applied level (innovative data visualization). The students are expected to be familiar with numerical measures of central tendency and variability, frequency distributions & graphical presentations, hypothesis testing, confidence interval, linear regression and correlation.

There will be 4 projects through the entire course. For the first 3 projects datasets will be posted on Blackboard. The final project will require you to acquire the datasets. All projects must be handed on Blackboard. The course has no homework.

Topics to be covered include:

A) Parametric Inference
   • Review: one sample z and t tests, including paired t-test
   • Review: two sample z and t tests
   • Categorical data
   • Analysis of variance (one way and two way)
   • Tests of independence and goodness of fit tests
   • One, two and k sample test for the variance
   • Regression and correlation (simple and multiple)
B) Nonparametric Inference
- Permutation tests
- One sample sign and Wilcoxon tests
- Two sample Wilcoxon test for location
- Kruskal--Wallis test
- 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 & R and know to perform all of the tests learned during the course using SAS & R.

3. Know how to write statistical reports, which will include the student’s analysis of data and a summary of the conclusions.

Textbooks:
1. An Introduction to Statistical Methods and Data Analysis, 6th edition, by Ott and Longnecker.
2. Quick Start to Data Analysis with SAS, by Dilorio and Hardy.

Grading: Your final grade will be determined by a weighted average of assignments and exam scores:
- Assignments 40%
- Midterm 30%
- Final 30%

Projects Tentative Due Dates:
- Project 1: January 29
- Project 2: February 19
- Project 3: April 4
- Project 4: Will be announced by the university

Midterm will be in class on March 5
Final date will be after Reading Days and will be announced by the university.
ACADEMIC INTEGRITY
I personally support the GW Code of Academic Integrity. It states: “Academic dishonesty is defined as cheating of any kind, including misrepresenting one's own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information.” For the remainder of the code, see: http://www.gwu.edu/~ntegrity/code.html

SUPPORT FOR STUDENTS OUTSIDE THE CLASSROOM
To obtain a copy for your PC contact the Instructional Technology Lab in the basement of Gelman library. See http://itl.gwu.edu/itl_sas.html
To obtain a copy of SAS: 1) Complete the License Agreement Form and bring the following to the Instructional Technology Lab: 1) GWorld ID card, 2) Completed license form, 3) Two (2) Blank DVDs

Disability Support Services (DSS). Contact the Disability Support Services office at 202-994-8250 in the Marvin Center, Suite 242. For additional information please refer to: http://gwired.gwu.edu/dss/

The University Counseling Center (UCC) (202-994-5300) offers 24/7 assistance and referral to address students' personal, social, career, and study skills problems. See http://gwired.gwu.edu/counsel/CounselingServices/AcademicSupportServices

SECURITY
In the case of an emergency, if at all possible, the class should shelter in place. If the building that the class is in is affected, follow the evacuation procedures for the building. After evacuation, seek shelter at a predetermined rendezvous location.
<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
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<tbody>
<tr>
<td>CLASSES BEGIN</td>
<td>(M) January 14</td>
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<tr>
<td>Martin Luther King Jr. Day (no classes)</td>
<td>(M) January 21</td>
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<tr>
<td>Presidents' Day (no classes)</td>
<td>(M) February 18</td>
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<tr>
<td>Spring Break</td>
<td>(M-S) March 11-16</td>
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<td>Last Day of Classes</td>
<td>(M) April 29</td>
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<td>Make-up Day</td>
<td>(T) April 30</td>
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<td>Designated Monday</td>
<td>(W) May 1</td>
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<tr>
<td>Reading Days</td>
<td>(R-F) May 2-3</td>
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<td>FINAL EXAMINATIONS</td>
<td>(M-T) May 6-14</td>
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<tr>
<td>Commencement Weekend</td>
<td>(Fri-Sun) May 17-19</td>
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<td>Spring Degree Conferral</td>
<td>(U) May 19</td>
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