Course Syllabus

Statistical Computing Packages for Survey Research (STAT 6234), Spring Semester 2011

Instructors: Safaa Amer and James D. Ashley

Thursdays, 6 PM to 8:30 PM
Office Hours: Thursdays, 5:30 to 6 PM or by appointment

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Required Text:

If you would like other references for the material that we will cover, the following texts cover most of the topics (but not necessarily in the same order covered in class).


Course Description:
This is a data analysis course that shows how to use the statistical package SAS to help solve both simple and complex real-life data problems including one-, two-, and k-sample statistical problems. Basic concepts include data preparation, modification, analysis, and interpretation of results.

Learning Outcomes:
As a result of completing this course, students will be able to:
1. Write a basic SAS program for a simple data analysis problem;
2. Perform basic descriptive, exploratory and confirmatory data analysis; and
3. Identify appropriate modeling concepts based on the characteristics of the data.
Software
A student version of the SAS package will be available for course participants from GWU. It is highly recommended that students make use of this offer since it will allow them to work on problems at home on their own PC. The GWU computing lab is also available during regular business hours, unless used by another class. Details for obtaining the software can be found at http://citl.gwu.edu/pages/sas.html.

Please print the request form http://citl.gwu.edu/pdf/itl_SAS_User_License_Agreement_Form.pdf in class, and have it signed by either instructor before leaving class. You will need to bring a blank DVD to the Instructional Technology Lab to get SAS. We are using SAS version 9.1.3 in class. Please make sure that this is the version you receive.

Teaching Style:
Each class will consist of brief lectures on important statistical concepts mixed with time working through problems on the computer. As much as possible, this will be a cooperative exercise, and students are encouraged to present their own solutions to problems discussed in class.

Because we will not be able to cover all the major statistical packages, any student familiar with a package that is not highlighted in the course may provide a brief package introduction to the class for his/her class presentation (see below). Students may also present special features of SAS that are not highlighted in the lectures. Student presentations must be scheduled in advance, and the student must submit an outline of the presentation to the instructors before the presentation date.

Homework:
Eight homework assignments will be completed over the course of the semester. Each assignment will consist of between two to five problems and will be due at the beginning of the next class. We will discuss the homework at the beginning of each class. No late homework will be accepted unless prior arrangements have been made. Homework assignments will be worth a total of 30 percent of your final grade.

Attendance Policy:
Due to the fact that graduate courses meet for only 14 sessions per semester, participants are expected to be present for all sessions. Anyone who will miss a session must obtain prior approval, and arrange to turn in any assignments at a mutually agreed upon time.

Quizzes:
Two short (about ½ hour) quizzes will be given—one during session 5 (February 10th), and one during session 11 (March 31st). The quizzes will cover data analysis concepts discussed during prior class sessions. (12 points each)

Take-home Examinations:
Two take-home exams that concentrate on your ability to use a computing package to analyze data and interpret the results will be given—one on February 24th (in lieu of session 7), and one on April 21st. You will be able to download the exam and a data set from Blackboard on the date of the exam. Completed exams must be turned in, via Blackboard the day after the exam date by 9 am. (15 points each)

Final Examination:
The final examination will be given on Wednesday of finals week (May 5th) and will cover all material presented during the semester. (15 points)
**Class Presentation:**
Each student will be required to make a 15-20 minute classroom presentation based on a data analysis concept, or statistical computing package feature. The presentation may cover a statistical package that is not highlighted in the course, a special feature of SAS, or another computing package, or a summary of a data analysis project performed by the student. Student presentations will take place during the last four class sessions of the semester. You will be required to submit a short presentation proposal by March 10th, and a draft of the presentation must be submitted to the instructors a minimum of one week before the presentation date. Schedule of the presentations will be done during the second half of the semester. *(15 points)*

**Homework:**
Homework assignment will be given during most sessions, and must be submitted via Blackboard before the start of the next class session. Homework will not be graded for accuracy. Homework credit is given for your effort. Beginning with the 3rd session (January 27th), during each class two or three students will present the results of their homework assignments (no longer than five minutes each). If you have questions about assignments, ask questions during this time. *(8 points)*

**Class Participation and Homework Presentations:**
Students are expected to participate in class activities. Beginning with the 3rd session (January 27th), at the start of each class two or three students will present the results of their homework assignments (no longer than five minutes each). Each student will be required to give two homework presentations throughout the semester. Volunteers will be chosen to determine who will present each week. Presentations will not be graded for accuracy, and similar to the homework, credit will be given for your effort and participation. *(8 points)*

**Grading Criteria:**
- First Quiz: 12 points
- First Take-home exam: 15 points
- Second Quiz: 12 points
- Second Take-home exam: 15 points
- Final Examination: 15 points
- Class Presentation: 15 points
- Homework: 8 points
- Homework Presentations: 8 points

**Grading Scale**
- A = 94 to 100
- A- = 90 to 93.9
- B+ = 87 to 89.9
- B = 84 to 86.9
- B- = 80 to 83.9
- C+ = 77 to 79.9
- C = 74 to 76.9
- C- = 70 to 73.9
- F = Below 70
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<thead>
<tr>
<th>Session #/Date</th>
<th>Topic</th>
<th>Important Dates</th>
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<tbody>
<tr>
<td>1. January 13&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Overview of Statistical Computing Packages</td>
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<td>2. January 20&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Statistical Analysis Concepts</td>
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<td>3. January 27&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Complex Sample Designs and Estimation</td>
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<td>4. February 3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>Univariate Analysis: Significance test for a mean</td>
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<td>5. February 10&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Univariate Analysis: Significance test for a proportion Bivariate Analysis: Comparing means of two groups</td>
<td>First Quiz</td>
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<td>6. February 17&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Bivariate Analysis: Comparing two categorical variables</td>
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<td>7. February 24th</td>
<td>Take-home Exam (no in-class session)</td>
<td>First Exam</td>
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<td>8. March 3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>Linear Regression</td>
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<td>9. March 10&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Introduction to Multivariate Relationships</td>
<td>Student Presentation Proposals Due</td>
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<td>March 17&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Spring Break (no in-class session)</td>
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<td>10. March 24&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Multiple Regression</td>
<td>Student Presentations</td>
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<td>11. March 31&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Multiple Regression (cont.)</td>
<td>Second Quiz</td>
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<td>12. April 7&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Introduction to Logistic Regression</td>
<td>Student Presentations</td>
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<td>13. April 14&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Introduction to ANOVA</td>
<td>Student Presentations</td>
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<td>14. April 21&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Second Take-home Exam (no in-class session)</td>
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<td>April 22&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Second Take-home Exam due via blackboard</td>
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<td>15. May 5th</td>
<td>Final Exam (in class)</td>
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