

# Biostatistics 510

## Statistical Computing Packages

### Syllabus Winter, 2006

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#### **Topic (Approx. Number of Lectures—Order of Topics is flexible):**

##### **SAS:**

Basics of SAS, Descriptive Stats and Graphs (6)  
reading in data  
creation of new variables, dummy variables (more later in regression)  
merging data sets  
summarizing data sets  
case selection  
subsetting data  
sorting and stratification  
t-test, one-sample, paired and independent samples (1)  
Linear Regression (3)

##### **SPSS:**

Basics of SPSS, Descriptive Stats and Graphs (5)  
reading in data  
creation of new variables  
merging data sets  
summarizing data sets  
case selection  
subsetting data  
sorting and stratification  
t-test (1)  
Linear Regression (2)

##### **SAS:**

ANCOVA and ANOVA (1)  
Contingency Tables (1)  
Logistic Regression (2)  
Poisson Regression (1)

**SPSS:**

ANCOVA and ANOVA (1)  
Contingency Tables(1)  
Logistic Regression (1)

**Recommended Texts:**

Course Pack will be available at Dollar Bill

The Little SAS Book: A Primer, 2<sup>nd</sup> Ed., Lora D. Delwiche and Susan J. Slaughter.

Learning SAS in the Computer Lab, 2<sup>nd</sup> Ed., Rebecca J. Elliott

SAS Manuals

SPSS Manuals

## Homework Guidelines:

Homework assignments will be given approximately once a week. They will be due 1 week after being assigned.

- **Hand in your printed homework as a computer document (not an electronic version).** Handwritten homework assignments will not be accepted.
- **Include your printed SAS or SPSS commands** as the first part of your homework. Use at least font size 8 for your commands, and print them one page per sheet, so they are readable.
  - SAS commands will usually be typed as part of the process of doing the homework. You do not need to include commands for portions of the assignments done using SAS/INSIGHT.
  - SPSS commands can be created by either using the Paste button, from the point and click menu or by typing them from scratch in the syntax editor.
- **Be sure that your SAS or SPSS program will run from start to finish.**
  - For SAS, load your program into the Enhanced Program Editor Window or Program Editor Window and click on the "Submit" button, without highlighting any portion of the commands. Check the log window to be sure there are no error messages.
  - For SPSS, run your program from the SPSS Syntax Editor window. Be sure there are no error messages in the output window.
- **Before turning in your homework, check your computer results to be sure they make sense.** Simply getting a program to run does not mean that it is correct!
  - Check the number (n) of cases for each variable. Be sure you have the correct number of cases for all variables. If you calculate new variables as part of the assignment, be sure the number of cases for your new variables matches the number of cases in the original variables from which they were calculated.
  - Check the values of variables, being sure the minimum, maximum and mean make sense.
- **For the SAS homework, avoid making multiple data sets to create new variables**—rather, create all new variables in a single data step if possible. This will mean you will need to read the homework through completely to see what new variables will need to be created, and then create them all at the beginning of the assignment.
- **Include only enough computer output to answer the questions in the homework, or to illustrate a point. You do not need to include all computer output for each question.**
  - Be sure to label any computer output you include by question number, so it can be easily located.
- **You may work together on the computer commands for homework.** Often two or three heads are better than one.

- **Run all the programs yourself and do your own write-up of the homework assignments.** Be sure that you have done all of the assignments yourself, so you will be ready to work on the final project on your own!
- **Interpretation of results is just as important as getting the SAS or SPSS program to run.**
  - When reporting results for a statistical test, include complete information including the test statistic and any other information, such as degrees of freedom where appropriate, and the associated p-value.
  - Interpret statistical tests. Simply noting that something is "significant" is not sufficient. Please explain the relationships that you have found. For example, if you compare two means using a t-test, please explain how the means differ. Which mean is higher? The mean for males or for females?

### **Final Project:**

The final project will be handed out one week before the last class session. You will have a week to work on it at home. It will be due on the final day of class. It will require use of both SAS and SPSS. **Please do ALL work for the final project, including computer commands and write-up on your own. Do not work together on the final project.**