CALIFORNIA POLYTECHNIC STATE UNIVERSITY
San Luis Obispo, California

STAT 330 - Statistical Computing I: SAS

Spring 2007

I. Catalog Description

STAT 330 Statistical Computing I: SAS (4)

Techniques available to the statistician for efficient use of computers to perform statistical computations and to analyze large amounts of data. Use of SAS throughout the course. Includes data preparation, report writing and basic statistical methods. 4 lectures.
Prerequisite: STAT 252 or STAT 312 or STAT 313 or STAT 322.

II. Required Background and/or Experience

Prerequisite: STAT 252 or STAT 312 or STAT 313 or STAT 322.
Basic knowledge of statistics and the use of computers.

III. Expected Outcomes

The student should:

A. Become aware of the capabilities of the SAS software system.
B. Be able to develop a computing strategy to address a complex data management or statistical problem.
C. Be able to write SAS code to prepare large data sets for statistical analysis.
D. Become aware of various types of statistical analyses and their implementation using SAS.
E. Be able to write SAS macros.
F. Be introduced to the graphical capabilities of SAS.
G. Be able to write a report summarizing the statistical analysis of a research problem.

IV. Text and References

Recommened Text: Delwiche, L.D. and Slaughter, S.J.:, *The Little SAS Book: A Primer, Third Edition,* SAS Institute, Cary, NC, 2003.

Other Reference: *SAS OnLine Doc, Version 8 and 9,* SAS Institute Inc., 2002-2006.

V. Minimum Student Materials

None.

VI. Minimum University Facilities

Availability of computing facilities.

VII. Expanded Description of Content and Method

Content	Number of lectures
A. An overview of the SAS system	1
B. Introduction to SAS for Windows	1
1. Program, Log, and Output windows	
2. Other windows	
3. Function keys	
4. Saving and printing the contents of a window	
C. What is a SAS job?	1
1 Introduction to the DATA step	
2 Introduction to the PROC step	
D. SAS syntax and SAS data sets	4
1 Statements	
2 Structure of SAS data sets	
3 Types of variables	
4 INPUT statement	
5 LIST, COLUMN, and FORMATTED input	
6. Temporary data sets; permanent SAS data sets	
E. Reading external data files	1
1. Referencing data sets using LIBNAME, FILENAME, and INFILE	
2. Writing data to a text file	
F. Introduction to basic PROC's	7
1. PRINT, MEANS, UNIVARIATE	
2. FREQ, SORT	
3. PLOT, CHART	
4. Using the Output Delivery System to create RTF or HTML output	
G. Program statements and SAS functions	2
H. DATA step revisited	3
1. Creating several SAS data sets within one data step	
2. Understanding the program data vector	
3. Using DROP, KEEP, OUTPUT, DELETE	
4. Concatenating, merging, and interleaving SAS data sets	
5. Using arrays for programming efficiency	
6. Subsetting and subgroup analyses	
I. Introduction to MACROS	4
J. Introduction to SAS/GRAPH	3
K. Basic Statistics Using SAS	8
1. The TTEST procedure	
2. The CORR procedure	
3. The REG procedure	
4. The ANOVA and GLM procedures	
L. Interacting with other software	1
1. Using the Dynamic Data Exchange to interface with other Windows software	
Total	**36**

Method

Largely lecture with computer demonstrations of methods and problems, class discussion, supervised computer lab work and in-class exercises. Material from references and additional problems supplement the text.

VIII. Method of Evaluating Outcome

Problem and programming homework assignments, examinations, and projects.