SAS Labs For Statistics 512

Applied Regression Analysis

by

Jonathan Kuhn, Ph.D.
Associate Professor of Statistics,
Mathematics, Statistics and Physics,
Purdue University North Central

SAS Lab 1 For Statistics 512

Topics:
How to use SAS
Appendix A. Some Basic Results in Probability and Statistics

How To Use SAS

Getting onto both the Purdue North Central Windows version of SAS and the Purdue West Lafayette Distributed Academic Computing Services (DACS) version of SAS, typing in a program, as well as running, viewing, printing and saving the output from this program.

Purdue North Central Windows version of SAS.

- Log onto any of the Windows computers on the PNC campus. Locate and active "The SAS System For Windows". Open up this program.
- The PNC version of SAS is only accessible from computers on the PNC campus. The SAS program is *not* available over the Internet to your computer at home.
- This version of SAS also allows you to run, view and print the program and output from a SAS program. However, this version of SAS only allows you to save your program temporarily, for the current session. It is possible, though, to "select all", "copy" and "paste" both programs and output to your PNC computer account workspace.

Purdue West Lafayette DACS (Internet) version of SAS.

- Obtain an account username and password from the course instructor.
- Get on the Internet, go to the following link,

  http://apps.ics.purdue.edu/login.asp

  and then type in your username and password.
- Click on the "SAS" option.
- The advantage of the Purdue WL DACS version of SAS is that, of course, it is available over the Internet to your computer at home. The speed of this version of SAS depends not only on the speed of your computer, but, more importantly, on the speed of your Internet connection.

- This version of SAS also allows you to run, view and print the program and output from a SAS program *to your home computer*. However, SAS only allows you to save your program temporarily, for the current session. It is possible, though, to "select all", "copy" and "paste" both programs and output to your home computer.

A First Program

- All SAS programs are made available by clicking on the *boxed title* of each question. For example, in question 16.24, click on the boxed title,

  hw1-A-1-gpa-descriptive

  to bring up the SAS program for this problem.

- Once you open up the program, the steps used in SAS are the same whatever version of SAS you use, whether it is the PNC or Internet DACS version.

- When SAS first opens up, three windows, as well as a tool bar (at the top of the screen), appear. The three windows are
  - Contents of 'SAS Environment' (left side window)
  - Log (upper window)
  - Editor (lower window)

- At the bottom of the Editor window are three tabs: Output, Log and Editor. The Editor window tab is depressed and this window is also activated. Either clicking on these three tabs or clicking inside a window activates that window.

- *Edit Your Program.*
  Make sure the Editor window is activated. Black, blue, purple and green colors are "good" colors, and imply you are typing in the code properly. Red colors are "bad" and mean that you have made a mistake typing in the program code.

- *Run Your Program.*
  Once the program is complete, click on Run, then Submit (found in the toolbar at the top of the screen). If the program runs correctly, all three windows, Log, Editor and Contents of 'SAS Environment', disappear and are replaced by two windows, the Output (right window) and Results (left window). The *last page of the* output from the program will appear in the Output window. Move the side bar on the output window to view all of the output.

- *Debug Your Program.*
  If the program does not run correctly, click on the Log tab and have a look at where it went wrong.

- *Print your Output.*
  Either click on the printer icon or click on File, then Print, to print out the output.

- *Print your Program.*
  The SAS program can also be printed out. Activate the Editor window by clicking on the tab below the output window with the mouse and then print it out.

- *Save your Output or Program.*
  Activate either the Output or Editor window, then either click on the save icon or click on File, then Save, to save either the output or program.

```
*Number of insect types in geographical areas;
DATA insecttypes;
    INPUT insect $ area1 area2 area3;
DATALINES;
ABC 100 94 90
DEF 85 88 91
GHI 95 100 83
JKL 90 100 83
MNO 79 87 88
;
PROC PRINT DATA=insecttypes;
RUN;
PROC MEANS DATA=insecttypes;
        TITLE 'Number of insect types in geographical areas';
        VAR area1 - area3;
RUN;
```

```
*Descriptive Statistics: GPA data;
DATA COLLEGE;
        INPUT  ID AGE GENDER $ GPA CSCORE;
        INDEX = GPA + 3*CSCORE/500;
DATALINES;
1 18 M 3.7 650
2 18 F 2.5 490
3 18 M 3.3 570
4 22 F 2.4 630
5 21 M 3.5 640
;
PROC MEANS DATA=COLLEGE;
        VAR GPA CSCORE;
RUN;
PROC SORT DATA=COLLEGE;
        BY INDEX;
RUN;
PROC PRINT DATA=COLLEGE;
        TITLE 'Students in Index Order';
        ID ID;
        VAR GPA CSCORE INDEX;
RUN;
```

```
*Paired t test;
*Healing time for broken leg;
DATA healtime;
        INPUT  TREAT $ TIME @@;
DATALINES;
A 40 A 42 A 48 A 35 A 62 A 35
T 35 T 37 T 42 T 22 T 38 T 29
;
PROC TTEST DATA=healtime;
        TITLE 'Comparing means, SDs of healing times';
        CLASS TREAT;
        VAR TIME;
RUN;
```