



# Scientific Computing @ The Evergreen State College

## Workshop Tutorial SPSS

*This tutorial is intended for use by students learning to perform statistical analyses using SPSS.*

### **Workshop Description:**

**This workshop is a quick overview of some important things to know about SPSS.**

## Top Ten Things You Need to Know About: SPSS

### 1. What does SPSS stand for?

SPSS stands for ‘Statistical Package for the Social Sciences’. However, since the company wanted their product to be used for purposes other than social sciences, they changed the name to the initials that we know and love today.

### 2. Why use SPSS?

SPSS was originally developed at Stanford University in the 1960s as a rigorous statistical package to analyze sociological data. While SPSS is still an excellent choice for social science analysis, it has been extended to a wide-range of business, scientific and information modeling applications. Much of the usefulness of SPSS lies in its “good” statistical practices and its outstanding data presentation capabilities.

#### **Reasons to choose SPSS**

- a. Large data sets (1,000+ data points)
- b. Complex data interaction (multivariate analysis)
- c. Accurate statistical analysis (traceable analysis)
- d. Graphing (precise, customizable (templates), true-3-D graphing)
- e. Ease of data export (graphs, table, etc.)

### 3. Why is SPSS so complicated?

Don’t think ‘complicated’, think ‘complex’. SPSS is a powerful yet flexible data analysis tool – while the learning curve is steep, the results are impressive.

### 4. What does “SPSS” stand for?

Statistical Product and Service Solutions (Glad you asked, eh?)

### 5. Umm, everything looks hard. Now what?

Run the SPSS tutorial (Help | Tutorial). SPSS is not a spreadsheet, more a blend between database and a spreadsheet. The tutorial gives a good overview of the structures and conventions used (your one your own for the statistics....)

### 6. How do I import an Excel File?

From the SPSS Data Editor (the default window), select File | Open | Data. Then make sure that the “Files of Type” pull-down menu displays “Excel Files (\*.xls)”. Select your file and click on “Open”.

Hint: Importing complex Excel sheets can become an exercise in stress management quickly. Remove extraneous formatting if possible.

### 7. Ok, how about a simple bar graph?

Open a new data sheet (File | New | Data). Enter a column of values (range: 1-100, ten values). Select Graphs | Bar. Select the “Simple” chart type, the “Values of individual cases” radio box, and click on the Define button. The dialogue box that appears (“Define Simple Bar...”) lists the available variable on the left. Select “var00001” (the default name for your data column) and click on the right arrow next to the “Bars Represent” label. Click on ‘Ok’. Ta-da! Your own personal bar graph!

### **8. Neato. But I don’t want a bar graph, I want a <fill in the blank> graph of my data.**

Never fear, SPSS-Man is here! Note that a new window popped-up when you produced your graph (the “Output” window). Select the “Graphs” menu and chose the type you wish to see. Navigate the dialogue boxes (not all graph types are valid for our 2-dimensional data) and watch as your new graph appears in the same output window.

### **9. What’s the Interactive option on the Graph menu?**

Exactly what it sounds like – interactive. The interactive graph option is the SPSS equivalent of the Excel graph wizard. More limited than the default graph editor, but much less user hostile.

### **10. Functions**

Need SPSS to calculate a column of values for you that involve a mathematical function? Check out the “Transform” menu for all your math needs.

### **11. Statistics** (I know... this is supposed to be a top ten list)

All the statistical analysis tools are available from the Analyze menu. Output appears in the same Output window your graphs did. T-tests, ANOVA (analysis of variance), regression analysis – you name it, SPSS has it.

### **Exercises for the student**

- a. Create a pie chart with at least 5 slices. “Explode” a slice. (Extra credit: make the graph pseudo 3-D)
- b. Create a scatter plot and fit a linear regression line to it. (Extra credit: add error bars).