

**Homework #4 (Descriptive Statistics)**  
**POS 3713 - Spring 2007 (Dr. Hensel)**

This homework assignment is due at the beginning of class (i.e., before lecture starts) on **Tuesday, March 13** (note that this is later than the original due date listed in the syllabus, to give students more time to learn how to work with SPSS). Any work turned in after lecture begins that day (even if only a few minutes into class) will be assessed a late penalty. Also, note that all work must be your own -- students found to have copied their answers from other students (or to have had their answers copied by other students) will receive automatic zero grades on this assignment, and may face further disciplinary action.

1. Calculate the Index of Qualitative Variation (IQV) for the following variable from the class survey, which asked whether students were in favor of the death penalty for those convicted of murder. Please show your work. Briefly interpret what this value tells you (i.e., explain the interpretation of this value in 1-2 sentences).

Yes (favor death penalty):	30
No:	17
Don't Know / Other:	11

*For the next five questions, you are to analyze the following data series. A professional golfer, Sergio Garcia, has recorded the following scores in his last eight rounds at PGA tournaments, including four rounds each at the 2007 Nissan Open and 2006 World Golf Championships:*

69    69    68    67    69    71    73    69

2. What is his modal golf score (the mode) over this time period? Briefly interpret what this value tells you (i.e., explain the interpretation of this value in 1-2 sentences).

3. What is his median golf score over this time period? Please explain how you reached this conclusion. Briefly interpret what this value tells you (i.e., explain the interpretation of this value in 1-2 sentences).

4. What is his mean golf score over this time period? Please show your work. Briefly interpret what this value tells you (i.e., explain the interpretation of this value in 1-2 sentences).

5. What can you say about the skewness of these golf scores? (Is there any skew, if so in which direction, and how did you reach this conclusion?)

6. What is the standard deviation of these golf scores? Please show your work.

*The remaining four questions involve basic calculations using data from the 2000 International Social Science Survey Program (ISSP), which is included on the CD that came with the FNLG book. You will analyze this data using SPSS statistical software. The remainder of this homework assignment sheet provides instructions for using SPSS, and lists a number of other resources with more information.*

7. Using SPSS, produce a frequency table for the variable **Country** (the country where each survey respondent lives, which should be the first variable in the list). Be sure to copy and paste the output into your homework, or else print out the output in the computing lab and attach it to your homework when you hand it in.

8. Using SPSS, produce a bar graph for the variable **Priority** (the respondent's opinion of what should be

the highest priority for his/her country, which should be the fourth variable in the list). Be sure to copy and paste the output into your homework, or else print out the output in the computing lab and attach it to your homework when you hand it in.

9-10. Using SPSS, calculate the measures of central tendency (which counts as question #9) and dispersion (question #10) for the variable **Wrkhrs** (Hours worked weekly by the respondent, which should be near the bottom of the variable list). Be sure to copy and paste the output into your homework, or else print out the output in the computing lab and attach it to your homework when you hand it in.

### SPSS Instructions for This Assignment

- Getting access to SPSS: As was explained at the beginning of the semester (and in the syllabus), there are several different ways for you to use SPSS:

- One option was to order a copy of the FNLG book that comes packaged with the student version of SPSS, in which case you will be able to do all of these exercises on your home computer.

- Even if you didn't buy the book packaged with SPSS when the semester began, you may still buy the student version of SPSS online, although it will be more expensive than it would have been with the book. Amazon.com and similar sources have lots of options available for buying the student version, either by itself or packaged with a variety of different textbooks.

- If you don't want to buy the software, it should be available at most FSU computer labs. FSU's University Computing Services web site reports that SPSS for Windows is installed on the computers in the Carothers, Union, and Strozier labs, and SPSS for the Mac is installed on eight MacOS 9 computers in the Strozier Library lab (SPSS is also available for Mac OS X, although it's not clear whether any FSU computer labs have this installed). The basic structure and functionality of SPSS haven't changed much over the years, so each of these versions of SPSS should work fine for the assignments, although different versions may look a little bit different from the examples in the FNLG book.

- Accessing the data you need for this assignment: Begin by inserting the CD that came in the back of the FNLG book, then opening the program that the CD shows for your operating system (in my case, since I use Mac OS X, this is a program called "Frankfort\_Nachmias.osx"; I don't know what the program is called on Windows). Once this program opens and displays its main menu, choose option C ("Data Sets"), then click (or double-click if a single click doesn't work) on the item "ISSP00PFP" that is listed under that option. This is the data set that you will be using; it should automatically open SPSS once you click (or double-click?) on the item name.

- Once SPSS opens, you will probably see a spreadsheet with a list of variable names across the top (unless someone has changed the default settings for the version of SPSS that you are using). SPSS calls this spreadsheet the Data View screen, and these numbers are the data set that you will be using.

- To get a complete list of variables in the data set, select the Utilities option from the main menu at the top of the screen, then select Variables. This will display a dialog box with a list of all of the variables in the data set; when you highlight a variable name on the left side of this box, you will see information about the variable, such as the full label of the variable (SPSS limits variables to 8-character names) and a description of what each value means. (for more details on this see FNLG pp. 22-24)

*Calculating Frequencies (for more details see FNLG pp. 52-54)*

- To calculate the frequency distribution for any variable in the data set, go to the **Analyze** menu at the top of the screen, select the **Descriptive Statistics** submenu, then choose the **Frequencies** option. This will open a dialog box that allows you to choose one or more variables, in order to display their frequencies.

- Select the variable you want to examine on the left side of this box, push the arrow button in the middle of the screen, and the variable should then appear in the empty window at the right side of the box; once

this happens, click OK. (If you want to remove a variable from the list, select the variable in the right side of the box, and click the arrow in the middle of the screen.)

- This will give you a frequency table with a variety of frequency-related details for each value of the variable: the frequency count (the number of cases that have this value), the percentage of cases, the valid percentage of cases, and the cumulative percentage of cases.
- Once the output appears, be sure to print it out (or copy and paste it into a word processing document), because you will need to turn this in to get full credit for your assignment.

*Producing Bar Graphs (for more details see FNLG: 85-87)*

- To calculate bar graphs, go to the **Graphs** menu at the top of the screen, and select the **Bar** option. This will open a dialog box that allows you to select the options for your bar graph. For the purposes of this assignment, you should make sure that the "Data in chart are" option is set to "Summaries for groups of cases" (this is the default value); click on the Simple option, then click the Define button.
- From the next screen, select the variable name from the left side and use the arrow button in the middle to move it to the "Category Axis" box. Make sure the "Bars Represent" option at the top of the screen is set for "N of cases" (the default) and then click the "Options" button at the bottom of the screen.
- From the options screen that opens up, click the checkbox by "Display groups defined by missing values" to make sure that it is NOT checked -- you don't want missing values included in your graph. Then click on the Continue button to return to the main graph screen, and click OK to make the graph.
- Once the graph displays, be sure to print it out (or copy and paste it into a word processing document), because you will need to turn this in to get full credit for your assignment.

*Calculating Central Tendency (FNLG pp. 124-126) and Variability/Dispersion (FNLG pp. 165-168)*

- Both measures of central tendency and measures of dispersion or variability are calculated from the same place in SPSS. Go to the **Analyze** menu at the top of the screen, select the **Descriptive Statistics** submenu, then choose the **Descriptives** option. This will open a dialog box that you can use to indicate which descriptive statistics you want and for which variable(s).
- Press the Statistics button at the bottom of this box, which will bring up a menu with numerous choices for different statistics that might be presented. For the purposes of this assignment, you should select Quartiles, Mean, Median, Mode, Std. deviation, Variance, Range, Minimum, and Maximum (all of which we have used in class). Once you have selected all of these, click Continue, which will return you to the original Frequencies dialog box.
- Next, select the variable you want to examine on the left side of this box, click the button in the middle of the screen to move it to the empty window at the right side of the box, and click OK. This will give you a frequency table listing the requested descriptive statistics for the indicated variable(s).
- Once the output appears, be sure to print it out (or copy and paste it into a word processing document), because you will need to turn this in to get full credit for your assignment.

### **Other SPSS Resources**

- The FNLG book has detailed instructions about working with SPSS at the end of each chapter. The following sections are particularly useful for becoming familiar with this program, and for completing this assignment. Note that the end of each of these sections includes an "SPSS Problems" section that can give you additional practice and experience working with SPSS, if you are interested in possibly using this software for additional uses outside of this class.
  - Chapter 1: pp. 22-25 (working with data sets and variables)
  - Chapter 2: pp. 52-54 (frequency distributions), p. 54 (recoding variables)
  - Chapter 3: pp. 85-87 (bar graphs/charts), pp. 87-88 (histograms)
  - Chapter 4: pp. 124-126 (measures of central tendency)
  - Chapter 5: pp. 165-168 (measures of variability)
  - Chapter 6: pp. 212-213 (bivariate crosstabs), pp. 213-216 (crosstabs with control variables)
  - Chapter 7: pp. 249-251 (nominal measures of association), p. 251 (ordinal measures of association)
  - Chapter 8: pp. 297-298 (scatterplots), pp. 298-299 (correlation), pp. 299-301 (bivariate regression), pp. 301-303 (multiple regression)
  - Chapter 9: pp. 336-337 (Z-scores)
  - Chapter 10: pp. 367-369 (selecting a random sample)
  - Chapter 11: pp. 395-397 (confidence intervals around a mean)
  - Chapter 12: pp. 433-434 (one-sample T-tests), pp. 434-436 (two-sample T-tests for mean differences)
  - Chapter 13: pp. 461-462 (chi-square tests)
  - Chapter 14: pp. 489-494 (ANOVA models)
- The CD that comes with the FNLG book has additional help. From the main menu, choose option D ("SPSS Appendix"), then double-click on the item "How to Use a Statistical Package" that is listed under that option. This will give you lots more advice on how to use SPSS.
- For more help with SPSS, a number of online tutorials and help sites are linked from the Additional Online Resources section of the online syllabus for this course:  
<<http://garnet.acns.fsu.edu/~phensel/Teaching/pos3713.html#resources>>