



Statistics Assignments Using Excel®

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Description

This instructional resource is a collection of 12 spreadsheet-based assignments in Microsoft Excel designed for use in introductory statistics classes. Although statistical software, most commonly SPSS®, is already frequently used by psychology statistics instructors, in my view the “point and click” and immediate output approach of SPSS and other similar programs is not appropriate for the beginning statistics student. Specifically, specialized statistics programs perform all of the computations automatically outside of the view of the student. Thus, students are not provided the opportunity to link computational procedures with conceptual understandings. In my view, gaining conceptual understanding of statistical procedures is much more important than simply getting “the right answer.” To address this issue, I have developed a general approach to using Excel that takes advantage of the dynamic power of spreadsheets to perform statistical procedures in orderly and transparent ways. An additional benefit is that spreadsheets reduce the mess, tediousness, and high probability of error that occurs when doing the same calculations with paper and pencil.

The assignments provided here cover each of the major descriptive and inferential statistics in a typical introductory statistics course. Each includes a novel data set for students to enter into a spreadsheet and analysis instructions. Excel-based spreadsheet answer keys with the results are also provided. In my classes, students download the assignment instructions and then turn in their completed

assignments (Excel files) electronically. Instructors can use the completed Excel files as answer keys to grade student work. Alternatively, instructors could easily create their own unique data sets and assignments based on the ones I have provided here, and instead use the provided assignments as classroom demonstrations or examples for their students to refer to.

It is important to note that these assignments require at least a basic working knowledge of creating spreadsheet formulas, using spreadsheet functions, and of graphing. Thus, instructors will either need to devote class time to spreadsheet instruction and demonstration, and/or consider assigning a textbook that covers spreadsheet procedures in detail. Although, there are many good books on the market that describe how to use Excel for statistical analysis, most make use of software add-ins that create SPSS-style point-and-click menus. It is for this reason that I have written a brief textbook that describes my approach in detail (Tagler, 2009).

Lastly, Assignment #1 deserves special mention. The purpose of it is simply to familiarize students with basic spreadsheet computational procedures (formulas, functions, and absolute references). Because this assignment is designed for very early in the semester, it is not expected that students will fully understand the conceptual meanings of the computations. However, the procedures will become meaningful later in the semester as they learn about deviation scores, sums of squares, variance, and standard deviation. It is recommended that the instructor refer back to “Assignment 1” when teaching these concepts.

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The following textbook contains detailed instructions for using spreadsheets in an introductory statistics class:

Tagler, M. J. (2009). *Understanding basic statistics with spreadsheets*. New York, NY: Pearson Custom.