

Application Tips for Spreadsheets

wayne.smith@csun.edu

[updated: Friday, December 18, 2009]

Course: BUS 302
Title: *The Gateway Experience* (3 units)

“Numerical quantities focus on expected values, graphical summaries on unexpected values.”

---John Tukey (1915-2000)

Introduction

Most contemporary business students use Microsoft Excel (MS-Excel) for the production of their case reports and presentations. MS-Excel (and other spreadsheets similar to MS-Excel) offers a large number of features. The purpose of this document is to help BUS 302 students understand the features and functionality that are *critical* to success in BUS302 and subsequent courses.

In general, MS-Excel works the same way in both the Windows and MacOS environments. Similar commands exist in other spreadsheet applications, such as OpenOffice Calc (Linux/MacOS/Windows), Gnumeric (Linux/MacOS/Windows), and Numbers (MacOS). Similar commands may exist in online spreadsheet applications, such as Google Docs, although the functionality may be limited. In MS-Excel on the Mac, OpenOffice and GoogleDocs, there are no “statistical wizards”—a spreadsheet developer uses the relevant functions for hypothesis testing (e.g., “=ttest) or linear regression (e.g., “=linest” or “=slope”).

If this document is unclear, please contact the instructor.

Functions

Business students must have very strong skills with financial functions. For example, the “Chatsworth Sports Products” case requires use of the concept of Present Value. In general, the built-in function for present value is =PV. In addition to using the built-in function, strong students often enter key formulas in full mathematical form to double-check their work. Other important financial functions are future value (=FV) and payments (=PMT).

In addition, business students must have strong skills with statistical functions. For example, the “Chatsworth Sports Products” case requires finding the median value. The built-in function for finding the median of series is =MEDIAN. Similar to financial functions, strong students often enter key formulas in full mathematical form to double-check their work and improve their understanding of their analysis. Other important statistical functions are mean (=AVERAGE), standard deviation (=STDEV), count

(=COUNT), maximum (=MAX), minimum (=MIN), correlation (=CORREL), Z-test (=ZTEST), and *t*-test (=TTEST).

Exploratory Graphics

Business students must have very strong skills with all types of graphics, including charts and plots. For example, the “Chatsworth Sports Products” case requires use of one or more scatterplots. A scatterplot plots two continuous variables—one variable on the X-axis and one variable on the Y-axis. MS-Excel refers to scatterplots as an “X-Y Chart.” Bar-charts of tabular data and histograms of continuous data are also common. Line charts are really just scatterplots with the X-axis constrained to be a time series variable. Once the data has been computed correctly in MS-Excel, the command sequence to generate a chart or a plot is “Insert | Chart.”

Cell References

Business students must have very strong skills with every aspect of cell references. Some cell references are *absolute* (e.g., for given or fixed parameters), some cell references are *relative* (e.g., for variables or changing parameters), and some cell references are *mixed* (i.e., the row will be held constant and the column will be changing, or vice-versa). Cell references can even refer to cells in different worksheets within the same workbook (.xls file). Cell references can even be named—for example, “=sales-costs” might be easier to interpret than “=B1-B2.”

Cell Auditing

Business students must know the mathematics of the formulas in cells. In addition to visual inspection on a cell-by-cell basis, strong students “audit” all their formulas in detail. Occasionally, this “audit” of formulas is required in subsequent courses or on the job. By default, “Formula Auditing Mode is off.” That is, a cell that contains a formula will display the *result* of the formula in the cell. The command to enable (and subsequently disable) “Formula Auditing mode” is “Tools | Formula Auditing | Formula Auditing Mode.” In “Formula Auditing” mode, a cell that contains a formula will display the *actual formula* in the cell (rather than the result of the formula).

Copying and Pasting

Business students must have strong skills with copying and pasting. This skill not only applies to content (usually formulas) within a worksheet, but also to content (including tables and charts) between MS-Excel and MS-Word, or similarly, between MS-Excel and MS-Powerpoint.

Formatting

Business students should practice with all of the formatting features in MS-Excel. For example, all numbers need to be aligned on a decimal (or if not decimal is present, the

alignment should assume the correct, implied decimal place). Students should master how to use “borders,” “double underlines,” and similar features in order to present their work in the manner expected of quality professionals, managers, and executives.