MS Module 19: Correlation (overview 3rd edition)

(The attached PDF file has better formatting.)

(Readings from the third 3rd edition of the Devore, Berk, and Carlton text.)

Reading: §12.5 Correlation

Know how to form the sample covariance and sample correlation from S_{xx}, S_{yy}, and S_{xy}, which are derived from the summary statistics; see equation 12.9. Example 12.13 illustrates the use of the formulas for *r*.

If you are not familiar with correlations, review the material in Chapter 5.

Hypothesis testing for the correlation has two forms.

- To test the null hypothesis H_0: $\rho = 0$, we use a *t* test.
- To test the null hypothesis H_0: $\rho = \rho_0 \neq 0$, we use a *Fisher transformation.*

Review example 12.15 and the formulas for the rejection regions directly above it. Note: the example tests for the absence of a correlation (that is, $\rho = 0$), not for a non-zero correlation.

Skip the section "Other Inferences Concerning ρ." The final exam will not test the *Fisher transformation*.

Review end of chapter exercises 54 a and b, 55, 56, 57, 58, and 61.

β_0 and β_1 depend on units of measurement. Changing a regression analysis from Centigrade to Fahrenheit changes the value of β_0 and β_1. The textbook discusses transformations of variables in several sections. The final exam problems may give a linear regression in one measurement system and ask for the corresponding regression equation in another measurement system. The values of *r* and of R^2 do not depend on the units of measurement. The textbook does not have a separate section for units of measurement, since they affect all chapters. The practice problems on the discussion forum show the type of questions that will be asked on units of measurement.