

17.871
Spring 2012
Quiz study guide

Anything covered in the class to this point, either in the reading or in the (required) assigned readings is fair game for the quiz. The past quizzes that have been posted on the web site are a guide to what is likely to appear on this year's quiz. However, keep in mind that the two quizzes that are posted were written by another instructor.

You will be required to read and interpret Stata output, but you will not be required to write or comment on Stata code.

The quiz will assess your ability to do the following:

1. Assess the design of a study with respect to threats to internal and external validity, and with respect to basic problems, such as reverse causality.
2. Interpret histograms, scatterplots, and box plots.
3. Compute the mean, variance, standard deviation, median, interquartile range, and mode of a variable.
4. Identify variables that exhibit positive and negative skew, and that exhibit kurtosis greater than 3 or less than 3.
5. Distinguish between *categorical*, *ordinal*, and *quantitative* variables, and give examples of them.
6. Accurately use the terms “independent variable” and “dependent variable.”
7. Calculate a standardized score, or *z*-score.
8. Interpret the slope and intercept coefficients associated with a linear regression.
9. Calculate the slope and intercept coefficients for a bivariate regression, and for a regression with two independent variables.
10. Calculate and interpret the standard error of the regression (root mean squared error).
11. Calculate a *t*-statistic from a regression.
12. Calculate a confidence interval.
13. Interpret the r^2 statistic.
14. Identify and diagnose what happens when excluding an important variable from a regression model.
15. Interpret regression coefficients when the dependent variable and/or the independent variable have/has been transformed by taking logarithms.
16. Interpret regression coefficients when the dependent variable and/or the independent variable have/has been rescaled to lie between 0 and 1.
17. Interpret regression coefficients when each variable (independent and dependent) has been transformed by subtracting it from its mean and dividing by its standard deviation.
18. Discuss what happens when a regression includes a variable that is measured with error.