ECO 341K **Introduction to Econometrics**
University of Texas

Homework Assignment #9 (due April 24, 2:00 p.m.)

Written problems:

1. Wooldridge: Chapter 8, Problem 4

2. Wooldridge: Chapter 9, Problem 4

3. Suppose that you had measurement error in the *y* variable. The true value is y^* but you observe $y=y^*+v$, where $E[v \mid x_1, ..., x_k] = \alpha$. In class, we considered the case where $\alpha=0$. Note that v is still uncorrelated with the x variables, but we are allowing for systematic mis-reporting on average (over-reporting if α is positive, under-reporting if α is negative). How does this affect the consistency of our OLS estimators $\hat{\beta}_0, \hat{\beta}_1, \ldots, \hat{\beta}_k$?

Computer problems (show any relevant Stata output):

1. Wooldridge: Chapter 8, Computer Exercise C2; also answer the following:

   (iv) With lack of evidence for heteroskedasticity in the log(price) model, our (homoskedasticity-based) approach for constructing prediction intervals is applicable. For a 3-bedroom house with a lot size (*lotsize*) of 9000 sq. ft. and house size (*sqrft*) of 2000 sq. ft., provide a 95% prediction interval for the unknown value of *log(price)* for this particular home.

   (v) To get a prediction interval for *price*, you can then exponentiate the bounds of your interval from part (iv). That is, if your prediction interval from part (iv) is [L, U], your prediction interval here would be $[e^L, e^U]$. Compute this interval.

2. Wooldridge: Chapter 8, Computer Exercise C4, parts (i) and (ii)

3. Wooldridge: Chapter 9, Computer Exercise C4