

# ECON 5350 Problem Set #7

Due: Friday, December 8 by 11:59 pm

## MATLAB PROBLEMS

1. Simulate data ( $n = 25, 100$  and  $250$ ) for the model  $y = \alpha x^\beta + \epsilon$  and parameter values  $\alpha = 1$  and  $\beta = 2$ . Then use the simulated data, the Gauss-Newton algorithm, and NLS to estimate  $\alpha$  and  $\beta$ . Repeat this procedure many, many times and show the sampling distributions of  $\hat{\beta}$  for each estimation procedure. Comment on the results.
2. Perform a Monte Carlo experiment for a bivariate regression with heteroscedasticity (Hd). Then show the sampling distributions for feasible GLS and OLS? Which estimator do you prefer? Assume there is a clear structure for the Hd, but as the econometrician, you don't know the structure.