Homework 7
ECON 4818
Professor Martins

1. From your textbook answer questions 1, 2, 5 and 8 from Appendix E in your textbook. For questions 5 and 8, note that what your textbook labels "The Gauss-Markov" assumptions, are precisely the assumptions we made in class. That is, for the multivariate regression model $Y = X\beta + U$ we have that

   (a) $X^T X$ is invertible

   (b) $E(U|X) = 0$

   (c) $V(U|X) = \sigma^2 I_n$

2. Use the MATLAB code `OLSwage2.m` and data set `WAGE1.mat` available from the class website to estimate the the following regression models:

   (a) $\log(wage) = \beta_0 + \beta_1\, educ + u$

   (b) $\log(wage) = \beta_0 + \beta_1\, educ + \beta_2\, exper + u$

   (c) $\log(wage) = \beta_0 + \beta_1\, educ + \beta_2\, exper + \beta_3\, exper^2 + u$

   For each of these models obtain the least squares estimators for β_k and construct a 95 percent confidence interval. For model (c), estimate the impact on wages of another year of experience.