EE 325 HW 3 (Excel practice) ☺ Due in class on October 14th, 2011

1. Table 3.7 gives data on gold prices, the Consumer Price Index (CPI), and the New York Stock Exchange (NYSE) Index for the United States for the period 1974-2006. The NYSE Index includes most of the stocks listed on the NYSE, some 1500-plus
    a. Plot in the same scattergram gold prices, CPI, and the NYSE Index
    b. An investment is supposed to be a hedge against inflation if its price and/or rate of return at least keeps pace with inflation. To test this hypothesis, suppose you decide to fit the following model, assuming the scatterplot in (a) suggests that this is appropriate:

$$Gold\ \ price_t = \beta_1 + \beta_2 CPI_t + u_t$$
$$NYSE\ \ index_t = \beta_1 + \beta_2 CPI_t + u_t$$

    Estimate the two regressions. (i)Test the hypothesis that $\beta_2 = 1$ at 5 $\alpha = 5\%$, that is, there is one-to-one relationship between gold prices and CPI (ii) Test the hypothesis that $\beta_2 = 1$ at $\alpha = 5\%$, that is, there is one-to-one relationship between NYSE index and CPI

    c. Between gold and stock, which investment would you choose? What is the basis on your decision?

2. Table 5.11 provides data on the lung cancer mortality index (100=average) and the smoking index (100=average) for 25 occupational groups.
    a. Plot the cancer mortality index against the smoking index. What general pattern do you observe?
    b. Letting Y= cancer mortality index and X = smoking index, estimate a linear regression model
    c. Test the hypothesis that smoking has no influence on lung cancer at $\alpha = 5\%$

3. Table 3.3
    a. Plot cell phone demand against purchasing power (PP) adjusted per capita income.
    b. Plot the log of cell phone demand against the log of PP-adjusted per capita income.
    c. From these two graphs, do you think that a double log model might provide a better fit to the data than the linear model? Estimate the double log model.
    d. How do you interpret the slope coefficient in the double-log model?
    e. Is the estimated slope coefficient in the double log model statistically significant at 5 % level?