ECO3150 C
Fall 2013

Assignment #1
Due: October 7, 2013 at 17:30

Instructions

1. The assignment must be handed in at the beginning of the class. I will not accept late assignments. Hand in a *paper* copy of your assignment.
2. There are 5 questions for this assignment. Complete all the questions. Be sure to read each question carefully.
3. Numerical answers without any justification will receive **0 marks** for that question. You must clearly explain how you obtained the answer and provide definitions, rules, formulas, etc… used to arrive at your answer.

Question 1

Suppose at Concordia University, 200 students are randomly selected and asked the distance of their commute to campus. From this group a mean of 2.4 kilometres is computed. (0.25 points per question)

a) What is the statistic?
b) What is the parameter?
c) What is the sample?
d) What is the population?

Question 2

Imagine you have invested $5,000 in a high tech start-up 6 years ago. In the table below you can find the annual price increase (in %) of the start-up's stock price over these last 6 years.

Year	Price increase (in %)
1	-6.3
2	3.4
3	12.6
4	6.9
5	-0.7
6	10.3

a) How much is your investment now worth? (0.25 points)
b) What is the mean (arithmetic) price increase? (0.25 points)
c) What is the geometric mean price increase? (0.25 points)
d) If the start-up's stock price were to increase at the average rate found in c), how long (from the day you bought the stock) would it take for your investment to be worth $10,000? (0.25 points)

Question 3

You are interested in the link between eating vegetables (while pregnant) and the weight of babies at birth. In order to do that you collect information from a random sample of female babies and the number of servings of vegetables their mom ate per day during the pregnancy. You collected the following information:

Name	Claire	Kate	Jennifer	Stephanie
# of servings of vegetables per day	8	2	5	3
Weight (in pounds)	7.4	6.8	8.2	6.6

a) What is the mean weight at birth of these newborns? Do not forget the unit of measurement! (0.3 points)
b) What is the variance of the number of servings of vegetables per day during pregnancy? Do not forget the unit of measurement! (0.3 points)
c) Compute the correlation coefficient between the number of servings of vegetables during pregnancy and the weight of babies at birth. (0.4 points)

Question 4

Every year the United States Census Bureau conducts the American Community Survey (ACS), an ongoing statistical survey that samples a percentage of the US population. The ACS provides information about most population and housing characteristics (age, sex, race, income and benefits, education, where you live and how much you pay for essentials, etc…). In this question, you're simply asked to have a look at the wages of Americans from the state of Michigan, aged between 19 and 64 years, using a sample of the Public Use Microdata Samples (PUMS) of the 2011 1-year ACS. The dataset (wages.xls) is available on the course website. (0.2 points per question)

a) What is the size of your sample?
b) What is the sample mean wages?
c) What is the median wages?
d) What is the modal wages?
e) Find the sample variance, and sample standard deviation.

Question 5

I have posted an Excel file on the course website (AIG.xls) containing information about the closing price history of AIG Inc. for the month of September 2008. The first column represents the date while the second column represents the closing price.

Use Excel to graph the data with a time plot. What happened? Do you have a logical explanation? Explain.

Note: When submitting the assignment, hand in the graph and your explanation.
I don't need to see the original data.

Useful Excel Commands for Summary Statistics

Let say you have observations in cells A1 to A10. Here is how you would compute some summary statistics based on these observations. First, place the cursor in a cell where there is no observation (e.g. B11) then type the command corresponding to the summary statistic you would like to compute.

Summary Statistic	**Command**
Mean (Arithmetic)	=average(A1:A10)
Median	=median(A1:A10)
Mode	=mode(A1:A10)
Sample Variance	=var(A1:A10)
Population Variance	=varp(A1:A10)
Sample Standard Deviation	=stdev(A1:A10)
Population Standard Deviation	=stdevp(A1:A10)
Maximum Value	=max(A1:A10)
Minimum Value	=min(A1:A10)