**IT-223 - Assignment #1**

Submit your assignment to the D2L Dropbox.

**And again, please remember not to wait until the last minute in case you run into glitches with D2L or your own computer.**

All questions in this assignment should be saved into a Microsoft Word document or any ‘doc’ or ‘RTF’ compatible file.  PDF is also fine.

This assignment is a combination of theoretical questions along with a few 'numbers' questions. All answers including graphs should be in a standard word processing document (Microsoft Word, Google Document). The values in parentheses are max points for each question.  
  
**Graphs**:  You will be asked to draw a few graphs for this assignment. In order to submit, you will have to scan those graphs into your Word document.  If you don't have access to a scanner, you can even do something relatively crude such as take a picture of the graph with your cell phone. I expect that this will be the only time in the course where you will need to scan anything.    
  
**Question #1 (10):**American Airlines flight 91 from London to Chicago O'Hare is **scheduled to arrive at 7:50 PM**.  Not surprisingly, several flights arrive several (or many!) minutes early, and several flights arrive late. The following flight times were recorded over a 6-day sequence (all times are PM):  8:05, 7:49, 8:43, 7:50, 11:47,  7:31.

On average (i.e. using the mean) how many minutes early or late does this flight tend to arrive?  Is the mean an ideal statistic for determining the center of this distribution? (Hint: Is there an outlier? How would you decide?) Show your calculations. Note: In order to determine how early/late a flight arrives, begin with the scheduled arrival time and add/subtract minutes for each recorded observation. So, for example, for the 8:05 flight, I might record +15, for the 7:49 flight, -1, etc.

* 1. Recode the data from clock arrival times to the difference between scheduled arrival time vs. actual arrival time (see the 8:05am and 7:49 arrival examples above)
  2. Compute the mean arrival delay using the values from 1.1
  3. Give the 5-number summary
  4. Draw a box plot
  5. Apply the 1.5\*IQR rule to create a modified box plot
  6. Identify any potential outliers based on the modified box plot

**Question #2 (10):**The following table gives the survival times in days of several guinea pigs after they were injected with tubercle bacilli in a medical experiment.

**41,99,103,103,105,107,111,113,114,117,119,598**

2.1     (3) Draw a histogram (pick what you think is an ideal bin-size).

2.2     (3) Describe the distribution of survival times based on 2.1. Are there any outliers?

2.3      (3) Summarize the distribution by giving the five-number summary and by drawing a box-plot.

**Question #3 (7):**This is not a stats question… Read the article ‘Curve of Forgetting’ which [can be found here](http://condor.depaul.edu/ymendels/curve_of_forgetting.htm).  Summarize the article. Your summary does not have to be long, but it does need to demonstrate that you read and understood the article.    
  
**Question #4 (6):**The following dataset comes from a series of student scores on a standardized exam:  687, 692, 681, 598, 789, 763, 990, 490.  Calculate the mean and median.

**Question #5 (7):**This is not a statistics question, and  is meant to be some easy points.  Within the next week or so, we will begin using a very powerful (and expensive!) statistical software package called SPSS.  DePaul has a special license that allows us to *remotely* use SPSS that has been installed on DePaul machines. To do this, however, you need to set up remote desktop.  This in of itself is not very difficult, but may take a little bit of playing around.  All you have to do for this question, is go through the steps and demonstrate that you have successfully connected to SPSS. Begin by going to [this page](http://condor.depaul.edu/ymendels/223inclass/spss_start.htm) and, go through the steps needed to start SPSS using remote desktop. Once SPSS has been started, paste in a screenshot  to show that you successfully got it started. This will give you full points for the question.  One way to get the screenshot into your document  is to press the ‘PrintScreen’ button on your keyboard, then open your Word document and press control-V.