**6436 Supply Chain Basics Assignment**

1. Jacobs and Chase text, 14th ed., problem 5, p. 393.
2. Jacobs and Chase text, 14th ed., problem 6, p. 393.
3. Jacobs and Chase text, 14th ed., problem 11, p. 395.
4. You are a supply chain specialist who has been charged with evaluating the recent performance of three principle transportation vendors. Specifically, you’ve gathered sample data on the transport times of individual shipments from one vendor plant to your own warehouse facility. That data is given in the attached spreadsheet. Using what you know about statistics, answer the following questions.
5. Calculate the confidence interval for Wagner Trucking. Give a correct interpretation of that confidence interval.
6. Determine if there appears to be a difference in population mean transport times across the three transportation vendors. Which vendor can you say has the shortest population mean?
7. Wagner Trucking handles cross-country and cross-border North American shipments for your firm. As such it is natural their average transport lead time would be longer. However, the variability seen in analyzing lead time data is disturbing. Your firm is considering financially penalizing Wagner for each shipment lead times greater than 21 days. If this policy is put in place roughly how many shipments out of 1000 would your firm expect to penalize Wagner?
8. One way Wagner could avoid the 21-day penalty would be to have less variability in its shipment lead times. To what level would Wagner need to drop its lead time standard deviation in lead times to expect only 40 of 1000 shipments to be penalized? (Assume the average shipment lead time will not change.)



**Hint:** Parts c and d of this problem can be estimated in more than one way. There are standard statistical tools and principles which can be employed, or simulation using @Risk can be used. You are free to use either approach.

Instructions: Your deliverable will be a functioning Excel spreadsheet with each problem on a separate worksheet page. The deliverable will be uploaded to Canvas by the assignment deadline stated on the Lesson Plan. Include a cover page for your file which lists your name and the names of any other group members deserving credit for this work. Group sizes may be no larger than 4, and only one group member need submit the final deliverable.