COURSE: DSCI 3710 **Print Name:** _____

Exam 1 – version A **Signature:** _____

Fall 2008 **Student ID#:** _____

INSTRUCTIONS:

- Please print your name and student ID number on this exam. Also, put your signature on this exam.
- On your scantron PRINT your name and exam version. To better protect your privacy also print your name on the backside of your scantron.
- You have 75 **minutes** to complete this exam. The exam is open book, open notes, and open mind. You may use any type of hand calculator but please show all your work on the exam and mark all answers on the scantron. Usage of cell phones, digital cameras, PDAs, and other communication devices is strictly prohibited.
- Many of the questions follow the format of those in Hawkes Learning Systems Business Statistics. The remaining questions are either based on the Excel assignments or use an HLSBS-like approach with problems nearly identical to those assigned in the textbook.
- Please DO NOT pull this exam apart. When you have completed the exam, please turn your scantron and exam booklet into your instructor, at the front desk.
- No cheating.
- Good luck and we wish you well on the exam.

Note: Whenever question(s) are connected you may be asked to assume a result (given a value) as an answer for the previous question but this result (value) may or may not be correct. The procedure is set in place to prevent you from losing points on a subsequent question because you made a mistake on some previous question/s.

Use the information given in the following paragraph to answer next five questions.

The director of research and development for HASHIL pharmaceutical is overseeing some supplemental testing of a new drug to satisfy one of the FDA's questions after review of the clinical trials. She had a researcher conduct a test to learn if there is evidence that the drug stays in the system for less than 6 hours. Statistical analysis on the time in minutes that the drug stayed in the system was done using Excel.

Minutes
319
310
312
313
319
318
311
318
319
317
316
318
317
320

t Test for Population Mean

	Minutes		
Number of Observations	14		
Sample Standard Deviation	3.309161		
Sample Mean	316.214286		
Ho: XXXX	Ha: XXXX		
T*	-49.508354		
P[T □ T*]	0.000000		
T Critical, □ = 0.05	-1.770933		
95% CI for Pop. Mean	314.303633	to	318.124939

1. What is the alternate hypothesis for testing the director's research question?
   A. Ha: □ ≥ 360
   B. Ha: □ > 360
   C. Ha: □ ≤ 360
   D. Ha: □ □ 6.0
   E. Ha: □ < 360 *

2. What is the calculated test statistic to test the director's claim?
   A. -1.77
   B. 0.000
   C. 318.12
   D. 314.30
   E. -49.51*

3. What is the p-value of this test?

A. -1.77
B. 0.000*
C. 318.12
D. 314.30
E. - 49.51

4. **Suppose** the calculated test statistic were **-1.20.** Which one of the following would best describe the p-value for the test?
   A. $p > .1$*
   B. $.05 < p \leq .10$
   C. $.025 < p \leq .05$
   D. $.01 < p \leq .025$
   E. $p \leq .01$

5. Using the provided Excel output, what is the conclusion of the test, conducted at the 0.01 significance level, concerning the director's belief and the reason for the conclusion?
   A. Conclude there is evidence that the drug stays in the system for more than 360 minutes because the p-value is greater than the significance level.
   B. Conclude there is insufficient evidence that the drug stays in the system for less than 360 minutes because the p-value is greater than the significance level.
   C. Conclude there is evidence that the drug stays in the system for less than 360 minutes because the p-value is smaller than the significance level.*
   D. Conclude there is insufficient evidence that the drug stays in the system for less than 360 minutes because the p-value is smaller than the significance level.
   E. Conclude there is evidence that the drug stays in the system for less than 360 minutes because the test statistic is greater than the significance level.