STATISTICS 642 - ASSIGNMENT 1

DUE DATE: NOON, FRIDAY**, June 12, 2015**

Name (**Typed**) _____

Email Address (**Typed**) _____

Make this cover sheet the first page of your Solutions.

STATISTICS 642 - ASSIGNMENT #1

- Due NOON Friday June 12, 2015
- Read Chapters 1 and 2 in the Textbook and Handout 1
- Read ALL Problems in Chapters 1 & 2
- **Handin: The following problems from Chapter 1 in Kuehl's book:**

1. Chapter 1 - Problem 5 - 10 points
2. Chapter 1 - Problem 6 - 10 points
3. Chapter 1 - Problem 8 - 15 points
4. Chapter 1 - Problem 12 - 15 points
5. (20 points) An experiment involving three treatments (A, B, C) and 21 experimental units (EU's) was conducted.
   a. How many randomizations are possible if each treatment is randomly assigned seven EU's.
   b. How many different randomizations are possible if the 21 EU's are randomly assigned to the treatments with 6 to A, 6 to B, and 9 to C.
6. (30 points) For the following experiment, identify the following components of the experimental design (some may be absent in a given experiment):

1. Factor(s)	2. Factor Levels	3. Treatments	4. Response
5. Experimental Units	6. Measurement Units	7. Replications	8. Subsampling
9. Covariates	10. Blocking	11. Confounding	

An experiment was run to assess the compressive strength of the cover on golf balls. The experimental plan includes random sampling of balls from four brands (B_1, B_2, B_3, B_4) of golf balls. Furthermore, each brand of golf ball has three thickness of covers (T_1, T_2, T_3) and two types of cover materials (M_1, M_2). The compressive strength of the golf ball was recorded at five randomly selected spots on each golf ball in the study. A total of six golf balls were evaluated for each combination of Brand, Thickness and Material Type. There are two major testing facilities so half of the balls are tested at one facility and the remaining balls at the second facility. The testing is done inside at a controlled temperature.