**STAT 51200--FALL 2022**
**Applied Regression Analysis**

*Homework #02*

1. Review LectureNotes01, Appendix A and read Chapter 1 in the text. If you do not have the textbook yet, you may find Chapters 1 & 2 (as well as the data files) at the Canvas site of the course.

2. Complete Homework Assignment 01.

3. Do Problems 1.1, 1.5, 1.7, 1.11, 1.12, 1.16, 1.17, 1.18, 1.19, 1.23, 1.33, and 1.43, pages 33-38.

As a review also do:

4. Use the appropriate tables to determine the following 'critical' values:
   a) Find $Z(.7)$ and $Z(.2)$.
   b) Find $\chi^2(.9;10)$ and $\chi^2(.1;10)$
   c) Find $t(.7,\ 5)$ and $t(.2,\ 5)$
   d) Find $F(.9,\ 2,\ 6)$ and $F(.1,\ 3,\ 7)$

5. Let $Y_1,\cdots,Y_n$ be independent random variable from $N(\mu,\sigma^2)$. Assume $n=20$, $\overline{Y}=25$ and $S=8$. With level $\alpha=.05$ choose between the hypotheses:
$$H_0:\mu\le 20 \quad \text{versus} \quad H_a:\mu>20.$$

6. Let $\{X_1,\cdots,X_{n_1}\}$ and $\{Y_1,\cdots,Y_{n_2}\}$ be two independent samples from $N(\mu_1,\sigma_1^2)$ and $N(\mu_2,\sigma_2^2)$ respectively. Assume $\overline{X}=25$, $\overline{Y}=23$, $n_1=16$, $n_1=25$, $\sum(X_i-\overline{X})^2=81$ and $\sum(Y_i-\overline{Y})^2=121$. With level $\alpha=.05$ choose between the hypotheses:
$$H_0:\mu_1=\mu_2 \text{ versus } H_a:\mu_1\neq\mu_2$$