

FREC 408 Assignment 2

Issued: September 15

Due: September 24, 2003

Be sure to:

- Put your name and the Assignment # on the front
- Answer as completely as you can. All I can go on is what you give me, so show your work.
- Be as neat as possible. You can write it out, but please be neat.
- Staple or place in a folder

1. The following is the same data that we will look at in the group assignment, only now it is broken out by Private Universities and Public Universities. The data are from U.S. News and World Report on the top ranked Universities in the U.S. in 2001. We are looking at the Acceptance rate for the top 115 universities. The Acceptance rate is based on the percentage of applicants who were admitted. The data can be found on an Excel Spreadsheet on the web site, and you can use the spreadsheet to calculate the descriptive statistics. However, you can also use the data below to make the required calculations. Then answer the questions that follow. **[35 points]**

Acceptance Rate to Top Private Universities n = 58	
1	1 1 4 5 6 7 8 9
2	1 3 6 7 8
3	2 2 2 3 3 4 5 5 5 7 8
4	2 8 8 9 9
5	2 2 5 5 6 9 9
6	1 2 4 5 6 9
7	1 3 4 5 8 8 8 9 9
8	0 2 3 4 4 7 9
9	
Stem = 10's place Leaf = one's digit	
Sum X = 2,907	n = 58
Sum X ² = 177,499	Median = 50.5

Acceptance Rate to Top Public Universities N = 57	
1	
2	7 9
3	4 9
4	1 2 5 9
5	3 4
6	0 1 2 2 3 3 3 3 4 4 6 7 7 8 9 9 9
7	0 1 1 2 3 3 4 4 4 6 7 7 9
8	0 0 1 1 3 4 4 4 4 5 8 9 9
9	0 1 3 4
Stem = 10's place Leaf = one's digit	
Sum X = 3,934	n = 57
Sum X ² = 286,000	Median = 71

a. For **each group** of universities calculate the:

Mean
Median
Mode
Maximum
Minimum
Range
Variance
Standard Deviation

- b. Put your results from Part a (above) in a table to help make a comparison of the descriptive statistics for the two types of universities. Briefly compare the descriptive statistics (one paragraph).
- c. Does breaking out the universities by type help explain the overall distribution of all 115 universities. Briefly explain in words (a paragraph or two will do).

2. **Answer Question 3.24 on page 151 in the book.** Also calculate the mean for each example. **[15 points]**

3. **Answer Question 3.31 in the book. In addition, I also want you to make a stem and leaf plot of this data.** *Note: the book gives answers to most of the odd number problems in the book.* If you need help with this problem, check the answer in the back. However, I want you to explain how you got this answer. You can use a spreadsheet or a calculator to answer this problem. **[20 points]**

4. **On the resources page on FREC 408 Home page there is an Excel data set called HEALTH.xls.** It contains the weight, cholesterol level, blood pressure, and gender of 312 students. You can download this data. Using Excel I want you to: **[30 points]**

- a. Generate Descriptive Statistics for all the variables and print them out. I want you to observe that even though the data are for 312 subjects, the calculations take very little time.
- b. Use the WEIGHT descriptive statistics and briefly describe this variable (a paragraph will do). Are there any extreme values? I have a graph of the Stem and Leaf Plot of Weight on the web RESOURCES page to help. What might help you understand the variability in this data? [You can also use the SORT feature in Excel (under Tools in the menu) to help here. Note: when you sort data in Excel you should sort all variables at once to keep the same data across all variables with the same subject. If you sort, select WEIGHT as the sort variable.]
- c. The data for GENDER is called an indicator variable or a dummy variable. It takes on a one if a female and zero if a male. The mean of a dummy variable coded as 0 and 1 is the proportion with the code 1 - in this case the mean would be the proportion of females in the data set. What proportion of the sample is female?