STAT 215C – Homework 1

Due January 28

Instructions:

Please include the following information on the first page of your completed homework.

- Name
- STAT 215
- Homework 1
- Due date
- List of students you worked with (if applicable)

Please remember to show your work and explain answers as necessary. Answers that are not supported by good reasoning will not receive full credit. Homework should be stapled if it is longer than one page.

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1. A survey is to be conducted among employees (faculty, staff, graduate staff, administration, etc.) at Missouri S&T to determine their views about parking on campus. Among other things, the survey asks each employee which lettered lot they park in, the distance (one-way) of their drive to campus, and their overall satisfaction with parking on campus (Very dissatisfied, dissatisfied, neutral, satisfied, very satisfied).

   (a) Identify the population of interest.

   (b) Identify the variables mentioned and what type they are.

   (c) Discuss the difference between conducting a census and taking a sample of employees.

   (d) Discuss how the three possible types of sampling (simple random sampling, stratified random sampling, and convenience sampling) could be conducted in this study and describe the potential advantages and disadvantages of each.

2. Aortic stenosis refers to a narrowing of the aortic valve in the heart. In a recent study, the aortic root diameter (cm) was measured for a sample of patients having various degrees of aortic stenosis. A comparison between men and women is of interest:

Men	3.8	3.3	3.7	4.0	3.9	3.8	3.4	3.6	3.0	4.0	3.3	3.8
Women	3.7	2.5	3.1	3.0	4.2	3.5	3.1	3.1	3.2	3.0		

   (a) Calculate **by hand** the mean, median, IQR, variance, and standard deviation for men and women separately.

   (b) Give a brief 2-3 sentence summary of your findings in terms of comparing the aortic root diameter between men and women.

   (c) Are there any outliers in either group? Show your work.

   (d) If the 2.5 value in the women's group was instead a 1.5, how would this affect each of the measures you calculated in part (a)?