Quiz (20% of grade; 40 points) – you will have about 60 minutes to complete this quiz.

A. **Calculations (28 points).** Use pencil only and do all of the questions below. Use the exam paper as your answer sheet and show all appropriate work. Use the following data set for all of the calculations, and circle your answers for the calculations unless instructed otherwise.

A group of researchers examined a sample of 15 documents of various types to determine the number of software applications used in the composition of those documents. Their observations were:

1, 3, 2, 1, 4, 1, 1, 2, 3, 2, 1, 1, 1, 3.

1. What was the unit of analysis in this study? (2 points)

2. What was the variable of interest? (2 points)

3. Generate the frequency distribution for this data set using class examples as models; do not circle the frequency distribution. (5 points)

4. Calculate:
   - the mean (2 points)
   - the median (2 points)
5. What is the standard deviation of this data set? (4 points)

6. Generate a frequency polygon for the observations; do not circle the polygon. (4 points)

7. Is this data set symmetrical, positively skewed, or negatively skewed? (1 point)

8. What values are at the 25th and 75th percentiles? (6 points)

B. Concepts (12 points). Use pen only, and do all of the questions below. Use the exam paper as your answer sheet, using the space provided as an indication of how long an answer should be.

1. Why is it important to report a measure of dispersion when one reports a measure of central tendency, e.g., the standard deviation and mean? (4 points)

2. What is an outlier? What implications does an outlier have for statistical analysis? (4 points)

3. Why is bias considered fatal to the process of doing research? (4 points)