Before embarking on complicated statistical analysis, you should describe any **numerical** data you have collected, notice patterns and trends using basic descriptive statistical tools. Typical descriptive statistics include *simple* elements such as: Mean, Median, Mode, Range (maximum and minimum), Semi-Interquartile Range, Frequencies, Type of Distribution, and Standard Deviation.

**Step 1: Determine your data’s distribution. As you work through this handout, complete the table.**

<https://sites.google.com/site/geographyfais/fieldwork/6-data-analysis/statistical-tools/basic-statistical-tools>

|  |  |  |
| --- | --- | --- |
|  | Condition A: | Condition B: |
| Mean  <http://easycalculation.com/statistics/mean-median-mode.php>  http://www.ltcconline.net/greenl/courses/201/descstat/mean.h1.gif |  |  |
| Median  <http://easycalculation.com/statistics/mean-median-mode.php> |  |  |
| Mode  <http://easycalculation.com/statistics/mean-median-mode.php> |  |  |
| Standard Deviation  <http://www.mathsisfun.com/data/standard-deviation.html>  The Standard Deviation is a measure of how spread out numbers are. Standard deviation, like the mean, is normally only appropriate when the continuous data is not significantly skewed or has outliers.  https://statistics.laerd.com/statistical-guides/img/standard-deviation-1.png  Use this calculator: <https://statistics.laerd.com/calculators/standard-deviation-sample-population-calculator.php>  \*COPY and PASTE 1-4 of the calculated data page into a WORD document for later use. |  |  |
| Range  difference between the maximum value and the minimum value |  |  |
| Interquartile Range IQR = *Q*3 −  *Q*1  <http://www.math.montana.edu/~nmp/materials/ess/hydrosphere/expert/rrf/statterm.html> |  |  |
| Semi-Interquartile Range  SIQR = (Q3-Q1)/2  The semi-interquartile range is little affected by extreme scores, so it is a good measure of spread for skewed distributions  (See poster example in class.) |  |  |

1. Create a HISTOGRAM (Bar Chart) for each piece of the data in the data set.

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Subject

Number of items recalled

1. Create a Box Plot (box and whiskers) for your data range. If you have calculated your range values, this will be EASY. See <http://ellerbruch.nmu.edu/cs255/jnord/boxplot.html>
2. Determine your data distribution: normal or skewed? If skewed, explain why.
3. What conclusions can you draw about the data set from this information? Bullet your ideas. The more you can put here, the easier it will be to write your results section.

**Step 2: Determine and JUSTIFY your level of analysis (Nominal, Ordinal, Interval, Ratio). See the Research Methods Guide pg. 107 - 109). Pay attention to whether you have a data set with a normal distribution.**

Level of Analysis:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Why?:

**Step 3: CHOOSE the appropriate descriptive statistics to describe your data**. You must use ONE measure of central tendency and ONE measure of dispersion. If you use additional measures, the statistics you use must be relevant to the level of analysis. You cannot use ALL of them. The “Wheelbarrow Effect” will result in a lower score on your results section. See the Research Methods Guide page (pg. 110-112).

Measure of Central Tendency:

Why?

Measure of Dispersion:

Why?

**Step 4: Now, go back to your IA Guide and complete your Results section.**