# Biodiversity Data Analysis:
Graphic Representation of Your Results

Tables of numerical data are important, but they are rarely the best way to present your data to an audience. As the old saying goes, "A picture is worth a thousand words." The most effective way to present your experimental results, whenever possible, is with a figure.

I. Biodiversity Raw Data

A simple **bar graph** can be used to represent the numer of species in each of your samples. An example can be seen in **Figure 1**.
In a bar graph, categories may be placed in any order, and do not necessarily represent a continuum.
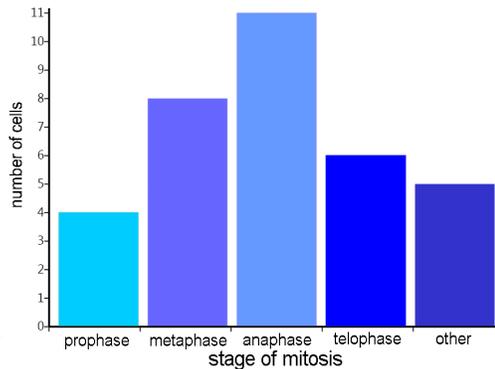
Figure 1. A bar graph showing a hypothetical distribution of cells in each stage of mitosis in a study population of cells.

Don't confuse a bar graph with a **histogram**. **A histogram depicts continuous data.** An example of a histogram is shown in Figure 2.
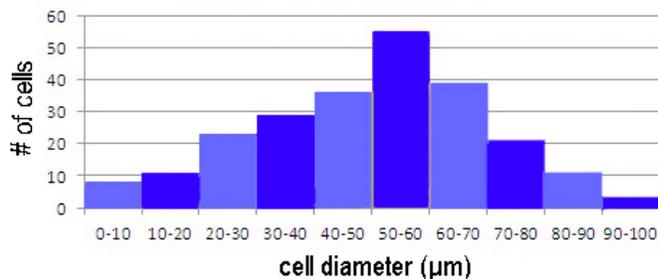
Figure 2. A histogram showing a hypothetical distribution of cells of different diameter in a population of cells. Note that each bar on the histogram represents a specific subset of a range of continuous numerical data that occur in a set order.

Figures, unlike tables, have legends placed underneath.
Be sure to use the proper format for all figures and tables in your work.

II. Visualizing Mann-Whitney U results

Because the Mann-Whitney U provides a measure of overlap between two groups being compared, a **box plot** is a good way to represent your Mann-Whitney U results. The box graph can be created to show the median of each group, the range of values, and their overlap. An example of a box plot is shown in **Figure 3**, with a key and explanation in Figure 4.
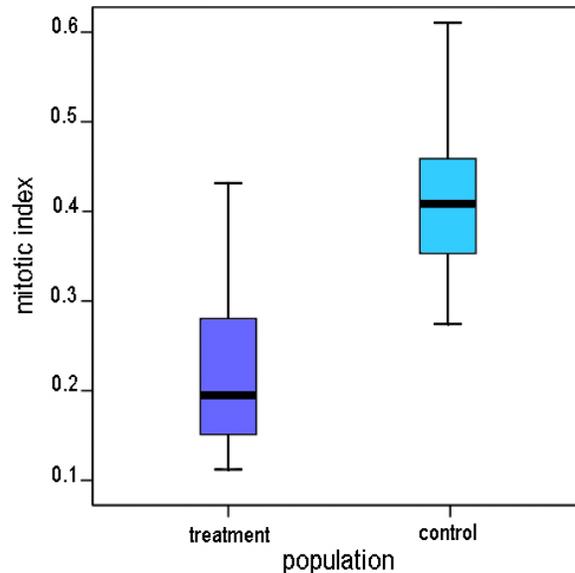

Figure 3. Sample box plot showing overlap of mitotic index values for two populations of cells.
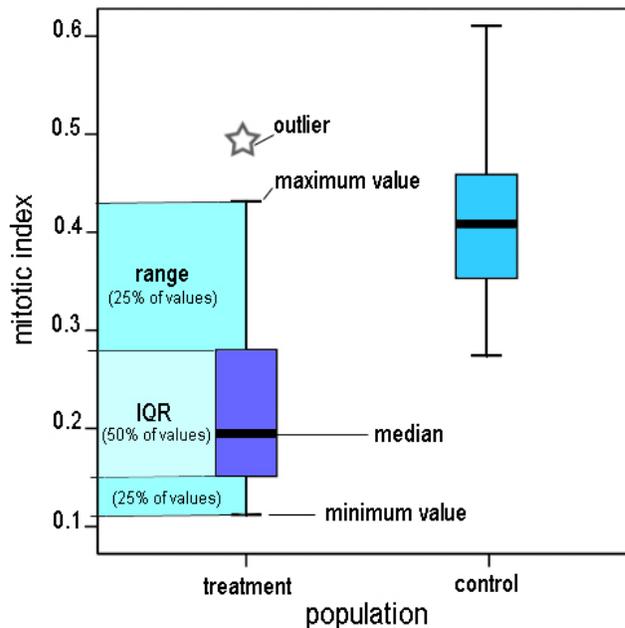

Figure 4. The black bar in the center of each population's values represents the median. The Interquartile Range (IQR) includes 50% of the values, and is bordered on the bottom by the 25th percentile and on the top by the 75th percentile. The range is the region between the minimum and maximum values. The star represents a data point that is an outlier.