**Activity 25: Understanding and Designing Figures**

 **Purpose of this assignment:** The goal of this assignment is to help you develop an eye for the figures that will help represent your data and analyses the best.

**How does it fit within the entire project?** Figures are a critical component of a research paper. As you go through this activity you should consistently ask yourselves: Can my reader grasp the gist of my work by simply looking at my figures and tables?

**Tasks required:** Complete the activity below.

**Deliverable:** Completed version of this handout uploaded to [LMS] by [deadline].

**Estimated time:** about one hour and a half.

**Group work or individual work?** Individual work and group discussion during class.

**Notes to instructor:**

* The number of figures in the first part of the activity can easily be modified.
* One can also ask students to bring figures from their readings to share with others in the class for the first part of the activity.
* It is useful to present information for the datasets that is similar to the work the students are undertaking in the CURE themselves. Information/Associated figures can be drawn from the research of the instructor or published papers for the second and third parts of the activity.

Our work today will be divided into three steps:

1. Looking at and analyzing a selection of figures from published papers.
2. Designing a couple figures for some projects that [the instructor] is working on.
3. Compare your design to the figures developed by [the instructor].

**ANALYZING PUBLISHED FIGURES:**

We will be looking at figures from a selection of papers analyzing [topics of the CURE].

1. Look at the eight figures I have selected presented below. For each of them, categorize the figure or elements of the figure according to the following crude categories:

[insert here a list of categories of graphical representations relevant to the CURE. Examples include bivariate regression plot, boxplot, dendrogram, structural formula, phylogenetic tree, photographs, network diagram, violin plot, Venn diagram, etc.]

1. For each graph, using YOUR OWN WORDS, describe the data represented. In other words, what does the graph show?

[insert here the eight figures along with citations]

**DESIGNING FIGURES:**

Below is some basic information on a couple research projects that [the instructor] is working on. Use it to design a figure presenting the data. Do NOT look at the following pages of this handout. For each set of data, you should provide the following:

* The type of graph you would use
* The variables that would be graphed (what would be the labels on the axes, legends)
* A rough sketch of what the figure would look like
* A draft caption explaining the figure

[insert here the necessary information]

**COMPARING FIGURES:**

Below is a set of draft figures for manuscripts that [the instructor] and his students as well as collaborators are working on. Look at the figures and captions provided below. Look again at your own figure and caption designs above. Answer the following questions:

* How do your figure designs differ from the figures produced by [the instructor] and his colleagues?
* What are the characteristics of a good figure caption?

[insert here the figures and their captions]