**Human Demography Assignment: Demography from “virtual cemeteries”**

***Part 1: Data collection and management***

In this exercise, you will virtually visit a cemetery (or cemeteries) to collect and manage the data you would need to calculate the age at death of people and construct a life table and survivorship curve to compare two populations.

1. Choose 2 populations to compare. Make sure to keep your two groups similar except for the factor you are investigating. For example, if you wish to compare males vs. females, make sure they lived during similar times. You can choose any comparison **EXCEPT** the one that I used to collect data for parts 2 and 3. Explain why you chose this particular comparison, and how you might expect the two populations to differ.
2. Visit [findagrave.com](http://findagrave.com/) to begin looking for data. Don’t worry about using people’s names. Use only the Year Born, Year Died and Browse Cemetery Location functions to collect your data.
3. Create a table for your data on the “Cemetery Data Collection” sheet in the Human Demography Assignment Excel File. Be sure to identify the factor you expect to differ, which populations you are examining, and to label the data columns appropriately. Include an “Age at death” column with a formula to calculate it from other data columns.
4. Enter at least 20 complete data entries for each population (total 40 lines of data), including the calculation of age at death. Can you tell if the two populations differ? Why or why not?

***Part 2: Drawing survivorship curves***

For this part, we are all working from the same dataset. I thought it would be interesting to compare a cohort of people born in 1850 vs. one born in 1920 who were buried in Savannah, GA. You are probably already aware that medicine (and medical treatment) looked very different between these time frames. In particular, antibiotics became widely used in ~1940. Thus, the 1920 population would have had antibiotics available to them for a much longer portion of their lives.

1. Describe the shape of the survivorship curve is typically attributed to humans. How do you expect the shape of the curves to differ between these two populations? Why?
2. The data in the “Survivorship Curve” sheet in the Human Demography Assignment Excel File has the ages of the people in each population grouped into 5-year intervals, and the number of people dying in each age group. However, the number of people in each population is different (415 vs. 1103). Therefore, we need to standardize the data per 1000 individuals in order to compare the samples from the two populations.
3. For each population, you now need to calculate:

1) The number of deaths (dx) per 1000 individuals. To do this,

divide the number of deaths during that age interval by the total number of deaths and

multiply that number by 1000.

2) The number of survivors (nx) per 1000 individuals. To do this, subtract the number of deaths per 1000 during that age interval from the number of survivors at the beginning of that age interval to get the number of survivors at the beginning of the next age interval **(\*HINT\*:** there are examples of each calculation in the spreadsheet for you to follow).

1. The data you calculate for nx should automatically populate the survivorship curve figure below the data. How do the shapes of the two curves compare to one another?

***Part 3: Building life tables***

Now that the two populations are standardized per 1000 individuals, we can continue to build life tables for them.

1. Transfer the data you calculated for dx and nx from the survivorship curve sheet to the Life Table sheet.
2. Calculate the probability of surviving to the start of a given age class (lx) by dividing nx by the total number of people (1000).
3. Finally, calculate mortality rate (qx) by dividing dx by nx.
4. What is missing from these life tables (that you had in the rabbit population life table)? Why?

***Part 4: Putting it all together***

1. What kinds of challenges did you encounter when collecting and organizing the data from findagrave.com? What could you have done differently to improve the quality of the dataset and organization?
2. Evaluate the survivorship curves and life tables you generated in relation to the hypothesis that exposure to better medical care and antibiotics affect human population dynamics. Did the results support this? Explain why or why not.
3. Describe what kinds of shifts in survivorship curves and mortality you might expect if COVID-19 persists and numbers of cases continue to increase worldwide. How long do you think it will take to see the changes?