

Data 227 - Autumn 2023      HW 5  
**Data Visualization and Communication - Trimble**  
Due: Saturday November 4, 2023 11:59pm

**1. Stacked bar charts + color**

Freedom House is an organization that tracks changes in political rights and civil liberties in the world, publishing per-country and per-region ratings on various dimensions in the "Freedom in the World" report. Obtain the FIW data 2013-2023. (Gorokhovskaia, Shahbaz, and Slipowitz. Freedom in the World 2023. Freedom in the World (2023).

- (a) Suppose we are interested in seeing how civil liberties have changed in the pandemic era (for our purposes, defined as 2020-2022). First, read in the data and calculate the differences in total civil liberties scores from 2019 to 2022 (1 pt).
- (b) Using the calculated differences, create a choropleth map showing the change for every country/territory. Make sure to use a meaningful color scheme using guidelines from the last few weeks—give a brief description of the scheme you used and a justification for using it. According to your choropleth map, what are the global trends in changes in civil liberties in the pandemic era? (3 pts)
- (c) Zoom into South America; change the Coordinate Reference System (CRS) of your graph to a projection suitable for the continent. (1 pt)

**2. Choropleths chicago**

The City of Chicago Data Portal publishes coded information about the calls to the city's information and service request line.

Some of the complaints have geographical information, some do not; you should ignore requests that have catch-all addresses associated with them.

You may use any recent year or ranges of years as long as you indicate the scope of your reporting. Your choropleths can use community areas or zip codes, whichever is more convenient for you to plot. Try not to plot data artifacts.

Make a choropleth maps to answer the following questions about 311 calls in Chicago.

- (a) Which neighborhoods have the most graffiti removal requests?
- (b) Can you find and graph a complaint category with the most nearly equal per-capita rates? (What issues seem to affect people in the city at the same rates?)
- (c) Can you find and graph a complaint category with the most unequal per-capita rates?
- (d) Can you find an interesting (geographical) fact in the 311 calls dataset?