Although I am still interested in exploring the nature of relationship of different types of people, I propose to investigate the make up of individual police units. While past research has been done on the individual level, I would like the investigate the role of the entire police unit in complaints and uses of force. Do units made up of more homogenous LEOs have higher rates of complaints or uses of force compared to members of units that are quite diverse? In addition to demographic information (age, race, ethnicity), I will also look into metrics such as years on the force, number of different units, etc. My hope is to be able to quantify the level of homogeneity in a certain unit and use that to predict the amount of complaints and uses of force that members of that unit played a role in. I predict that members of more heterogenous police units will have lower rates of complaints and uses of force since they are exposed to a more diverse set of people. With exposure to difference people comes a level of comfort and understanding different ways to approach a scenario, hopefully helping LEOs to become more effective without using force or acting in ways that results in complaints.

Relational Analytics

* How many different police units are there?
* How large is each police unit? The average police units?
* Many background questions such as, for each unit, the average:
  + Age, years on force, % male vs. female, number of different races, etc.
* Number of complaints filed against members of each different unit, aggregating to average number of complaints per LEO in each unit
* How often are members of the same unit coaccused? Are units with more co-accusations acting “poorly” together? Are units with more solo accusations simply a bad egg?

Data Exploration

* Histograms of key characteristics (same as those listed above) for different units so we can compare the homogeneity of each unit.
* Distribution of complaints filed against member of each police unit. Are there few units with many complaints or are the complaints fairly dispersed across each unit?
* Scatterplot with key characteristics of units vs. number of complaints against the unit

Interactive Visualization

* Density plots to compare the different densities of demographic information between CPD units and those filing complaints. I expect to see very different density plots for the two groups if my hypothesis that differences between individuals leads to interactions results in in complaints. Interactivity allows for including multiple different demographic and non-demographic (average time on force, time in unit, etc.) values to be selected within a filter.
* Streamgraph detailing the differences over time of complaints between members of specific units. Can we see a change in the rate of complains as the make up of units changes? When new members join or old members leave a unit, what changes in complaint rates do we see?

Graph Analytics

* Is an officer working in a unit with a member of a specific ethnic group less likely to have an interaction with a citizen of that ethnic group that results in a complaint?
* Are officers that are co-accused on a complaint from the same are different demographic groups, units, age group, etc?

NLP Models

* Sentiment analysis on the available free-form text of a complaint then related to the demographics of the officers’ specific units. Do we see a more negative sentiment between complaints against an officer of a unit that is more homogenous (and different from the accuser)?