**Notes from Meeting with Erin DaSilva 1/12/22:**

Bloom’s Taxonomy of Learning Objectives:

* Lowest: regurgitate a process
* Next: Here’s three ways, choose one!
* Next: Here’s what we did, do this instead with your own skills!

How to ask questions:

* DON’T Understand/Appreciate
* Formulate a question!
* Visualize data!
* Compare and contrast regions!

Things you should think about:

* Set milestones for the course and for yourself
* Integrating with Canvas??
  + What format of solution should the student submit?
    - I.e., worksheet, pdf/doc of answer with graphs, code, a combination of these?
* Starter activities before final? Have feedback?
* Example walkthrough and then have them apply it
* Make the assignment integral to the class (rather than optional)

Action items/strategies:

* It would be beneficial to have walkthroughs that involve a data set that the students can’t use, and then ask them to work through it with their own data set(s)
  + Furthermore, have two phases in assignment work: (1) follow our example and walk through it with their own data set (and/or verify ours), and (2) extend the work with additional problems/tasks
* Therefore, they should choose their data set early on through one or more assignments that ask them to compare and contrast cities and formulate some problem statement
* Make the assignment interesting to both those who want to contextualize their engineering work, and those who want to apply it (what machine(s) would you recommend to solve your issue?)
* All of this leading up to the final project
  + Aka, the final output of each ‘sub-assignment’ or the skills learned in each ‘sub-assignment’ is required to accomplish the final project

**List of possible research topics for final project/presentation:**

* Compare and contrast air quality data in one region between times before and after the pandemic. What does this tell you about the pollution in that area and the affect of the pandemic on the area? How could this data inform you or policymakers about the impact of pandemics?
* Compare and contrast air quality data between multiple cities in a region around the same time (a more recent time is better if possible). What does this tell you about where the greatest source of pollution is in this area, and where the greatest impacts of pollution might be felt given the time it takes that pollution to fall? How could this data inform you or policymakers about the most problematic sources of pollution in this area and what to do about them?
* Choose a city or area to investigate. Of the Six Criteria Pollutants (as defined in course lecture), which would you evaluate to be the worst in this area? Where is its most likely source? What is the Best Available Control Technology (BACT) to deal with it? Write a policy brief on the problem and your recommended solution (and how to get there)
* Choose a city or area to investigate. Then, find the local or regional policies on air quality regulations. Compare and contrast the regulations and the actual data. How well does the region meet the regulations set for it? Are some places doing better than others? Write a policy evaluation on the air quality policy for this region.
  + (Would this region meet the regulations of another area of the globe? Choose a region in that area and see if it meets its own regulations. Which is better?