**Consulting Project Agreement For Statistical Consulting Class (APSTA 2401)**

**Project Title**: The Impact of Charter Schools on Public Education—Academic and Diversity

**Clients**: Ying Lu, Course Instructor

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**Discussants to Consulting Team**: Tana Wuren, Priya Gopalan, Dorota Biedzio

**Time line: 9/24/2018-12/21/2018**

**Project Goals:**

To understand the overall impact of the charter schools on publicly funded schools from a geo-spatial spatial perspective:

* Compile a comprehensive data set that links schools with census tract information (contextual demographics), and school zoning information.
* Create a school diversity index using Sean Reardon’s method. (https://www.ed-data.org/article/Ethnic-Diversity-Index)
* Using GIS tools, generate a visualization to demonstrate whether the placement of charter schools negatively correlated with school academic performance in nearby (same zone) traditional schools, and demonstrate how such patterns change over time and across geographic areas
* Using Geospatial Statistical model to estimate the spatial effects (on academic performance and diversity) of Charter schools on public schools.
* If time permits, the outcome variables can be expended to school graduation and safety.

**Specific Deliverables:**

1. Data and Method Preparation Writeup (in Word or Rmd format): literature review (the CREDO report), learning about the data sets; merge all dataset using through school id; take NYU Library Data Service GIS courses (if don’t have the knowledge of Arc GIS and basic ideas about map data)

<https://guides.nyu.edu/DS_class_calendar> Data cleaning for GIS (10/2 at 1pm); Introduction to GIS (10/3 at 11am), introduction to ArcGIS (10/8 at 12:30pm); learning about compatible R packages that facilitate data management with maps.

1. GIS Data Preparation and Visualization Writeup (in Rmd or Word format):
   1. Prepare a GIS dataset that includes the following:
      1. Use school zoning information to link charter schools with their feeder public district schools (same zone);
      2. Link each school with the census tract that it is located in in order to use the census tract contextual information. Individual school addresses (longitude and latitude) can be found from school safety report(201-2016)
      3. Report the final number of years of data available (only a small number of recent years the data is complete).
   2. Create GIS Maps for NYC DOE public district schools and charter school locations, with census tract information or school district information as background (such as % poverty, % minority)
   3. Create GIS Maps with indication of charter school and district school test outcomes and diversity index (separately for each year and each variables), comment on the trends, if any.
2. Statistical Analyses (in Rmd format):
   1. Provide descriptive summaries of the key outcomes by school district, by school type and boro, over time.
   2. Develop a statistical modelling approach that help answer the relationship between charter school and district schools, if possible, estimate the “effect” of charter schools on district schools.

**Specific Timeline:**

Deliverable 1: Present first set of results in class 10/15

Deliverable 2: Present second set of results in class 11/26

Deliverable 3: Present third set of results on 12/17 (either presentation or poster, the specific format TBD)

Complete Project Outcomes (datasets, maps, cleaned versions of data preparation, GIS analyses and Statistical analyses reports. see CREDO report for style) are due to 12/21.

This is in addition to biweekly and monthly memos as described in course syllabus.

**Meeting Schedule:**

Besides designated class meeting times, you should work out a reasonable schedule to meet with your clients, your team members and discussants, either in person, or by skype.