INFSCI 2809: Spatial Data Analytics
Project 3
Due: March 21, 2019

The objectives of this project are to learn how to (a) perform autocorrelation and (b) use distant-based techniques for analyzing spatial point data patterns. All files for this project are at "http://gis40.exp.sis.pitt.edu/INFSCI2809_data".

Autocorrelation

Obtain the "ParticulateMatter.csv" file to find the spatial autocorrelation in the attribute (PM25) and discuss the result (autocorrelation) type. You must code this autocorrelation task in R (no points will be given if R library modules are used).

Submit a report on the autocorrelation observed in the data. [20 points]
Important: a report with only the result is not enough. The report must include a thorough analysis and discussion of the result.

Distance-Based Techniques

Obtain the "OilGasLocationPA" file from "OilGasLocationPA.zip" and the "IndustrialMineralMiningPA" file from "IndustrialMineralMiningPA.zip" to perform G function, F function, K function, and L function on each dataset separately. You may use R library modules for these distance-based techniques.

Submit the following for both files:
A map of each dataset [5 points]
G function plot [15 points]
F function plot [15 points]
K function plot [15 points]
L function plot [15 points]
A summary report comparing the results of G, F, K, and L functions within and between the data sets. [15 points]
Important: a report with only the plots is not enough. The report must include a thorough analysis and discussion of the results.

Total points: 100

Submit your complete report (.pdf) on courseweb.