SOC 4650/5650: Lab 3-2 - Density of Public Schools in Missouri

Christopher Prener, Ph.D.

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Directions

Using data accessed from the `module-3-intersect` repository, create the maps below related to the density of public school locations in Missouri. Your entire project folder system, including data and map image output, should be uploaded to GitHub by **Monday, March 21st** at 4:15pm.

Analysis Development

The goal of this section is to create a self contained project directory with all of the data, code, map documents, results, and documentation a project needs. Please ensure **all** required elements are present (including your ArcGIS Pro project). You will need both shapefiles included in the `data/lab-3-2/` subfolder in the `module-3-intersect` repository.

Part 1: Data Preparation

The goal of this section is add a county identifier to each school and then aggregate schools by that county identifier. A subset of data for the City of St. Louis will also be created.

1. Using ArcGIS Pro, complete the following steps:
   (a) Import the K-12 schools point data into ArcGIS Pro along with the county data.
   (b) Ensure that map uses an *appropriate* coordinate system for mapping state-wide data in Missouri.
   (c) Construct a intersect that *identifies* the county each school is located in (be sure that the other variables from the county data are removed after the join).
   (d) Select schools in the City of St. Louis, subset them, and write this subset to a new geodatabase feature class.

(e) Construct a second spatial join that aggregates schools in all counties in Missouri and combines them with the original county data so that you have an output with five columns - `GEOID`, `NAMELSAD`, `SQKM`, `TOTALPOP`, and a variable containing the count of schools per county. Write this new object to a new geodatabase feature class.

Part 2: Mapping the Density of Schools in Missouri

Using ArcGIS Pro, create three quick maps (use separate map documents). They should use an appropriate color ramp (either color brewer or viridis). When you save them, make sure it is clear in the file name which map is which.

2. Map the location of St. Louis City schools.
3. Map the density of schools per square kilometer in each county.
4. Map the density of schools per 1,000 residents in each county.