Introduction to Geographic Information Science
Lab 07

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Directions

The Stata portion of the lab requires you to use the built in `census.dta` file.

The ArcGIS portion of the assignment will require you to build a geodatabase. The data for the geodatabase can be found on Blackboard under 'Data' in the file `KansasCity.zip`. These data should be downloaded, un-zipped, and moved to your flash drive before beginning this assignment.

Once you are done, submit copies of all requested maps, your geodatabase, the Stata do-file, and the Stata log file in a single .zip file. This should be submitted by Wednesday, March 2nd at 4:20pm.

1 Building a Geodatabase for Kansas City

1. Using Microsoft Excel, create a meta-dictionary for tracking the files associated with the Kansas City dataset.

2. Using ArcCatalog, navigate to the un-zipped directory that contains the contents of `KansasCity.zip`.

3. Create a new File Geodatabase named `KansasCity.gdb`. Add a record for this new geodatabase to your meta-dictionary.

4. Export all of the shapefiles that are included in the un-zipped directory into `KansasCity.gdb`. Add a record for each new feature class to your meta-dictionary. If you do change any file names, keep a record of what the original name of each file was in your meta-dictionary.

5. Export all of the feature classes from `KC_PUBLICSAFTEY.gdb` into `KansasCity.gdb`. Add a record for each new feature class to your meta-dictionary. Change all of the names for these feature classes and keep a record of what the original name of each file was in your meta-dictionary.

2 Mapping Kansas City

6. Using ArcMap, open up a new file. Save it with a file name that includes "Basemap" in its title.

7. Begin by updating the initial data frame's name to "Citywide" and its coordinate system to "NAD 1983 StatePlane Missouri West FIPS 2403 (US Feet)", which is a good coordinate system for mapping this part of Missouri.

8. Add the following feature classes to a group layer named "Basemap":

   (a) Street Centerlines
   (b) Parks
   (c) Area Water Features
   (d) Kansas City City Boundary
   (e) Kansas City County Boundaries

9. Order the layers in your "Basemap" layer so that they mirror the order that they layers are listed in above.

10. Change the County Boundary layer's symbology so that it has a 10% gray background with black outlines that have a width of .40.

11. Change the label preference for the the County Boundary layer so that your map is labeled with the county names in 12 point Arial font in black. The label should have a halo mask set to size 2.0000 around it.

12. Change the City Boundary layer's symbology so that it has a white background with black outlines that have a width of .40.

13. Add a field to the City Boundary layer's attribute table named `CITYNAME`

14. Open an editing session and add the text "Kansas City" to this new attribute field. Save your edits and close the editing session. *Hint: You will need to turn the Editor toolbar on by going to Customize > Toolbars Use the options in the Editor menu on this toolbar to start, save, and stop your editing session.*

15. Change the symbology of the water, parks, and street centerlines so that they are represented appropriately. Think carefully about the concept of figure ground, the choice of hues, and the importance of contrast.

16. In the layout view, create a dissemination-ready map (well laid out, good use of white space, title, information about data sources and authorship, and legend). The map should be sized for 8.5"x11" printing with half-inch margins in the portrait orientation. Export this map as a `.pdf` at 300dpi. Make sure this map is included in your final `.zip` file.

3 Mapping Vacant Parcels in a Council District

17. Save a new copy of your map with the term "CouncilDistrict" in its file name, and begin using that new map for the remainder of the assignment.

18. Create a new data frame named "District Focus", and copy the layers from "Citywide" to "District Focus." Use this new data frame. Make sure its coordinate system is set to "NAD 1983 StatePlane Missouri West FIPS 2403 (US Feet)".

19. Add the vacant parcels and council districts layer to your new data frame. Update their symbology as necessary so that the districts are symbolized using the pre-defined "Hollow" setting and the vacant parcels are symbolized with a hue that is not overly distracting.

20. Select a single council district to focus on and select the polygon for that council district.

21. Create a new layer from this selection. You should do this by selecting the relevant feature and then creating a new layer from it. Make sure to rename the new layer with a descriptive layer name. Once you have created this layer and checked its accuracy, export it as a new feature class for your `KansasCity.gdb` database. *Hint: Select each layer, right click on it, and select Data > Export Data.*

22. Add this new layer with a lightly colored background so that it highlights your chosen council district but still provides significant contrast with the layers you create in the next step.

23. Create additional new layers symbolizing only the streets, vacant parcels, and parks located within your chosen council district. Make sure to rename each new layer with a descriptive layer name. Symbolize each appropriately for its "figure" status. Make sure these layers are ordered on the table of contents so that they appear above the council district you have selected. Once you have created these new layers and checked their accuracy, export them as a new feature class for your `KansasCity.gdb` database.

24. Re-symbolize and order your "Basemap" layers so that they are appropriately symbolized for their "ground" status. They should have lighter colors than the colors you chose for the "figure" features.

25. In the layout view, create a dissemination-ready map (well laid out, good use of white space, title, information about data sources and authorship, and legend) in the layout view that has both your citywide basemap and your new council specific map. The extent of the council specific map should be focused on the council district itself with limited space given to surrounding features. The map should be sized for 8.5"x11" printing with half-inch margins in the landscape orientation. Export this map as a `.pdf` at 300dpi. Make sure this map is included in your final `.zip` file.

4 Working with String Data in Stata

26. Create a well labeled and annotated do-file that opens a copy of the `census.dta` data that comes with Stata. The do-file should then create string copies of the `marriage`, `divorce`, and `death variables`. After creating these variables, it should "destring" them.

27. Make sure your do-file executes without error.