Title: GIS data acquisition and creation

Critical Resources: an internet connected computer; a computer with ArcGIS Pro.

Purpose:

The purpose of this lab will be for you gain experience and knowledge with how to acquire GIS data sets and incorporate them into GIS software (ArcGIS Pro). You will also gain basic experience with manipulating GIS data sets in ArcGIS Pro.

You are encouraged to think about obtaining layers that may be of potential use for your final project as means to begin building momentum for your final project.

Learning Objectives – After completing the lab, you will know:

- How to find, download, and add vector and raster data sets into ArcGIS Pro
- How to create new vector datasets in a File Geodatabase
- Basic skills for working with and managing data sets once they are in ArcGIS Pro

Deliverables:

A write-up of your response to the instruction questions. Upload your write-up to the lab 1 drop box on myCourses.

Instructions:

Task 1 – Acquire GIS datasets from the web and create a new dataset

You must download two vector and one raster GIS datasets. The datasets must be spatially related to one another. For example, roads, streams, and a quad map for a county. You will also create your own dataset.

Part A - Vector datasets

Find two vector datasets from the Global Metadata websites you were to have selected in this week's Review Global GIS datasets via Metadata discussion activity.

Download and add the two vector datasets to ArcGIS Pro, make sure that they overlap/matchup correctly in ArcGIS Pro. For example, if one of the datasets is missing the .prj file, use the metadata of dataset to find the projection/coordinate system and the Set Projection tool to define the projection

Modify the symbology[1] of the datasets so they are easier to view in ArcGIS Pro. For example, if you downloaded a roads layer, make the lines thicker so they can be seen

[1] Task reference: https://www.youtube.com/watch?v=ORc3VMZv1kQ&t=988s

better. If you downloaded some type of polygon layer, modify or remove fills as need be for ease of viewing.

Part B - Raster dataset

Download a raster dataset that is spatially related to the vector datasets you downloaded in part A.

Add the raster layer to ArcGIS Pro along with the vector layers you added in part A.

Arrange the layers in a logical order so all can be seen. If need be, re-adjust the symbology of any layers so all the layers can be seen easily.

Part C – Create a dataset

For this part, create a File Geodatabase with a Feature Class inside and populate it with features you digitize from the raster dataset. This is widely open to interpretation. For example, digitizing population areas from a raster as one example. You do not need to create a Feature Dataset inside the File Geodatabase if you do not want to.

Task 2 – Document your efforts

- Provide the URLs to the 3 datasets you downloaded in parts A and B and list the name of the datasets you downloaded
- Take a screen shot[2] of the ArcGIS Pro showing your four layers together and paste the screen shot into your final deliverable. Be sure that each layer can be seen distinctly, thus adjust your viewing scale accordingly.
- Take a screen shot of the ArcGIS Pro map view showing a feature from one of the vector datasets that you used the identify tool to find information about. Be sure that the identify results window is shown in the screen shot depicting what was identified.
- Take a screen shot showing the File Geodatabase you created
- Write a 50-70 word essay where you discuss: (a) problems, if any, you had working with any of the data layers (for example, you couldn't get one layer to line up with others layer. etc), and solutions (if applicable) you used to solve the problem, (b) any insights you gained about the datasets and/or the area you chose based on the datasets, and (c) brief ideas/thoughts the exercise gave you for possible ideas for your final project.

[2] For instructions on how to make a screen shot, see http://take-a-screenshot.org/