

**Title:** GIS data acquisition, creation and basic display

**Critical Resources:** an internet connected computer; a computer with ArcMap.

**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 (ArcMap). You will also gain basic experience with manipulating GIS data sets in ArcMap.

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

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

**Deliverables:**

A write-up of your response to the instruction questions.

**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*

To find two vector datasets, go to CUGIR (<https://cugir.library.cornell.edu/>).

Pick a county or theme from NYS that is of interest to you on the CUGIR website

Download two vector dataset from CUGIR based on the county and state-wide theme you selected.

Add the two vector datasets to ArcMap, make sure that they overlap/matchup correctly in ArcMap. 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 of the datasets so they are easier to view in ArcMap. For example, if you downloaded a roads layer, make the lines thicker so they can be seen better. If you downloaded some type of polygon layer, modify or remove fills as need be for ease of viewing.

*Part B - Raster dataset*

To find a raster dataset, go to the NYS GIS Clearinghouse (<https://gis.ny.gov/>).

Find where the raster datasets are located. They will be found under “Data > raster maps”.

Download a raster dataset that is spatially related to the vector datasets you downloaded in part A. For example, a quad map that covers your extent from part A or an aerial image that is within your extent from part A.

Add the raster layer to ArcMap 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. For example, digitize schools and churches as points from a quad map you downloaded in Part B. 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<sup>1</sup> of the ArcMap map view 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 ArcMap 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) which data download web site you liked better and why, (c) any insights you gained about the datasets and/or the area you chose based on the datasets. For example, differences between how a county boundary line was depicted in a vector layer vs. on a quad, offsets between features that should be the same (for example, a road intersection depicted on a quad map vs. vector road

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<sup>1</sup> For instructions on how to make a screen shot, see <http://take-a-screenshot.org/>

layer), (d) brief ideas/thoughts the exercise gave you for possible ideas for your final project.

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