

# **Module - GIS Part I: Assignment 2 – ArcGIS Vector Data Analysis**

## **Instructions for this assignment**

Download *ArcGISVectorDataAnalysis.zip* and unzip the file. Follow the instructions starting from the next page.

## **Due Date**

By midnight EST of January 29, 2023, Sunday.

## **Grading**

This assignment is worth 10 points for the 3 screenshots taken as required.

## **File naming convention for the assignment**

Save the screenshots in a Word or PDF file and use the following file naming convention:

M6\_Assignment2\_your-first-name\_your-last-name.doc

or

M6\_Assignment2\_your-first-name\_your-last-name.pdf

Be sure to use the underscores as you see in the example.

## **How to hand in the assignment**

When you have finished your assignment, you will upload (submit) it to the same assignment area where you found it. You may only submit this assignment one time. I remind you that if you do not submit the assignment before the due date, you will not be able to submit it.

1. Complete the assignment in a Word or PDF document.
2. Return to the dropbox folder for this assignment.
3. Look for the “Add a File” button in the Submit Files area.
4. Browse for the assignment that you have on your computer, and select it so that it uploads to the assignment area.
5. Click “Submit”.

## Task: Perform Buffering and Overlay

**What you need:** shapefiles of *landuse*, *soils*, and *sewers*.

This Task simulates GIS analysis for a real-world project. The task is to find a suitable site for a new university aquaculture lab by using the following selection three criteria:

- Preferred land use is brushland (i.e. LUCODE = 300 in *landus.shp*).
  - Choose soil types suitable for development (i.e. SUIT >= 2 in *soil.shp*).
  - Site must be within 300 meters of sewer lines.
1. Start ArcCatalog. Make connection to the ArcGISVectorDataAnalysis database. Launch ArcMap. Add *sewers.shp*, *soil.shp*, and *landus.shp* to Layers, and rename Layers Task. All three shape files are measured in meters.
  2. First buffer *sewers*. Select Environments from the Geoprocessing menu and set the ArcGISVectorDataAnalysis database to be the current and scratch workspaces. Then click the ArcToolbox Window button to open ArcToolbox or select ArcToolbox from the Geoprocessing menu. Double-click the Buffer tool in the Analysis Tools/Proximity toolset. In the Buffer dialog, select *sewers* for the input features, enter *sewerbuf.shp* for the output feature class, enter 300 (meter) for the distance, select ALL for the dissolve type, and click OK. Open the attribute table of *sewerbuf* by right-click *sewerbuf*. The table has only one record for the dissolved buffer zone. **Take a screenshot** showing *sewerbuf*.
  3. Next overlay *soils*, *landuse*, and *sewerbuf*. Double-click the Intersect tool in the Analysis Tools/Overlay toolset. Select *soils*, *landuse*, and *sewerbuf* for the input features. Enter *final.shp* for the output feature class. Click OK to run the operation. **Take a screenshot** showing *final*.
  4. The final step is to select from *final* those polygons that meet the first two criteria. Double-click the Select tool in the Analysis Tools/Extract toolset. Select *final* for the input features, name the output feature class *sites.shp*, and click the SQL button for Expression. In the Query Builder dialog, enter the following expression in the expression box: "SUIT" >= 2 AND "LUCODE" = 300. Click OK to dismiss the dialogs. **Take a screenshot** showing *sites*.
  5. Save as a map document before exiting ArcMap.