Spatial Analysis

Course Length: 24 hrs
ArcGIS Version: Pro 2.x

Overview

The goal of this 3-day course is to teach students the techniques and tools of spatial analysis. For this class, students should be familiar with ArcGIS Pro including layer, map, and layout creation. The course will cover analysis project design principals then explore the several tools and methods to derive understanding from geographic data.

Specific goals for this class are:

1. Develop the ability to recognize, ask, and reliably answer spatial questions using ArcGIS Pro as an analytical tool.
2. Understand how various spatial analytical methods work as well as the associated ArcGIS Pro tools built upon these methods.
3. Become knowledgeable of key statistical concepts underlying spatial analytical tools, methods, and visualizations.
4. Be able to recognize various data types and properly analyze and visualize them using ArcGIS Pro.

Audience

ArcGIS Pro users who want to take their analytical skills to the next level. Familiarity with spatial data types, a basic understanding of spatial relationships and data as well as an analytical mindset will be useful.

Topics Covered

Day 1

- What is Spatial Analysis? – Introduces the overall concepts of spatial analysis. Students will learn how to formulate and ask spatial questions of geographic data, plan and execute a simple GIS analysis project, and evaluate the results.
- Preparing Data for Analysis – The principles of data evaluation, management, and manipulation for GIS analysis. Teaches how to manipulate GIS data for proper use in geospatial tools.
- Analysis Through Maps and Charts – Looks at how the data visualization components of Pro are used to present data in order to gain insights and understanding of geographic phenomena. Students will examine and display GIS data as maps and charts to best show spatial patterns and correlations as well as analysis results
- Analysis Tools – This chapter explores many of the toolbox tools used in spatial analysis. It describes the tool's underlying analytical methods, and how to use the tool properly. Special attention is given to link analysis tools and concepts.

- Using Insights for Analysis – Students will explore the use of the Insights app for spatial analysis and results-visualization.

Day 2

- 3D Analysis – This chapter focuses on 3D visualization in Pro and the analytical tools that can be use in the 3D environment.
- Analysis Using Networks – Show the tools and datasets available for using street networks including the Ready to Use Network Analysis and the Network Analysis Workflows tools. Analysis with trace networks will also be explored.
- Raster Analysis – Students will explore the tools and techniques for raster analysis within the Spatial Analyst extension.
- Model Builder - Students will learn the efficiency of using Model Builder to manage their spatial analysis workflows.
- Spatial Statistics – This chapter will introduce important statistical concepts and explore the tools available in the Spatial Statistics toolbox.

Day 3

- Multidimentional Analysis – go over the datasets, workflows and tools used in analyzing spatial data over time.
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- Chapter2Title – Description. (Topic1; Topic2)
- Chapter3Title – Description. (Topic1; Topic2)
- Chapter4Title – Description. (Topic1; Topic2)

Format

In-person instruction with hands-on practice, and course materials you can keep.

Prerequisites and Recommendations

Attendees should have knowledge of Microsoft Windows® and be familiar with the basic use of ArcGIS Pro, including the topics covered in the **Introduction to ArcGIS Pro** class.