

Spatial Statistics

Participants will learn the basics of Spatial Statistics and ways in which you can explore spatial data using the Spatial Statistics toolset. This course covers measuring the distribution and relationship of spatial features and any significant patterns that may exist.

You will also learn how to analyze patterns in spatial data and identify locations of statistically significant spatial clusters and/or dispersion.

Suggested Background:

You should have a solid understanding of Geographic Information Systems (GIS) and ArcGIS 10.

This course is not for beginners.

1. Measuring Geographic Distributions

Exercise goal: In this exercise you will become familiar with the Measuring Geographic Distributions toolset, examine and interpret the locations and distributions of spatial data and explore spatial relationships within spatial data.

1. Become familiar with the Spatial Statistics toolset
2. Explore the spatial distribution of your data
3. Analyze broad spatial patterns in your data such as locating the central feature, how your data is dispersed around the mean and how data is dispersed around the mean over a period of time

2. Spatial Pattern Analysis

Exercise goal: In this exercise you will become familiar with the tools and functionality within the Analyzing Patterns toolset and understand statistical significance and confidence intervals. You will also learn several methods to evaluate and statistically validate if features, or the values associated with features, form clustered, dispersed, or random spatial patterns

1. Identify statistically significant clustering in the spatial distribution of your data
2. Identify spatial clustering/dispersion for a set of geographic features over a range of distances
3. Measure clustering or dispersion based on feature locations and attribute values

3. Cluster Analysis

Exercise goal: In this exercise you will become familiar with the Mapping Clusters, Measuring Geographic Distributions and Analyzing Patterns toolsets. You will learn several methods to statistically validate if features, or the values associated with features, form clustered, dispersed, or random spatial patterns and learn methods to perform cluster analysis to identify the locations of statistically significant hot spots, cold spots, and spatial outliers.

1. Summarize and evaluate geographic distributions
2. Assess broad geographic patterns and trends over time
3. Identify where spatial clustering occurs and where spatial outliers are located

