

ArcGIS Spatial Analyst—Statistical Modeling

Goals of the workshop

- Provide an overview of the different statistical capabilities in Spatial Analyst.
- Explore different model types such as descriptive and predictive models.
- Discuss tools that accept point data as input in Spatial Analyst—density and interpolation.
- Focus on a variety of regression models including logistic, linear, and spatial regression.
- Present the issues regarding performing a regression analysis within a GIS.
- Explain how to perform both supervised and unsupervised classification.

Major topics covered

- Creating surfaces from points: The density and interpolation surface generation techniques will be examined.
- Becoming aware of different statistical assumptions: The difference between classical and spatial statistics will be explored.
- Understanding the different regression models: Logistic, linear, and spatial regression will be discussed.
- Defining the characteristics of regression: The basic structure, dependent variable, and independent variables will be presented.
- Identifying concerns regarding performing a regression analysis: The issues of spatial autocorrelation and sampling will be examined.
- Creating surfaces: How the regression coefficients can be used to create probability surfaces will be demonstrated.
- Understanding supervised classification: The steps for performing a classification will be described; creating signatures, evaluating the signatures, and classifying and interpreting the results.
- Performing unsupervised classification: Creating the clusters to implement the classification will be presented.
- Demonstrating the principles through models: Several demonstrations of actual models will highlight the issues involved in performing density analysis, interpolation, regression analysis, and classification.