Spatial Interpolation with GIS

Course Objectives

This is an advanced 1-day course on theories and application of GIS techniques for spatial analysis. This workshop is comprised of a hands-on series of activities for those who want to expand their knowledge of using GIS. This workshop will include exercises using: geostatistical analysis (using Geostatistical Analyst), spatial analysis & suitability modeling (using Spatial Analyst & Geoprocessing wizard) and performing change detection analysis (using map algebra). Each student who successfully completes this course will have developed the skill to process GIS data for advanced GIS analysis.

TOPICS COVERED

Point Data Integration
•Working with GPS data
•Determining GPS Precision and Accuracy
•Creating an IDW and Spline Surfaces Using Groundwater Quality Data
•Creating Subsurface Limestone Formation Maps from Point Data Using IDW
•Create a DEM Using IDW and Spline Interpolation
•Cross Validation of Interpolated Surfaces

Geostatistical Analysis
•Tour of Geostatistical Analyst
•Using Inverse Distance Weighted (IDW)
•Use Global Polynomial
•Use Local Polynomial and Radial Basis Functions
•Use Kriging
•Use Co-Kriging
•Ordinary Kriging Methods

Advanced Point Data Integration Methods
•Random Sample Selection Tool
•Extracting Point Data from Raster
•Density Mapping I: Estimate Density for Fish Population
•Density Mapping II: Estimate Density Using Attributes

Data Integration Case Studies
•Hillsborough River Water Quality
•Charlie Creek OneRain