Spatial Analyst for Petroleum

1-Day Course

Overview

This one-day course introduces students to working with raster data and generating surfaces using the Spatial Analyst extension to ArcGIS.

Audience

This course is primarily for those in the petroleum industry who want to learn the basics of working with raster data and using the Spatial Analyst extension.

Topics covered

Introduction to Raster Data

- The Raster Data Model
- The Spatial Analyst Extension
- Applications of Raster Data
- Understanding Raster Data Structure
- Raster Data Environment Settings

Georeferencing

- Adding Images without Georeferencing to ArcMap
- Georeferencing an Image
- Assessing Error
- Update Georeferencing vs. Rectify
- Resampling

Displaying Raster Data

- Scale dependent display
- Temporarily clipping an image
- Setting transparency and other effects using the Effects toolbar
- Smoothing the display with resampling
- Eliminating the background in an image
- Symbolizing Images: Classified, Unique Values, Stretched, Colormap

Raster Data Processing

- Clipping a Raster
- Merging Rasters

- Nibble
- Region Group
- Cell Statistics
- Extract Values to Points

Surface Modeling: Interpolation

- Surface Options
- Raster Interpolation Methods
    - Inverse Distance Weighting
    - Natural Neighbor
    - Spline
    - Trend
    - Kriging
    - Topo to Raster
- Geostatistical Analyst
- TINs/Terrains

Surface Modeling: Surface Analysis

- Generating Contours
- Generating Slope Rasters
- Generating Hillshades
- Density from Points

Map Algebra

- Map Algebra Operators
- Single Output vs. Multi Output Map Algebra Tools
- Expression Syntax
- Expression Processing
- Conditional Statements
- IsNull and SetNull Statements
- Functions

Prerequisites and recommendations

Students should be familiar with the basic use of ArcGIS, including the topics covered in one of the following classes: **Fundamentals of ArcGIS I**, **Introduction to ArcGIS I**, or **ArcGIS Desktop I**.