



ArcGIS Desktop III: GIS Workflows and Analysis

Four days (28 hours/7hours per day)

Overview

Understanding how and when to apply ArcGIS tools and functions is the key to creating an efficient GIS workflow. Building on the skills and knowledge taught in *ArcGIS Desktop II: Tools and Functionality*, this course shows how to apply ArcGIS tools in a workflow context with a focus on working with data stored in a geodatabase and performing geoprocessing and analysis. In the course exercises, you organize and edit data stored in a geodatabase, prepare data for analysis, create and edit geoprocessing models using ModelBuilder, and work through a challenging analysis project.

Goals

Those completing this course will be able to

- Add data from different sources to a geodatabase.
- Work with subtypes to edit data.
- Edit and validate feature geometry and attributes using geodatabase topology.
- Run analysis tools using dialog boxes and models.
- Build a complex model using ModelBuilder.

Topics Covered

- Getting data into the geodatabase: Advantages of migrating data to the geodatabase; File and personal geodatabases; Loading and importing data; Data sources available for conversion; ArcToolbox conversion tools; Importing and exporting data in ArcCatalog; Importing and exporting data using XML; Copying and pasting data between geodatabases; Batch and single conversions; Loading data into existing feature classes using the Simple Data Loader; Displaying x,y coordinate data from a table; Accessing tabular data using an OLE DB connection; Adding data from a GIS server; Working with map projections and datums.
- Geodatabase behavior: What is behavior?; Advantages of using behaviors; Default values; Subtypes; Domains; Geodatabase topology.
- Editing GIS data: Creating new data (digitizing, copying and pasting features, Editor menu commands); Constructing an edit sketch using constraints (direction, length, parallel); Creating adjacent polygons using the Auto-Complete Polygon task; Modifying existing features; Reshaping existing features and boundaries; Exploding multipart features; Editing using domains, subtypes, and topology.
- Aligning spatial data: Common data alignment problems; Georeferencing CAD data; Matching layer boundaries; Transformation; Rubber sheeting; RMS error.
- Managing geoprocessing tools and settings: Types of toolboxes and how they are stored; Types of tools (system tools, models, scripts); Locating tools in ArcToolbox;



Executing tools; Tool parameters; Parameter error detection; Environment settings; Tool layers; Geoprocessing results.

- Analyzing GIS data: Review of common analysis tools (Buffer, Clip, Intersect, Select, Union); Working with feature proximity tools (Near, Spatial Join, Multiple Ring Buffer, Create Thiessen Polygons); Analyzing tabular data; Creating a raster subset; Analysis options outside of core ArcGIS Desktop; Typical analysis workflow.
- Using ModelBuilder for analysis: Working with ModelBuilder; Creating and designing models; Model elements (tools and variables); Setting general model properties; Setting model parameters; Environment settings; Intermediate data; Running and troubleshooting a model; Creating model documentation.
- GIS analysis projects: Real-world GIS analysis projects (Find the best site for a new shelter, Find the mileage of flooded roads); The analytical process for each project.

Prerequisites and recommendations

Completion of *ArcGIS Desktop II: Tools and Functionality* or equivalent knowledge is required.