ArcGIS Desktop II: Tools and Functionality

Overview
This introductory 3-day course provides the foundation for becoming a successful ArcView®, ArcEditor™, or ArcInfo™ user. The course covers a wide range of functionality available in ArcGIS, including the essential tools for visualizing, creating, managing, and analyzing geographic data. Hands-on course exercises emphasize practice with ArcMap and ArcCatalog (the primary applications included with ArcGIS Desktop software) to perform common GIS tasks and workflows. The tools for creating and managing geographic data, displaying data on maps in different ways, and combining and analyzing data to discover patterns and relationships are highlighted. By the end of the course, you will be prepared to start working with the software on your own.

Audience
This course is for those who are new to geographic information systems, those who are new to ArcGIS, and those wish to learn the software changes specific to ArcGIS 9.x.

Goals
Students completing this course will be able to:
- List common GIS tasks and identify which ArcGIS Desktop application is used for each task.
- Understand what the geodatabase offers for GIS data storage.
- Create and edit geodatabase features.
- Control the appearance and display of data layers in ArcMap.
- Classify and symbolize map data.
- Label map features.
- Change the coordinate system and map projection used to display a dataset.
- Access feature information in tables and control table display properties.
- Query and analyze GIS data.
- Create presentation-quality maps and graphs.

Topics
Investigating geographic data
How geographic data is stored, vector and raster data, geodatabase basics and advantages, shapefiles, coverages, CAD data, managing data in ArcCatalog, displaying data in ArcMap, ArcMap basics, data and layers.

Managing map layers
Zooming to layers, bookmarks, display windows, scale ranges, group layers, selection layers, layer files, and creating hyperlinks.

Symbolizing categorical data
Symbology, choosing symbology, types of symbols (marker, line, fill), and creating symbols.

Symbolizing quantitative data
Symbology options: graduated colors, graduated symbols, proportional symbols, dot density, and charts. Classification methods: natural breaks, equal interval, quantile, and manual. Excluding data from a classification, and rendering raster data.

Labeling map features
Label placement for different feature types (points, lines, polygons), label symbology, controlling label display using scale range and SQL query, label classes, label expressions, label ranks and weights. What is annotation? Geodatabase and map annotation.

Using coordinate systems and map projections
What is a coordinate system? Geographic coordinate systems and datums. Projected coordinate systems and map projections. Feature classes and coordinate systems, and data frames and coordinate systems. Geographic transformations. Working with an unknown coordinate system, projecting data, and defining a projection.

Making a map layout
Working in layout view, tools for arranging map elements, data frame properties for layouts, adding legends, scale bars, and other map elements, exporting maps, and working with map templates.

Managing tables
Table structure, layer attribute tables, nonspatial tables, getting information from tables, field properties, table appearance, creating graphs and reports, connecting tables using joins and relates, and cardinality.

Editing features and attributes
Reasons to edit data, working with the editor toolbar, and edit sketches. Common editing tools, edit tasks,
snapping to features while editing, editing attributes, calculating values for geometry fields, and working with coincident geometry in a map topology. Typical editing workflow.

**Creating geodatabases and feature classes**
Types of geodatabases and geodatabase organization. Feature class organization, feature class properties and attributes, Metadata, creating, viewing, and editing metadata, importing and exporting metadata. Creating features in a new feature class.

**Getting locations from attributes**
Adding x,y coordinate data, Finding places and addresses, Finding routes and nearby places, geocoding, geocoding components including address table, address locator, and reference data, address matching overview, geocoding workflow, and reference data sources.

**Solving spatial problems with query and analysis**
GIS analysis basics, typical analysis workflow, common analysis operations including attribute and spatial queries, clipping data from layers, buffering features, and overlaying features, overview of geoprocessing, and analysis results.

**Customizing ArcGIS Desktop**
Why customize the interface? Customize dialog box, locating commands, adding new toolbars, commands, and menus, saving customizations, saving to a template and storing templates.

**Prerequisites and recommendations**
Participants should know how to use windows-based software. Prior GIS education or workplace experience is helpful but not required. This course provides the fundamental ArcGIS knowledge needed to enroll in *ArcGIS Desktop III: Workflows and Analysis*.

**Location**
The Center for Geographic Information Science, located within the Brewster Building at East Carolina University, provides an organizational structure and a central facility for the purposes of enhancing research, instructional, and outreach activities that deal with creation and use of geographically referenced data. The Center is dedicated to serving ECU faculty and students and off-campus constituents. The Center provides educational opportunities that reflect the community’s

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