GeoData

Advanced ArcGIS 10

COURSE OUTLINE

This course builds on the delegate's existing knowledge of the underlying principles and methods of Geographical Information Systems (GIS). It comprises a series of presentations and computer-based practical sessions using ESRI's ArcGIS software with example data sets taken from a variety of fields. The basic functionality of the main elements of ArcGIS (ArcMap, Catalog and ArcToolbox) is expanded upon and some extensions are introduced. Topics covered include: geodatabases; advanced labelling and symbology; advanced editing; using model builder; GIS customization with Python; extensions, online data, manipulating coordinate systems and spatial analysis/statistics tools.

This course is intended for those who have completed our Introduction to ArcGIS course or have equivalent knowledge and experience.

ANTICIPATED COURSE OUTCOMES / ACHIEVEMENTS

Aims and objectives

- To develop delegate's understanding of the fundamental concepts of GIS including its strengths and limitations.
- To widen delegate's experience beyond the core functionality of ESRI's ArcGIS software package.
- To expand on the skills needed to obtain, import, manipulate, analyse, interpret, manage and output spatial data in order to investigate topics in the delegate's area of interest.
- To demonstrate more advanced real-world uses of GIS.

Learning outcomes - by the end of the course, delegates will have a knowledge and understanding of:

- Working with geodatabases including importing existing data sets
- Advanced labelling and symbology including using annotation
- Basic automation using ModelBuilder and Python
- Advanced editing functions including spatial adjustment
- Basic customization of ArcGIS
- The basics of some ArcGIS extensions (Spatial Analyst and 3D Analyst) are demonstrated.
- Online mapping and sharing data.
- Manipulating Coordinate Systems in ArcGIS
- Spatial Analysis concepts and tools

For further information please contact:
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University of Southampton

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Day 1

1 - The GeoDatabase

What is a GeoDatabase?
GeoDatabase Terminology
Benefits of GeoDatabases
Creating Attribute Domains
Creating Subtypes
Raster: Mosaic and Catalog
Metadata

Exercise 1a – Creating a File GeoDatabase
Exercise 1b – Creating a Raster Catalog

2 - Manipulating Coordinate Systems

Map Coordinates
The Shape of the Earth
Modelling the Earth
Coordinate Systems (Geographic, Projected)
Map Projections
Coordinate system parameters in ArcGIS

Exercise 2 – Manipulating coordinate systems

3 - Advanced Editing

Editing Tools
  Move, Split, Construct parallel,
  Merge, Buffer, Intersect, …
Using Templates
Advanced Editing functions
Topologies
CAD-Style editing
Calculating the Centroid of polygons
Advanced Field Calculation

Exercise 3a – Advanced Editing
Exercise 3b –Advanced Field Calculation

4 – WebMapping

Packages
ArcGIS.com
Sharing data online
Embedding data into a website

Exercise 4 – Sharing data using ArcGIS.com and web mapping

5 - Labelling and Symbology

Label Styles
Converting to Annotation
Advanced Symbology
Custom Symbols

Exercise 5a – Labelling and Advanced Symbology

Day 2

6 – Spatial Analysis

Data Quality
Spatial Statistics
Union, Intersect, Spatial Join
Case Study

Exercise 6 – Spatial analysis case study

7 – Extensions

Overview
Loading an Extension
3D and Spatial Analyst Extensions
Other ESRI Extensions
3rd Party Extensions

Exercise 7a – Raster Analysis
Exercise 7b – Modelling 3D data

8 – ModelBuilder

Overview
Model Elements
Iterators
Inline variable substitution
Preconditions
Providing Help

Exercise 8 – Create a toolbox and model

9 – Customisation/Python

Toolbars and Customisation
Import Python script as a tool
Python Command line Window
Python IDE
Examples

Exercise 9a – Customise the ArcMap GUI
Exercise 9b – Python
Exercise 9c - Wiring a Python Script into ArcToolbox

10 – Consultancy Exercise

Delegates will bring together all their new skills to complete a consultancy task.

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