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:
GeoData, University of Southampton, Southampton
SO17 1BJ, Tel. +44 (0)23 8059 2719
gis-train@geodata.soton.ac.uk
www.gis-train.com
Advanced ArcGIS 10

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.

For further information please contact:
GeoData, University of Southampton, Southampton
S017 1BJ. Tel. +44 (0)23 8059 2719
gis-train@geodata.soton.ac.uk
www.gis-train.com