

## Advanced ArcGIS 10

### COURSE OUTLINE

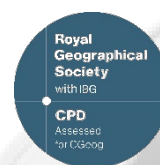
This course builds on the delegate's existing knowledge of the underlying principles and methods of Geographical Information Systems (GIS). It comprises a series of presentations and computer-based practical sessions using ESRI's ArcGIS software with example data sets taken from a variety of fields. 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.

**By attending training with GeoData you can accrue CPD points towards the Chartered Geographer accreditation.**

**All of our courses are validated under the Association for Geographic Information CPD scheme and the GIS Certification Institute GIS Professional (GISP) Award.**



### 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

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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.