

## Training the GIS Professional

# Introduction to Geoprocessing Scripts using Python 10.x (ArcMap)- 3 days

## Overview

By automating complex or time-consuming processes using scripts, you can increase efficiencies in GIS workflows and streamline data management. The ArcGIS geoprocessing framework includes a scripting environment, and Python® is the scripting language included with ArcGIS.

This course introduces the Python scripting syntax and shows how to use scripts to access and automate geoprocessing tasks. You will also work with ArcPy, an Esri-developed site package for Python that integrates Python scripts into ArcMap and ArcCatalog. Your instructor will show you how you can take advantage of these features with particular emphasis on demonstrating the new features which are then consolidated using “hands-on” exercises.

## Goals

- Write Python scripts using proper syntax.
- Incorporate cursors, describe objects, and list objects into scripts to manage and update data.
- Understand commonly used ArcPy classes and functions.
- Access geoprocessing tools and specify environment settings in scripts.
- Debug scripts and write code to handle errors
- Attach a script to a custom tool.
- Use ArcPy classes and geometry objects to create and update features and perform geoprocessing operations.
- Automate the production and exporting of a map series using the ArcPy mapping module.

## Who should attend this course?

- GIS Analyst
- GIS Technical Leads
- Desktop Application Developers

## Prerequisites

Please note that the Python Scripting Language is NOT taught during this course but knowledge is required prior to attending. It is highly recommended that delegates with no prior Python experience undertake our one day Getting Started with the Python Scripting Language course prior to attending this course.

## Contact Us

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## Topics Covered

- Introducing ArcPy: ArcPy functions, classes, and modules; Accessing ArcPy in ArcMap; Accessing ArcPy in PythonWin; Creating the geoprocessor
- Debugging scripts: Debugging workflow; Handling syntax errors
- Using describe objects: Describe function; Describing a feature class; Describing and clipping a raster dataset
- Automating scripts with Python lists: List functions; Iterating through lists
- Creating and updating data with cursor objects: Cursor objects and functions; The row object; Accessing geometry object properties; Using the SearchCursor and UpdateCursor functions
- Running scripts in ArcToolbox: Making scripts dynamic; Running scripts with arguments; Attaching a script to a custom tool
- Handling Python and ArcPy exceptions: Using try...except; Using Exception as e; Using arcpy.ExecuteError; Using the traceback module
- Creating and updating geometry objects: Working with a geometry list; Using geometry objects to populate a feature class; Using geometry objects in script tools and geoprocessing services
- Manipulating data schema and working with subsets of data: Creating a FeatureLayer object; Using the FieldInfo object; Using field delimiters in a SQL query; Creating a subset of features; Performing analysis on FeatureLayer
- Automating map production with the ArcPy mapping module: Grid index map series; Strip map index series; Creating a reference map book; Creating a map series book