**Workshop Descriptions**

**Introduction to Python for ArcGIS**

* Programming tools are now a standard feature within GIS software packages and allow GIS users to automate, speed up, and become more precise in their data management and analytic work. This workshop is designed for GIS users who have little to no experience to computer programming and will cover core programming concepts related to GIS using the Python programming language. The workshop will focus on guiding attendees through hands-on exercises designed to provide the essential skills to programmatically manipulate data as part of a GIS workflow. This workshop is designed to be preparation for the afternoon workshop on **Advanced Python for ArcGIS** but may be taken independently.
* **Specific Topics include:**
* Core Python programming concepts
* Introduction to ArcPy site package for ArcGIS
* Working with geospatial data using Python and ArcPy
* Simple data management and geoprocessing tasks

**Advanced Python for ArcGIS**

* Building on **Introduction to Python for ArcGIS,** but open to anyone with some programming experience, this workshop will expand Python skills to further use in ArcGIS. The workshop will focus on expanding data management and geoprocessing capabilities with Python scripts. Participants will learn to build multiple standalone geoprocessing scripts covering different GIS tasks and workflows, as well as how to create scripting tools in ArcGIS toolboxes for reuse and sharing. Participants will finish with the skills to explore more resources and options for utilizing Python in ArcGIS.
* **Specific Topics include:**
* Advanced work with the ArcPy site package for ArcGIS
* Advanced data management and geoprocessing
* Build and share stand-alone Python script tools for automation
* Learn tips and tricks for valid script syntax and error handling

**Computing and Software Needs**

* Your own laptop (no tablets); computers will not be provided.
* [PyScripter](https://sourceforge.net/projects/pyscripter/files/)v. 2.6.0 (32-bit version)
* ArcGIS for Desktop 10.x (Standard or Advanced preferred)

**Instructors**

* James Whitacre, GIS Specialist, University Library, University of Illinois at Urbana-Champaign
  + As the GIS Specialist in the Main Library at the University of Illinois at Urbana-Champaign, Mr. Whitacre's primary role is to provide GIS consultation and research assistance for faculty, staff, and students. Additionally, he teaches a myriad of GIS workshops for beginner to advanced users and helps manage the Library's GIS data and software assets. He is also a central resource for the GIS community on campus to promote the use of GIS in research. Mr. Whitacre holds a Master of Science in Geography and was previously the GIS Manager for the Carnegie Museum of Natural History.

Outline

**Beginner Python for GIS Users**

Goals

Section 1: Understanding Python fundamentals

Lecture: Python Basics

Exercise: Using the PyScripter IDE

Lecture: For Loops, etc…

Exercise: Field Calculations Using Python

Section 2: The ArcPy Site Module

Exercise: Describing Data with Python

Exercise: Editing the Map Layout with the ArcGIS Python Window

Exercise: Geoprocessing with the ArcGIS Python Window

Outline

**Advanced Python for GIS Users**

Goals

Section 1: Understanding Python fundamentals

Lecture

Exercise: Using the PyScripter IDE

Section 2: Using Python in ArcGIS for Desktop

Lecture

Exercise: Field Calculations Using Python

Exercise: Geoprocessing in the ArcGIS Python Window

Need to know ArcPy…

Resources

Esri Free Training: Python for Everyone –

<http://training.esri.com/gateway/index.cfm?fa=catalog.webCourseDetail&courseid=2520>

Esri Training Python Courses - <http://training.esri.com/gateway/index.cfm?fa=search.results&searchterm=python>