Tall Timbers Research Station & Land Conservancy

GIS WORKSHOP

ADVANCED GEOSPATIAL TOOLS & TECHNIQUES IN NATURAL RESOURCES: Python Programming & Scripting

Workshop Dates: 21 - 25 May 2012

Early Arrival: 8:00 am – Breakfast Provided

Start Time: 8:30 am

Workshop Duration: 5 days

Registration Deadline: Monday, May 14, 2012

Location: Tall Timbers Research Station & Land Conservancy – *The Barn*

Instructors: Theron M. Terhune, PhD, GISp

Course Website: http://www.gis.ttrs.org/GISHome.html

Cost: Option 1: 5-Day Workshop $685.00
Option 2: 3-Day Workshop $575.00
Workshops include all materials, workbook, GIS data on Jump drive, software, & snacks/drinks and lunch.
*****New** Group (5 seats or more) Rates Available:*
******New** On-Site Lodging is Available:*
Contact us via Email or phone for more details.

Registration Limit (max): **15**

What to Bring: Laptop (pref.), if available. Appropriate attire for field data collection!

Topics Covered: Focus will be on ArcGIS 10 but relevant extension/reference to version 9.3 will be provided. Advanced geo-processing; batch processing; model builder; an Introduction to Python; Integration of Python and ArcGIS; Creation of GIS tools; Toolbox functionality: importing; creating; and sharing scripts; Optional Advanced Python coding exercises including talking to program R and MySQL.

Description: This is a hands-on, exercise-based Python Programming course with direct application to GIS topics that explores the range of functionality of ArcGIS beyond the out-of-the-box geospatial solutions. The course has been tailored to aptly benefit those working in conservation and natural resources, but may also broadly apply to professionals outside these fields.
You do not need to have experience or vast knowledge of Python (we will assume you have little to no programming experience) to take this class but you should have a relatively good understanding of and adequate experience with ArcGIS.

Tentative Schedule

Days 1 - 3, Module Topics:

Geoprocessing & Batch Processing

Overview of Geoprocessing Concepts
Geoprocessing via Batch mode

Model Builder

Working with Shapefiles, Feature Classes, etc.
Creating and Using Geodatabases
Parameter defintions
Generate Models to increase throughput and efficiency
Exporting and importing models

Mechanics of Tools and ArcScripts in ArcGIS

Searching for, loading and working with Tools and scripts
Toolboxes and customized scripts
Third Party Tools and functionality

Introduction to Python

Basics of Python Programming and Concepts
Text Editors: PyWin, etc.

Working with Python Data types

General data formatting in Python
Getting to know strings; lists; variables, and etc.

Digging Deeper into Python Concepts

Loops & Making Decisions
Working with geometry: cursor objects; point objects; etc.
Working with subsets of data (e.g. tables, fields and records)

Integration of Python into ArcGIS

ArcToolbox
Advanced Model Builder
Interactive Python
ArcScripts and Custom tools

Python Modules & Functions

Importing built-in Python modules
Simple Writing and Reading of Text and Excel Files

Troubleshooting and Debugging Scripts

Manual and Automated Debugging

Days 4 & 5, Module Topics:

Advanced Geoprocessing & Batch Processing

Scheduling Python Scripts for Batch Processing
Advanced Geoprocessing

Advanced Programming & Scripting in Python

Working with Dictionaries, Functions, & Classes
Organizing and Structuring Efficient Scripts
Designing & Releasing your own Python Modules

Advanced Sharing Custom Tools and Scripts: toolboxes and such

Creating Executables for Module/Script Distribution

Tapping into the Power of in Python and ArcGIS Simultaneously

Summarizing, Writing, and Exporting Data
Accessing Databases (e.g. MySQL): reading and writing
Accessing Statistical Software: using Python to talk to program R

Workshop Participant Questions

Working with "Real" Data and Consulting:

Problems, work-a-rounds and solutions
**You are encouraged to bring your own data and questions
**Python scripting setup and design questions

Tall Timbers Research Station & Land Conservancy

GIS WORKSHOP

Advanced Geospatial Tool & Techniques in Natural Resources

Application Form

Name: _____Agency/Organization: _____

Address: _____

City: _____ State: _____ Zip: _____

Primary Phone: _____ Cell Phone: _____

**Email Address[1]: _____

If student, School Name: _____Are you interested in CEU's? ☐ Yes ☐ No

Please rate your Windows – based PC experience: ☐ Beginner ☐ Intermediate ☐ Advanced

Please rate your GIS – based experience: ☐ Beginner ☐ Intermediate ☐ Advanced

What GIS software products have you worked with? _____

_____

Method of payment: ☐ Credit Card ☐ Check Enclosed ☐ Money Order ☐ P.O Number: _____

Credit Card Information: ☐ Master Card ☐ Visa Credit Card #_____

Expiration Date: _____ Signature: _____

Refund Policy for Cancellations:

- ✓ 2 – 3 weeks prior to class: full refund;
- ✓ Less than 1 week prior to first class meeting: no refund.

Applications & Payments are due by Monday, 14 May 2012
For more information: visit the course website, call (850) 893 – 4153 (ext. 268) or E-mail: theron@ttrs.org

Send this application to: **Theron M. Terhune,**
13093 Henry Beadel Drive, Tallahassee, FL 32312
Or email it: theron@ttrs.org
Or fax it to: (850) 906 - 0837

Reserve your place early by sending in your application ASAP! ** (Pre-payment is required – but will not be processed until the Monday 1 week prior to workshop start date)*

[1] Email will be the primary means of correspondence for this workshop and dissemination of updates, GIS data, etc.