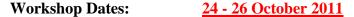*Tall Timbers Research Station & Land Conservancy*

GIS WORKSHOP
ADVANCED GEOSPATIAL TOOLS & TECHNIQUES
IN NATURAL RESOURCES: Python scripting and model building

Workshop Dates:	<u>24 - 26 October 2011</u>
Early Arrival:	7:30 am – Breakfast Provided
Start Time:	8:00 am
Workshop Duration:	3 days
Registration Deadline:	Wednesday, October 19, 2011
Location:	Tall Timbers Research Station & Land Conservancy – *The Barn*
Instructors:	Theron M. Terhune, PhD
Course Website:	http://nbci.ttrs.org/GISWorkshop/index.html
Cost:	$575.00 – includes all materials, workbook, GIS data on Jump drive, software, & snacks/drinks (3 days) and lunch (3 days) *New Group Rates Available:* please 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 is on **ArcGIS 10 (but exercises will be available in 9.3 also).** 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 GIS course 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. We will explore advanced tools and techniques for creating, working with, visualizing, and managing geographic data through advanced geo-processing, batch processing and model builder. In particular, we will focus substantial time learning Visual Basic and Python programming to integrate into ArcGIS creating tools, GUIs and other custom functionality. You do not need to have experience or vast knowledge of VB or 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

Day 1:

Morning: **Advanced 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

Integration of Tools and ArcScripts into ArcGIS
Searching for, loading and working with Tools and scripts
Toolboxes and customized scripts
Third Party Tools and functionality

Very Brief Introduction to Visual Basic & VB.net
Introduce Visual Basic Concepts
Load and augment prebuilt VB code
Creating Tools
Tools vs. Scripts
Creation of UIbuttons and UITools
A Proxy to Call Python?

Afternoon: **Introduction to Python**
Basics of Python Programming and Concepts
Text Editors: PyWin, etc.

Integration of Python into ArcGIS 10
ArcToolbox
Model Builder
Interactive Python

***** *Group Mini-Project Challenge* *****

Day 2:

Morning: **Working with Python Data types**
General data formatting in Python
Getting to know strings; lists; dictionaries

Python Modules & Functions
Importing built-in Python modules
Writing and Reading Text and Excel Files

Integration of Python into ArcGIS
ArcScripts and Custom tools

Afternoon: **Advanced scripting in Python**
Working with geometry: cursor objects; point objects; etc.
Working with subsets of data (e.g. feature classes, tables, fields and records)

Troubleshooting and Debugging Scripts
Manual and Automated Debugging

Sharing custom tools and scripts: toolboxes and such

***** *Group Project Challenge* *****

Day 3:
Morning: **More Advanced Topics in Python and ArcGIS**
Accessing Databases (e.g. MySQL): reading and writing
Accessing Statistical Software: using Python to talk to program R

Work on Group Project

Afternoon: **Presentation and Discussion of Group Projects**

Workshop Participant Questions
Work 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 Wednesday, 19 October 2011
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 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)*

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