PROGRAM DETAILS

Introduction to ArcGIS10.4 Desktop

Instructor: Ryan Kelly Assistant Professor, Bluegrass Community and Technical College

This eight-hour short course in ArcGIS10.4 will be broken into two components. The morning component will address fundamental basics with the software, including such items as importing data into the software, basic data display techniques and performing simple data queries for basic analysis. The afternoon component will examine importation of spreadsheet data, linking of tables to existing data sets, advanced data queries, and will conclude with an examination of the powerful program extension Spatial Analyst.

Beginners with no prior experience with ArcGIS10.x who want to get a basic command of the software and perform core analytical tasks on their data. Participants who already have a fundamental knowledge of the software basics are welcome to join the afternoon session (pending space availability).

The instructor will provide a basic data set which will be used during the course of the workshop.

Ryan Kelly has been employed at Bluegrass Community and Technical College since January 2000. He teaches various introductory geography courses and runs the Certificate in GIS Technology program, including instruction of all GIS courses, at the institution. He was promoted to the rank of Assistant Professor in 2003, to the rank of Associate Professor in 2006, and to the rank of Professor in 2012. He earned his Geographic Information System Professional (GISP) certification in 2008. He is the Program Director of the Kentucky Institute for International Studies (KIIS) Program to Ecuador. Ryan is originally from the Gulf Coast of Florida but has resided in Lexington for a total of twenty-two years. His hobbies include racquetball, computers, high-altitude hiking and world travel. He has visited seventy foreign countries to date and has been to forty-nine of the fifty states of the USA.
Agricultural Nutrient Management Planning with ArcGIS Online

Instructor: Ben Koostra, P.E., Consultant, Limestone & Cooper

Livestock producers use nutrient management planning to optimize crop yield and quality, minimize fertilizer costs, and protect soil and water resources. Livestock waste is applied to crop fields in the right amount, in the right place, and at the right time. GIS can be used to assist in the planning process to accurately determine field acreages and to create application setbacks by buffering streams, sinkholes, publicly-accessible roads, and adjacent residences. Using a Kentucky dairy farm as an example, participants will use ArcGIS Online to map crop fields and plan for the application of livestock waste to provide benefits to the farm and protect the environment.

Ben Koostra is a consultant with Limestone & Cooper, a boutique geospatial consulting company based in Lexington. Previously, he managed research and development projects as an Engineer at the Biosystems and Agricultural Engineering Department at the University of Kentucky. Ben was also a Staff and Project Engineer at LAW Engineering and Environmental Services (now AMEC). He has a BS from the University of Kentucky and is a registered Professional Engineer in Kentucky. Ben has previously served as Secretary and Director of KAMP.

Using Modelbuilder to Automate Repetitive Processes

Instructor: Caroline Chan, Ph.D., Environmental Scientist, Kentucky Division of Water

Modelbuilder is a feature of ArcMap that allows the user to automate repetitive processes by stringing together a set of steps (or tools) and then saving them as a new, unique tool. In this session, we will:

- Discover what Modelbuilder can do
- Learn when it is appropriate to use Modelbuilder
- Complete a Modelbuilder exercise by constructing a tool using relevant features of Modelbuilder:
  - Create toolbox
  - Add layers and tools to model
  - Input parameters
  - Tool Output
  - Iteration
  - Save to toolbox

Caroline Chan received a doctorate in Public Health, Environmental Health Sciences in 2012. She is now an Environmental Scientist for the Kentucky Division of Water in the GIS and Data Analysis section. Her primary role is to analyze regulatory and monitoring
data to inform decision-making. This includes geospatial analysis. She is always excited by new projects that challenge her to explore new ways to look at how the world around her operates.

Field Data Collection on My Smart Device

**Instructor:** Vince DiNoto, GISP, Director, National Geospatial Technology Center of Excellence, and Professor, Jefferson Community and Technical College

The workshop field and lab exercise will show how to do field data collection and build a Collector application. It is suggested that participants load Esri’s Collector App on their smart device prior to coming to the workshop. Field data will be collected (accounts provided) and how to build an Enterprise level field data collection application will be shown. This will include maintaining the dataset behind a secure firewall.

Vincent A. DiNoto, Jr. is Dean of College and Systemic Initiatives and a Professor of Physic, Astronomy and GIST at Jefferson Community and Technical College. He received his M.A. and B.S. from Indiana State University in Terre Haute and has been on the faculty at Indiana State University and Indiana University Southeast prior to coming to Jefferson. He holds a GISP Certification. He is currently the Director and PI of the National Geospatial Technology Center of Excellence and a mentor for both MentorLinks and MentorConnect. He has been co-PI of the National Supply Chain Technology Education Center, co-PI of the National Information and Computer Center and director and co-PI of Kentucky Information Technology Center (KITCenter). He has served as a PI, Director or co-PI on numerous grants from NSF and other funding source. He developed one of the first online classes in Astronomy as well as one of the first observational Astronomy Laboratories at a two-year college. He and the GeoTech Center were awarded in July of 2014 the Innovation Award by the HITEC conference. He has authored numerous courses most recently in GIST and offered them in an online delivery mode. His current research interest includes educational technologies, research of neighborhoods both historically and environmentally, mapping of historical Civil War Battlefields and the study of Water Powered Industries. His current projects include the development of a Public Art Story Map for Jeffersonville, IN and a Collector application of Historical Markers. He has written and presented numerous professional article most recently published a work on the Two Great Armories in Old Mill News and in the works is: The Millpond at Gettysburg How it Changed the Battle.

Additional Uses for Existing LiDAR Data

**Instructor:** Jeremy Mullins, GISP, C.P., P.L.S., Vice-President, Metro ’Geospatial

Currently, most LiDAR projects result in deliverables of only bare ground data (DTM, contours, grid…). This session will focus on the additional uses of LiDAR data using previously acquired point cloud data from the Kentucky From Above project currently in
progress. We will work in the ESRI environment extracting building heights, vegetation limits, limited planimetric features, and slope and drainage analysis.

Mr. Mullins has over 20 years of experience in the geospatial field, including 17 years of experience working with differing LiDAR technologies. He is a Certified Photogrammetrist, Licensed Surveyor (Ky), and GIS Professional, and currently serves as Vice-President at Metro GeoSpatial. His LiDAR experience includes flight planning and product generation from aerial LiDAR sensors, mobile scanning, and static scanning, as well as developing work flows for each technology. Managed projects have included 1’ and 2’ contour mapping, 3d modeling, and high accuracy (better than 0.1’) engineering-support.

Data Visualization and Watershed Analysis using LiDAR DEMs
Instructor: David Chan, GIS Specialist, USDA-NRCS

Large geospatial datasets are becoming more and more accessible through cloud-based services. However, such datasets may seem like a daunting task to use in everyday work, despite being free to use. Here, we will leverage data from the Kentucky Division of Geographic Information’s LiDAR elevation server to download, visualize, and analyze high-resolution elevation data. We’ll create various elevation derivatives and data visualizations to enhance the underlying data. Then, the data and derivatives will be used to perform a small-scale watershed analysis. The goal of this exercise is to give participants exposure to some of these readily available datasets and experience with using off-the-shelf tools to make best use of these data. The intended audiences are: natural resources professionals, engineers, and students with an intermediate knowledge of ArcGIS.

David Chan has been working with the USDA-NRCS since January 2014 as a GIS Specialist, helping provide GIS support and geospatial data management for NRCS field personnel. A Kentucky native, he holds an MS in Natural Resources from the University of Arizona and a BS in Environmental Science from the University of Notre Dame.

Consuming GIS Data from Kentucky’s Provisioning Services for Spatial Analysis
Instructor: Demetrio P. Zourarakis, Ph.D., GISP, CMS-GIS/LIS, CMS-RS

Concepts and buzzwords such as “Big Data” and “Open Data” seem to be today’s driving force behind all data and information flow. Using GIS as the example of “big data” made available and being “open” by definition, this part of the workshop will provide participants with a list of services that can be brought to bear in analysis and modeling. Web mapping services and image services will be used to extract information from terrain data (e.g. LiDAR-derived DEMs), multispectral, high resolution aerial
imagery (KYAPED) and vector data services by performing geoprocessing tasks. Ingestion and processing of data in other platforms will be explored, such as ArcGIS Online, and Google Earth. A list of resources beyond those of the Commonwealth will be provided and examined as time allows.

Demetrio P. Zourarakis is a GIS and Remote Sensing Analyst with the Kentucky Division of Geographic Information; his duties include data processing and information analysis, as well as outreach and agency consultation and coordination. He also administers the Kentucky Esri Site License Program for Postsecondary Education. He holds GISP (GISCI) and Certified Mapping Scientist (ASPRS) – Remote Sensing and GIS/LIS, certifications and re-certifications. He holds a Ph.D. from the University of Kentucky, a M.Sc. from Iowa State University and a B.S. from the University of Buenos Aires, Argentina. Demetrio is a charter member of the Kentucky Association of Mapping Professionals and the Cumberland Chapter of URISA. He is a member or chair of several state, regional and national technical committees, and serves in several advisory roles to projects and programs. He has received numerous awards, published articles and monographs and presents regularly at conferences.