**2103 IGIC Biennial Conference - GIS’t Map It**

Workshop Descriptions – Tuesday April 2, 2013, Washington Hall

**Control and Guidance in Precision Farming**

Workshop Instructor – Terry Brase

Schedule: 8:00 am – 12:00 pm Room 102, Shop Area 2, and outside

This workshop will provide an overview of precision farming field practices that increase efficiency. Sessions will include: a preview of the technology; hands-on activities with guidance and application equipment; and a discussion efficiencies that the technology provides to the farmer. Actual use of the equipment will be dependent on number of participants and weather and soil conditions.

**Basic Python**

Workshop Instructor – Caleb Mackey

Schedule: 8:00 am – 12:00 pm , Room 116 GPS/GIS Lab

No previous Python experience required.  This session will begin by covering basic programming fundamentals that are essential to integrating Python into your GIS workflow.  I will then show how to do many different workflows in Python that are very common for a GIS Analyst, syntax structure, Python help resources, batch processing, setting scripts to execute as a scheduled task, creating custom script tools, and accessing and updating records in attribute tables by using cursors. This session will be a great starting point for those who want to start integrating Python into their workflows.

**Introductory LiDAR**

Workshop Instructor - **Greg Brunner, Esri**

**Schedule: 8:00 am – 12:00 pm: Computer Lab 20**
This course will cover an overview of the technical basis for LiDAR. It will include a series of discussions and exercises on using LiDAR data and focus on how to use LiDAR data in ArcGIS Desktop 10.1. The industry-standard binary LAS file format will be discussed. LiDAR point attributes such as return number, classification code, and intensity will be covered and students will learn how these can be used for various applications and how they can be analyzed in ArcGIS Desktop 10.1. Exercises will take students through the steps of visualizing and analyzing LiDAR as a pointcloud in ArcGIS Desktop. Students will also learn the processes for creating digital surface models, digital terrain models, and intensity images from LiDAR data. Students will learn how to derive slope, aspect, hillshade, and shaded relief maps from elevation models. The class will also include a discussion on sharing LiDAR data with ArcGIS Server and students will be shown how to access DSMs and DTMs that are being shared on the web.

**Advanced Python Session**Workshop Instructor – Caleb Mackey

Schedule: 1:00 pm – 5:00 pm , Room 116 GPS/GIS Lab

Some previous Python experience recommended (or at least attending Beginner Session).  This session is geared more towards those who have some Python experience already and would like to get better.  I will show advanced tricks and tips that can make scripts run more efficiently (will also show some custom tools I have written that run more efficiently than ArcGIS tools).  This session will cover topics such as reading object properties, the arcpy.Mapping module, creating Python dictionaries and using them with cursors, creating functions/modules that can be used in other scripts, creating log files and custom error handling, interactive scripts (accepting user input), and creating custom tools.

**Cartography & GIS Basics Workshop**Workshop Instructor – Micah Cutler

Schedule: 1:00 pm – 5:00 pm , Computer Lab 20

Are you relatively new to ArcGIS or haven’t had the time to figure out how to make your maps and data work for you? This workshop will focus on basic techniques for creating good looking maps, including what map elements you should include, how to make the legend complete and accurate, and what kind of disclaimer information you should always include. Additionally, we will cover beginning topics such as creating new data layers, selecting from existing data sets, and exporting data out of GIS. This workshop is for beginners.

Please note: Those who sign up for this workshop will have the opportunity to submit questions and suggest covered topics prior to the IGIC Conference.

**High-Accuracy GPS using Esri Workflows**

Workshop Instructor – Lanny Schnipper

Schedule: 1:00 pm – 5:00 pm, Room 102

This presentation will cover the process of working with GPS data within an Esri software workflow. Using Trimble Positions, an extension to ArcGIS Desktop Standard or Advanced version 10.1, it is possible to stay completely within the ArcGIS environment while working with GPS data. Check data out; use, verify, and update the data in the field using either ArcGIS Mobile or ArcPad; and then check updated data back in. Then process GPS data to achieve up to decimeter accuracy. It is also possible to leverage mobile data plans to move data in real-time from the field. This permits instant updates to your GIS data for time-critical applications. Detailed metadata is stored on every position, ensuring your GPS data is compliant with your GIS standards. There are no extra steps or complicated procedures to follow or file conversions to complete. This presentation will highlight the technical details of how this works and also show specific applications that have benefited from this technology. GPS hardware will be available.

**Instructor Biographies
Caleb Mackey**

Caleb is currently working as the GIS Technician for Cedar County in Tipton.  Caleb received a Bachelor's Degree in Geography from Western Illinois University (WIU) with minors in GIS and Zoology.  He became interested in the powers of GIS after taking a Cartography class. While studying at WIU, he was fortunate to have the opportunity to work at the WIU GIS Center (also known as the McDonough County GIS Consortium), gaining valuable "real world" GIS experience by completing projects for paying customers.

**Micah Cutler**

Micah has worked in county government since 2000. She is currently the GIS Coordinator for Hardin and Franklin Counties, an unique shared position between two counties since 2006. Micah is active in the Iowa Counties Information Technology Organization (ICIT), an IT/GIS affiliate of the Iowa State Association of Counties. She serves as Secretary for the Iowa Geographic Information Council (IGIC) as part of the Executive Board. Micah received a M.S. in Geography from the University of South Carolina and a B.A. in Geography and Earth Science from the University of Northern Iowa.

**Terry Brase**

Terry has been teaching geospatial technology as applied to agriculture since 1993 when he got a Trimble GeoExplorer from a civil engineer instructor. He developed the first in the nation two – year degree program in precision agriculture at Hawkeye Community College and was instrumental in developing AgrowKnowledge, The National Center for Technology in Agriculture at Kirkwood Community College. Terry is currently teaching and coordinating the Agriculture Geospatial Technology program at Kirkwood.

**Jay Riester**

Jay is a Mapping Technical Support Specialist with Seiler Instrument since 2007.  He is a Trimble Certified Trainer in mapping-grade GPS, TerraSync, Trimble GPS Analyst, GPS Correct, ArcPad and Pathfinder Office. He provides both technical support and training for Seiler Mapping customers. Prior to working with Seiler Instrument he worked in the GPS/GIS asset management industry collecting data for utility companies and DOT's throughout North America since 1996.  Jay graduated from University of Wisconsin in Oshkosh with a Geography degree in 1996.

**Tom Rogers**

Tom is a Mapping Sales Representative with Seiler Instrument since 2006. Prior to working with Seiler Instrument he worked in the private mapping sector, the Utility Engineering Industry and the Civil Engineering Industry. Tom has over 10 years experience using Trimble GPS for data collection. Tom graduated from Southern Illinois University with a degree in Applied Engineering Technologies.

**Greg Brunner**

Greg works for ESRI Professional Services in St. Charles, MO where he is the resident imagery and 3D expert. He also serves as Vice President of the St. Louis Region of ASPRS. Outside of work he enjoys spending time with his wife Elizabeth and daughter Miriam.