

**Course Schedule**  
**Cave and Karst Field Data Collection and Visualization**  
*(Subject to change depending on student needs or requests)*

**Sunday: June 5, 2022**

7:30pm Sign in

- class orientation
  - o WKU orientation
  - o Park Orientation
- Overview of Learning Outcomes
- Equipment/software demonstrations
- Review Next Days Exercises/ gear needed

**Monday: June 6, 2022**

8:30am-11:00 AM

- Types of karst field data and what to do with it
- Intro to cave data collection
- Compass/DistoX calibrations – importance and procedures  
Demo compass/distoX calibrations
- Field Exercise: In-Cave data collection exercise

12:30 -1:30pm Lunch break:

1:30-5:00 pm

Lesson: Data Reduction and Plotting

- o Data Import
- o Data Check
- o Plot
- o Other Programs
- o Adding more data

Dinner break: 5:00-6:30pm

Evening session -6:30-8:30

- o Working with volumetric and 3-D plots

**Tuesday: June 7, 2022**

8:30am-Noon

- Georeferencing
  - o GPS Field Data Collection Exercise
- Understanding coordinate systems
  - o Datums
  - o Projections
  - o UTM versus State plane vs Lat/Long
- Determining and using magnetic declination
- Georeferencing caves with cave radios

Lunch break: Noon-1:00pm

1:00-5:00pm

- Introduction to Cave Radio location
- Field exercise- using cave radio

Dinner break: 5:00-6:30pm

Evening session: 6:30-8:30pm

Lecture Georeference and portray the data

- Lesson 3: Portraying the Data
  - Exporting the Data to Google Earth, KML, GIS Shapefile formats
  - Export to other software
  - Upload Data to GPS unit

### **Wednesday, June 8, 2022**

8:30-Noon

- Basics of ArcGIS Online (AGOL) (the most user friendly of ESRI products!)
  - Signing on to ArcGIS online (AGOL) (Create public sign-on)
  - AGOL format and use
  - Choosing baselayers
  - Looking for and inputting layers
    - Geotopo
    - Geology
    - Arial
    - topos
  - Adding point and Shape data
    - As CSV
    - As shape
  - Build applications
  - Privacy concerns

Lunch In Horse Cave

1:00-5:00pm

Georeference Karst feature/ infrastructure in Horse cave/ Hidden cave locations (field trip)

- Horse cave location
- Cave radio location

Dinner break: 5:00-6:30

Evening session: 6:30-8:30pm

Portray Horse cave data into GIS layers

- Topo
- Geotopo
- Dye trace layer
- Hidden river line plot

## **Thursday, June 9, 2022**

8:30-Noon:

- Resource inventories and databases
- Use of CaveBase (a Compass extension)
- Attribute tables
- Geodatabases in GIS
- Survey123 How to

Lunch Break: Noon-1:00-pm

1:00-5:00

Field exercise – collecting cave surface inventory data (with Survey 123, we will supply survey for this exercise

Dinner Break: 5:00-6:30pm

Evening session: 6:30-8:30pm

- Using Point Cloud data (LIDAR & photogrammetry)
- Getting survey data from AGOL
- Portray data in AGOL and compass

## **Friday, June 10, 2022**

8:30-Noon

- Introduction to Three -dimensional rendering and analysis cave/karst data
- Field exercise for collecting 3-D data, Geophysical data collection demonstration

Lunch Break: Noon-1:00pm

1:00-5:00

- Generating cave passage models  
Demo to ArcScene

After dinner

Methods for cave/karst feature morphometric analysis

- Cave XO 3D passage viewer (Compass)
- Two and 3D Rose diagrams
- Cave entrance and passage plotting exercises
- Processing and plotting of cave radio-location data

## **Saturday: June 11, 2022**

8:30-Noon

Student Projects and open learning