

# CAVE SURVEY & CARTOGRAPHY

## Tentative Class Schedule

### June 18-23, 2023

#### Course Overview: (Sunday)

7:00-9:00pm

Introduction, discussion of course outline. Student experience survey. Display of survey instruments, field data, maps and other digital representations.

#### *Lecture topics:*

- Overview on software/hardware for data collection, reduction, cartography.
- Why do we map caves? What is the purpose of the cave map?
- Overview on data collection/survey standards for class. Low impact surveying methods, digital data collection, digital cartography, georeferencing maps (use of GPS with cave survey, LIDAR data)

#### Day 1 (Monday)

8:30-11:30 am

#### *Lecture topics:*

- Basics of cave survey/inventory, classroom exercise
- Introduction to “paperless” field data collection
- Sketching to scale
- Surface and in-cave quality control techniques
- Underground teamwork
- Using GPS with cave survey

Noon-1:00pm lunch break at Hamilton Valley

1:00-4:30pm

- In-cave mapping at Adwell Cave – GPS tracklog to cave and entrance location.
- Cave survey *Novice*: emphasis on plan view, *Intermediate*: cross sections with plan

4:30-6:30pm dinner break at Hamilton Valley

6:30-9:00pm

- Demonstration of various plots and representations of cave passage
- Cave survey data entry and quality control
- Magnetic declinations
- Class work: Transforming field notes into a digital cave map
- Data reduction from field exercise
- Introduction to digital cave cartography techniques

## **Day 2 (Tuesday)**

8:30 – 11:30 am

*Lecture topics:*

- Introduction to Cross sections and profiles
- Introduction to georeferencing cave data
- Acquisition of georeferencing data (LIDAR, Digital topographic and geological/hydrological data)

Noon-1pm Lunch at Hamilton Valley

1:00-5:30p

- In-cave mapping (Dogwood Cave) with plan, profile and cross sections, resource inventory

5:00-7:00 pm dinner break at Hamilton Valley

7:00-9:30pm

- Class work: Cartographic representations from days field exercises
- Optional: Resource inventory database – constructing a simple spreadsheet for inventory data.
- Downloading topographic maps, LIDAR data, georeferencing cave data:

## **Day 3 (Wednesday)**

8:30-11:00 am

*Lecture topics:*

- Passage delineations using Disto
- Cross sections and vertical profiles – continued

11:30 – 1:00 Lunch in Horse Cave

1:00-5:30pm

- In cave mapping in Hidden River Cave.
- GPS tracklog to cave, GPS entrance
- Use of laser disto for mapping entrance sink
- Novice: Cross sections with triangulations
- Intermediate: (plan, cross sections & profile)

6:00-7:00pm dinner break at Hamilton Valley

7:00-9:30pm

- Class work: Digital cartography using today's field notes
- Continue working on cartographic projects

#### **Day 4 (Thursday)**

8:30-10:00am

*Lecture topics:*

- Profiles (continued)
- Sketching large cave passages and rooms, clipboard sketching
- More on cave inventories

10:30am-4:00pm (bring in-cave lunch)

- In-cave mapping exercise: Cave TBD – mapping a large trunk passage and chamber  
*Novice:* plan view, cross sections on clipboard  
*Intermediate:* plan view, profile, cross sections, resource inventory in GIS(optional)

5:30-7:00 dinner break at Hamilton Valley

7:00-9:00pm

- Class work: Digital cartography using today's field notes
- Continue working on cartographic projects from previous days

#### **Day 5 (Friday)** Bring in-cave lunch

8:30 – 3:30 In-cave mapping exercise: Survey in Cathedral Domes area of Mammoth Cave  
Mapping complex passages, loops, passage delineations

4:00-6:00pm dinner break at Hamilton Valley

6:00-9:00pm Data entry, cartography for day's exercise  
Digital cartography continued – finish class projects

#### **Day 6 (Saturday)**

8:30-10:30am - Course wrap-up.

Discuss cartographic projects for those taking the class for credit.