Cave survey and Cartography

Day 1 (Sunday)
6:00-6:45  Orientation: Mammoth Cave, WKU
Discuss course outline. Student experience survey.

6:45-7:00  Break:

7:00-8:00  Lecture: Why do we map caves? What is the purpose of the cave map?
Low impact cave mapping
Overview on software for data reduction and cartography

8:00-9:00  View displays of survey instruments, cave maps on display

Day 2 (Monday)
8:30-10:30 Lecture: Overview on data collection/survey standards for class
Basics of cave survey
Keeping book for survey
Importance of teamwork
Exercise: Collecting and plotting cave data

10:30-10:45  Break – 15 minutes

10:45-Noon  Lecture: Introduction to cave map symbols
Sketching to scale
Surface and in-cave quality control techniques (includes marking survey stations)
Why and how to incorporate entrance GPS location in the survey notes

Noon-1:00pm  Lunch at Hamilton Valley

1:00-4:30pm  In-cave mapping at Adwell Cave
How to get started; importance of entrance location data
Novice: emphasis on plan view
Intermediate: cross sections with plan

5:00-6:30pm  Dinner at Hamilton Valley

6:30-7:45pm  Demonstration: Various plots and representations of cave passage
Lecture: Magnetic declinations
Entering data into Compass Cave survey Program (directed instruction)
Creating plots for cartography (from day’s field notes)

7:45-8:00  Break

8:00-9:30:  Class work: Data reduction from field exercise
Elements of a good cave map
Draw map from notes
Day 3 (Tuesday)
8:30 – 10:30  Lecture: Introduction Cross sections and profiles
              Sketching on a clipboard
              Large Room sketching – Splay shots and floor detail
              Mapping loops
10:30-10:45  Break
10:45-Noon  First Digital Carto Lesson: Importing to Illustrator and Walls
Noon-1:00   Lunch
1:00-4:30   Map a large room to include two cross sections
            Make a survey loop
4:30-4:45   Break
4:45:5:30   Data entry
            Second Digital Carto Lesson: Symbols brushes and geology
5:30-6:30  Dinner at HV
6:30-7:45  Data reduction from days field exercise, create plot
            Lecture: Cartographic representations from days field exercises
7:45-8:00  Break
8:00-9:30  Class Work: Draw day’s field exercise

Day 4 (Wednesday)
8:30-10:00  Lecture: Cross sections - continued
            Triangulations
            Plotting profiles
            Introduction to digital sketching
10:00-10:15 Break
10:15-11:30 Third Digital Carto Lesson: Details
11:30 – 1:00 Lunch in Horse Cave
1:00-5:30pm In cave mapping in Hidden River Cave.
            Use of laser disto for cross sections
            Novice: Cross sections with triangulations
            Intermediate: (plan, cross sections & profile)
            Optional:  Digital sketching practice

6:00-7:00pm Dinner at Hamilton Valley
7:00-8:15 pm Class work:
            Four digital cartography Lesson – Cross Sections
            Digital cartography using today’s field notes
8:15-8:30pm Break
8:30-9:30pm Continue working on cartographic projects

Day 5 (Thursday)
8:30-10:00  Lecture: Profiles (continued)
            Overview on resource inventories – data collection
            New Digital Mapping Lesson: Profiles and perspective
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| 10:30-4:00 | In-cave mapping (bring in-cave lunch): (Dogwood Cave) with plan, profile and cross sections, plan view, cross sections, Profiles  
            | Intermediate: resource inventory (optional)                                                   |
| 5:30-7:00  | Dinner at Hamilton Valley                                                                     |
| 7:00-9:00pm| Class work: Digital cartography using today’s field notes  
            | Continue working on cave maps from previous days  
            | Optional – Resource inventory – data entry                                                     |

**Day 6 (Friday)**

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| 8:30 – 3:30| In-cave mapping exercise: Survey in Cathedral Domes area of Mammoth Cave  
            | Mapping complex passages, loops, triangulations                                              |
| 4:00-6:00  | Break and dinner at Hamilton Valley                                                           |
| 6:00-9:00  | Data entry, cartography for day’s exercise  
            | Digital cartography continued – finish class projects                                        |

**Day 7 (Saturday)**

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| 8:00-Noon  | Questions and discussion on survey and cartographic methods  
            | Discuss cartographic projects for those taking the class for credit.                         |