SAN BERNARDINO COUNTY SHERIFF
CSI TRAINING UNIT
GUNSHOT TRAJECTORY RECONSTRUCTION
40 HR OUTLINE

DAY ONE

I. Introductions: 0800-0830
   - A. Overview of course content
   - B. Instructor introductions
   - C. Student introductions

II. Reconstruction: 0830-1200
   - A. Direction of travel
     1. Glass
     2. Metal
     3. Other materials
   - B. Angle of impact
     1. Glass
     2. Metal
     3. Other materials
   - C. At the scene
     1. Placards
     2. Connecting holes
     3. Stringing

III. Exercises 1–7: 1300-1600
   - A. Direction of travel – exercises 1-5
     1. Students will determine entry and exit holes (pre-shot by staff) in wood frame 2'x2' walls covered with plywood or gypsum board
     2. Students will match long range path of bullets from pre-made walls to the correct markings on classroom walls
     3. Students will string determined paths with trajectory rods and yarn
     4. Students will determine entry and exit holes in fabric (pre-shot by staff)
     5. Students will determine entry and exit holes in a variety of other materials (pre-shot by staff)
   - B. Angle of impact – exercises 6-7
     1. Students will measure all bullet holes provided in exercises 1, 4, & 5 and describe their shape
     2. Students will determine both horizontal and vertical angles of impact in the wood frame 2'x2' walls

IV. Evidence collection: 1600-1700
   - A. Terminology
     1. Use "Industry Standard" terminology
     2. Weapons – make, model, caliber
     3. Projectiles / other fired debris
     4. Weapon parts

B. Packaging
    1. Weapons
    2. Projectiles / other fired debris
    3. Ammunition
C. Collecting bullets / fragments
    1. Imbedded in solid surface
    2. Removing from weapon
    3. Loose
    4. Out of victim

DAY TWO

V. Reconstruction: 0800-1000
    A. Sequencing
        1. Glass
        2. Other materials
    B. Victims
        1. Stippling
        2. Determining entry and exit wounds
        3. Estimating muzzle distance
        4. Tracing bullet paths at autopsy

VI. Documentation – photography: 1000-1200
    A. Best angles
    B. Depth-of-field
    C. Overall, midrange, close-up
    D. Victims

VII. Exercises 8-11: 1300-1700
    A. Skin
        1. Using pig skin pre-shot by staff students will determine entry and exit holes
        2. Using pig skin pre-shot by staff students will estimate muzzle distance
    B. Glass
        1. Using windshields pre-shot by staff students will determine entry and exit holes
        2. Using windshields pre-shot by staff students will determine sequence of shots fired

DAY THREE

VIII. Documentation – sketches and notes: 0800-1000
    A. Sketches
        1. Different colors for different shooters
        2. Showing all angles
            a. Profile view
            b. Overhead view

B. Notes
    1. Describing trajectory paths
        a. Upward/downward
        b. Left/right
        c. Compass directions
C. Report writing

IX. Reconstruction – Vehicles: 1000-1200
A. When is reconstruction practical
    1. Was vehicle moving
    2. Was shooter moving
B. Documentation
    1. Sketches
        a. Interior
        b. Exterior
    2. Notes
        a. Relate D.O.T. to vehicle
        b. Front to back
        c. Drivers side / passenger side
        d. Taking measurements

X. Practical Exercise: 1300-1700
A. Vehicle
    1. Students will be provided with a vehicle with at least six bullet paths through it. Students will be expected to take notes, photograph, reconstruct, determine shooter position, and diagram the trajectory

DAY FOUR

XI. Practical Exercise: 0800-1700
A. Building
    1. Student will be provided with a shooting scene with trajectories in at least two different rooms. Students will be expected to take notes, photograph, reconstruct, determine shooter positions, and diagram the trajectory.

DAY FIVE

XII. Review Day Four: 0800-0900

XIII. Documentation – Reports: 0900-1000
A. Proper format
B. Describing bullet pathways
C. Opinion vs Fact
D. Conclusions

XIV. Reconstruction – Ejection Patterns: 1000-1200
- A. Reliability / predictability
  1. Position of weapon during firing
  2. Grip strength of shooter
  3. Condition of weapon being fired firing
- B. Documentation
  1. Measuring
  2. Photographing
  3. Notes
- C. Class exercise
  1. Students will document pre-made ejection sites

XV. Courtroom presentation: 1300-1630
- A. Displays / models
  1. 3D models
  2. Diagrams
- B. Know your procedures
  1. How did you determine trajectories
  2. Limit testimony to your level of expertise

XVI. Review & Evaluations: 1630-1700