

Course Syllabus and Outline

Shooting Incident Reconstruction (SIR)

Course Outline

Instructor: Michael Haag

5 Day (40 hr) Course

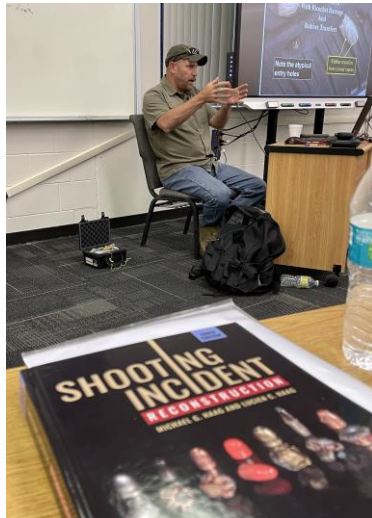
Class Size: ~25-28

This outline serves as a generic overview of topics covered in a typical 40 hour, Forensic Science Consultants SIR course.

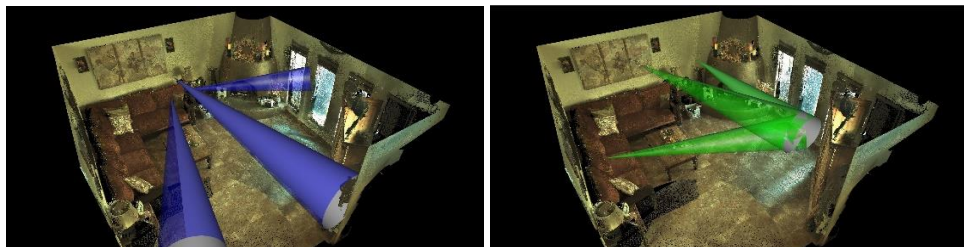
Shooting Incident Reconstruction (3rd Edition) is the primary handout for the course, but is offered as an option in the registration form as some people already have the text.

The majority of these topics are also represented and demonstrated with live fire experimentation for the group, as well as case examples.

- Introductions



- The History of Shooting Incident Reconstruction
- The Scientific Method and Empirical Testing
- Common Questions in SIR



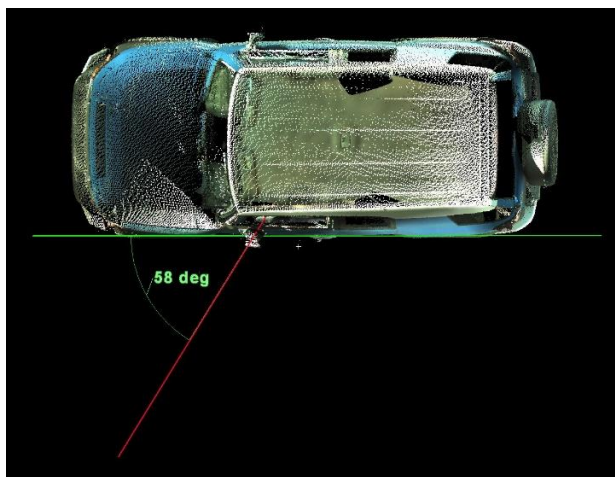
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- Background Literature in the Field
 - Tests
 - Articles
 - Service Providers and Practitioners

- Range Rules and Safety



- Firearm and Its Condition
 - Crime Scene Photography as it Applies to Firearms
 - Essential Photo Documentation Techniques of Firearms at the Scene
 - Specific Properties of Semiautomatic Pistols and Revolvers
 - The Load Condition and Its Importance
 - Trace Evidence
 - Novel Techniques
- Definitions
 - Basic Crime Scene Terminology
 - Firearm Related Terms
 - Trajectory Terms



- Geometric Review
 - Angular Relationships and Trigonometry
- Writing About Trajectories – The Verbal Approach
- Fundamentals of Trajectory
 - Demonstrable Uncertainty
 - Deflection and Causes
 - The Four (or Three) Components of a Trajectory
 - Methods of Documentation
 - Trig Functions and Measurement
 - Scale Drawings
 - Rods, Lasers, Protractors and Inclinometers
 - The Photographic Method
 - Total Station
 - Photogrammetry
 - 3D Laser Scanning



- Tools of Trajectory Assessment
- Defining and Representing Trajectories
 - Impact Site Location
 - Direction
 - Azimuth
 - Vertical

- The Photographic Method



- The Limited Universe
 - Bullets
 - Ammunition
 - Propellant
 - Manufacturing Characteristics
- Exterior and Terminal Ballistics
 - Stability
 - Characterizing Impact Sites and Perforations
 - Regular and Irregular
 - Caliber Mismatches
- Ricochet
 - Unyielding Behavior
 - Yielding Behavior
 - Heterogeneous Materials and Behavior

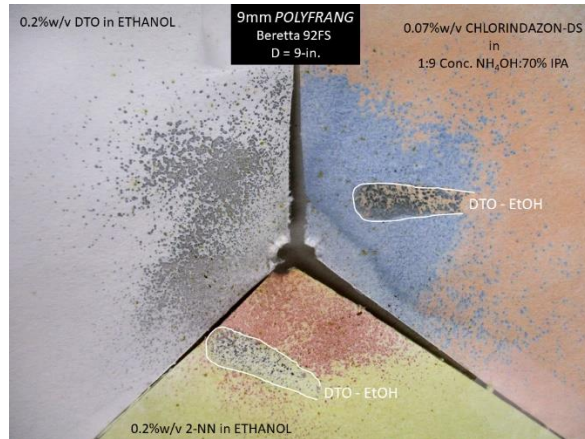


- Sheet Metal
 - Directionality
 - Pinch Point
 - Wake Cracks
 - Can Opener Effect
 - Plugs and Tabs
 - The Lead-In Method



- Glass
 - Generalisms
 - Plate/Float Glass
 - Laminate Glass
 - Tempered Glass
 - Directionality
 - Deflection
 - Trace Evidence
 - Sequencing
- Shotgun Characteristics
 - Distance Determination
 - Variables and Caveats
 - Ammunition and Projectiles
 - Trajectory Techniques
 - Unique Properties
- Tires and Elastics
 - Types of Perforations
 - Deflation Times
 - Orientation of Tires, Wheels, and Steering Wheels

- Chemical Testing at Suspected Bullet Impact Sites
 - 2-nitroso-1-naphthol
 - Dithiooxamide
 - Sodium rhodizonate
 - Pitfalls and advantages



- Ejection Patterning
 - Caveats and Pitfalls
 - Variables
- Wound Ballistics
 - Surface Observations
 - Penetration and Perforation
 - “Soft” Damage to Bullets/Projectiles
 - Myths and Misconceptions

