



The  
Chartered  
Society of  
Forensic  
Sciences



# Shooting Scene Reconstruction Course

Michael G. Haag. BS  
Lucien C. Haag. BS

20th to 24th  
June 2016



This course is validated by:  
The Chartered Society of Forensic Sciences and is awarded CPD points

# Shooting Scene Reconstruction Course Information

## Instructors:

Michael G. Haag, BS.  
Lucien C. "Luke" Haag, BS.

## Class hosts:

Chartered Society of Forensic Sciences  
EPA Manufacturing Ltd  
Mark Outhwaite M.Sc. (Course facilitator)  
Cleveland & Durham Specialist Operations Unit  
Lee Trueman, Apex Firearms Ltd (Section 5 R&D authority)

## Where:

EPA's purpose built facilities at;  
Spridlington Road  
Faldingworth  
Lincolnshire  
LN8 3SQ  
United Kingdom

## When:

20th to 24th of June 2016

## Course contact details:

Keshia McGuire  
Event Management Organiser  
+44 (0)1423 506 068  
[conference@csofs.org](mailto:conference@csofs.org)  
[www.charteredocietyofforensicsciences.org](http://www.charteredocietyofforensicsciences.org)

## This class is designed for:

Crime Scene Investigators and Managers  
Shooting Scene Evidence Practitioners  
Pathologists  
Senior Investigating Officers (SIO)

## Students should bring:

Cameras/video equipment to capture and create your own reference material. Extensive course notes will be provided. We will provide appropriate eye and ear protection.

## Note:

Wear appropriate outdoor clothing and be prepared for inclement weather, a majority of this course takes place outside and we have no control over the British weather.

Extreme  
EP performance



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More information and bookings: Keshia McGuire - +44 (0)1423 506 068

# Shooting Scene Reconstruction Course Syllabus

- This course has frequent LIVE-FIRE components to it! You will see how the evidence at shooting scenes is generated.
- Practical, hands on trajectory measurement techniques, and a comparison of known impact angles to measured angles in walls, cars, other objects and materials.
- Training in correct usage of trajectory analysis equipment (rods, lasers, protractors, 3D laser scanners, and more).
- A thorough review of small arms ammunition and projectile design characteristics critical to shooting reconstruction.
- Examination of shooting reconstruction as a well founded aspect of forensic science.
- Review of common questions and issues in shooting incidents. (Case illustrations).
- Instruction in shooting incident investigation and reconstruction procedures, as well as basic crime scene procedures.
- Case investigation approach and philosophy.
- Cover the properties of specific terminal ballistic events (shot sequence, direction of fire, etc).
- Examination of projectile penetration, perforation, and deflection characteristics of; sheet metal, glass, wall materials, wood, tyres, and more!
- A complete review of fundamental exterior and terminal ballistic properties of projectiles.
- Laboratory examination aspects of recovered bullets from a reconstructive standpoint - the Locardian Principle and trace evidence considerations.
- Chemical tests to determine whether a suspected impact site is, or is not bullet/pellet created.
- Cartridge case ejection patterns.
- Shotgun ballistics and pellet pattern analysis.
- Introduction to 3D Laser Scanning as the cutting edge method of crime scene documentation.
- Written test final... Test your knowledge, what have you learned?
- Certificate of Completion. (Should you pass!).



# Shooting Scene Reconstruction Course Outline

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## Day 1

Intro  
Range Rules  
Definitions  
Firearm and Its Condition  
Crime Scene Photography  
Geometric Review  
Tools for Trajectory Analysis  
Fundamentals of Diagramming  
Azimuth and Elevation Angles  
Trajectory Photography (The Photographic Method)  
Practical Exercises (Set 1)

## Day 2

Practical Exercises (Set 1 continued)  
Live Fire Known Angle Car Shots  
Ricochet Lecture  
Sheet Metal Lecture  
Live Fire:  
Sheet metal  
Ricochets (yielding, unyielding,  
and heterogeneous)

## Day 3

Shotgun Ballistics Lecture  
Glass & Tire Lecture  
Live Fire:  
Glass & Tires  
(tempered plate windshield)  
Shotgun Ballistics  
Ejection Pattern Lecture  
GSR Lecture  
Live Fire:  
GSR  
Suppression  
Masking of GSR  
Case Examples

## Day 4

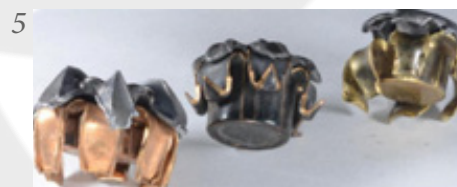
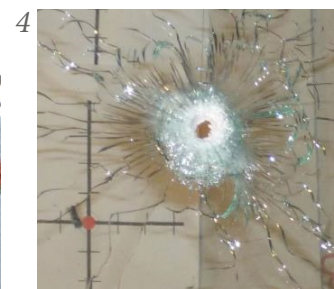
Chemical Testing Lecture  
Wound Ballistics Lecture  
The Limited Universe Lecture  
Long Range Ballistics Lecture  
Practical Exercises (Set 2)  
Live Fire:  
Wound Ballistics  
Deflection  
Ejection Pattern Testing

## Day 5

The Sound of Bullets  
Laser Light Photography Lecture  
3D Laser Scanning  
Case Examples  
Mock Cases / Practical Exercises (Set 3)  
Discussion / Review  
Test  
Certificates (for those who pass)  
Final Thoughts and Evaluations

## Image reference

- 1- Projectile effects. Ballistic gel.
- 2- End of course photograph.
- 3- Live fire. Angled car shots.
- 4- Live fire. Glass.
- 5- Projectile analysis
- 6- EPA 30mtr range
- 7- EPA 100mtr range



# Shooting Scene Reconstruction Course

## Your instructors Michael & Lucien Haag

Michael G. Haag, BS Chemistry  
Forensic Science Consultants  
Forensic Scientist  
Firearm Examiner  
Crime Scene Investigator and Reconstructionist



Lucien C. Haag, BS  
Criminalist, Forensic Science Services, Inc.  
Carefree, AZ, USA

Mike Haag grew up learning about the field of forensic firearms from his dad, Luke. Even in grade school he helped conduct research projects in many areas of firearms identification and shooting reconstruction, as well as assisted in forensic casework. He has presented and published numerous papers at AFTE conferences, presented in England, and interned with the German Federal Forensics Section (BKA) in Wiesbaden. He is a Distinguished Member of the Association of Firearm and Tool Mark Examiners, a member of the American Academy of Forensic Sciences, and many other forensic associations.

Mike is currently employed by the Albuquerque Police Department Crime Lab, where he is Supervisor of the Firearm and Tool Mark Unit, Controlled Substances Unit, Blood/Breath Alcohol unit, a member of the Major Crime Scene Team, and a New Mexico State Certified Law Enforcement Firearms Instructor.

He has now taught numerous consecutive sessions of trajectory analysis and shooting reconstruction at the BATF's National Firearm Examiner's Academy, as well as Shooting Reconstruction classes in Florida, Arizona, California, Texas, Oregon, Colorado, New Mexico, South Dakota, Georgia, Washington DC, Maryland, Canada, the UK, and Switzerland. Some of his most notable cases have come from as far away as Taiwan and Iraq. He has worked on hundreds of homicide cases, and many other types of cases covering the spectrum of civil, criminal, prosecution, plaintiff, and defence.

Mike is also one of the few Forensic Scientists Certified by AFTE in all three areas offered: Firearm Evidence Examination and Identification, Gunshot Residue Analysis and Distance Determinations, and Tool Mark Evidence Examination and Identification. He is also certified by IAI as a Crime Scene Reconstructionist. Mike has appeared on the Discovery Channel, NOVA, NPR, and has been interviewed by FOX News on firearm related issues numerous times. He is also author of the authoritative text on the subject, Shooting Incident Reconstruction.

Lucien C. "Luke" Haag is a former Criminalist and Technical Director of the Phoenix Crime Laboratory [1965-1982] with over 50 years experience in the field of criminalistics and forensic firearm examinations.

Presently he is an independent forensic consultant with his own company, Forensic Science Services, Inc. in Carefree, Arizona.

Luke Haag has a Bachelor of Science degree in chemistry from the University of California at Berkeley with subsequent forensic training at California State University at Long Beach, Indiana University, Arizona State University, McCrone Research Institute, the FBI Laboratory and FBI Forensic Training Facility at Quantico, VA.

He is a Distinguished Member and past-president of Association of Firearm and Toolmark Examiners, a Distinguished Member of the California Association of Criminalists, a member of the Southwest Association of Forensic Scientists, a Fellow in the American Academy of Forensic Sciences and a past board member of the International Wound Ballistics Association.

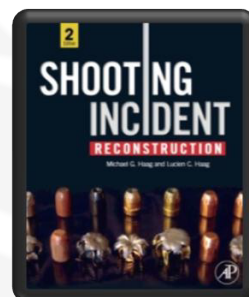
He has authored and presented over 200 scientific papers, most of which have dealt with the reconstructive aspects of shooting scenes and is the author of the book available from Elsevier/Academic Press (2006) now out in its second, 2011 edition and co-authored by his younger son, Michael Haag, a supervisor at the Albuquerque Police Crime Lab and forensic ballistics consultant.

Their informative book (*right*) by Michael & Lucien Haag can be purchased by course attendees at a special reduced rate.

Please ask the Society for further details.

Or click [HERE](#) to visit the website at;

<http://www.elsevier.com/books/shooting-incident-reconstruction/haag/978-0-12-382241-3>



## Accommodation

### LINCOLN

**Lincoln Hotel**  
Address: Eastgate, Lincoln LN2 1PN  
Phone:+44 (0) 1522 520348

**The White Hart Hotel**  
Address: Bailgate, Lincoln LN1 3AR  
Phone:+44 (0) 1522 526222

**Castle Hotel**  
Address: Westgate, Lincoln LN1 3AS  
Phone:+44 (0) 1522 538801

**Holiday Inn Express Lincoln City Centre**  
Address: Ruston Way, Brayford Way, Lincoln  
LN6 7DB Phone:+44 (0) 871 902 1617

**Bail House Hotel**  
Address: 34 Bailgate, Lincoln LN1 3AP  
Phone:+44 (0) 1522 541000

**Holiday Inn Lincoln**  
Address: Brayford Wharf North, Lincoln  
LN1 1YW Phone:+44 (0) 1522 544244

**Charlotte House Hotel**  
Address: Union Rd, Lincoln  
LN1 3BJ Phone:+44 (0) 1522 541000

**The Old Palace**  
Address: Minster Yard, Lincoln  
LN2 1PU Phone:+44 (0) 1522 580000

**Premier Inn Lincoln City Centre Hotel**  
Address: Broadgate, Lincoln LN2 5AQ  
Phone:+44 (0) 871 527 9418

### MARKET RASEN

**Advocate Arms**  
Address: 2 Queen St, Market Rasen,  
LN8 3EH Phone:+44 (0) 1673 842364

**The Limes Country House**  
Address: Gainsborough Rd, Market Rasen  
LN8 3J Phone:+44 (0) 1673 8423

**Beechwood Guest House**  
Address: 55 Willingham Rd, Market Rasen,  
LN8 3DX. Phone:+44 (0) 1673 844043

**The White Swan**  
Address: 29 Queen St, Market Rasen  
Phone:+44 (0) 1673 843356

**Course contact details;**  
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