

Virginia Department of Forensic Science (DFS)
Annual Retraining Seminar - 2022
15 Hours

Course Content:

Jack the Ripper and 21st Century Forensic Science

Case Description:

In the late summer of 1888 in the Whitechapel area of London, five women were brutally murdered by an unknown assailant. To this day the cases are unsolved, but they have been studied and analyzed more than any other criminal case in history. These five cases, and perhaps others, have been attributed to a single suspect known as Jack the Ripper.

Why is the case of Jack the Ripper so significant? Why is it so well known? Why is this case the ultimate murder mystery? We will travel back in time to 1888, Victorian London, to relive the crimes in Whitechapel. We will walk in the footsteps of Inspector Abberline of Scotland Yard, and see the crimes as he did. And finally, we will use 21st century forensic science and modern law enforcement techniques to try and understand the murder case of the ages.

Learning Objectives:

- Understand the history of forensic science
- A better appreciation of the history of law enforcement
- Victim Profile Analysis
- Understanding serial offender:
 - Motivations
 - Method of operation
 - Psychological Profile
 - Geographic Profile
 - Crime Scene Analysis
- Major Case Management
- Jack the Ripper Myths

Forensic Biology:

- DNA Data Bank
 - What can and cannot be uploaded, how it is used, and new tracking system?
- Rapid DNA
 - What is it and what are the rules?
- Probabilistic Genotyping Systems
 - How are statistics applied to mixtures?
- Report Phrases
 - What do they mean?
 - What don't they mean?
 - Explaining about 10-15 phrases audience might find in a DNA report
- Reminders
 - Consults, outsourcing/CODIS, genetic genealogy, Mvacs, etc...

Laboratory Updates:

- Review of backlogs and case turnaround times for all sections, including breath alcohol
- Agency updates
 - 50th Anniversary
 - Central Laboratory capital project
- Review of newer DFS policy notices
 - Forensic Biology case transfers
 - Packaging of powdered controlled substances
- Discussion of marijuana testing capabilities and submission guidelines
- Toxicology – Plan for increased THC testing
- Update Evidence Receiving Protocols and Prelog
- Update on PERK Tracking system
- Update on DNA Data Bank Sample Tracking System (DBSATS)

Tracking Firearms by Data Matrix Codes:

An increasing number of firearm manufacturers are utilizing a data matrix code to track firearm frames and receivers throughout the manufacturing process. Data matrix codes on approximately thirty firearms representing more than a dozen different manufacturers were assessed and the majority were found to contain encoded data which correspond to the firearm's serial number. Photography and Microsoft Excel templates proved to be reliable recovery methods and a handheld scanner and smartphone applications provided consistent results. Data matrix codes may be useful to investigators when the firearm's official serial number has been obliterated or when serial number characters are difficult to discern.

Fingerprints from Social Media and Other Inadvertently Photographed Friction Ridge Detail

Many investigators are unaware and/or unsure how to utilize inadvertently photographed friction ridge detail areas as evidence in order to identify individuals. In our current society, millions of digital images are taken and posted to social media and websites on a daily basis. Some of these digital images may depict criminal activity and may be discovered during routine online investigations or while executing a search warrant. There have already been several cases both in the USA and internationally that have identified individuals utilizing inadvertently photographed friction ridge detail; such cases include rape, pedophilia, firearms, drugs, and burglaries. This presentation will explore how we can use this modern type of evidence and the value to investigators. A recent case submission to the Virginia Department of Forensic Science where this type of evidence was examined will be discussed.

Cultural Diversities in Handling the Deceased:

Objectives:

- Be able to define and describe the following key words:
 - Culture Diversity Cultural Diversity
 - Intercultural Acculturation Assimilation
 - Race Ethnicity Stereotyping
 - Prejudice Discrimination Cultural Competence

- Employ culturally sensitive strategies that develop and encourage cultural competence during death scene investigations
- Recognize variations in attitudes and values of different cultures regarding the handling of the deceased
- Practice forms of communication and other skills which consider cultural differences when identifying and processing a death scene
- Discuss the changing demographics that contribute to Virginia's multicultural landscape
- Compare and contrast Western and non-Western sociocultural values surrounding the investigation of a death scene

Forensic Training Updates:

- Nationally accepted standards and practices related to crime scene investigations
- Staffing updates
- Future courses being offered

Legal Update

- Presentation and discussion of court decisions from the past year that directly affect the laws of Search & Seizure

Megan Metzger Homicide

This multijurisdictional investigation will stress the importance of the information exchange between investigation components (forensics and interview teams) and how that should be followed up with open dialog with supervision as to why decisions are being made or should be made. Also to be discussed will be how multiple pronged investigations support each other the use of outside agencies to bring in expertise in their specific areas.

ANDE Rapid DNA Testing

- Virginia State Police Policy (VSP)
 - Original purposes
 - Current uses and capabilities
 - Types of DNA examined
 - Limitations and concerns
 - Outside VSP
 - Department of Forensic Science
 - Office of the Chief Medical Examiner
 - Case examples to date