WORKSHOPS

Pre-Registration Required—$275

W1 Pediatric Fracture Healing in Cases of Suspected Non-Accidental Trauma: Clinical, Radiographic, Anthropological, and Histological Perspectives and New Technologies

Monday, February 17, 2025 **8:30 am – 5:00 pm** **CE Hours: 6.0**

Program Description: Physical abuse in children results in >500 deaths in the United States each year.[1] Patterned and repetitive skeletal fracture is often observed in these decedents, reflecting the typically serial nature of pediatric NAI. Accurate estimation of TSI for antemortem fractures is critical for identification, evaluation, and adjudication of fatal pediatric NAI.

However, TSI estimation has been described as an "inexact science," due to lack of recognition, understanding, and scientific validation of existing TSI methods.2.3These methods derive from a variety of inter-disciplinary sources with unknown accuracy, reliability, consistency, and limited understanding of variables that impact fracture healing. This has necessitated extreme caution in use of TSI estimations in the adjudication of fatal pediatric NAI.

Multidisciplinary approaches to understanding pediatric fracture healing that focus on scientifically validated methodologies are imperative for developing best practice recommendations and standards for forensic pediatric skeletal trauma analysis in pediatric death investigations.

This workshop provides a multidisciplinary approach for understanding and estimating pediatric fracture TSI. Best practice recommendations for analysis and interpretation of pediatric skeletal fracture and its timing are presented using interdisciplinary technologies involving imaging (Computed Tomography [CT], radiology), microscopy (light microscopy, histology), and machine learning. The scientific foundation for pediatric fracture repair and its timing is considered, as is application of these methods to the broader context of pediatric case adjudication and public health. Hands-on examination of case study examples allows participants to put topics covered into practice with a focus on interdisciplinary collaboration.

Educational Objectives: After attending this workshop, participants will understand how antemortem skeletal fractures can be used to help interpret, document, and adjudicate medicolegal cases of Non-Accidental Injury (NAI) in pediatric deaths. Attendees will learn the anatomical basis for and variables affecting pediatric skeletal fracture, repair, and timing (i.e., Time Since Injury or TSI). Using multidisciplinary technology, including histology, light microscopy, radiology, and machine learning, they will learn to critically evaluate current methodological approaches for evaluating pediatric fracture healing and estimating TSI. Applications of pediatric antemortem fracture data toward public health (including advocacy for children's health) will be explored.

Impact Statement: This workshop will impact the forensic community by providing multidisciplinary perspectives and methodological training for critically evaluating and interpreting skeletal fracture and its timing in pediatric death investigations. This training will help the forensic community determine best practice approaches to pediatric fracture interpretations that are scientifically based, legally defensible, and applicable to public health efforts toward prevention of non-accidental child injury.

Target Audience: Anthropology, Forensic Nursing Science, General, Jurisprudence, Pathology/Biology

Knowledge Level Required: Intermediate

Chair:
Diana Messer, PhD
West Tennessee Regional Forensic Center
Memphis, TN

Co-Chair:
Donna C. Boyd, PhD
Radford University
Radford, VA

Presenters:
Bradley J. Adams
Office of the Chief Medical Examiner
New York, NY

Andrew Baker, MD
Hennepin County
Medical Examiner's Office
Minnetonka, MN

Farah W. Brink, MD
Nationwide Children's Hospital
Columbus, OH

Jered B. Cornelison, PhD
Western Michigan University
Homer Stryker MD School of Medicine
Kalamazoo, MI

Carolyn V. Isaac, PhD
Michigan State University
East Lansing, MI

Andy Tsai, MD, PhD
Boston Children's Hospital
Harvard Medical School
Boston, MA

WORKSHOPS

W1 Pediatric Fracture Healing in Cases of Suspected Non-Accidental Trauma: Clinical, Radiographic, Anthropological, and Histological Perspectives and New Technologies

Program:

8:30 am – 8:45 am	**Introduction: Pediatric Fatal Death Investigations, Skeletal Fracture, and Its Timing** *Diana Messer, PhD; Donna Boyd, PhD*
8:45 am – 9:15 am	**Infant Fracture Dating: Leveraging Histology, Radiology, and AI** *Andy Tsai, MD*
9:15 am – 10:15 am	**Gross and Microscopic Evaluation of Pediatric Fractures at Autopsy** *Andrew Baker, MD*
10:15 am – 10:45 am	**BREAK/Individual Case Study Assessment Time**
10:45 am – 11:15 am	**Light Microscopy of Pediatric Healing Fractures** *Donna Boyd, PhD*
11:15 am – 12:00 pm	**A Histomorphological Approach to Fracture Age Estimation** *Jered Cornelison, PhD; Carolyn Isaac, PhD*
12:00 pm – 1:30 pm	**BREAK/Individual Case Study Assessment Time**
1:30 pm – 2:00 pm	**Protocol and Best Practices for Documenting and Analyzing Pediatric Healing Fractures at the New York City Office of the Medical Examiner** *Bradley Adams, PhD*
2:00 pm – 2:30 pm	**Assessing the Scientific Validity of TSI Estimation** *Diana Messer, PhD; Donna Boyd, PhD*
2:30 pm – 3:00 pm	**Using Deep Learning to Estimate Time-Since-Injury of Healing Fractures** *Farah Brink, MD; Diana Messer, PhD*
3:00 pm – 3:30 pm	**BREAK/Individual Case Study Assessment Time**
3:30 pm – 4:00 pm	**Clinical Approach to Fracture Healing in Cases of Suspected Child Physical Abuse** *Farah Brink, MD*
4:00 pm – 4:30 pm	**Pediatric Skeletal Trauma Analysis in Broader Legal and Public Health Context: Adjudicating and Preventing Child Deaths** *Donna Boyd, PhD, Diana Messer, PhD*
4:30 pm – 5:00 pm	**Interactive Case Study Discussion and Wrap-Up** *Donna Boyd, PhD; Diana Messer, PhD*

WORKSHOPS

Pre-Registration Required—$275

W2 Implementing Recommendations From the NIST/NIJ Expert Working Group on Human Factors in Forensic DNA Interpretation Report

Monday, February 17, 2025 **8:30 am – 5:00 pm** **CE Hours: 6.5**

Program Description: In May 2024, the NIST/ NIJ EWG on Human Factors in Forensic DNA Interpretation published a comprehensive report containing 44 recommendations for how to reduce the likelihood and consequence of errors in forensic DNA interpretation.

In this workshop, we will guide participants through the EWG's process, highlight key findings, discuss controversial topics, and present the final recommendations. The workshop will focus on the following areas:

- Training and Education
- Quality Assurance
- Cognitive Bias and Error Reduction
- Interpretation
- Reporting and Testimony
- Management
- Work Environment
- Expressing Evidence Strength
- Research
- Technology
- The "How" and "When" Questions in DNA Analysis

This workshop is relevant to DNA and other forensic science practitioners, laboratory management, researchers, legal practitioners, and anyone interested in improving decision-making in forensic science. Participants will be expected to actively engage with the material and provide feedback on the relevance and feasibility of implementing the recommendations in their practice.

We will use an interactive approach to help participants develop a plan to implement any recommendations that will provide value in their practice. Join us for a comprehensive session that aims to enhance your understanding and application of human factors in forensic DNA interpretation, ultimately contributing to better practices and safer justice outcomes.

Educational Objectives: In this workshop, we will guide participants through the process undertaken by the National Institute of Standards and Technology (NIST)/National Institute of Justice (NIJ) Expert Working Group (EWG) on Human Factors in Forensic DNA Interpretation. We will highlight the key findings and controversial topics and present the final recommendations from the report published in May 2024. This workshop will focus on providing examples of how forensic science service providers are already implementing these recommendations in their practice.

Upon completion of this workshop, participants will: 1) be familiar with the published recommendations from the NIST/NIJ EWG on Human Factors in Forensic DNA Interpretation report, 2) understand the implications of these recommendations for their practice, 3) Recognize how these recommendations aim to improve DNA examination practices, 4) Critique the recommendations and discuss their relevance and feasibility in participants' own practices and the wider forensic DNA community, and 5) Have the tools to implement the recommendations in their own practice.

Impact Statement: The study of human factors in forensic science is crucial to understanding the interaction between humans and the systems they use. By addressing human factor issues, we can identify and mitigate the likelihood and consequence of errors and biases, improve laboratory culture, staff morale, and productivity. This workshop encapsulates four years of effort dedicated to understanding human factors in forensic DNA interpretation, providing valuable guidance for DNA analysts, laboratory management, and legal practitioners to enhance practice and achieve safer justice outcomes.

Target Audience: General, Jurisprudence, Pathology/Biology

Knowledge Level Required: Basic

WORKSHOPS

W2 Implementing Recommendations From the NIST/NIJ Expert Working Group on Human Factors in Forensic DNA Interpretation Report

Chair:
Angela Spessard, MSFS
Maryland State Police
Pikesville, MD

Co-Chair:
Jarrah R. Kennedy, MSFS
Kansas City Police Crime Laboratory
Kansas City, MO

Presenters:
Michelle Madrid, MS
Los Angeles County Sheriff's Department
Los Angeles, CA

Niki Osborne, PhD
Human Factors Training and Consultancy
Remuera, New Zealand

Melissa Taylor, BA
National Institute of Standards and Technology
Gaithersburg, MD

Hope Zagaria, MSFS
Bureau of Justice Assistance
Washington, DC

Program:

8:30 am – 9:00 am	**Participant and Facilitator Introductions** *Melissa Taylor, BA*
9:00 am – 10:30 am	**Introduction to the NIST/NIJ Expert Working Group Series** *Melissa Taylor, BA* **Introduction to Key Concepts Used Throughout the NIST/NIJ Expert Working Group on Human Factors in Forensic DNA Interpretation Report** *Niki Osborne, PhD* **Interpretation and Technology** *Michelle Madrid, MS*
10:30 am – 10:45 am	**BREAK**
10:45 am – 12:00 pm	**Quantitative and Qualitative Expressions of DNA Results** *Hope Zagaria, MSFS* **Reporting and Testimony** *Jarrah Kennedy, MSFS; Michelle MadriD, MS*
12:00 pm – 1:00 pm	**BREAK**
1:00 pm – 3:00 pm	**Reporting and Testimony Continued** *Jarrah Kennedy, MSFS; Michelle Madrid, MS* **Interpretation of DNA Results Considering Alleged Activities** *Jarrah Kennedy, MSFS; Niki Osborne, PhD*
3:00 pm – 3:15 pm	**BREAK**
3:15 pm – 5:00 pm	**Education, Training, and Professional Credentialing** *Angie Spessard, MSFS* **Management & QA/QC** *Niki Osborne, PhD; Angie Spessard, MSFS* **Final Thoughts** *All Presenters*

WORKSHOPS

Pre-Registration Required—$275

W3 A Military Criminal Investigative Organization and the Boon and Bane of Technology

Monday, February 17, 2025 **8:30 am – 5:30 pm** **CE Hours: 6.75**

Program Description: The attendees will be provided with an understanding of military-specific investigations, how we utilize technology to assist us in solving our investigations, as well as the problems technology has presented over the past ten years. There will be multiple case studies of deaths, child sexual abuse material, and other felony level crimes demonstrating the benefits and risks associated with our reliance on technology. There will be information pertaining to our newly established Cold Case Unit, which has assisted in numerous cold cases and has current cold cases they are investigating. There will also be a capabilities brief of what we as an MCIO can assist outside agencies with.

Educational Objectives: The attendees will learn how a Military Criminal Investigative Organization (MCIO) has applied technology to the investigative process and what has assisted them, as well as how it has hindered the investigative process. There will be discussions concerning death investigations, cold case investigations, and military resources to our partner agencies, challenges of Closed Circuit Television, and challenges during armed conflicts.

Impact Statement: This presentation will impact the forensic science community by providing examples of best practices with inter-agency partnerships, differing ways technology can be used to solve investigations, being a resource to assist with cold cases that may have a Department of Defense nexus, and how technology can be used in austere environments to solve investigations.

Target Audience: Digital & Multimedia Sciences, General, Jurisprudence

Knowledge Level Required: Basic

Workshop Chair:
Vanessa R. Neff, MFS
Department of the Army
Criminal Investigation Division
Woodbridge, VA

Co-Chair:
Matt Geniuk, MSc
Department of the Army
Criminal Investigation Division
Fort Sam Houston, TX

Presenters:
Chris Adams, MFS
Department of the Army
Criminal Investigation Division
Quantico, VA

Tim Bartman, BAS
Department of the Army
Criminal Investigation Division
Fort Moore, GA

Ethan Dodson, MSFS
Central Texas Field Office
Department of the Army
Criminal Investigation Division
Fort Cavazos, TX

Michael Allen Easter, Jr., MSFS
Department of the Army
Criminal Investigation Division
Fredericksburg, VA

Pedro Hernandez, Jr., MFS
Department of the Army
Criminal Investigation Division
El Paso, TX

Dale Sajdak, MSFS
Department of the Army
Criminal Investigation Division
Stedman, NC

Jessica A. Veltri, MS
Department of the Army
Criminal Investigation Division
Stafford, VA

Bryce Wolford, MA
Department of the Army
Criminal Investigation Division
Quantico, VA

WORKSHOPS

W3 A Military Criminal Investigative Organization and the Boon and Bane of Technology

Program:

8:30 am – 8:45 am	**Introduction** *Matt Geniuk, MS*
8:45 am – 10:15 am	**Military Resources for Cold Case Investigations** *Jessica A. Veltri, MS; Chris Adams, MFS*
10:15 am – 11:00 am	**Title TBD** *Pedro Hernandez, Jr., MFS*
11:00 am – 11:15 am	**BREAK**
11:15 am – 12:00 pm	**Dowsing Rods: Bane or Boone?** *Michael Allen Easter, Jr., MSFS*
12:00 pm – 1:00 pm	**BREAK**
1:00 pm – 1:45 pm	**Benefits of Facial Recognition in CSAM Investigations** *Bryce Wolford, MA*
1:45 pm – 2:30 pm	**Overreliance on Technology and the Pitfalls** *Dale Sajdak, MSFS*
2:30 pm – 3:15 pm	**Challenges of Excavating Human Remains in a Combat Zone** *Ethan Dodson, MSFS*
3:15 pm – 3:30 pm	**BREAK**
3:30 pm – 4:15 pm	**CCTV and the Challenges it Brings** *Tim Bartman, BAS*
4:15 pm – 5:00 pm	**Limits of Technology in a Missing Soldier Investigation** *Vanessa R. Neff, MFS*
5:00 pm – 5:30 pm	**Final Wrap-Up and Questions** *Matt Geniuk, MS*

Pre-Registration Required—$275

W4 Forensic Science Adaptation to Artificial Intelligence

Monday, February 17, 2025 **8:30 am – 4:35 pm** **CE Hours: 6.25**

Program Description: This workshop was developed by the Forensic Science Foundation (FSF) Educational Committee. The workshop will explore the transformative potential of Artificial Intelligence (AI) in forensic science. It will delve into the basics of AI analyses, discuss strategies for implementing AI-enabled tools in pattern evidence, and present innovative biometrics solutions for digital forensics. The workshop will also evaluate novel approaches to media authentication in the age of AI-generated content, apply AI in fire debris analysis and forensic DNA analysis, and discuss the use of generative AI for rapid detection of novel drugs in toxicology samples. Last, it will provide a historical perspective on the development of AI and discuss its challenges in forensic science. Attendees will gain insights into the state of AI in forensic science, learn about current tools, and understand the considerations in the development and evaluation of AI-based techniques in the field.

Educational Objectives: The proposed presentations are poised to significantly impact the forensic science community by integrating AI into various aspects of forensic analysis. They aim to enhance understanding of AI principles, propose strategies for implementing AI-enabled tools in pattern evidence analysis, and explore innovative biometrics solutions. They also seek to evaluate novel approaches to media authentication in the face of AI-generated content, apply AI in fire debris analysis and forensic DNA analysis, and use generative AI for rapid detection of novel drugs in toxicology samples. Last, they provide a historical perspective on the development of AI and discuss its challenges in forensic science. Collectively, these presentations could lead to more accurate, efficient, and objective forensic analyses, ultimately contributing to a more effective criminal justice system.

Impact Statement: This presentation will impact the forensic science community by providing examples of best practices with inter-agency partnerships, differing ways technology can be used to solve investigations, be a resource to assist with cold cases that may have a Department of Defense nexus, and how technology can be used in austere environments to solve investigations.

Target Audience: All Sections

Knowledge Level Required: Basic

Chair:
Gina Londino-Smolar, EdD
IU Indianapolis
Indianapolis, IN

Co-Chair:
JCU Downs, MD
forensX, LLC
Johns Island, SC

Presenters:
Carole E. Chaski, PhD
Institute for Linguistic Evidence
Georgetown, DE

Brandon Epstein, MS
Medex Forensics
Madison, WI

Ting-Yu Huang, PhD
Taipei City, Taiwan

Michael A. Marciano, PhD
Syracuse University
Syracuse, NY

David Pienkowski, MBA, PhD
University of Kentucky
Lexington, KY

Kathryn C. Seigfried-Spellar, PhD
Purdue University
West Lafayette, IN

Aaron M. Shaprio, PhD
Provincial Health Services
Authority of British Columbia
Vancouver, BC, Canada

Henry Swofford, PhD
National Institute of Standards
and Technology
Gaithersburg, MD

Jorn Yu, PhD
Sam Houston State University
Huntsville, TX

WORKSHOPS

W4 Forensic Science Adaptation to Artificial Intelligence

Program:

8:30 am – 8:35 am	**Welcome** *Gina Londino-Smolar, EdD*
8:35 am – 8:50 am	**Introduction** *David Pienkowski, MBA, PhD*
8:50 am – 9:35 am	**The Impact of Artificial Intelligence on Forensic DNA Analysis** *Michael A. Marciano, PhD*
9:35 am – 10:20 am	**A New Horizon in Digital Forensics Through Knuckle and Fingernail Bed Biometrics** *Kathryn C. Seigfried-Spellar, PhD*
10:20 am – 10:30 am	**BREAK**
10:30 am – 11:15 am	**Evaluating Novel Approaches to Media Authentication in the Age of AI-Generated Content** *Brandon Epstein, MS*
11:15 am – 12:00 pm	**Transfer Learning of Data Classification for Fire Debris Analysis** *Jorn Yu, PhD; Ting-Yu Huang, PhD*
12:00 pm – 1:00 pm	**BREAK**
1:00 pm – 1:45 pm	**Navigating Implementation of AI-Enabled Tools in Pattern Evidence** *Henry Swofford, PhD*
1:45 pm – 2:30 pm	**The Search for the Unknown: Using Generative AI to Detect Novel Drugs in Toxicology Samples** *Aaron M. Shaprio, PhD*
2:30 pm – 2:45 pm	**BREAK**
2:45 pm – 3:30 pm	**Forensic Computational Linguistics: History, Examples, and Challenges of Artificial Intelligence in Forensic Science** Carole E. Chaski, PhD
3:30 pm – 4:30 pm	**Questions and Answers Panel Session** *All Presenters*
4:30 pm – 4:35 pm	**Closing Remarks** *Gina Londino-Smolar, EdD*

Proceeds from this workshop will benefit the Forensic Sciences Foundation

FSF FORENSIC SCIENCES FOUNDATION

WORKSHOPS

Pre-Registration Required—$275

W5 The Sherry Black Investigation—A Journey for Justice

Monday, February 17, 2025 **8:30 am – 4:00 pm** **CE Hours: 5.5**

Program Description: This program will take the attendees through the high-profile, 10-year investigation of the murder of Sherry Black. She was murdered in her small bookstore located on her property in South Salt Lake City, UT, on November 30, 2010. The program will start with the initial call to the South Salt Lake City Police Department and the processing of the crime scene by the Utah Bureau of Forensic Services Laboratory System. The evidence recovered at the scene and the impact the evidence had on the investigation will be discussed. The presentation will show the initial forensic testing and the results of the analysis. The Behavioral Analysis conducted on both the crime and offender will be reviewed with the attendees, and the evidence-based conclusions will be explained. Investigative Genetic Genealogy has become a critical tool in identifying unknown remains and unknown offenders in many violent crimes. We will discuss how this was used during the investigation, and how the offender was eventually identified. The attendees will learn the proper way to obtain reference samples to ensure that any results will not be questioned. This presentation will describe the prosecutorial process from the time of the offender's arrest through his sentencing. We will discuss considerations when prosecuting cold case homicides. Finally, the attendees will learn the steps that were taken to pass Utah SB156, also known as the "Sherry Black Bill." This legislative act introduces a more structured framework for law enforcement's utilization of optional genetic testing databases when investigating violent crimes.

Educational Objectives: After attending this presentation, attendees will gain a working knowledge of the process of violent crime investigation. Attendees will recognize: (1) the initial crime scene and evidence collection; (2) forensic analysis of the evidence; (3) crime acene assessment and behavior analysis; (4) Investigative Genetic Genealogy; (5) prosecutorial considerations and the impact on families.

Impact Statement: This presentation will impact the forensic science community by exploring a violent homicide from the initial investigation through the ten years of investigation, culminating in the identification and conviction of the offender. During this investigation, many forensics sciences disciplines were involved; this presentation discusses these practices and their application to homicide investigation.

Target Audience: General, Jurisprudence, Psychiatry & Behavioral Science

Knowledge Level Required: Basic

Chair:
Katherine M. Brown, PhD
Tarleton State University
College Station, TX

Co-Chair:
Kelsie Bryand, MS
Sam Houston State University
Huntsville, TX

Presenters:
Heidi Miller
Founder
Sherry Black Foundation
Sandy, UT

Erin BE Ryan, BS
Director
Sherry Black Foundation
Midway, UT

Patrick J. Zirpoli
Sr. Investigative Consultant
Sherry Black Foundation
Milanville, PA

WORKSHOPS

W5 The Sherry Black Investigation—A Journey for Justice

Program:

8:30 am – 8:45 am	**Introduction** *Heidi Miller*
8:45 am – 10:00 am	**The Initial Investigation** *Patrick J. Zirpoli*
10:00 am – 10:15 am	**BREAK**
10:15 am – 11:00 am	**Assessing Criminal Behavior: An Introduction** *Patrick J. Zirpoli*
11:00 am – 12:00 pm	**Criminal Behavior Assessment of the Sherry Black Murder** *Patrick J. Zirpoli*
12:00 pm – 1:00 pm	**BREAK**
1:00 pm – 2:15 pm	**Utilizing Investigative Genetic Genealogy** *Patrick J. Zirpoli*
2:15 pm – 2:45 pm	**Prosecutorial Considerations and Impacts on Families** *Patrick J. Zirpoli; Erin BE Ryan, BS; Heidi Miller*
2:45 pm – 3:00 pm	**BREAK**
3:00 pm – 3:45 pm	**Utah SB156 "Sherry Black Bill"** *Erin BE Ryan, BS*
3:45 pm – 4:00 pm	**Closing Remarks** *Heidi Miller*

WORKSHOPS

Pre-Registration Required—$275

W6 NIST/MSP Hypergeometric Sampling Software for Seized-Drug Analysis

Monday, February 17, 2025 **8:00 am – 5:00 pm** **CE Hours: 6.75**

Program Description: This full-day workshop will present a new statistical sampling app developed by the National Institute of Standards and Technology (NIST) and the MSP to apply hypergeometric sampling to seized-drug evidence. The theory behind the calculations in the app will be thoroughly discussed, along with tools and techniques for both conceptualizing and deploying statistical sampling plans in seized-drug laboratories. Topics covered will include sample size selection, uncertainty quantification, generation of appropriate population inferences for net weight and identification purposes, and appropriate reporting language for net weight, unit count, and extrapolation scenarios.

Educational Objectives: After attending this workshop, the attendees will understand how different hypergeometric sampling tools can be used in a forensic laboratory to improve the information provided about the population of drugs submitted.

Impact Statement: This workshop will impact the forensic science community by providing an alternative to the sampling tools currently available on the Scientific Working Group for the Analysis of Seized Drugs (SWGDRUG) website. The presenters will highlight the reasons why Maryland State Police (MSP) decided to provide statistical data for evidence submitted with a possession with intent to distribute charge. One of the current challenges of statistical sampling of seized-drug evidence is that the complex mixtures of street samples do not always have the same controlled substances reported for each specimen tested. This sampling app will allow a statistical statement to be more easily made in more situations than the hypothesis testing approach.

Target Audience: Criminalistics

Knowledge Level Required: Basic

Chair:
Sandra E. Rodriguez-Cruz, PhD
Drug Enforcement Administration
Dulles, VA

Co-Chair:
Catherine Savage, MS
Maryland State Police
Forensic Sciences Division
Pikesville, MD

Presenters:
Laurel Bobka, MSFS
Maryland State Police
Walkersville, MD

Jack Prothero, PhD
National Institute of Standards and Technology
Westminster, CO

Joshua Smith, BS
Charles County Sheriff's Office
Windsor Mill, MD

WORKSHOPS

W6 NIST/MSP Hypergeometric Sampling Software for Seized-Drug Analysis

Program:

8:00 am –	10:00 am	**Welcome and Presentation of the Hypergeometric Sampling App for Seized-Drug Analysis** *Jack Prothero, PhD; Laurel Bobka, MSFS*
10:00 am –	11:00 am	**Histories and Components of Sampling Plans** *Sandra E. Rodriguez-Cruz, PhD; Laurel Bobka, MSFS*
11:00 am –	12:00 pm	**Mathematics Underlying Hypergeometric Sampling and Tool Demos** *Jack Prothero, PhD; Sandra E. Rodriguez-Cruz, PhD*
12:00 pm –	1:00 pm	**BREAK**
1:00 pm –	4:00 pm	**Hands-On Exercises: Comparison of Hypergeometric Sampling App to SWGDRUG SD6 and ENFSI Calculators** *Joshua Smith, BS; Catherine Savage, MS*
4:00 pm –	4:30 pm	**Discussion of Estimated Net Weight and Tablet Count Estimations, Including Estimation of Uncertainty of Measurement for Weight Measurements** *Joshua Smith, BS*
4:30 pm –	5:00 pm	**FAQs: "What Do I Say if a Lawyer Asks X?"** *All Presenters*

WORKSHOPS

Pre-Registration Required—$275

W7 *DSM* Demystified: Medical Disorders in the Courtroom

Monday, February 17, 2025 **8:30 am – 6:00 pm** **CE Hours: 7.5**

Program Description: This presentation is designed to equip legal professionals with the knowledge to confidently discuss the mental health in court proceedings, explore alternative diagnostic options, and understand the crucial distinctions between legal and medical definitions of disorders. Participants will delve into real case examples to see theory in action and gain practical insights into challenging opposing experts and selecting the right expert witnesses.

Interactive elements will include engaging group discussions and role-playing scenarios to enhance learning and retention. Role-playing in this session will involve analyzing various case scenarios from jurisdictions with different legal standards and tests. Participants will engage in mini mock trials with forensic evaluations where they will apply their understanding of the *DSM*'s authority, forensic limitations, and the distinction between legal and medical definitions of disorders. By attending this session, you will not only enhance your ability to navigate forensic evaluations but also ensure ethical and accurate representations of mental health in legal contexts. Join us to transform your courtroom strategies and become a more effective advocate for your clients.

Educational Objectives: The goals of this workshop are to:

- Understand and articulate the role of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*) in legal settings.
- Analyze the limitations and challenges of relying on the *DSM* for legal determinations of mental health issues.
- Identify and compare alternative diagnostic manuals and systems used in mental health assessments.
- Differentiate between legal versus medical definitions of mental disorders in the assessment and testimony of mental health conditions.
- Acquire knowledge to effectively challenge the testimony and findings of opposing experts in court.
- Learn to identify potential weaknesses or biases in expert evaluations and testimonies.
- Evaluate the credentials, experience, and methodology of potential expert witnesses.
- Review landmark cases that have significantly influenced mental health law and discuss their impact on current legal standards and practices.

Impact Statement: By achieving these learning objectives, participants will gain a comprehensive understanding of the interplay between mental health and legal systems, particularly the role and authority of the *DSM* in court. They will be equipped with the knowledge to critically evaluate and challenge forensic limitations, alternative diagnostic options, and the legal versus medical definitions of disorders. Through case examples and practical strategies, attendees will enhance their ability to select and prepare expert witnesses, ensuring robust and credible testimonies. This training will empower legal professionals to effectively navigate the complexities of forensic mental health evaluations, ultimately improving the quality and fairness of judicial outcomes.

Target Audience: Jurisprudence, Psychiatry & Behavioral Science

Knowledge Level Required: Basic

Chair:
Corina Freitas, MD
Freitas and Associates LLC
Alexandria, VA

Co-Chair:
Donna Coleman, JD
Office of the Public Defender
Mental Health Division
Towson, MD

WORKSHOPS

W7 *DSM* Demystified: Medical Disorders in the Courtroom

Program:

8:30 am – 8:35 am	**Welcome and Introductions** *Corina Freitas, MD*
8:35 am – 9:00 am	**Overview of Different Mental Health Experts and Their Differences** *Presenter TBD*
9:00 am – 9:15 pm	**Forensic Mental Health Professional Ethics Guidelines** *Presenter TBD*
9:15 am – 10:00 am	**History of Classification of Mental llness, the *DSM* With Its Forensic Application Caution and Beyond** *Corina Freitas, MD*
10:00 am – 10:15 am	**BREAK**
10:15 am – 11:00 am	**What is a Mental Disorder in Forensic Mental Health?—Where Medicine Meets the Law** *Corina Freitas, MD; Donna Coleman, JD*
11:00 am – 12:00 pm	**Review of Mental Health Landmark Cases and Legal Standards** *Donna Coleman, JD*
12:00 pm – 1:00 pm	**BREAK**
1:00 pm – 3:00 pm	**Mini Mock Trial on Sanity** *Donna Coleman, JD*
3:00 pm – 5:00 pm	**Mini Mock Trial on Competemce** *Donna Coleman, JD*
5:00 pm – 6:00 pm	**Q&A and Mini Mock Trial Debrief** *Corina Freitas, MD; Donna Coleman, JD*

WORKSHOPS

Pre-Registration Required—$275

W8 Forensic Postmortem Radiology and Medicolegal Death Investigations

Monday, February 17, 2025 **8:30 pm – 4:45 pm** **CE Hours: 5.75**

Program Description: Forensic postmortem radiology is an essential element of a comprehensive medicolegal death investigation. State-of-the-art techniques and procedures will be discussed through case presentations and interactive interpretations of radiology images.

Educational Objectives: After attending this workshop, attendees will: (1) appreciate the evolution of forensic imaging: (2) develop an understanding the fundamentals of Postmortem Computed Tomography (PMCT), including interpretation; (3) gain insights regarding the applications of Postmortem Computed Tomography (PMCT), with a particular focus on its role during the opioid epidemic; (4) identify unique considerations for pediatric forensic imaging, and (5) discuss current advances, collaboration, and potential resources available to interested practitioners.

Impact Statement: This presentation will impact the forensic science community by providing attendees with expertise on best practices, interpretation of radiology imaging, and incorporation of forensic postmortem radiology into medicolegal death investigations.

Target Audience: Anthropology, Forensic Nursing Science, General, Jurisprudence, Odontology, Pathology/Biology

Knowledge Level: Basic

Chair:
Summer J. Decker, PhD
University of Southern California
Keck School of Medicine
Los Angeles, CA

Co-Chair:
Edward Mazuchowski, MD, PhD
HNL Lab Medicine
Breiningsville, PA

Presenters:
Natalie L. Adolphi, PhD
University of New Mexico
Albuquerque, NM

Fabrice Dedouit, MD, PhD
Rangueil-Larrey Toulouse Hospital
Toulouse, France

Jamie M. Elifritz, MD
Forensic Radiology Group
Albuquerque, NM

Howard T. Harcke, MD
Thomas Jefferson University
Wilmington, DE

Heather S. Jarrell, MD
Office of the Medical Investigator
Albuquerque, NM

Michael J. Thali
University of Zurich
Zurich, Switzerland

Program:

8:30 am – 8:45 am	**Introductions and Overview and Historical Perspective** *Edward L. Mazuchowski, MD, PhD; Summer J. Decker, PhD*
8:45 am – 9:15 am	**Natural Disease, Postmortem Changes, and Artifacts** *Jamie Elifritz, MD*
9:15 am – 9:45 am	**Traumatic Injuries** *Edward L. Mazuchowski, MD, PhD*
9:45 am – 10:15 am	**Incorporating Forensic Imaging Into to Day-to-Day Practice in a Medical Examiner Office During the Opioid Crisis** *Heather Jarrell, MD*
10:15 am – 10:30 am	**BREAK**

W8 Forensic Postmortem Radiology and Medicolegal Death Investigations

Program cont.

10:30 am – 11:00 am	**Cardiac Imaging and Postmortem Angiography** *Fabrice Dedouit, MD, PhD*
11:00 am – 11:30 am	**Pediatric Forensic Radiology** *Howard T. Harcke, MD*
11:30 am – 12:00 pm	**Current State of Forensic Radiology in Medicolegal Jurisdictions** *Natalie Adophi, MS, PhD*
12:00 pm – 1:00 pm	**BREAK**
1:00 pm – 1:30 pm	**Postmortem Imaging: International Perspective** *Michael Thali, MD*
1:30 pm – 2:00 pm	**Visualization and Court Presentation** *Summer Decker, PhD*
2:00 pm – 2:30 pm	**Emerging Technologies in Forensic Imaging** *Summer Decker, PhD*
2:30 pm – 2:45 pm	**BREAK**
2:45 pm – 4:15 pm	**Interactive Cases** *All Presenters*
4:15 pm – 4:45 pm	**Panel Discussion With Audience Participation** *All Presenters*

WORKSHOPS

Pre-Registration Required—$275

W9 Statistical Thinking for Forensic Science: From Probability to Black Box Studies to Likelihood Ratios

Monday, February 17, 2025 **8:30 am – 4:30 pm** **CE Hours: 5.75**

Program Description: This workshop provides an introduction to key concepts in probability and statistics by linking them to key topics that are currently impacting the forensic science community. The target audience is anyone (e.g., practitioners, lawyers, judges, educators, and stakeholders) with a desire to better understand ongoing conversations about validation studies, error rates, inconclusive findings, likelihood ratios, and general concepts in statistics and probability.

Educational Objectives: The workshop is intended to review basic concepts from probability and statistical inference and demonstrate their relevance in the current discussions regarding the assessment and interpretation of impression, pattern, and trace evidence. Participants will:

- Become familiar with the language and key concepts of probability, including the role of populations and sample, laws of probability, dependence/independence of events, conditional probability and Bayes' rule, and the likelihood ratio.
- Become familiar with the language and key concepts of statistical inference, including the role of data collection, measurement, error rates, reliability, and validity.
- Understand issues associated with the design, execution, and interpretation of black box studies.
- Understand statistical hypothesis testing and its relevance for the two-stage approach for analyzing forensic evidence.
- Understand the likelihood ratio/Bayes factor-approach to assessing forensic evidence along with its strengths and weaknesses.

Impact Statement: Understanding the applications of statistics by the forensic science community will assist practitioners, attorneys, and jurists in evaluating evidence and opinions. The workshop is intended to leave participants in a position to better understand and engage in ongoing discussions (in the Organization of Scientific Area Committees [OSAC] and other places) about appropriate approaches to assessing forensic evidence and reporting forensic conclusions.

Target Audience: All Sections

Knowledge Level Required: Basic

Chair:
Michael J. Salyards, PhD
CSAFE
Tucson, AZ

Co-Chair:
Linton Mohammed, PhD
Forensic Science Consultants, Inc.
Poway, CA

Presenter:
Hal S. Stern, PhD
University of California, Irvine
Irvine, CA

Program:

8:30 am – 10:00 am	**Introduction and Probability Concepts** *Michael J. Salyards, PhD; Hal S. Stern, PhD*
10:00 am – 10:30 am	**BREAK**
10:30 am – 12:00 pm	**Forensic Science Results, Opinions, and Interpretations/Statistical Methods and the Two-Stage Approach to Forensic Inference** *Michael J. Salyards, PhD; Hal S. Stern, PhD*
12:00 pm – 1:00 pm	**BREAK**
1:00 pm – 2:30 pm	**Validation Studies** *Michael J. Salyards, PhD; Hal S. Stern, PhD*
2:30 pm – 3:00 pm	**BREAK**
3:00 pm – 4:30 pm	**The Likelihood Ratio in Forensic Science** *Michael J. Salyards, PhD; Hal S. Stern, PhD*

WORKSHOPS

Pre-Registration Required—$150

W10 Alcohol Calculations and Expert Testimony: How ANSI/ASB BPR 122 and 037 Can Be Applied in Forensic Toxicology Cases

Monday, February 17, 2025 **8:30 am – 12:00 pm** **CE Hours: 3.0**

Program Description: Forensic toxicologists are frequently asked to perform calculations related to alcohol in a wide variety of situations. ANSI/ASB BPR 122 Best Practice Recommendation for Performing Alcohol Calculations in Forensic Toxicology, First Edition, 2024, outlines a scientific approach to improve the quality and consistency of this type of work. Those calculations can then serve as the basis for expert opinion in matters related to motor vehicle investigations, drug-facilitated crimes, workplace injury inquiries, and other criminal and civil cases. Performing the calculations in a standardized manner can also assist experts in meeting the recommendations of ANSI/ASB BPR 037 Guidelines for Opinions and Testimony in Forensic Toxicology, First Edition, 2019.

This workshop will review the alcohol calculation best practices and expert opinion guidelines, then demonstrate how the calculations can be applied to a variety of real-world case scenarios. Experts will also share how those calculations are then presented in court as part of their expert opinion testimony.

Educational Objectives: Attendees will be able to use the alcohol calculation guidelines in a wide variety of forensic case types. They will learn how different toxicologists apply those calculations to expert opinion testimony.

Impact Statement: This workshop will impact the forensic toxicology and criminal justice community by educating stakeholders in how the principles of American National Standards Institute/Academy Standards Board Best Practice Recommendation (ANSI/ASB BPR) 122 and ANSI/ASB BPR 037 can be applied to a variety of forensic case types involving alcohol calculations.

Target Audience: Jurisprudence, Toxicology

Knowledge Level Required: Intermediate

Chair:
Jennifer F. Limoges, MS
New York State Police
Forensic Investigation Center
Albany, NY

Co-Chair:
Laura Liddicoat, BA
Liddicoat Consulting
Fitchburg, WI

Presenters:
Patrick M. Harding, BS
Robert F. Borkenstein Courses
Madison, WI

Chris Heartsill, BSc
SOFT/NHTSA
Farmers Branch, TX

Marc A. LeBeau, PhD
LeBeau Forensic Toxicology Consulting, LLC
Fairfax, VA

W10 Alcohol Calculations and Expert Testimony: How ANSI/ASB BPR 122 and 037 Can Be Applied in Forensic Toxicology Cases

Program:

8:30 am – 8:35 am	**Opening and Introductions** *Jennifer F. Limoges, MS; Laura Liddicoat, BA*
8:35 am – 8:50 am	**BAC Calculations in the Courtroom** *Presenter TBD*
8:50 am – 9:20 am	**ANSI/ASB BPR 122 and BPR 037 Overview** *Jennifer F. Limoges, MS*
9:20 am – 9:40 am	**Case 1: Dram Shop** *Patrick M. Harding, BS*
9:40 am – 10:00 am	**Case 2: Workplace Injury** *Chris Heartsill, BSc*
10:00 am – 10:30 am	**BREAK**
10:30 am – 10:50 am	**Case 3: FMVA** *Jennifer F. Limoges, MS*
10:50 am – 11:10 am	**Case 4: DFC** *Marc A. LeBeau, PhD*
11:10 am – 11:30 am	**Case 5: Hospital Serum Civil Case** *Laura Liddicoat, BA*
11:30 am – 12:00 pm	**Panel Discussion** *All Presenters*

WORKSHOPS

Pre-Registration Required—$150

W11 Sequencing 101

Monday, February 17, 2025 **8:30 am – 12:00 pm** **CE Hours: 3.5**

Learning Overview: What is a library? If it is whole genome sequencing, why don't I get the whole genome? This workshop is designed to be a crash course in all things sequencing. Existing commercial and custom panels for autosomal Short Tandem Repeat (STR), X-STR, Y-STR, mitochondrial, and Single Nucleotide Polymorphism (SNP) testing will be discussed. Additionally, the differences between targeted sequencing, shotgun sequencing, amplicon versus ligation-based libraries, and additional sequencing methods will be compared. Whether or not bioinformatics is required based on the sequencing method will be explored as well as the types of bioinformatic processes that may be employed, including imputation. With any new technology comes the introduction of this procedure in the courtroom as well as the inevitable court challenges. Successfully presented expert witness testimony will be previewed as well as a look at ongoing court challenges. Finally, cases where sequencing has been utilized will be highlighted. The presenters of this workshop will span industry experts, a bioinformatician, and active casework users of sequencing technologies.

Educational Objectives: The goal of this workshop is for attendees to walk away with a better baseline knowledge of sequencing and to provide a foundation for informed decision-making for those considering deploying sequencing in their laboratory.

Impact Statement: Sequencing can be intimidating for those that are used to the existing DNA technologies that have been available over the past several decades. This workshop will broaden that knowledge.

Target Audience: Criminalistics, Digital & Multimedia Sciences, General, Jurisprudence, Pathology/Biology

Knowledge Level: Basic

Chair:
Rachel H. Oefelein, MSc
DNA Labs international
Deerfield Beach, FL

Co-Chair:
Marybeth Sciarretta, MS
DNA Labs international
Deerfield Beach, FL

Presenters:
Laurence Devesse, PhD
Qiagen
Zurich, Switzerland

Danny Hellwig, MS
DNA Labs international
Deerfield Beach, FL

Kevin Lord
DNA Labs international
Deerfield Beach, FL

Mandi S. Van Buren, MS
DNA Labs International
Deerfield Beach, FL

Program:

8:30 am – 8:45 am	**Welcome/Introductions** *Rachel H. Oefelein, MSc*
8:45 am – 9:15 am	**What is Sequencing?** *Laurence Devesse, PhD*
9:15 am – 9:45 am	**Sequencing for STRs, mtDNA, and More** *Marybeth Sciarretta, MS*
9:45 am – 10:15 am	**Sequencing for FIGG** *Patrick M. Harding, BS*
10:15 am – 10:30 am	**BREAK**
10:30 am – 11:00 am	**Sequencing in the Courtroom** *Mandi S. Van Buren, MS*
11:00 am – 11:30 am	**Bioinformatics** *Kevin Lord*
11:30 am – 12:00 pm	**Casework Successes** *Rachel H. Oefelein, MSc*

Pre-Registration Required—$150

W12 Can Human Remains Detection Canine Teams Detect Residual Odor? Results of Odor Recognition Tests and Chemical Analysis

Monday, February 17, 2025 **1:00 pm – 4:30 pm** **CE Hours: 3.5**

Program Description: Dogs have keen olfactory senses and are deployed for a number of forensic purposes in criminal investigations. HRD canines (a.k.a. cadaver dogs) are trained to detect the odor of human remains, which is comprised of Volatile Organic Compounds (VOCs) that emanate from a deceased body. Despite their widespread use, the reliability of HRD canines is complicated and understudied.

Here, residual odor refers to the odor from a deceased human that remains after it is removed from its resting place, including transient places or objects a body touched. Little is known about deceased residual odor except that its VOCs degrade over time. However, canine alerts are being treated as scientifically valid indicators that an intact decedent was present at one time, even when no physical or corroborating (e.g., chemical) evidence exists, and without regard for the level of training, certification, or proficiency of the canine.

A study of 35 HRD canine teams (handler and dog) tested on residual odor from both deceased and living individuals provides the data and results presented in this workshop. The presenters will describe the development of a standardized, double-blind ORT for canine teams and discuss the accuracy of the canine teams in detecting deceased human residual odor. The presenters will explain the chemical characterization of the VOCs from the odor samples used in the ORTs. Finally, the presenters will utilize select video and audio recordings of the canine team participants from the ORT to contextualize the results and discuss implications of the study.

Educational Objectives: Residual odor is an odor that persists after the target is removed. This workshop addresses canine detection of residual odor of humans, both deceased and alive. After attending this workshop, attendees will understand: (1) if Human Remains Detection (HRD) canine teams reliably detect residual odor of human remains; (2) if these canines differentiate between residual odors of deceased human remains and live human scent; (3) if analytical chemistry methods detect and differentiate residual odor of living and deceased individuals; and (4) how the integrated results of chemistry and canine behavior analysis help us understand if and how residual odor training can be improved.

Impact Statement: The legal threshold for admitting canine evidence relies on the experience of the handler and their description of the canine's training, neither of which provide the errors associated with the technique required by standard rules of evidence. This workshop will assist attorneys and judges in assessing the probative value of canine alerts that may be detection of residual odor and thus considered evidence by providing results of a coupled canine-analytical chemistry analysis of intact decedent residual odor study. In addition, the standardized Odor Recognition Test (ORT) design will establish guidelines for canine training and testing to improve Human Remains Detection (HRD) certification efforts.

Target Audience: Anthropology, Criminalistics, General, Jurisprudence, Pathology/Biology, Psychiatry & Behavioral Science, Toxicology

Knowledge Level: Basic

Chair:
Dawnie W. Steadman, PhD
University of Tennessee
Knoxville, TN

Co-Chair:
Mary E. Cablk, PhD
University of Tennessee Knoxville
Reno, NV

Presenters:
Shawn R. Campagna, PhD
University of Tennessee
Knoxville, TN

Mary Davis, MSc
University of Tennessee
Knoxville, TN

James C. Ha, PhD
University of Tennessee
Knoxville, TN

W12 Can Human Remains Detection Canine Teams Detect Residual Odor? Results of Odor Recognition Tests and Chemical Analysis

Program:

1:00 pm – 1:10 pm	**Welcome and Introductions** *Dawnie W. Steadman, PhD*
1:10 pm – 1:30 pm	**Human Remains Detection Dogs (HRD), Residual Odor, and the Courts: The Need for Scientific Evaluation** *Dawnie W. Steadman, PhD*
1:30 pm – 2:30 pm	**Designing and Deploying the Odor Recognition Test (ORT)** *Dawnie W. Steadman, PhD; Mary E. Cablk, PhD; Mary Davis, MSc; James C. Ha, PhD*
2:30 pm – 2:40 pm	**BREAK**
2:40 pm – 3:10 pm	**Chemical Analysis of Residual Odor Samples** *Shawn R. Campagna, PhD*
3:10 pm – 4:00 pm	**Accuracy of HRD to Detect Residual Odors** *James C. Ha, PhD; Mary E. Cablk, PhD; Dawnie W. Steadman, PhD*
4:00 pm – 4:30 pm	**Discussion and Questions** *All Presenters*

WORKSHOPS

Pre-Registration Required—$275

W13 The Body as the Crime Scene: Traces, Signs, and Scientific Methods

Tuesday, February 18, 2025 **9:00 am – 5:00 pm** **CE Hours: 6.75**

Program Description: This workshop highlights the multidisciplinary approach to forensic investigations, drawing attention to the factors that connect forensic scientists, regardless of discipline or specialization. After learning fundamentals common to forensic science as a whole, attendees will delve into knowledge specific to disciplines (criminalistics, nursing, pathology, toxicology, and scene investigation). Each discipline will focus on the observation, detection, and interpretation of traces to aid in understanding complex events. With a focus on sexual and gender-based violence, attendees will apply the knowledge gained from this workshop interactively via a case study that requires insight from and collaboration across various disciplines.

Educational Objectives: This workshop addresses the multidisciplinary approach to forensic investigations, drawing attention to the factors that connect forensic scientists, regardless of discipline or specialization. Specifically, forensic scientists rely on imagination, curiosity, observation, and reasoning in an effort to detect and assign meaning to traces in order to understand events of interest. After attending this workshop, attendees will: (1) understand what connects forensic scientists at our core, notably the scientific approach to problem-solving through observation, reasoning, and the detection and evaluation of traces; (2) consider the types of traces encountered across several disciplines (e.g., AAFS sections, including Criminalistics, Forensic Nursing Science, Pathology/Biology, Toxicology, General, and others); (3) apply what they have learned by considering traces in context and comparing and contrasting discipline-specific approaches to assign meaning to traces of significance; and (4) understand that the Sydney Declaration was developed with the goal of promoting a shared understanding of traces across forensic science.

Impact Statement: This presentation will impact the forensic science community by fostering the understanding that scientific problem-solving in forensic science extends beyond one's specific-area discipline and should be the foundation on which forensic science endeavors are built.

Target Audience: Criminalistics, Forensic Nursing Science, General, Pathology/Biology, Toxicology

Knowledge Level: Intermediate

Chair:
Michelle D. Miranda, PhD
Farmingdale State College, SUNY
Farmingdale, NY

Co-Chair:
Claude Roux, PhD
University of Technology Sydney
Sydney, Australia

Presenters:
Patrick Buzzini, PhD
Sam Houston State University
Huntsville, TX

Yanko G. Kolev, MD, PhD
Medical University - Pleven/District Hospital MBAL
Gabrovo, Bulgaria

Antonel Olckers, PhD
African Academy of Forensic Sciences (AFSA) & DNAbiotec
Pretoria, South Africa

Patricia M. Speck, DNSc
Hoover, AL

Casper Venter, PhD
West Virginia University
Morgantown, WV

Jessica Volz, DNP
Adventist HealthCare
Shady Grove Medical Center
Rockville, MD

WORKSHOPS

W13 The Body as the Crime Scene: Traces, Signs, and Scientific Methods

Program:

9:00 am – 10:00 am	**Introduction: Signs, Symptoms, Clues** *Patrick Buzzini, PhD; Michelle D. Miranda, PhD*
10:00 am – 11:00 am	**Traces and the Sydney Declaration** *Claude Roux, PhD*
11:00 am – 12:00 pm	**Criminalistics: Traces and Sexual and Gender-Based Violence** *Antonel Olckers, PhD*
12:00 pm – 1:00 pm	**BREAK**
1:00 pm – 2:00 pm	**Forensic Nursing: Traces and Sexual and Gender-Based Violence** *Jessica Volz, DNP; Patricia M. Speck, DNSc*
2:00 pm – 3:00 pm	**Forensic Pathology: Traces and Sexual and Gender-Based Violence.** *Yanko G. Kolev, MD, PhD*
3:00 pm – 4:00 pm	**Forensic Toxicology: Traces and Sexual and Gender-Based Violence** *Casper Venter, PhD*
4:00 pm – 5:00 pm	**Interactive Study and Closing Remarks** *All Presenters*

Pre-Registration Required—$275

W14 The Longest Journey Starts With a Single Step: Evaluating Biological Results Given Activity-Level Propositions—The Problem, the Theory, the Solution, and Strategies for Implementation

Tuesday, February 18, 2025 **8:30 am – 5:30 pm** **CE Hours: 7.25**

Program Description: It is clear that the court is interested in "how-the-DNA-got-there" questions. However, answering hypothetical activity-level questions with "it's possible" is not a scientifically justifiable, useful, nor recommended practice. The refusal answer of "I can't answer questions related to how DNA got there" is perhaps even more problematic. This workshop will engage participants in how to prepare and answer activity-level questions with answers that: (1) are not misleading, and therefore minimize the risk of a wrongful conviction; (2) are based on a sound, logical framework; and (3) follow international guidelines. A combination of lectures, demonstrations, and hands-on group activities will be used to show how DNA results may be evaluated with regard to activity-level propositions as well as how to communicate this information. This workshop will cover Case Assessment and Interpretation, existing guidelines, probabilities, likelihood ratios, likelihood ratio equations given activity level propositions, Bayesian networks and sensitivity analyses. In addition, this workshop will focus on how to assign probabilities and likelihood ratios using scientific, peer-reviewed publications. Since case-relevant publications do not always exist, we will also explore how to assign probabilities and likelihood ratios in the presence of limited information. This workshop will cover challenges in answering commonly phrased questions at court and communicating the value of the evidence. Finally, strategies to help with implementation via a series of achievable goals will be presented to equip and empower experts to give answers to these questions of importance to the court.

Educational Objectives: After attending this workshop, attendees will have a better appreciation of how to evaluate DNA results given activity level propositions. They will practice how to correctly formulate activity-level propositions, assign likelihood ratios for biological results given activity-level propositions, apply the Case Assessment and Interpretation (CAI) framework, and see how to use a probabilistic model (e.g., a Bayesian network). With this knowledge, attendees will be able to start to better address hypothetical questions commonly asked in court by recognizing poorly worded questions and providing scientifically correct answers to these questions.

Impact Statement: This presentation will impact the forensic science community by providing guidance on how to answer activity-level questions on biological results in a way that is useful to the court based on a sound logical framework and following international guidelines.

Target Audience: Criminalistics, General, Jurisprudence

Knowledge Level: Intermediate

Chair:
Tim Kalafut, PhD
Sam Houston State University
Huntsville, TX

Co-Chair:
Sheila Willis, DSc
Leverhulme Research for Forensic Science
Dublin, Ireland

Presenter:
Simone Gittelson, PhD
DC Department of Forensic Sciences and
The George Washington University
Washington, DC

W14 The Longest Journey Starts With a Single Step: Evaluating Biological Results Given Activity-Level Propositions—The Problem, the Theory, the Solution, and Strategies for Implementation

Program:

8:30 am – 9:00 am	**Opening Remarks** *Sheila Willis, DSc; Tim Kalafut, PhD*
9:00 am – 10:00 am	**Do Experts Have Expert Knowledge?** *Tim Kalafut, PhD*
10:00 am – 10:30 am	**Evaluation of Forensic Results and Formulating Activity-Level Propositions** *Simone Gittelson, PhD*
10:30 am – 10:45 am	**BREAK**
10:45 am – 11:00 am	**What Is a Probability and How to Report It** *Simone Gittelson, PhD*
11:00 am – 11:40 am	**But Juries Don't Understand the Likelihood Ratio** *Tim Kalafut, PhD*
11:40 am – 12:00 pm	**Bayesian Networks** *Simone Gittelson, PhD*
12:00 pm – 1:00 pm	**BREAK**
1:00 pm – 1:15 pm	**Case Assessment and Interpretation** *Simone Gittelson, PhD; Tim Kalafut, PhD*
1:15 pm – 2:30 pm	**Mock Case Exercise: Part 1** *Sheila Willis, DSc; Tim Kalafut, PhD; Simone Gittelson, PhD*
2:30 pm – 2:45 pm	**BREAK**
2:45 pm – 3:45 pm	**Mock Case Exercise: Part 2** *Sheila Willis, DSc; Tim Kalafut, PhD; Simone Gittelson, PhD*
3:45 pm – 4:00 pm	**Activity-Level Likelihood Ratios and Sensitivity Analyses** *Simone Gittelson, PhD*
4:00 pm – 4:15 pm	**Testifying in Court** *Tim Kalafut, PhD*
4:15 pm – 5:00 pm	**A Possible Way Forward** *Sheila Willis, DSc*
5:00 pm – 5:30 pm	**Questions and Answers/Closing Remarks** *Sheila Willis, DSc; Tim Kalafut, PhD; Simone Gittelson, PhD*

WORKSHOPS

Pre-Registration Required—$275

W15 Artificial Intelligence (AI) in Forensic Education: The Good, the Great, and the Truth

Tuesday, February 18, 2025 **8:30 am – 4:45 pm** **CE Hours: 6.25**

Program Description: This workshop offers a comprehensive exploration of AI's role in forensic education. It begins with an introduction to the ethical considerations of AI use in academia, highlighting the intersection of AI and plagiarism. The session then delves into the application of AI systems in higher education, including an overview of the HiPerGator supercomputer. Attendees will learn how students can leverage AI for exam preparation, utilizing AI-powered platforms, chatbots, virtual tutors, and flashcard apps. The workshop also addresses the application of AI in solving complex societal issues, specifically the Missing and Murdered Indigenous Women crisis. Ethical considerations of AI use within forensic education are discussed, with a focus on privacy, bias, transparency, and academic integrity. The workshop concludes with a hands-on session on mastering AI prompt generation, equipping attendees with the skills to create engaging, adaptive, and industry-relevant learning experiences for forensic science students. This workshop promises a deep dive into the transformative potential of AI in forensic education.

Educational Objectives: This presentation aims to examine and apply the use of AI in forensic science education, create learning opportunities for students using AI tools, and evaluate the ethics and challenges of using of AI in education.

Impact Statement: This workshop will have a profound impact on the forensic science community by highlighting the transformative potential of AI in education. The workshop targets all people in the forensic science community, especially educators, as the use of AI enters our disciplines. It will provide insights into the ethical implications of AI, explore the application of supercomputers, demonstrate how students can leverage AI for efficient exam preparation, and address complex issues of victimization. The workshop will delve into the ethical considerations of AI use within forensic education, discussing concerns such as privacy, bias, transparency, and academic integrity. The workshop will equip attendees with the skills to craft precise, context-rich prompts for AI-powered tools, facilitating the creation of engaging, adaptive, and industry-relevant learning experiences for forensic science students. This workshop promises to be a game-changer in harnessing the power of AI for the advancement of forensic education.

Target Audience: All Sections

Knowledge Level: Basic

Chair:
Gina Londino-Smolar, EdD
IU Indianapolis
Indianapolis, IN

Co-Chair:
Kelly M. Elkins, PhD
Towson University
Towson, MD

Presenters:
Theresa M. DeAngelo, MSFS
Maryland State Police
Forensic Sciences Division
Pikesville, MD

Amber L. Fortney, MS
University of Central Oklahoma
Perry, OK

Meagan Raddatz, MS
University of Central Oklahoma
Perry, OK

Claire E. Shepard, MS
LA Delta Community College
Monroe, LA

Ying Zhang, MS
University of Florida
Gainesville, FL

WORKSHOPS

W15 Artificial Intelligence (AI) in Forensic Education: The Good, the Great, and the Truth

Program:

8:30 am – 8:45 am	**Welcome** *Kelly M. Elkins, PhD*
8:45 am – 9:30 am	**Introduction—College Policy, Academic Integrity, Ethics** *Kelly M. Elkins, PhD*
9:30 am – 10:15 am	**The Application of AI Systems in Higher Education** *Ying Zhang, MS*
10:15am – 10:30 am	**BREAK**
10:30 am – 11:15 am	**Student Use of AI for Preparing for Exams** *Claire E. Shepard, MS*
11:15 am – 12:00 pm	**Artificial Intelligence Applications in Missing and Murdered Indigenous Women Victimization Prevention and Cold Case Resolution** *Amber L. Fortney, MS; Meagan Raddatz, MS*
12:00 pm – 1:00 pm	**BREAK**
1:00 pm – 1:45 pm	**Ethical Considerations for AI Use Within Forensic Education** *Theresa M. DeAngelo, MSFS*
1:45 pm – 2:30 pm	**Question and Answer Session** *All Presenters*
2:30 pm – 2:45 pm	**BREAK**
2:45 pm – 3:30 pm	**Crafting the Future: Mastering AI Prompt Generation for Enhanced Forensic Education** *Gina Londino-Smolar, EdD*
3:30 pm – 4:30 pm	**Hands-On Evaluation on Utilizing Various AI Tools for Educational Purposes** *All Presenters*
4:30 pm – 4:45 pm	**Closing Remarks** *Gina Londino-Smolar, EdD*

Pre-Registration Required—$275

W16 How to Be a Long-Term Unidentified and Missing Persons Investigator: The Investigators' Toolkit

Tuesday, February 18, 2025 **8:30 am – 6:00 pm** **CE Hours: 7.5**

Program Description: This workshop was designed to assist investigators from law enforcement agencies and medical examiners/coroners in investigating their long-term unidentified human remains cases as well as long-term missing persons cases. Representatives from the National Missing and Unidentified Persons System (NamUs), National Center for Missing and Exploited Children (NCMEC), the DNA Doe Project, the Federal Bureau of Investigation (FBI), and a cold case detective from Virginia will discuss how their agencies can assist and provide support to those investigating unidentified human remains and long-term missing persons cases.

The presentation on NamUs will include updated information on staffing, system services, and training. The Program Manager for the Forensic Services Unit at NCMEC will share resources and case examples on how NCMEC can assist and support juvenile investigations for both unidentified human remains and missing persons investigations. The Bureau of Justice Assistance (BJA) will discuss federal resources and grant opportunities for those investigating missing and unidentified persons cases.

The second block includes presentations that are more hands-on. The executive director from the DNA Doe Project will discuss Forensic Investigation Genetic Genealogy and the resources that the DNA Doe Project can provide. The FBI's Major Incident Program Manager will give an overview on the Latent Print Unit in the FBI and their support services, as well as a chemical demo on how to retrieve fingerprints on degraded human remains. The last presentation is from a local cold case detective who will present their case of an unidentified human remains case from start to finish.

Educational Objectives: During this presentation, attendees will receive information and training on various resources used to investigate long-term unidentified human remains cases, as well as long-term missing persons cases. Attendees will learn how juvenile cases differ from adult unidentified human remains and missing persons cases. Information will be shared on best practices for investigation and will cover a case from start to finish.

After attending the workshop, attendees will: (1) have a better understanding of how to investigate unidentified human remains and long-term missing persons cases; (2) know how to start an unidentified human remains and/or long-term missing persons investigation; (3) understand the resources and support agencies available; (4) be able to determine the best resources that can be utilized for their own cold cases; (5) be able to discuss their own cases and investigations and receive real-time support from the speakers on how best to move their investigations forward.

Impact Statement: The workshop will impact the forensic science community by providing a toolkit for investigators to use during unidentified human remains and missing persons investigations. While there are some agencies who have a dedicated cold-case unit who is responsible for long-term unidentified human remains cases and long-term missing persons cases, the reality is that most agencies across the nation are too small, do not have the budget, and/or do not have the manpower to have a dedicated unit. This workshop will provide attendees with information how to begin a cold unidentified human remains case or missing persons case, and how to keep the cases active. It will also provide attendees with a knowledge base on investigations and a point of contact for resources on cold cases nationwide.

Target Audience: Criminalistics, General

Knowledge Level: Basic

W16 How to Be a Long-Term Unidentified and Missing Persons Investigator: The Investigators' Toolkit

Chair:
Lara Newell, MA
Virginia Office of the
Chief Medical Examiner
Richmond, VA

Co-Chair:
Katharine C. Pope, MA
RTI International
Fruitland, MD

Presenters:
Hannah Barcus, MS
Bureau of Justice Assistance
Washington, DC

Mark A. Bush, BAS
Loudoun County Sheriff's Office
Leesburg, VA

Bryan T. Johnson, MSFS
FBI
Quantico, VA

Carol Schweitzer, MA
National Center for Missing & Exploited Children
Alexandria, VA

Jennifer Randolph, MSc
DNA Doe Project
Hanover, DE

Program:

8:30 am – 9:00 am	**Workshop Introduction and Intro to VA OCME/LTUC** *Lara Newell, MA*
9:00 am – 10:00 am	**NamUs: A How-To Guide, Including Updated Information on Staffing, Systems, and Services** ***Katharine C. Pope, MA***
10:00 am – 12:00 pm	**NCMEC Resources for Long-Term Missing and Unidentified Juvenile Cases Using Case Examples** *Carol Schweitzer, MA*
12:00 pm – 12:30 pm	**Resources for Working Missing and Unidentified Persons Cases** *Hannah Barcus, MS*
12:30 pm – 1:30 pm	**BREAK**
1:30 pm – 2:45 pm	**FIGG** *Jennifer Randolph, MSc*
2:45 pm – 4:00 pm	**Latents and Chemical Demonstration** *Bryan T. Johnson, MSFS*
4:00 pm – 5:30 pm	**Reconstructing a Homicide** *Mark A. Bush, BAS*
5:30 pm – 6:00 pm	**Questions and Answers Panel** *All Presenters*

Pre-Registration Required—$275

W17 Practical Neuropathology for Coroners and Medical Examiners: Basic Concepts and Advanced Principles

Tuesday, February 18, 2025 **8:30 am – 5:00 pm** **CE Hours: 7.0**

Program Description: Assessing Central Nervous System (CNS) trauma is critical in neuropathology and forensic pathology and encompasses closed- or open-head injuries, multiple types of forms of parenchymal brain injury, and secondary complications such as edema and increased intracranial pressure. Establishing a link between trauma and death is crucial for determining the cause and manner of death.

Child abuse, particularly abusive head trauma, is a complex and vital focus in forensic neuropathology. A comprehensive workup is essential to document the findings and determine their relevance in terms of evidentiary significance and to rule out potential confounders to pediatric head trauma and child abuse.

CNS disorders such as epilepsy may present significant challenges when associated with sudden and unexplained death (Sudden Unexplained Death in Epilepsy [SUDEP]), as they often lack morphological indicators. Other natural disease processes, such as undiagnosed brain tumors, aneurysms, infections, neurodegenerative diseases, and cerebrovascular accidents, can further complicate forensic assessments and may have public health implications.

Different brain pathologies necessitate varied approaches, including detailed external examinations, precise sampling for microscopic analysis, and specialized dissection techniques tailored to highlight specific findings.

This workshop will explore fundamental and advanced aspects of brain pathology in forensic autopsies, including but not limited to CNS anatomy, head trauma, neurovascular diseases, infections, specialized autopsy dissection techniques, and microscopic examination of rare or uncommon conditions. Attendees will participate in didactic sessions, case studies, step-by-step dissection guides, and evidence-based discussions led by forensic and neuropathologists, facilitating interactive learning and skill enhancement.

Educational objectives: After attending this workshop, participants will have an enhanced knowledge base of neuropathology as seen in a busy forensic pathology office. Emphasis will be placed on natural diseases, trauma, microscopic sampling and examination, and pediatric non-accidental head trauma. Attendees will develop skills necessary for comprehensive brain assessments at autopsy and techniques to address both common and unusual pathologies. They will be exposed to various specimens and techniques through didactic presentations, and case-based discussions.

Impact Statement: This workshop will emphasize the multifaceted nature of brain pathology in the context of forensic autopsy. Didactic lectures and practical instruction using detailed anatomical images will be provided to enhance autopsy performance and competency, with an additional focus on the workup and evaluation of pediatric non-accidental head injury.

Target Audience: General, Jurisprudence, Pathology/Biology

Knowledge Level: Basic

Chair:
Lorenzo Gitto, MD
Cook County Medical Examiner's Office
Chicago, IL

Co-Chair:
Ponni Arunkumar, MBBS
Cook County Medical Examiner's Office
Chicago, IL

Presenters:
Jared Ahrendsen, MD, PhD
Northwestern University
Chicago, IL

Anfisa Baiandurova, MD
West Tennessee Regional Forensic Center
Memphis, TN

Rudolph J. Castellani, MD
Northwestern University
Feinberg School of Medicine
Chicago, IL

Samantha N. Champion, MD
Cook County Medical Examiner
Chicago, IL

Michelle A. Jorden, MD
Santa Clara County
Medical Examiner/Coroner

WORKSHOPS

W17 Practical Neuropathology for Coroners and Medical Examiners: Basic Concepts and Advanced Principles

Program:

8:30 am – 8:45 am	**introduction** *Lorenzo Gitto, MD; Ponni Arunkumar, MBBS*
8:45 am – 9:00 am	**Neuropathology and the Coroner** *Ponni Arunkumar, MBBS*
9:00 am – 9:45 am	**Introduction to Forensic Neuropathology, CNS Anatomy, and Histology** *Samantha N. Champion, MD*
9:45 am – 10:15 am	**Cerebrovascular Disease** *Anfisa Baiandurova, MD*
10:15 am – 10:30 am	**BREAK**
10:30 am – 11:00 am	**Uncommon and Interesting Central Nervous System Tumors/Lesions** *Michelle A. Jorden, MD*
11:00 am – 11:30 am	**Neurodegenerative Disease Interpretation** *Rudolph J. Castellani, MD*
11:30 am – 12:00 pm	**Infections of the Central Nervous System** *Lorenzo Gitto, MD*
12:00 pm – 1:00 pm	**BREAK**
1:00 pm – 2:00 pm	**An Evidence-Based Review of Pediatric Abusive Head Trauma** *Rudolph J. Castellani, MD; Jared Ahrendsen, MD, PhD*
2:00 pm – 2:30 pm	**Adult Blunt Head Trauma** *Samantha N. Champion, MD*
2:30 pm – 3:00 pm	**Is Modern Chronic Traumatic Encephalopathy Appropriate to Death Certification?** *Rudolph J. Castellani, MD*
3:00 pm – 3:15 pm	**BREAK**
3:15 pm – 3:45 pm	**Seizures** *Samantha N. Champion, MD*
3:45 pm – 4:15 pm	**Special Autopsy Dissection Techniques** *Lorenzo Gitto, MD*
4:15 pm – 4:45 pm	**Brain Dissection and Cervical Spine Dissection in Head Trauma** *Jared Ahrendsen, MD, PhD*
4:45 pm – 5:00 pm	**Discussion and Questions** *All Presenters*

Pre-Registration Required—$150

W18 A New Frontier—Federal Agencies Paving a Way for Forensic Drug Analysis With AI

Tuesday, February 18, 2025 **8:00 am – 12:00 pm** **CE Hours: 3.25**

Program Description: Federal agencies around the world are embracing the new frontier of machine learning and advanced technology and considering how to AI within the current systems. This workshop will provide insight into various examples of how federal agencies are applying machine learning capabilities and other technological advances to forensic science and drug analysis. The National Institute of Standards and Technology (NIST) researchers will be discussing their efforts in creating a catalog of AI-enabled tools currently being used by forensic science service providers and researchers for forensic science applications, to include available or near-market tools. Other examples include Drug Enforcement Administration's (DEA's) implementation of state-of-the-art automation for sample preparation related to screening and quantitative analysis. Using advanced robotics, samples are prepared for general screening of controlled substances and quantitative analysis. The Canada Border Services Agency will present on the transformative capabilities of existing software in conjunction with the portable mass spectrometers for narcotics detection at the Canadian Border. Participants will gain insights into the sophisticated software algorithm, which significantly enhances confidence in direct inject Mass Spectrometry (MS) spectral matching, providing rapid and precise results.

In addition, attendees will participate in an interactive exercise in which they will identify areas in seized drug processes where AI-enabled tools have the potential to be transformative (e.g., evidence analysis, quality control, reducing the likelihood and consequence of error and cognitive bias, and research activities. The workshop will finish with information on the progress toward establishing a road map for the responsible development, testing, evaluation, and adoption of trustworthy machine-learning and AI systems in forensic science.

Educational Objectives: After attending this workshop, attendees will: (1) be able to better understand how federal agencies in the United States and internationally are using machine learning tools and other technological advances in seized drug analysis; (2) be able to evaluate the challenges with robotics and algorithms to improve laboratory analytical capabilities and seized drug workflow strategies; and (3) be able to explain how federal agencies are addressing the new frontier of machine-learning and artificial intelligence in support of forensic science investigations.

Impact Statement: This workshop will benefit the forensic science community by highlighting how federal agencies are considering the benefits, risks, and limitations that machine learning capabilities and technological advances have brought to forensic science seized drug analysis, such as collaborations on investigations, epidemiology, drug intelligence, and canine training, and operations. It will also highlight how embracing these opportunities can strengthen the efficiency of laboratory operations, utility of the results, and timeliness of testing.

Target Audience: Criminalistics, General

Knowledge Level: Basic

Chair:
Agnes D. Winokur, PhD
Drug Enforcement Administration
Washington, DC

Co-Chair:
Kimberly Westberry, PhD
USACIL
Forest Park, GA

Presenters:
Sandra Ferreira, MSc
Canada Border Service Agency
Ottowa, Ontario, Canada

Scott R. Oulton, BS
Drug Enforcement Administration
Arlington, VA

Henry Swofford, PhD
National Institute of Standards and Technology
Gaithersburg, MD

Melissa Taytlor, BA
National Institute of Standards and Technology
Gaithersburg, MD

W18 A New Frontier—Federal Agencies Paving a Way for Forensic Drug Analysis With AI

Program:

8:30 am – 8:45 am	**Introduction** *Kimberly Westberry, PhD*
8:45 am – 9:30 am	**New Frontier—Landscape of Artificial Intelligence-Enabled Tools** *Melissa Taylor, BA; Henry Swofford, PhD*
9:30 am – 10:15 am	**Empowering Innovation: How Federal Agencies Harness Novel Technology for Advancing Forensic Science** *Sandra Ferreira, MSc*
10:15 am – 10:30 am	**BREAK**
10:30 am – 11:00 am	**Exploring Algorithms and Predictive Models** *Agnes D. Winokur, PhD*
11:00 am – 11:30 am	**The Use of Advanced Technological Automation for Seized Drug Analysis** *Scott R. Oulton, BS*
11:30 am – 12:15 pm	**Developing a Roadmap for the Adoption of AI Systems** *Melissa Taylor, BA; Henry Swofford, PhD*
12:15 pm – 12:30 pm	**Questions and Answers** *All Presenters*

WORKSHOPS

Pre-Registration Required—$150

W19 Unmasking the Evidence: How Defense Experts Prevented Wrongful Convictions

Tuesday, February 18, 2025 **8:30 am – 12:30 pm** **CE Hours: 3.5**

Program Description: The program will highlight the challenges faced by legal professionals who may lack the scientific background needed to assess forensic evidence accurately. It emphasizes the critical role that defense experts play in preventing wrongful convictions by scrutinizing evidence, reports, testimony, and the actions of forensic analysts.

Anjali Ranadive and Tiffany Roy, both attorneys and forensic scientists with significant experience, aim to shed light on systemic issues within the legal system through real case examples. They will provide insights into various problems such as evidence mishandling, credibility of testing procedures, misleading language in reports, and biases in case theories. By bringing attention to these issues, they will emphasize the importance of having competent experts for the defense to challenge flawed evidence, interpretations, and statistical analyses that could sway court decisions unjustly.

The workshop underscores the notion that without the input of knowledge of experts on the defense side, there is a risk of overlooking crucial opportunities to question the validity of evidence presented by the prosecution. This can ultimately impact the fairness of legal outcomes and the dispensation of justice. By advocating for a more balanced and informed approach to evaluate forensic evidence in court, the speakers aim to promote a greater sense of integrity and equity within the criminal justice system

Educational Objectives:

1. Understanding the adversarial nature of the legal system and its implications for forensic evidence;
2. Recognizing the challenges faced by attorneys and judges in evaluating scientific evidence without a background in science.
3. Exploring the impact of prestigious institutions like the Federal Bureau of Investigation (FBI) on perceptions of evidence credibility.
4. Analyzing the role of language in forensic reports and testimony, including potential inaccuracies and biases.
5. Enhancing skills in scrutinizing evidence collection, chain-of-custody procedures, and testing methodologies.
6. Developing awareness of confirmation bias and the dangers of tunnel vision in legal proceedings.
7. Recognizing the importance of competent expert testimony in challenging misleading evidence presentations.
8. Examining real-life cases to illustrate systemic issues in handling evidence and presenting cases in court.
9. Enhancing critical thinking skills in evaluating laboratory procedures, interpretation methods, and statistical analyses.
10. Promoting ethical practices in legal and forensic professions to ensure the pursuit of justice.

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mpact Statement: The training program aims to empower legal professionals working in the criminal justice field with the knowledge and skills necessary to navigate the complexities of forensic evidence. By shedding light on systemic issues, promoting critical thinking, and advocating for ethical practices in evidence presentation, this program seeks to enhance the pursuit of justice in the legal system. Participants will be equipped to challenge misleading evidence, recognize biases in language, and ultimately contribute to a fairer and more transparent judicial process. Through real-case examples and expert guidance, this program strives to make a lasting impact on how forensic evidence is handled, ensuring that the quest for truth and justice remains paramount in legal proceedings.

Target Audience: All Sections

Knowledge Level: Intermediate

Chair:
Anjali Ranadive, JD
SciLawForensics, Ltd
Phoenix, AZ

Co-Chair:
Tiffany A. Roy, MSFS
ForensicAid, LLC
West Palm Beach, FL

W19 Unmasking the Evidence: How Defense Experts Prevented Wrongful Convictions

Program:

8:30 am – 8:45 am	**Introductions** *Anjali Ranadive, JD; Tiffany A. Roy, MSFS*
8:45 am – 9:30 am	**Decapitation in the Dakotas** *Anjali Ranadive, JD*
9:30 am – 10:15 am	***MI v Grondin*** *Tiffany A. Roy, MSFS*
10:15 am – 10:30 am	**BREAK**
10:30 am – 11:15 am	**Taking on the FBI** *Anjali Ranadive, JD*
11:15 am – 12:00 pm	***FL v Resiles*** *Tiffany A. Roy, MSFS*
12:00 pm – 12:30 pm	**Questions and Answers** *Anjali Ranadive, JD; Tiffany A. Roy, MSFS*

WORKSHOPS

Pre-Registration Required—$150

W20 Signed by Hand or by Machine?

Tuesday, February 18, 2025 **8:30 am – 12:00 pm** **CE Hours: 3.0**

Program Description: This workshop will introduce FDEs to new types of machine-generated signatures. There will be a significant hands-on session where attendees will examine and compare original handwritten signatures and original machine-generated signatures. There will be information given as to how the signatures were produced. Discriminating features of the signature types will be discussed by the attendees.

Educational Objectives: This workshop will introduce attendees to new methods of creating machine-generated signatures. Features of these types of signatures in comparison with handwritten signatures will be discussed and demonstrated.

Impact Statement: This workshop will provide Forensic Document Examiners (FDEs) with information on how to deal with the examinations of signatures that are possibly machine-generated. The examiners' knowledge should enhance the quality and reliability of opinions given as to signature authenticity.

Target Audience: Criminalistics, Engineering & Applied Sciences, General, Jurisprudence, Questioned Documents

Knowledge Level: Intermediate

Chair:
Linton Mohammed, PhD
Forensic Science Consultants, Inc.
Poway, CA

Co-Chair:
Zain Bhaloo, MSc
Canada Border Services Agency
Ottowa, Ontario, Canada

Presenter:
Jonathan Heckeroth, MSc
Zurich Forensic Science Institute
Zurich, Switzerland

Program:

8:30 am – 8:45 am	**Welcome/Introductions** *Linton Mohammed, PhD*
8:45 am – 10:00 am	**Hands-On Session** *Jonathan Heckeroth, MSc*
10:00 am – 10:20 am	**BREAK**
10:20 am – 11:00 am	**Hands-On Session** *Jonathan Heckeroth, MSc*
11:00 am – 11:30 am	**Machine-Generated Signature Production** *Jonathan Heckeroth, MSc*
11:30 am – 12:00 pm	**Group Discussion** *Linton Mohammed, PhD; Jonathan Heckeroth, MSc*

WORKSHOPS

Pre-Registration Required—$150

W21 All Rise 2.0: Navigating the Judicial Process as an Expert Witness

Tuesday, February 18, 2025 **8:30 am – 12:00 pm** **CE Hours: 3.75**

Program Description: Forensic scientists are trained in the techniques, theory, history, and standards associated with their particular discipline. Often lacking, however, is training in the application of those skills to the courtroom setting and, in particular, the presentation of expert testimony. A forensic expert's ability to effectively communicate in a courtroom setting is vital if that expert is going to make meaningful contributions to the justice system. This workshop seeks to improve courtroom communication skills by providing a combination of lectures and hands-on learning that will introduce the basic foundations of the United States court system, the roles of the participants, the types of pre-trial and trial processes that occur, and the opportunity for attendees to practice testifying in a true-to-life courtroom environment with case-based scenarios.

Educational Objectives: After attending this workshop, attendees will be well-versed in the decorum, procedures, expectations, and environment of a modern United States courtroom through active participation in courtroom proceedings.

Impact Statement: This presentation will impact the forensic science community by offering real-world experience in expert testimony in an environment conducive to productive learning without the stress of an actual trial.

Target Audience: All Sections

Knowledge Level: Basic

Chair:
Laura C Fulginiti, PhD
MCOME
Phoenix, AZ

Co-Chair:
Daniel W. Martin, JD
State of Arizona
Phoenix, AZ

Presenters:
Katelyn L. Bolhofner, PhD
Arizona State University
Phoenix, AZ

Betty Layne DesPortes, JD
Benjamin & DesPortes PC
Richmond, VA

Kristen Hartnett-McCann, PhD
CT Office of the Chief Medical Examiner
Farmington, CT

Gary C. McDonald, Jr., JD
Dallas County Criminal District
Attorney's Office
Dallas, TX

Andrew C. Seidel, PhD
King County Medical Examiner's Office
Seattle, WA

Program:

8:30 am – 8:45 am	**Welcome/Introduction** *Daniel W. Martin, JD; Laura C Fulginiti, PhD*
8:45 am – 9:00 am	**Courtroom Procedure and Protocol** *Daniel W. Martin, JD*
9:00 am – 9:45 am	**What to Expect as an Expert Providing Testimony in Judicial Proceedings** *Laura C Fulginiti, PhD*
9:45 am – 10:00 am	**BREAK**
10:00 am – 11:40 am	**Courtroom Scenarios #1 Through #5** *All Presenters*
11:40 am – 12:00 pm	**Courtroom Scenarios #6 and Closing Remarks** *All Presenters*

Pre-Registration Required—$150

W22 Chasing the Dragon: Navigating Death Investigations in the Era of Novel Psychoactive Substances

Tuesday, February 18, 2025 **8:30 am – 12:00 pm** **CE Hours: 3.25**

Program Description: This half-day workshop is a collaboration between the AAFS ad-hoc Opioid and Emerging Drugs Committee and the Society of Forensic Toxicologists (SOFT) NPS Committee. From the scene of a suspected overdose to the final determination of cause and manner of death, this workshop will demonstrate how information from a range of forensic scientists can be applied to a death investigation and subsequently further the understanding of NPS for both forensic practitioners and the public.

There are hundreds of NPS on the market today with a wide range of psychoactive effects; however, most of these substances have unknown pharmacological properties (e.g., potency, metabolism, toxicity), complicating the interpretation of their impact on public health and safety. In addition, keeping up with the drug market becomes a challenge, and forensic practitioners and researchers are left chasing information on NPS that quickly becomes outdated due to the volatility of the drug supply. Whether it is crime scene investigation, pathological findings, pharmacological and toxicological interpretations, or chemical analysis, when trying to understand NPS, the work of one forensic discipline is regularly influenced by that of another. By working together, forensic scientists can increase their chances of providing timely information that can aid in drug-related death investigation, updating drug trends, and maintaining public policy and drug prevention outreach in the community.

Educational Objectives: Upon completion of this workshop, the participant should be able to: (1) interpret key differences between the Novel Psychoactive Substance (NPS) classes and how they impact cause and manner of death; (2) discuss the difficulties encountered in investigating NPS in the context of forensic toxicology, seized drug analysis, death scene investigation, toxicological interpretation, and accurate certification of cause and manner of death and; (3) appreciate the importance of disseminating timely information regarding emerging NPS trends and the impact on public health and harm reduction.

Impact Statement: These presentations will impact the forensic science community by emphasizing the importance of collaboration and dissemination of relevant and accurate information across forensic science disciplines regarding the identification and interpretation of NPS. Additionally, these presentations will increase understanding of the different classes of NPS, how they are marketed and often mislabeled, types of products to look for on the scene, and the role these drugs play in death investigation and certification.

Target Audience: Pathology/Biology, Toxicology

Knowledge Level: Intermediate

Chair:
Elisa N. Shoff, MS
Miami-Dade
Medical Examiner Department
Miami, FL

Co-Chair:
Mary E. Zaney, BSc
Miami-Dade Medical Examiner
Miami, FL

Presenters:
Kayla N. Ellefsen, PhD
Travis County Medical Examiner
Austin, TX

David Fintan Garavan, PhD, MD
District 10 ME Office
Winter Haven, FL

Alex J. Krotulski, PhD
Center for Forensic Science Research and Education
Horsham, PA

Joshua Z. Seither, PhD
Armed Forces Medical Examiner System
Division of Forensic Toxicology
Dover, DE

Chip Walls, BS
Tox Lab
Miami, FL

Erin Worrell, BSc
Franklin County Center of Forensic Science
Office of the Coroner
Columbus, OH

W22 Chasing the Dragon: Navigating Death Investigations in the Era of Novel Psychoactive Substances

Program:

8:30 am – 8:35 am	**Welcome** *Elisa N. Shoff, MS; Mary E. Zaney, BSc*
8:35 am – 8:55 am	**NPS Stimulants** *Elisa N. Shoff, MS*
8:55 am – 9:15 am	**NPS Benzodiazepines** *Kayla N. Ellefsen, PhD*
9:15 am – 9:35 am	**Off the Grid** *Chip Walls, BS*
9:35 am – 10:05 am	**NPS Opioids, Illicit Fentanyl, and Xylazine** *Alex J. Krotulski, PhD*
10:05 am – 10:15 am	**BREAK**
10:15 am – 10:35 am	**NPS on the Crime Scene** *Erin Worrell, BSc*
10:35 am – 10:55 am	**Mislabeled Products** *Joshua Z. Seither, PhD*
10:55 am – 11:15 am	**Postmortem Cases Involving Counterfeit Pills** *Mary E. Zaney, BSc*
11:15 am – 11:45 am	**Certifying Cause and Manner of Death in Cases With NPS** *David Fintan Garavan, PhD, MD*
11:45 am – 12:00 pm	**Questions and Answers** *All Presenters*

Pre-Registration Required—$150

W23 A Skeletal Atlas of Elder Abuse: Beta Testing a Digital Diagnostic and Educational Tool

Tuesday, February 18, 2025 **1:00 pm – 4:30 pm** **CE Hours: 4.0**

Program Description: Increasing rates of elder abuse in the United States over the past few decades have produced an urgent need for improved diagnostic criteria to better design intervention procedures, to implement recognition criteria, and to achieve justice for victims. Physical abuse of elders represents the most severe manifestation of this trend. Yet physical abuse is difficult to prove and may be masked by attribution of injury to medication or accident. In this workshop, attendees will learn how aging impacts skeletal trauma incidence and patterning. The presenters will provide an overview of differences in the skeletal patterns of injury between accidental falls and cases of abuse/neglect uncovered in our NIJ-funded research, as well as the impact of bone density loss on these patterns. Attendees will be introduced to the first complete iteration of the Skeletal Atlas of Elder Abuse — A Digital Tool for Diagnosis and Education. The presenters will discuss the development of the online platform, its aims and future direction, and will request attendee feedback through the beta testing of the site. Participants will have the opportunity to hear from the developers of the machine learning and AI models driving the diagnostics of the site as well as from the software development team responsible for the creation of the atlas and its many interactive features. This workshop probes the opportunities (and challenges) associated with the development of such a tool, asking attendees for participation, suggestions, direct interaction, and user experience measures.

Educational Objectives: After attending this workshop, attendees should be able to: (1) describe methods used to characterize/assess skeletal fracture patterns in elderly individuals and the ways in which aging affects fracture and recovery; (2) understand there are different patterns of trauma associated with abuse/neglect and with accidental falls, (3) understand how to navigate the presented digital atlas of elder abuse, both for educational and diagnostic purposes; and (4) participate in beta testing the atlas and contribute usability data toward its final construction.

Impact Statement: Ten percent of adults aged 65+ will experience some form of abuse annually. Physical abuse and caregiver neglect account for most cases, yet they remain difficult to prove. Skeletal expressions of abuse offer key indications of inflicted and untreated injuries but are masked by assignation to accidental falls. Funded by the National Institute of Justice (NIJ), our research aims to produce a standard for the diagnosis of elder abuse in the skeletal system. This presentation will impact the forensic science community by offering the first iteration of a digital tool for diagnosis and education and for collaboration and learning so that we may improve our understanding of fractures and their contexts in elderly individuals.

Target Audience: Anthropology, Criminalistics, Digital & Multimedia Sciences, Forensic Nursing Science, General, Pathology/Biology

Knowledge Level: Basic

Chair:
Katelyn L. Bolhofner, PhD
Arizona State University
Phoenix, AZ

Co-Chair:
Laura C Fulginiti, PhD
MCOME
Phoenix, AZ

Presenters:
Jane E. Buikstra, PhD
Arizona State University
Phoenix, AZ

Kevin A. Gary, PhD
Arizona State University
Phoenix, AZ

Jacob A. Harris, PhD
Arizona State University
Phoenix, AZ

W23 A Skeletal Atlas of Elder Abuse: Beta Testing a Digital Diagnostic and Educational Tool

Program:

1:00 pm – 1:30 pm	**Introduction and Background** *Katelyn L. Bolhofner, PhD*
1:30 pm – 2:00 pm	**The Aging Skeleton** *Jane E. Buikstra, PhD*
2:00 pm – 2:30 pm	**Probability Modeling and Skeletal Trauma** *Jacob A. Harris, PhD*
2:30 pm – 2:45 pm	**BREAK**
2:45 pm – 3:30 pm	**A Digital Atlas of Skeletal Trauma—An introduction** *Kevin A. Gary, PhD*
3:30 pm – 4:15 pm	**Beta Testing and Usability of the Digital Atlas** *Kevin A. Gary, PhD; Jacob A. Harris, PhD; Katelyn L. Bolhofner, PhD*
4:15 pm – 4:30 pm	**Wrap-Up and Implications for the Forensic Community** *Laura C Fulginiti, PhD*

Pre-Registration Required—$150

W24 ANSI/ASB Standard 175—*Standard for Interpreting, Comparing, and Reporting DNA Test Results Associated With Failed Controls and Contamination Events*: Understanding, Implementation, and Legal Issues

Tuesday, February 18, 2025 **1:00 pm – 5:00 pm** **CE Hours: 3.5**

Program Description: Incidents of contamination of controls and evidence in laboratories conducting Polymerase Chain Reaction (PCR) -based Short Tandem Repeat (STR) testing have been increasingly detected as the sensitivity of the assays has improved over the past decade through improved technological advances and with the implementation of elimination databases to detect the DNA profiles of laboratory staff and other individuals involved in the collection and handling of evidence, along with the use of advanced software for evaluating data. Positive control failure may occur when the DNA is not added correctly or may be due to a technology failure.

Historically, when these events occurred, re-testing was conducted on a portion of the remaining evidence, and the new test results were reported. However, when the evidence and DNA extract have been consumed, re-testing is not an option. It is also not always prudent to consume more evidence with re-testing. Situations where this may be relevant and how this pertains to the requirements in the Standard for Interpreting, Comparing, and Reporting DNA Test Results Associated with Failed Controls and Contamination Events will be discussed. This Standard has recently been published as an ANSI/ASB Standard but has been listed as a Proposed Standard on the OSAC Registry (OSAC 2020-S-00040) and has been available for implementation in DNA testing laboratories for several years.

This workshop may be beneficial to DNA analysts/technical leaders/supervisors, QA/QC managers, trainers, and laboratory directors overseeing any type of testing where controls may fail or contamination can occur and to attorneys and judges encountering DNA tests results from these situations.

Educational Objectives: Attendees at this workshop will learn about each of the requirements in the newly published Standard in relationship to requirements in other standards (e.g., Federal Bureau of Investigation Quality Assurance Standards (FBI QAS), International Organization for Standardization (ISO) 17025, American National Standards Institute/Academy Standards Board (ANSI/ASB) published, Organization of Scientific Area Committees (OSAC) Registry) while gaining insights for their implementation. Approaches to consider for evaluating, decision-making, and reporting data without re-testing will be presented along with hands-on problems and through interactive discussions. In addition, the attendees will learn about the legal necessity for implementing this standard when the DNA results are exculpatory to avoid contributing to a Brady violation.

Impact Statement: This presentation will impact the forensic science community by providing laboratory personnel, attorneys, and judges critical information regarding the responsibility of evaluating DNA data when a control has failed or a contamination event has been detected, especially when the DNA results may be exculpatory for an individual. The specific requirements in this Standard for: (1) the laboratory protocols for evaluating, interpreting and comparing data associated with failed controls and contamination events; (2) assessment of the risks of re-testing vs. not re-testing; (3) documentation; and (4) the reporting of the event, and the associated data and conclusions will be discussed along with considerations for successful implementation in the laboratory. Additional discussions will include the effective communication of the data, conclusions, and events in the criminal justice system through conversations, trainings, and testimony.

Target Audience: Criminalistics, Jurisprudence

Knowledge Level: Basic

W24 ANSI/ASB Standard 175—*Standard for Interpreting, Comparing, and Reporting DNA Test Results Associated With Failed Controls and Contamination Events*: Understanding, Implementation, and Legal Issues

Chair:
Charlotte Word, PhD
Consultant
North Chesterfield, VA

Co-Chair:
Virginia Barron, JD
Hennepin County Public Defender
Birkholz Law
Westbrook, MN

Presenter:
Tabitha Bandy, MS
BODE Technology
Old Hickory, KY

Program:

1:00 pm – 1:15 pm	**Introduction** *Charlotte Word, PhD*
1:15 pm – 1:30 pm	**Legal Issues—Evidence Retention vs. Consumption, *Brady*** *Virginia Barron, JD*
1:30 pm – 2:45 pm	**Standards 175—History, Requirements, Implementation, and Related Standards** *Tabitha Bandy, MS; Charlotte Word, PhD*
2:45 pm – 3:00 pm	**BREAK**
3:00 pm – 3:30 pm	**Standard 175—Requirements, Implementation and Related Standards (cont.)** *Tabitha Bandy, MS; Charlotte Word, PhD*
3:30 pm – 3:45 pm	**Presentation to Attorneys and Testimony** *Tabitha Bandy, MS; Virginia Barron, JD; Charlotte Word, PhD*
3:45 pm – 4:50 pm	**Problem Sets and Discussion** *Tabitha Bandy, MS; Virginia Barron, JD; Charlotte Word, PhD*
4:50 pm – 5:00 pm	**Discussion and Wrap-Up** *Tabitha Bandy, MS; Virginia Barron, JD; Charlotte Word, PhD*

Pre-Registration Required—$150

W25 Death of an "Expert" Witness: Discrediting Document Examiners Who Violate Acknowledged Standards or Binding Laboratory Policies or Who Express Handwriting Opinions With Low Levels of Certitude

Tuesday, February 18, 2025 **1:00 pm – 5:00 pm** **CE Hours: 3.5**

Program Description: A distinguished faculty comprising two highly credentialed forensic document examiners, one of the nation's leading evidence scholars, and a recently retired appellate court judge will provide attendees with a clear understanding of the problems facing document examiners who violate acknowledged industry standards or binding laboratory policies and the reliability concerns associated with handwriting opinions expressed with a low level of certitude. Attendees will be provided with actual case histories illustrating how handwriting opinions expressed as "indications" or "probable" are challenged and discredited. Attendees will also learn about the reliability issues gatekeepers must address when deciding whether or not to admit handwriting opinions expressed with a low level of certitude.

Educational Objectives: After attending this workshop, the attendees will have a better understanding of how lawyers can discredit an expert witness who failed to adhere to an acknowledged industry standard or binding laboratory policy. Attendees will also learn why handwriting opinions expressed with low levels of certitude such as "indications" or "probable" can easily be impeached and discredited and why it would be better if such opinions were excluded by gatekeepers.

Impact Statement: This presentation will impact the forensic science community by providing document examiners and forensic scientists in various forensic pattern-matching disciplines with a clear understanding of the basic unreliability of expert opinions expressed with a low level of certitude.

Target Audience: Criminalistics, General, Jurisprudence, Psychiatry & Behavioral Science, Questioned Documents

Knowledge Level: Basic

Chair:
Andrew Sulner, JD
Forensic Document Examinations LLC/Sulner Law Offices
New York, NY

Co-Chair:
Linton Mohammed, PhD
Forensic Science Consultants, Inc.
Poway, CA

Presenters:
Roderick T. Kennedy, (ret.), JD
New Mexico Court of Appeals
Los Ranchos, NM

Michael Risinger, JD
Seton Hall University
Kearny, NJ

W25 Death of an "Expert" Witness: Discrediting Document Examiners Who Violate Acknowledged Standards or Binding Laboratory Policies or Who Express Handwriting Opinions With Low Levels of Certitude

Program:

1:00 pm – 1:15 pm	**Welcome and Introduction to a Novel Twist in Questioned Document Litigation** *Andrew Sulner, JD*
1:15 pm – 1:45 pm	**A Slam Dunk Case of Genuine Signatures Contested by an Unfounded Probable Forgery Opinion** *Michael Risinger, JD; Linton Mohammed, PhD*
1:45 pm – 2:45 pm	**The Novel Twist That Resulted in Discrediting Michael Wakshull's Probable Forgery Opinion at the Deposition Stage of a California Case: Employing Special Trial Counsel Who Is Also a Board-Certified Forensic Document Examiner** *Andrew Sulner, JD*
2:45 pm – 3:00 pm	**BREAK**
3:00 pm – 3:20 pm	**How the FBI Has Failed to Enforce Its Own Explicit Standards Applicable to Handwriting Comparison and Improperly Restricts the Use of Blind Verification in Handwriting Cases** *Michael Risinger, JD*
3:20 pm – 3:40 pm	**The General Unreliability of Opinions of Forgery Expressed With Low Levels of Certitude Such as "Indications" or "Probable"** *Andrew Sulner, JD*
3:40 pm – 4:00 pm	**"Low Level" Expressions of Certitude, Both in Reports and Trial Testimony, Should Trigger Skepticism in Gatekeepers** *Roderick T. Kennedy, (ret.), JD*
4:00 pm – 5:00 pm	**Panel Discussion/Questions and Answers** *All Presenters*

Pre-Registration Required—$150

W26 Expanding the Forensic Professional's Toolbox: New Technological Resources for the Evaluation of Evidence

Tuesday, February 18, 2025 **1:00 pm – 5:00 pm** **CE Hours: 3.75**

Program Description: Forensic practice changes at a pace that varies by discipline. Sophisticated instrumentation and computational tools have been used by forensic DNA examiners for decades, but introduction of new methods has been slower in pattern comparison disciplines, probably because comparing images is complex. Yet, examiners in these disciplines are facing frequent challenges when relying on expert opinion alone. Research groups, including CSAFE, have, in the past decade, tried to address the lack of data-based methods for the forensic analysis of patterns. These groups have demonstrated that it is possible to quantify similarity between two images, even when one is degraded. While several new methods have been proposed in the scholarly literature, the gap between research and practice has not been breached, except by a few private companies that develop proprietary tools. To encourage adoption of new methodology, CSAFE researchers have created tools that enable forensic practitioners to implement quantitative methods for the evaluation of firearm, footwear, and handwriting evidence. During the workshop, participants will learn about and use three applications that are (or soon will be) ready for testing on real case work. These applications are all in the public domain and can be used at no cost. Participants will be asked to bring their own laptop and will get access to software and example data before the meeting. In addition to hands-on learning, the workshop will include lecture-style presentations to ensure that users of the applications have a reasonable understanding of the science and data that underpin the apps.

Educational Objectives: Individuals who participate in the workshop will learn about new computational tools developed by the Center for Statistics and Applications in Forensic Evidence (CSAFE) researchers in collaboration with the National Institute of Standards and Technology (NIST) scientists. The tools are designed to answer forensic questions of interest in several pattern comparison disciplines and enable practitioners to provide a probabilistic assessment of the evidence. At least in the near future, the new resources are meant to be used alongside traditional examination methods and serve to either confirm categorical conclusions or call attention to potential issues with those conclusions.

Impact Statement: Imaging, computational, and other tools are already used by forensic practitioners to analyze some types of evidence (e.g., DNA), but their introduction has been slower in the pattern comparison disciplines. Once they are more extensively tested and validated, the tools developed by CSAFE will empower practitioners to carry out quantitative analysis and interpretation of evidence and reinforce reporting and testimony with data-based results. The tools we will introduce at the workshop are free and placed in the public domain to maximize access and transparency.

Target Audience: Criminalistics, Engineering & Applied Sciences, General, Jurisprudence, Questioned Documents

Chair:
Alicia L. Carriquiry, PhD
Iowa State University
Ames, IA

Co-Chair:
Michael J. Salyards, PhD
CSAFE
Tucson, AZ

Presenters:
Heike Hofmann, PhD
University of Nebraska-Lincoln
Lincoln, NE

Steven Lund, PhD
National Institute of Standards and Technology
Gaithersburg, MD

W26 Expanding the Forensic Professional's Toolbox: New Technological Resources for the Evaluation of Evidence

Program:

1:00 pm –	2:00 pm	**BulletR: An Application for the Comparison of Bullets** *Heike Hofmann, PhD*
2:00 pm –	2:15 pm	**Questions and Answers** *Michael J. Salyards, PhD*
2:15 pm –	3:15 pm	**ShoeComp and ShoeAnalyzr: Applications to Align and Compare Footwear Impressions** *Steven Lund, PhD; Alicia L. Carriquiry, PhD*
3:15 pm –	3:30 pm	**Questions and Answers** *Michael J. Salyards, PhD*
3:30 pm –	3:45 pm	**BREAK**
3:45 pm –	4:45 pm	**Handwriter: An Application for the Evaluation of Handwritten Evidence** *Alicia L. Carriquiry, PhD*
4:45 pm –	5:00 pm	**Questions and Answers** *Michael J. Salyards, PhD*

Pre-Registration Required—$150

W27 Mind Games and Machines: Navigating Cognitive Biases in Forensic Technologies

Tuesday, February 18, 2025 **1:00 pm – 5:00 pm** **CE Hours: 3.25**

Program Description: Explore the critical intersection of cognitive bias and forensic technology in this engaging and interactive presentation. We'll start by illustrating cognitive biases through everyday life examples, helping you recognize these common mental shortcuts and their impact on our daily decisions.

Cognitive biases, while often beneficial for quick decision-making, can introduce significant errors, especially in high-stakes environments like forensic science. We'll review a range of biases — such as the halo effect, confirmation bias, and anchoring bias — and examine their effects on various stakeholders, including forensic professionals, law enforcement, jurors, and the public.

Next, we'll dive into the world of forensic technology, specifically exploring the fundamentals of AI and machine learning. We'll clarify what these technologies are, how they have evolved in recent decades, address misconceptions about their capabilities, and discuss challenges associated with their misuse.

Interactive segments will include case studies from past high-profile forensic cases, where we'll identify and analyze biases at play. This hands-on approach will help you see how biases can influence forensic outcomes and public perception.

Experts will present strategies to counteract cognitive biases related to forensic technology, offering practical insights into improving accuracy and fairness. We'll conclude with a Q&A session using live polls to engage with audience thoughts on the implications of AI in forensic science and beyond.

Join us to gain a deeper understanding of how cognitive biases interact with forensic technology and discover actionable strategies to enhance justice and accuracy in forensic practices.

Educational Objectives: After attending this workshop, participants will be able to:

- Describe Cognitive Biases: Participants will be able to recognize various cognitive biases, such as confirmation bias and anchoring bias, and understand how these biases influence decision-making processes within forensic science and related fields.
- Analyze the Impact of Technology on Biases: Participants will gain insights into how forensic technologies like Artificial Intelligence (AI) and machine learning interact with and potentially exacerbate cognitive biases. They will learn to evaluate the strengths and limitations of these technologies in mitigating or amplifying biases in forensic investigations.
- Explain Strategies to Mitigate Bias: Participants will acquire practical strategies and best practices for addressing and reducing cognitive biases in forensic settings. This includes applying lessons learned from case studies and expert presentations to improve decision-making accuracy and fairness in forensic technology applications.

Impact Statement: This workshop will enable participants to effectively navigate cognitive biases within forensic technologies, offering strategies to enhance the accuracy and fairness of technological applications. By understanding the interplay between human biases and tech innovations, attendees will be better equipped to leverage technology while mitigating its potential pitfalls.

Target Audience: Criminalistics, Digital & Multimedia Sciences, Engineering & Applied Sciences, Forensic Nursing Science, General, Jurisprudence, Psychiatry & Behavioral Science, Questioned Documents

Knowledge Level: Basic

WORKSHOPS

W27 Mind Games and Machines: Navigating Cognitive Biases in Forensic Technologies

Chair:
Michelle Patch, PhD
Johns Hopkins University
School of Nursing
Reisterstown, MD

Co-Chair:
Joyce P. Williams, PhD
Stevenson University
Randallstown, MD

Presenters:
Victor G. Petreca, PhD, DNP
Boston College/MA DMH
Chester Hill, MA

Tamar Rodney, PhD
Johns Hopkins University
School of Nursing
Baltimore, MD

Program:

1:00 pm – 1:05 pm	**Kickoff: Setting the Stage for Bias and Technology (Welcome/Introductions)** *Michelle Patch, PhD*
1:05 pm – 1:55 pm	**Mindset Matters: An Introduction to Cognitive Bias** *Tamar Rodney, PhD*
1:55 pm – 2:00 pm	**Quick Stretch: Bridging to the Next Insight** *Joyce P. Williams, PhD*
2:00 pm – 2:50 pm	**Tech Talk: Navigating Forensic Innovations (Overview of Forensic-Related Technologies)** *Michael J. Salyards, PhD*
2:50 pm – 3:05 pm	**Refuel and Reset: Preparing for Bias Exploration** *Michelle Patch, PhD*
3:05 pm – 3:55 pm	**Bias Unveiled: Analyzing Real-World Cases** *Tamar Rodney, PhD; Michelle Patch, PhD*
3:55 pm – 4:00 pm	**Stretch and Refresh: Ready for Bias Solutions** *Joyce P. Williams, PhD*
4:00 pm – 4:45 pm	**Bias Busters: Strategies for Mitigating Technology-Related Bias** *Victor G. Petreca, PhD, DNP; Joyce P. Williams, PhD*
4:45 pm – 5:00 pm	**Wrap-Up: Insights and Actionable Takeawayss** *All Presenters*