



# INTERDISCIPLINARY SYMPOSIUM

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*Pre-Registration Required — \$75*

## S1 Raising the Bar in Forensic Science

Tuesday, February 20, 2018

8:30 a.m. - 12:30 p.m.

3.75 CE Hours

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*Chair:*

**Linton Mohammed, PhD**  
Forensic Science Consultants, Inc  
Burlingame, CA

*Faculty:*

**Allison Campbell, PhD**  
American Chemical Society  
Washington, DC

**Roger W. Falcone, PhD**  
University of California Berkeley  
Berkeley, CA

**Rick Jones, JD**  
National Association of Criminal Defense Lawyers  
New York, NY

**Daniel A. Martell, PhD**  
Park Dietz & Associates  
Newport Beach, CA

*Co-Chair:*

**Karen B. Rosenbaum, MD**  
New York, NY

**Vernon M. Neppe, MD, PhD**  
Pacific Neuropsychiatric Institute  
Seattle, WA

**Matthew F. Redle, JD**  
Sheridan, WY

**Christopher R. Thompson, MD**  
Los Angeles, CA

**Educational Objective(s):** The goals of the 2018 Interdisciplinary Symposium (IDS) are to provide attendees with an overview on how forensic science is viewed inside and outside the forensic arena and to present ideas on what the forensic science community can learn from the broader scientific community regarding transparency, research integrity, and a strong commitment to education.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by providing attendees with the perspectives of scientists from major scientific organizations inside and outside of forensic science and from attorneys from leading legal associations. Attendees will receive information on how to address strengths and weaknesses in the forensic sciences and should then be able to apply this knowledge in their own research and casework.

**Program Description:** The 2018 IDS will comprise several distinguished scientists from within and outside of forensic science. The speakers will address perceived research gaps in the forensic sciences and discuss how to close these gaps.

To complement the 2018 American Academy of Forensic Sciences theme, *Science Matters*, the theme of the 2018 IDS is *Raising the Bar*. This symposium will highlight collaboration with the broader scientific community as a means to strengthen forensic science. Popular television shows have had a generally positive impact (for forensic science) on how the public views forensic science and forensic scientists. Despite the public perception of the near-infallibility of forensic science to detect and solve crimes, there has been criticism of forensic science from the scientific and legal communities. The criticism often notes that there is too much emphasis on the forensic aspect of various disciplines and not enough emphasis on foundational sciences. The National Commission on Forensic Science (NCFS), in which many AAFS members were active, provided a forum for members of the broader scientific community to contribute to recommendations designed to foster the foundational sciences of forensic science and to strengthen the forensic science community. Although the NCFS was not renewed upon the expiration of its charter in the spring of 2017, collaboration with the broader scientific community remains an important objective of AAFS.

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# INTERDISCIPLINARY SYMPOSIUM



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## S1 Raising the Bar in Forensic Science

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### Program Description cont.:

At the 2018 IDS, a distinguished panel of researchers and speakers from professional organizations in the broader scientific community will address their perceptions of the strengths and challenges of the forensic science community. The 2018 speakers include the current leaders of the American Chemical Society (ACS), the American Physical Society (APS), the American Academy of Psychiatry and the Law (AAPL), the National Association of Criminal Defense Lawyers (NACDL), the Criminal Justice Section of the American Bar Association (ABA), and an AAFS past president. These speakers will discuss the efforts of their respective organizations to strengthen forensic science and the importance of “outside” voices in the advancement of forensic science. For example, with the APS, that could involve a discussion of what forensic science can learn from the broader scientific community about transparency, research integrity, and a strong commitment to education.

The keynote speaker is Vernon M. Neppe, MD, Director of the Pacific Neuropsychiatric Institute in Seattle, WA, Adjunct Professor of Psychiatry and Human Behavior, St. Louis University School of Medicine, St. Louis, MO, and former Director, Division of Neuropsychiatry, University of Washington, Seattle, WA. Dr. Neppe has contributed internationally in the specialties of neuropsychiatry and behavioral neurology, psychopharmacology, forensic psychiatry, anomalous psychology, and epileptology. A distinguished psychiatrist, author, playwright, and philosopher, Dr. Neppe’s presentation will highlight the importance of groundbreaking paradigm shifts to the advancement of scientific theory and practice.

### Program:

8:30 a.m. - 8:35 a.m.	Opening Remarks <i>Linton Mohammed, PhD</i>
8:35 a.m. - 9:35 a.m.	Applying Feasibility, Falsifiability, and Certainty in Scientific Method to Forensic Science <i>Vernon M. Neppe, MD, PhD</i>
9:35 a.m. - 10:05 a.m.	Forensic Science and the American Chemical Society <i>Allison Campbell, PhD</i>
10:05 a.m. - 10:35 a.m.	The Culture of Continuous Improvement, Science in the Public Interest, and the Preparation of Bench and Bar <i>Matthew F. Redle, JD</i>
10:35 a.m. - 10:50 a.m.	Break
10:50 a.m. - 11:20 a.m.	Using X-Rays for High-Resolution Analysis of Chemical, Electronic, and Spatial Measurements <i>Roger W. Falcone, PhD</i>
11:20 a.m. - 11:50 a.m.	Strengthening Forensic Science and Fulfilling the Duty to Correct and Notify <i>Rick Jones, JD</i>
11:50 a.m. - 12:30 p.m.	Putting the Science in Forensic Behavioral Science: Advances in Forensic Psychiatry and Forensic Psychology <i>Christopher R. Thompson, MD; Daniel A. Martell, PhD</i>

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# YOUNG FORENSIC SCIENTISTS FORUM

*Pre-Registration Required — \$75*

## S2 Research in Science: How Young Scientists Can Shape a Better Future

Tuesday, February 20, 2018

8:30 a.m. - 5:00 p.m.

6.0 CE Hours

*President:*

**Brianna B. Bermudez, BS**  
Michigan State University  
East Lansing, MI

*Program Chair:*

**Amanda R. Hale, MA**  
North Carolina State University  
Raleigh, NC

*YFSF BYOS Chair:*

**Alyssa J. Badgley, MS**  
Michigan State University  
East Lansing, MI

*Long Term Planning Committee Representative:*

**Brianna B. Bermudez, BS**  
Michigan State University  
East Lansing, MI

*Secretary:*

**Brittany N. Beyer, MS**  
Houston Forensic Science Center  
Houston, TX

*Program Co-Chair:*

**Zain Bhaloo, MSc**  
Canada Border Services Agency  
Ottawa, ON, CANADA

*YFSF BYOP Chair:*

**Jeremy M. Manheim**  
Lafayette, IN

*Financial Support Liaison Chair:*

**Vienna C. Lam, BA**  
Simon Fraser University  
School of Criminology  
Burnaby, BC, CANADA

**Educational Objective(s):** After attending this presentation, attendees will better understand the novel research being conducted by both young and leading scientists within a variety of forensic science disciplines and how important that research is to the field.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by educating young scientists on the importance of scientific research and the effects it has on the community at large. This special session also provides students and scientists with the opportunity to network with professionals in a unique setting that focuses on bridging the gap between established professionals and researchers and those aspiring to enter and thrive in the field.

**Program Description:** Calling all students, young researchers, and those new to forensic science! The Young Forensic Scientists Forum (YFSF) focuses on providing young professionals and students continued education in different aspects of forensic science at each AAFS Annual Scientific Meeting. Registration for the YFSF Special Session includes a day-long session on Tuesday and a Breakfast Session on Thursday. The full-day special session will highlight the novel and exciting research being conducted by Academy members and students. The YFSF also hosts Bring Your Own Slides (BYOS) and Bring Your Own Posters (BYOP) sessions that provide young professionals and students with the opportunity to present their research.

The 2018 YFSF Special Session, entitled *Research in Science: How Young Scientists Can Shape a Better Future*, is a day-long session that will leave attendees invigorated and excited about the research being conducted by Academy members and students. Participants will have a more complete understanding of the variety of disciplines that make up the Academy. The selection of speakers represents nearly every AAFS section, which makes for a highly diverse and unique suite of presentations.

The morning session will include an assortment of topics ranging from how to become an AAFS member to how 3D imaging can be used to analyze fingerprints. Following a delicious lunch, included with registration, attendees will hear about the Innocence Network and case-driven research. This day-long session will conclude with a Q&A session in which attendees can engage speakers and panelists in an open discussion.

# YOUNG FORENSIC SCIENTISTS FORUM



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*Pre-Registration Required — \$75*

## S2 Research in Science: How Young Scientists Can Shape a Better Future

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### *Speakers*

**Gail S. Anderson, PhD**  
Simon Fraser University  
School of Criminology  
Burnaby, BC, CANADA

**Alexandria Anstett, MS**  
Customs and Border Protection  
Newark, NJ

**Maria Susana Ciruzzi, PhD**  
Hospital Nacional de Pediatría Prof  
Buenos Aires, ARGENTINA

**Josep De Alcaraz-Fossoul, PhD**  
Arizona State University  
West Campus - School of Math and Natural Sciences  
Glendale, AZ

**Ashley E. Foster, MAS**  
Texas Department of Public Safety  
Austin, TX

**Lindsay Glicksberg, BS**  
Sam Houston State University  
Dept of Forensic Science  
Huntsville, TX

**Pierre M.M. Guyomarc'h, PhD**  
Université de Bordeaux  
Allee George St Hilaire  
Pessac, FRANCE

**Greg Hampikian, PhD**  
Boise State University  
Biology Department  
Boise, ID

**Erin L. Houston, MS**  
Columbus, OH

**Cheryl D. Hunter**  
AAFS Staff  
Colorado Springs, CO

**Pamela L. Marshall, PhD**  
Southern University at New Orleans  
New Orleans, LA

**Michael A. Peat, PhD**  
*JFS* Editor-in-Chief  
The Woodlands, TX

**Joseph A. Prahlow, MD**  
Western Michigan University  
School of Medicine  
Kalamazoo, MI

**Dragan Primorac, MD, PhD**  
Orange, CT

**Marcus Rogers, PhD**  
Purdue University  
West Lafayette, IN

**Elisa N. Shoff, BS**  
Miami-Dade Medical Examiner Department  
Miami, FL

**Peter R. Stout, PhD**  
Houston Forensic Science Center  
Houston, TX

**Thomas W. Vastrick, BS**  
Apopka, FL

**Dante Webb, BS**  
Gaithersburg, MD

**Sheila Willis, PhD**  
Forensic Science Ireland  
Dublin, IRELAND

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# YOUNG FORENSIC SCIENTISTS FORUM

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## **S2      Research in Science: How Young Scientists Can Shape a Better Future**

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The YFSF BYOS Session will take place the evening of Wednesday, February 21, 2018, and follows a format similar to the AAFS BYOS Session. The YFSF also hosts a BYOP Session that features selected research posters presented by young scientists and students. The BYOP Session will be held jointly with the University Fair in the AAFS Poster Hall the evening of Thursday, February 22, 2018, in conjunction with the Wine and Cheese Reception in the Exhibit Hall from 6:00 p.m. to 8:00 p.m. The BYOP and BYOS Sessions are two opportunities provided by the YFSF for students and young scientists to present their research. Attendance at both the BYOP and BYOS events are free and open to all meeting attendees. YFSF does not require presenters of YFSF BYOP and BYOS Sessions to be members of AAFS and does not require they attend the Special Session, but they are encouraged to do so. The ultimate goal of this year's YFSF events is to facilitate the growth and career progression of those seeking to enter or are new to the field of forensic science. This Special Session will remind students and young researchers that the research they conduct has an impact on the field and the community. The YFSF looks forward to hosting these unique, fun, and educational events in Seattle, WA. Don't miss out on this valuable opportunity!

### **Program:**

8:30 a.m.	-	8:40 a.m.	YFSF Introduction and Speaker Welcome <i>Brianna B. Bermudez, BS</i>
8:40 a.m.	-	8:55 a.m.	AAFS Membership <i>Cheryl D. Hunter</i>
8:55 a.m.	-	9:20 a.m.	Measuring the Frequency of Occurrence in Handwriting, Handprinting, and Numeral Characteristics <i>Thomas W. Vastrick, BS</i>
9:20 a.m.	-	9:40 a.m.	The Evolution of Digital Forensic Tools: How Research Has Shaped the Journey <i>Marcus Rogers, PhD</i>
9:40 a.m.	-	10:00 a.m.	Analyzing the Degradation of Fingerprints by 3D Imaging Technology <i>Josep De Alcaraz-Fossoul, PhD</i>
10:00 a.m.	-	10:15 a.m.	Synthetic Cathinone Stability in Blood Using Liquid Chromatography/Quadrupole Time-Of-Flight/Mass Spectrometry (LC/qTOF/MS) <i>Lindsay Glicksberg, BS</i>
10:15 a.m.	-	10:30 a.m.	Break
10:30 a.m.	-	10:50 a.m.	The Development of Screening Methods for Synthetic Stimulants and Opioids in Postmortem Specimens Using Liquid Chromatography/Ion Trap/ Mass Spectrometry (LC/Ion Trap/MSn) <i>Elisa N. Shoff, BS</i>
10:50 a.m.	-	11:10 a.m.	<i>The Journal of Forensic Sciences: Past, Present, and Future</i> <i>Michael A. Peat, PhD</i>

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# YOUNG FORENSIC SCIENTISTS FORUM



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## **S2      Research in Science: How Young Scientists Can Shape a Better Future**

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11:10 a.m. - 11:30 a.m.	With a Little Help From My Friends — Soft or Hard Science: Assessing the Legal, Social, or Medical Approach to Science Matters <i>Maria Susana Ciruzzi, PhD</i>
11:30 a.m. - 12:00 p.m.	Clarity Regarding the Role of Forensic Scientist Is Vital for Progress <i>Sheila Willis, PhD</i>
12:00 p.m. - 1:30 p.m.	Lunch
1:30 p.m. - 2:00 p.m.	Forensic Genetics: Past, Present, and Exciting Future <i>Dragan Primorac, MD, PhD</i>
2:00 p.m. - 2:20 p.m.	Life in the Practitioner Lab: Where Research Fits In <i>Peter R. Stout, PhD</i>
2:20 p.m. - 2:50 p.m.	Using New DNA Techniques to Free the Innocent: Lessons From the Innocence Network <i>Greg Hampikian, PhD</i>
2:50 p.m. - 3:10 p.m.	The Forensic Unit of the International Committee of the Red Cross: 15 Years of Promoting Humanitarian Forensic Action <i>Pierre M.M. Guyomarc'h, PhD</i>
3:10 p.m. - 3:25 p.m.	Break
3:25 p.m. - 3:45 p.m.	Optimizing Case Report Research Collaboration With Students and Young Forensic Scientists <i>Joseph A. Prahlow, MD</i>
3:45 p.m. - 4:15 p.m.	Case-Driven Research: Why Is It Important for the Future of Forensic Science Programs? <i>Gail S. Anderson, PhD</i>
4:15 p.m. - 4:30 p.m.	How Underrepresented Minority Students Are Helping Shape the Future of Forensic Science <i>Pamela L. Marshall, PhD</i>
4:30 p.m. - 5:00 p.m.	Group Discussion and Closing Remarks <i>Amanda R. Hale, MA; Zain Bhaloo, MSc</i>

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# YOUNG FORENSIC SCIENTISTS FORUM

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## Wednesday

February 21, 2018 — 6:00 p.m. – 7:00 p.m.

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### **YFSF Bring Your Own Slides**

*(Open to All Meeting Attendees)*

## Thursday

February 22, 2018 — 7:00 a.m. – 10:00 a.m.

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### **AAFS Breakfast Session #4**

*(Pre-registration for B4 Required to Attend)*

On Thursday morning, February 22, 2018, the YFSF will host an Academy-wide Breakfast Session and everyone attending the YFSF Tuesday session is encouraged to register to attend Breakfast Session #4, *YFSF's Wake Up to Professional Development ... and Bacon!* This Breakfast Session will feature two speakers addressing early career success and development as a scientist, as well as how to excel in the interview process. This Breakfast Session will conclude with a Q&A session and a résumé review.

The résumé review is a rare opportunity for young professionals and students to discuss and improve their résumés with established professionals and leaders in the field of forensic science! Attendees of the breakfast session must register separately for this Breakfast Session.

## Thursday

February 22, 2018 — 7:00 p.m. – 8:00 p.m.

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### **YFSF Bring Your Own Posters**

*(Open to All Meeting Attendees)*

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# BREAKFAST SEMINARS



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*Pre-Registration Required — \$50*

**Monday**

**#1 Analytical Thinking Skills: Essential Training for 21<sup>st</sup>-Century Forensic Scientists**

**February 19, 2018**

**7:00 a.m. - 8:30 a.m.**

**.75 CE Hour**

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**Mary Ellen O'Toole, PhD\***  
George Mason University  
Fairfax, VA

**Joseph A. DiZinno, DDS**  
Alexandria, VA

**Educational Objective(s):** The goals of this presentation are to: (1) provide attendees with an overview on creating a stand-alone analytical thinking course in graduate curriculums; (2) instruct attendees on structuring a course to address real-world forensic science problems; and, (3) inform attendees on teaching students a specific methodology to break down complex problems.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by providing students the skills for working in the field in the 21<sup>st</sup> century.

Forensic science can be considered a three-pronged science designed to train students in theory, research, and application; however, students can face particularly significant challenges without analytical thinking skills and understanding how to apply them to real-world forensic problems.

While analytical thinking skills are important for all scientists, they are particularly critical for forensic science students who must be able to comprehend complex scientific theories, principles, and methodologies, synthesize all of their knowledge, and apply it in real-world situations with unpredictable challenges. To complicate this challenge, many forensic scientists are regularly expected to testify, under oath in court, as to the analytical thinking process they applied to the problem. A weakness or flaw in their analytical thinking or in the application of the science to real-world problems, and the subsequent flawed or weak explanations to the trier of fact, could result in a serious appellate issue for the case, which could summarily damage or even end a young scientist's career.<sup>1</sup>

Forensic scientists are also often asked to serve on multidisciplinary commissions, panels, etc., to collaborate on specific forensic science problems, identify causation, and recommend viable solutions.

Dr. Richard Bloom, a well-known psychologist and educator, created the *Taxonomy of Educational Objectives Book*, which identified levels of cognition ranging from basic comprehension of scientific theories and principles to much more complicated levels of cognition.<sup>1</sup> Later revised, the book identified analytical thinking, creativity, and evaluation as the highest levels of cognition requiring specific teaching methodologies in order to develop and maintain these skills.<sup>2</sup>

In their 1992 paper presented at the annual meeting of the American Educational Research Association, Franklin and Theall noted that college instructors in soft disciplines utilized a wider range of teaching behaviors than those utilized by instructors in science disciplines.<sup>3</sup> Twenty-two years later, Benton and Cashen opined that Science, Technology, Engineering, and Math (STEM) instructors relied predominately on lectures in their courses, rather than more advanced levels of instructional behaviors to help students reach higher levels of cognition, including analytical and creative thinking.<sup>4</sup> This study conducted a review of ten forensic science graduate programs. Five programs were Forensic Science Education Programs Accreditation Commission (FEPAC) -accredited, and five were not. Results indicated none of these programs included a stand-alone analytical thinking course in their curriculums.

This presentation is designed to provide attendees with the structure, content, and outline to create a stand-alone analytical thinking course for graduate students in a forensic science program. Attendees will learn how to introduce students to analytical thinking concepts in a one-semester course.

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\*Presenting Author





# BREAKFAST SEMINARS

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*Pre-Registration Required — \$50*

## Monday

### #1 **Analytical Thinking Skills: Essential Training for 21<sup>st</sup>-Century Forensic Scientists**

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**Part 1:** Demonstrate how to break down a real-life forensic science problem into its most basic component parts in order to identify causation. Students will see that most real-life forensic science problems are complicated and multilayered, and they need a method to break the problem into manageable parts.

**Part 2:** Students will learn how to develop hypotheses to test causation using research methodologies, both qualitative and quantitative.

**Part 3:** Using a collaborative and multidisciplinary framework, students will learn how to use analytical and creative skills to identify relevant conclusions and, from those conclusions, develop creative but scientifically sound recommendations for solutions.

Currently, many graduate forensic science programs do not offer stand-alone analytical thinking courses. These skills are either not directly taught or are minimally covered in other courses. Without a solid understanding of analytical thinking skills, forensic science students are not being adequately equipped to face career challenges in the 21<sup>st</sup> century.

#### Reference(s):

1. Bloom, B. 1956. *Taxonomy of Educational Objectives Book, Handbook 1: Cognitive Domain* (New York: Longman).
2. Anderson, Lorin W., and David R. Krathwohl. 2001. *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. (New York: Longman).
3. Franklin, Jennifer, and Michael Theall. *Disciplinary Differences: Instructional Goals and Activities, Measures of Student Performance, and Student Ratings of Instruction*. (1992).
4. Stephen Benton and William Cashin, *Student Ratings of Instruction in College and University Courses in Higher Education: Handbook of Theory and Research*, ed. Michael Paulsen (New York: Springer, 2014), 29.

# BREAKFAST SEMINARS



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*Pre-Registration Required — \$50*

**Tuesday**

## **#2 My Experiences as a Forensic Science Consultant for Crime Drama Television Series**

**February 20, 2018**

**7:00 a.m. - 8:30 a.m.**

**.75 CE Hour**

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**Gregory E. Laskowski, MPA\***  
Criminalistics Services International, LLC  
Bakersfield, CA

**John Houde**  
Calico Press, LLC  
Rolling Bay, WA

**Educational Objective(s):** The goal of this presentation is to educate attendees on the processes that occur in the creation of a crime drama episode and why certain aspects of the “reality” of forensic science do not necessarily get translated to the screen. This presentation will discuss the real-life experiences of a forensic science consultant for such television shows as: *CSI: Crime Scene Investigation*; *CSI: Miami*; *Law and Order*; *BONES*; *Killer Instinct*; *Vanished*; *The Mob Doctor*; *Rizzoli and Isles*; *Drop Dead Diva*; *The Blacklist*; and, *Rosewood*. Clips from various episodes of these shows will be presented with a discussion on what is real and what is “Hollywood Real.” Attendees will be taken on a virtual tour of what happens in the writers’ room and on the set.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by providing attendees with a better understanding of the reason forensic science is portrayed in a certain manner on television crime dramas.

Forensic science flew under the radar for a number of decades. A brief spike in interest of the discipline occurred for a span of seven years from 1976 to 1983. *Quincy ME* was a very popular television show. It was Quincy played by Jack Klugman that fostered the career interest of this presenter. It was not until October of 2000 that the breakout television series *CSI: Crime Scene Investigation* hit the television airwaves. This megahit show took the world by storm. At one point, *CSI: Crime Scene Investigation* was the number-one rated show in the world and/or the most-watched television crime drama. Soon after, the television series led to a number of spinoffs: *CSI: Miami*, *CSI: New York*, and the much less-known *CSI: Cyber*, gathering number-one ratings for the CBS television network. Not to be outdone, the Fox Television Network launched its own hit forensic science series, *BONES*. On the cable networks, docudrama series such as *Forensic Files* aka *Medical Detectives*, *Cold Case Files*, and *Extreme Forensics* became extremely popular, with the HLN network broadcasting multiple episode reruns of *Forensic Files* nightly for six years after the original series ended. This presenter has had the distinct honor of having been featured in three episodes. Another hit television show, *NCIS*, and its spinoffs, *NCIS: Los Angeles*, and *NCIS: New Orleans*, feature forensic science components.

For the disciplines of forensic science, these television shows created a wave — perhaps a tsunami — of interest. Young people suddenly began to seriously look at career paths in forensic science. Colleges and universities began seriously looking at either creating or expanding programs in forensic science. During the 2000s, forensic science was in vogue. It was cool to work in a crime lab or be a crime scene investigator. Crime labs were seeing a tremendous uptick in applications for criminalist positions. Colleges and universities began to develop curricula to meet Forensic Science Education Program Accreditation Commission (FEPAC) guidelines. With success comes criticism, and, not surprisingly, the legal community and its allies in the legal educational community began their quest to diminish forensic science. The specter of the “CSI Effect” was raised because it was felt that forensic scientists, when testifying as expert witnesses, were seen as too believable by juries. Juries had unreasonable expectations when forensic science was not introduced in certain trials. Then, many disciplines were being questioned as to whether they were scientific or employing valid scientific techniques. Forensic science was now under the microscope.

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# BREAKFAST SEMINARS

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*Pre-Registration Required — \$50*

**Tuesday**

**#2 My Experiences as a Forensic Science Consultant for Crime Drama  
Television Series**

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For the past 17 years, I have served as a forensic consultant to such television shows as *CSI: Crime Scene Investigations*, *CSI: Miami*, *BONES*, *Rizzoli and Isles*, *Law and Order*, *Rosewood*, and *The Blacklist*, in addition to appearing on several forensic science-themed docudramas. As a television consultant, I would either respond to email questions from writers and producers, review scripts, work on-set advising the director or the set dresser, or explain how to perform a technique to the actors. While most of these shows have now been canceled, they do appear on cable television networks and appear to have a strong following. Binge watching these shows can be accomplished by live streaming or DVD rental. While no longer in the forefront of television series lineups, forensic science appears as an ancillary subject in television crime dramas, such as *The Blacklist* and *Lucifer*. So, to an extent, I still keep somewhat busy. Through the use of personal stories and video clips from some of these shows, this presentation will reveal both the real and farcical aspects of television crime dramas.

# BREAKFAST SEMINARS



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*Pre-Registration Required — \$50*

**Wednesday**

**#3 The Lawyers Always Win**

**February 21, 2018**

**7:00 a.m. - 8:30 a.m.**

**.75 CE Hour**

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**Roderick T. Kennedy, JD\***  
Albuquerque, NM

**Gil Sapir, JD**  
Chicago, IL

**Educational Objective(s):** The goal of this presentation is to reinforce the nature of science as transparent and objective. The legal system will ultimately turn to recognized criteria based in the scientific method and academic science to judge the utility and validation of forensic science. Forensic science can profit from associations that will quantify and qualify the limits of forensic examinations. This argues that there is no valid basis to resist examination of forensic science practice by traditional science and legal scholars.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by demonstrating that it is ultimately the law and law-trained persons who determine the criteria for admissibility of forensic science evidence in court.

In 1923, the *Frye* case judged a challenge to a nascent technology purporting to detect deception in a subject.<sup>1</sup> *Frye* held that evidence produced from novel techniques based in scientific supposition must be judged by the general acceptance of a relevant scientific community related to the technique in question to be admitted. Polygraphy was sidelined; “general acceptance by a relevant community” became a criterion for the admissibility of novel scientific evidence. Physiologists and psychologists were considered the relevant touchstone for “expert testimony deduced from the discovery, development, and experiments thus far made.”<sup>1</sup> Polygraphy is still judged by these objective disciplines, but not so much the polygraphers themselves.<sup>2</sup> The law has a suspicion of self-referenced validation.

In 2009 and 2016, failures of forensic claims to validity and reliability in their theories, applications, and results caused two blue-ribbon commissions to review the state of forensic science, and various pattern-matching disciplines specifically.<sup>3,4</sup> In the latter, the President’s Council of Advisors on Science and Technology (PCAST) identified two gaps for these disciplines: (1) the need for clarity regarding the scientific standards for the validity and reliability of forensic methods; and, (2) the need to evaluate specific forensic methods to determine whether they have been scientifically established to be valid and reliable. It cast these concepts as “foundational validity” and “validity as applied.”<sup>5</sup>

Forensic practitioners criticized these reports as reflecting the views of persons from outside the practice of forensic science. Citing “unprecedented (and unrelenting) challenges from legal professionals, research academics, and the popular press” promotes an idea that only those who practice the particular discipline can establish or judge its validity, not statisticians or scientists from academia, and most particularly, not lawyers.<sup>6</sup> These critics do not recall that forensic science itself is a collection of applied disciplines whose goal is to explain case phenomena in ways relevant and helpful to a court. For years, forensic science escaped much critical evaluation because its genesis, practitioners, and proponents in court were, for the most part, on the same side. This changed in the 1990s when an academically validated and objective scientific technique — DNA analysis — was used not to convict, but exonerate persons who had been wrongfully convicted. In half of those cases, false and overstated forensic opinions contributed to the injustice. At that point, the legal profession began looking to objective scientific evaluation of claims to legitimacy to which some more subjective (i.e., pattern-matching) disciplines of forensic science laid claim. Prosecutors paid attention to avoid reversals and defense attorneys to call “foul” on unsupported testimony.

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\*Presenting Author



# BREAKFAST SEMINARS

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*Pre-Registration Required — \$50*

**Wednesday**

## **#3      The Lawyers Always Win**

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Wrongful convictions are a stain on the judicial system, which is self-policing. In cases in which trust in forensic science has been shaken, the law looks to established scientific practice to evaluate and change it. The Los Alamos National Laboratories teaches judges that foremost, science is an open process in which theories and methods must be open to testing by any interested party. The manner in which statistics can validate investigative conclusions compels the use of likelihood ratios, and expressions of limitations on conclusions become requisite to expert testimony. Academic scientists, therefore, inform us as to what validity, repeatability, and reliable process is, and what should be used in the important work of administering justice.

The practice and fate of the forensic sciences is in the hands of lawyers, who are its end consumers, and who are awakening to the need to validate forensic specialties that have been shown susceptible to bias, subjectivity, and lack of enforceable standards for practice. Admissibility of forensic results is in the hands of judges, who look to statisticians, behavioral scientists, and academic disciplines to quantify and qualify validity and reliability of forensic techniques and results. For forensic scientists to keep their research cards close to the vest ignores the open nature of science and sacrifices collaboration with academic scientists to develop acceptable standards for the practice. Forensics' validity in court can be admitted as valid and reliable within its limits, so long as the limits are properly expressed.<sup>7</sup> A bunker mentality that closes out scrutiny and validation can only result in the march of the law going around the bunker.

### **Reference(s):**

1. *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923).
2. National Research Council. 2003. *The Polygraph and Lie Detection*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/10420>.
3. National Research Council. *Strengthening Forensic Science in the United States: A Path Forward*. Washington, DC: The National Academies Press, 2009.
4. [https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast\\_forensic\\_science\\_report\\_final.pdf](https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast_forensic_science_report_final.pdf) (last accessed 7/31/17).
5. *Id.*, Note 4 at x.
6. Chumbley, S., Zhang, S., Morris, M., Spotts, R. and Macziewski, C. (2017), Development of a Mobile Toolmark Characterization/Comparison System. *J Forensic Sci*, 62: 83–91.
7. E.g., *United States v. Monteiro*, 407 F. Supp. 2d 351 (D. Mass. 2006) (holding although tool mark analysis is sufficiently valid and reliable to be admissible, the expression of results was not in accord with standards and was excluded).

# BREAKFAST SEMINARS



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*Pre-Registration Required — \$50*

**Thursday**

## **#4 YFSF's Wake Up to Professional Development ... and Bacon!**

**February 22, 2018**

**7:00 a.m. - 10:00 a.m.**

**.75 CE Hour**

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**Alex J. Krotulski, MS\***

The Center for Forensic Science Research & Education  
Willow Grove, PA

**Amanda L.A. Mohr, MSFS\***

The Center for Forensic Science Research & Education  
Willow Grove, PA

**Barbara L. Hovanec\***

NMS Labs  
Willow Grove, PA

**Brianna B. Bermudez, BS**

Albuquerque, NM

**Educational Objective(s):** After attending this presentation, attendees will have gained knowledge pertaining to professional development and understand how to better prepare themselves for a career in forensic science. Additionally, attendees will be informed of practical applications by professionals established within several disciplines of forensic science.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by educating young scientists on the importance of personal and professional developments and on the positive effects they can have on the forensic science community. This breakfast seminar provides students and scientists with the opportunity to network with professionals in a unique setting that focuses on bridging the gap between established professionals and young scientists, both in higher education and in the beginning of their careers.

The Young Forensic Scientists Forum (YFSF) Breakfast Session is a morning session that will leave attendees motivated and enthusiastic about their future successes and accomplishments. This session will focus on bridging the gap between academics and early career growth. The goal is to provide young forensic scientists, whether students, near-graduates, or recent employees, with practical skills and knowledge associated with this transition period. Topics of interest will include the application and interview processes, early success and development as a scientist in a respective field, and the overall feelings and emotions that can often overwhelm young scientists. The speaker presentations will conclude with an open Q & A session, where attendees will be able to interact with the speakers to gain additional information.

The YFSF Breakfast Session will conclude, as always, with the popular résumé review session, pioneered by Academy scientists and peers from across several disciplines and career paths. This session is a rare opportunity for young professionals and students to discuss and improve their résumés with established professionals and leaders in the fields of forensic science. Attendees will sit down one-on-one with résumé reviewers to gain imperative knowledge regarding important aspects and areas to highlight or improve upon within their achievements and qualifications.

**Program:**

7:00 a.m. - 8:00 a.m.	YFSF Breakfast and Introductions <i>Alex J. Krotulski, MS</i>
8:00 a.m. - 8:20 a.m.	Self-Marketing and Early Management: Applying and Interviewing for Your First Job <i>Barbara L. Hovanec</i>
8:20 a.m. - 8:40 a.m.	Starting Your Career on a Successful Note: Growth and Development as an Early Professional <i>Amanda L.A. Mohr, MSFS</i>
8:40 a.m. - 9:00 a.m.	Questions and Answers
9:00 a.m. - 10:00 a.m.	Résumé Review

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\*Presenting Author



# BREAKFAST SEMINARS

*Pre-Registration Required — \$50*

**Friday**

## **#5 The Making of an Opioid Crisis in America? Why Research, Policy, and Practice Matter**

**February 23, 2018**

**7:00 a.m. - 8:30 a.m.**

**.75 CE Hour**

**Andrew M. Baker, MD\***

Hennepin County Medical Examiner's Office  
Minneapolis, MN

**Sabra R. Botch-Jones, MS, MA\***

Boston University School of Medicine  
Biomedical Forensic Sciences  
Boston, MA

**Bruce A. Goldberger, PhD\***

University of Florida College of Medicine  
Gainesville, FL

**Barry K. Logan, PhD\***

NMS Labs  
The Center for Forensic Science Research & Education  
Willow Grove, PA

**Michael F. Rieders, PhD\***

NMS Labs  
Willow Grove, PA

**Jeri D. Roper-Miller, PhD\***

RTI International  
Research Triangle Park, NC

**Agnes D. Winokur, MS\***

DEA/Southeast Laboratory  
Miami, FL

**Educational Objective(s):** After attending this presentation, attendees will be able to analyze and discuss the features and characteristics of the opioid crisis in the United States. Attendees will also be able to summarize successful implementation of policies and practices at the federal, state, and local levels.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by providing an open forum for forensic practitioners of many disciplines to discuss the impacts of the opioid crisis to the criminal justice system and how improved reporting, surveillance, research, analytical testing, technology, and policy can help mitigate the challenges of use and misuse of these drugs.

Nearly three million Americans reported a substance use disorder to prescription pain relievers or heroin in 2015, fueling a steady increase in fatalities to an estimated 91 United States deaths daily. These rates are not slowing. In fact, alarming increases in 2015 also resulted in drug overdoses becoming the leading cause of accidental death in the United States, with more than half attributed to heroin and prescription pain relievers (33,091 of 52,404 total drug overdoses).<sup>1</sup> Effective strategies begin with understanding the factors that drive the interrelated problems our nation faces with the ever-increasing opioid crisis in public health and the criminal justice system.

Law enforcement, medical professionals, laboratories, and legal agencies are battling with unmanageable caseloads, economic shortfalls, and challenges for safety, analytical preparedness, and basic education and training. Confronted with the fast-paced emerging drug life cycles, reliable surveillance and intelligence are needed more than they have ever been. The legislative quagmire is just as burdensome, as policy change cannot happen without the data to support change.

This breakfast seminar is an ongoing effort of the National Institute of Justice's Forensic Technology Center for Excellence and the American Academy of Forensic Sciences Synthetic Opioids Ad Hoc Committee to heighten awareness in our communities and encourage working together to bring about necessary research and positive changes to policy and practice. This seminar will offer

\*Presenting Author

*(continued)*

# BREAKFAST SEMINARS



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*Pre-Registration Required — \$50*

**Friday**

**#5      The Making of an Opioid Crisis in America? Why Research, Policy,  
and Practice Matter**

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a multifaceted perspective to the manner in which diverse criminal justice disciplines are addressing these challenges, sharing their knowledge, and advancing science, technology, and law. Dealing with the impacts of the opioid crisis to the criminal justice system requires better reporting, surveillance, research, technology, and policy than are currently in use. This type of forum is the kind of effective public safety strategies identified by the National Governors Association to reduce the illicit supply of and demand for opioids by implementing best practices and ensuring inter-governmental cooperation in criminal and death investigations, as well as establishing and enhancing stakeholder coalitions.<sup>2</sup> The need to understand the epidemic and its effects goes beyond knowing your own profession — it takes a global perspective to fully act and make a difference.

**Reference(s):**

- <sup>1.</sup> Rudd R.A., Seth P., David F., Scholl L. Increases in Drug and Opioid-Involved Overdose Deaths — United States, 2010–2015. *Morb Mortal Wkly Rep (MMWR)* 2016;65:1445–1452. DOI:<http://dx.doi.org/10.15585/mmwr.mm65051e1>.
- <sup>2.</sup> National Governors Association. *Finding Solutions to the Prescription Opioid and Heroin Crisis: A Road Map for States*. 2016. <https://www.nga.org/files/live/sites/NGA/files/pdf/2016/1607NGAOpioidRoadMap.pdf>.





# LUNCHEON SEMINARS

*Pre-Registration Required — \$55*

**Thursday**

## **#1 Post-Conviction DNA Testing in an Ever-Advancing DNA World**

**February 22, 2018**

**12:00 p.m. - 1:30 p.m.**

**1.0 CE Hour**

**Lisa Mertz, MS\***

Office of the Chief Medical Examiner  
Department of Forensic Biology  
New York, NY

**Heather Nelson, MS\***

Office of the Chief Medical Examiner  
New York, NY

**Educational Objective(s):** After attending this presentation, attendees will better understand the complexities and challenges faced in processing post-conviction DNA cases and will be presented with real-life case examples.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by showcasing the need for the continued processing of post-conviction cases so forensic science can, through the development and deployment of new technologies, continue to serve both the criminal justice system and society.

DNA testing has become one of the most important forensic tools available in solving, prosecuting, and preventing crime. It is relied upon heavily in the justice system to aid in convicting the guilty and freeing the innocent; however, the usefulness of DNA testing has only been routinely demonstrated within the past decade because of advancements in DNA technology. Such advancements have led to a renewed interest in wrongful convictions. This interest is especially strong in those cases in which convictions are based solely on eyewitness accounts. With the implementation of new DNA technology, physical evidence at crime scenes can be reassessed to see what is possible in terms of examining evidence for biological fluids and/or biological material.

Post-conviction investigations face many of the same basic challenges as new investigations in terms of DNA testing; however, there are additional complexities. Processing a post-conviction case involves greater cooperation among law enforcement, the crime laboratory, and the district attorney's office. This is due to the fact that simply locating the items of evidence to be processed can be both time-consuming and challenging. Just as time-consuming and challenging is locating previous reports and previous laboratory testing results. From past reports and considering previously tested and untested pieces of evidence, if they are found, the crime laboratory can make a determination as to what DNA testing or additional testing is now plausible. Challenges are then faced in the processing of evidence that is old and may only result in the recovery of degraded DNA. Difficulties also arise when dealing with items of evidence that may have been unknowingly contaminated at the scene in a pre-DNA world where there was less emphasis on proper protective equipment. A DNA profile may be able to be recovered from the item of evidence tested; however, obtaining these elimination samples from witnesses or law enforcement personnel, who may have come into contact with the item, may be impossible. Oftentimes, processing post-conviction cases can encounter obstacles in obtaining funding. Laboratories are frequently backlogged with current cases and often do not have the funding to look back, vet, and process old cases.

With all the hurdles faced by crime laboratories, several post-conviction cases remain dormant, their probative evidence locked in unprocessed DNA to this day. The wrongfully convicted continue to serve their sentences in jail, harboring the hope that DNA will one day help them in their quest for justice. Similarly, the families of victims of violent crimes, in too many instances, remain deprived of the closure of knowing the true identities of actual perpetrators. This Luncheon Seminar will present post-conviction case examples that will highlight the challenges faced in processing such cases. This seminar will also showcase the need for the continued processing of post-conviction cases so forensic science can, through the development and deployment of new technologies, continue to serve the criminal justice system and society.

# LUNCHEON SEMINARS



*Pre-Registration Required — \$55*

**Friday**

## #2 **Understanding the Impact of Human Factors on Forensic Science: Case Studies in Fingerprint and Handwriting Examination**

**February 23, 2018**

**12:00 p.m. - 1:30 p.m.**

**1.0 CE Hour**

**Ted M. Burkes, BS\***

Federal Bureau of Investigation Laboratory  
Quantico, VA

**David Kaye, JD\***

Penn State Law  
University Park, PA

**Melissa Gische, MFS\***

Federal Bureau of Investigation  
Quantico, VA

**Melissa K. Taylor, BA\***

Gaithersburg, MD

**Emily J. Will, MA\***

Raleigh, NC

**Educational Objective(s):** After attending this presentation, attendees will better understand: (1) the general themes of human factors and organizational theory; and, (2) the findings and recommendations of the Expert Working Groups on Human Factors in Latent Print and Handwriting Examinations.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by helping forensic professionals understand the impact of human factors on every aspect of the evidence examination process.

Forensic science plays a vital role in the criminal justice system by providing scientifically based information through the analysis of physical evidence; however, several high-profile cases in the United States and abroad have highlighted the fact that human errors can occur. Human error is an inevitable part of everyday life; however, in certain endeavors, such as forensic analysis, in which errors may lead to the loss of life or liberty, error prevention is imperative. Human factors analysis can advance the understanding of the nature of errors in complex work settings. The study of human factors is the scientific discipline concerned with the understanding of interactions among humans and other elements of a system and is the profession that applies theory, principles, data, and other methods to design in order to optimize human well-being and overall system performance. The forensic science community can benefit from the application of the substantial body of human factors research to advance the understanding of the nature of errors, enhance productivity and quality in forensic examinations, and reduce the consequences and likelihood of human error in the interpretation of evidence.

The National Institute of Justice and the National Institute of Standards and Technology have partnered to sponsor a series of expert working groups to examine the effects of human factors in forensic analyses and recommend practices to reduce the likelihood of error. Each discipline-specific working group will be comprised of experts from relevant forensic disciplines, statisticians, psychologists, researchers, and other scientific experts, in addition to representatives from the legal community, professional organizations, and other identified stakeholder groups. To date, reports, including recommendations, have been published in the areas of fingerprint and handwriting examinations. The next working groups in this series will focus on DNA mixture interpretation and tool mark examinations.

This presentation will provide the general themes of human factors and organizational theory. The findings and recommendations of the Expert Working Groups on Human Factors in Latent Print and Handwriting Examinations will be presented. A range of issues affecting forensic science disciplines in the areas of work environment, training, emerging technology, and research needs will also be covered.

This presentation will further assist forensic examiners in understanding the purposes and value of reporting and documenting examinations and will provide recommendations for standardizing the content of these materials. Presenters will discuss methods to improve trial and pretrial communications between relevant parties — the experts, lawyers, judges, and juries.

\*Presenting Author



# WORKSHOPS

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*Pre-Registration Required — \$100 w/registration; \$125 workshop only*

## #1 Proposed Revisions to the Federal Bureau of Investigation (FBI) Quality Assurance Standards — DNA

Monday, February 19, 2018

8:30 a.m. – 12:00 p.m.

3.25 CE Hours

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**Educational Objective(s):** After attending this presentation, attendees will be informed of the proposed changes to the FBI Quality Assurance Standards for Casework and Databasing laboratories. Laboratory personnel will be aware of any changes to policies and procedures that may be necessary in order to comply with the new standards.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by providing an opportunity to learn about the proposed changes to these quality standards in advance. All National DNA Index System (NDIS)-participating laboratories are required to adhere to and be audited against the revised standards when these standards become effective.

*Chair:*

**Kristy Kadash, PhD**

Jefferson County Regional Crime Laboratory  
Golden, CO

*Co-Chair:*

**Susannah Kehl, MS**

Federal Bureau of Investigation Laboratory  
Quantico, VA

*Faculty:*

**Jocelyn R. Carlson, MS**

Federal Bureau of Investigation  
Quantico, VA

**Program Description:** This session is being offered as an opportunity to learn about the proposed changes to the FBI Quality Assurance Standards that all NDIS-participating DNA casework and database labs must meet. These standards have not been substantially updated since 2009, but the methods, technologies, and interpretation approaches have certainly evolved in that time. The presenters will highlight all changes and focus on areas that may have the greatest impact on laboratory work and management practices. This session provides an advance notice to the community of the revised standards before they take effect.

### Program:

8:30 a.m. - 8:40 a.m.	Introduction, History, and Overview of FBI Quality Assurance Standards <i>Jocelyn R. Carlson, MS; Susannah Kehl, MS; Kristy Kadash, PhD</i>
8:40 a.m. - 9:30 a.m.	Standards 3 Through 6 <i>Jocelyn R. Carlson, MS; Susannah Kehl, MS; Kristy Kadash, PhD</i>
9:30 a.m. - 10:30 a.m.	Standards 7 Through 10 <i>Jocelyn R. Carlson, MS; Susannah Kehl, MS; Kristy Kadash, PhD</i>
10:30 a.m. - 10:45 a.m.	Break
10:45 a.m. - 11:25 a.m.	Standards 11 Through 14 <i>Jocelyn R. Carlson, MS; Susannah Kehl, MS; Kristy Kadash, PhD</i>
11:25 a.m. - 12:00 p.m.	Standards 15 Through 17 <i>Jocelyn R. Carlson, MS; Susannah Kehl, MS; Kristy Kadash, PhD</i>

**Targeted Audience:** Criminalistics

**Knowledge Level Required:** Intermediate (some knowledge of subject presented)

**Expected Handout Length:** 10 Pages

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# WORKSHOPS



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*Pre-Registration Required — \$100 w/registration; \$125 workshop only*

## #2 Heavy Petting: A Forensic Expert's Guide to Bestiality and Zoophilia

Monday, February 19, 2018

8:30 a.m. – 12:05 p.m.

3.0 CE Hours

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**Educational Objective(s):** After attending this presentation, attendees will understand the history of human-animal sexual intercourse in various cultures across time as well as the development of law around the world to prosecute this behavior. Attendees will learn current conceptualizations of bestiality and the related diagnosis of zoophilia from the psychiatric perspective. Lastly, attendees will be able to describe current approaches to the evaluation of bestiality cases from the point of view of a forensic pathologist and law enforcement officer.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by improving the understanding of bestiality, a rarely discussed sexual behavior, and its relevance to the fields of forensic mental health, forensic pathology, and criminal investigation.

*Chair:*

**Carl Wigren, MD**  
Wigren Forensic, PLLC  
Seattle, WA

*Co-Chair:*

**J. Paul Fedoroff, MD**  
Royal Ottawa Hospital  
Ottawa, ON, CANADA

*Faculty:*

**John Allgire, BS**  
Whatcom County Sheriff's Office  
Bellingham, WA

**Sara Moore, PsyD**  
Institute for Sexual Wellness  
Weymouth, MA

**Susan Hatters-Friedman, MD**  
University of Auckland  
Auckland, NEW ZEALAND

**Renee Sorrentino, MD**  
Institute for Sexual Wellness  
Weymouth, MA

**Brian J. Holoyda, MD**  
Saint Louis University  
Department of Psychiatry &  
Behavioral Neuroscience  
St. Louis, MO

**Program Description:** This multidisciplinary session featuring forensic mental health experts, a forensic pathologist, and a law enforcement officer will educate attendees about bestiality (i.e., human-animal sexual intercourse). The history of bestiality across cultures, as well as the development of legislation to prosecute this behavior will be described. The body of literature on individuals who engage in bestiality will be reviewed, providing practical recommendations for psychiatric and medical evaluation and treatment. The Enumclaw horse sex case will be reviewed from a forensic pathologist's perspective and current practices and examples of the forensic investigation of such cases will be described.

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*(continued)*



# WORKSHOPS

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*Pre-Registration Required — \$100 w/registration; \$125 workshop only*

## #2 Heavy Petting: A Forensic Expert's Guide to Bestiality and Zoophilia

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**Program:**

8:30 a.m. - 8:55 a.m.	Historical and Cultural Background <i>Sara Moore, PsyD</i>
8:55 a.m. - 9:25 a.m.	Evaluation and Treatment <i>Renee Sorrentino, MD</i>
9:25 a.m. - 9:55 a.m.	Bestiality and the Law <i>Brian J. Holoyda, MD</i>
9:55 a.m. - 10:25 a.m.	Break
10:25 a.m. - 10:55 a.m.	Ethical Issues <i>Susan Hatters-Friedman, MD</i>
10:55 a.m. - 11:20 a.m.	Bestiality and Forensic Pathology <i>Carl Wigren, MD</i>
11:20 a.m. - 12:05 p.m.	Criminal Investigation of Bestiality Cases <i>John Allgire, BS</i>

**Targeted Audience:** Anthropology, Criminalistics, Digital & Multimedia Sciences, General, Jurisprudence, Pathology/Biology, Psychiatry & Behavioral Science

**Knowledge Level Required:** Basic (little to no knowledge of subject presented)

**Expected Handout Length:** 6 Pages

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# WORKSHOPS



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*Pre-Registration Required — \$100 w/registration; \$125 workshop only*

## #3 **Alternate Light Source (ALS) Photography: Ultraviolet (UV), Infrared Radiation (IR), Lights, and Filters**

**Monday, February 19, 2018**

**8:30 a.m. – 12:30 p.m.**

**3.75 CE Hours**

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**Educational Objective(s):** After attending this presentation, attendees will understand how to properly image trace evidence by ALS, utilizing a Digital Single Lens Reflex (DSLR) cameras, ALS kits, and filters.

**Impact on the Forensic Science Community:** Professionals charged with processing crime scenes and forensic evidence are often expected to understand, but are not properly trained in, the use of ALS, including UV and IR. This presentation will impact the forensic science community by providing a broad understanding of the capabilities of standard and modified DSLR cameras in their ability to image evidence outside the visible spectrum.

*Chair:*

**David G. Pauly, MFS**

Methodist University Forensic Science Program

TruForensics, LLC

Fayetteville, NC

*Co-Chair:*

**Mark Vecellio, MFS**

Sanford, NC

*Faculty:*

**David Alford, BS**

Sirchie

Youngsville, NC

**Steven L. Downs, MFS**

Methodist University

Applied Forensic Science

Fayetteville, NC

**Dyer Bennett, MS**

Sirchie

Youngsville, NC

**Program Description:** While most crime scene and evidence photography is conducted in the visible spectrum of light, much of the most valuable evidence (biological fluids, trace hair/fibers, firearms/explosive residue, inks, etc.) must be visualized and thus imaged outside of the visible spectrum. This ALS photography session will expose attendees to UV and IR photography through instruction and hands-on practical exercises on the use of DSLR cameras, ALS, and specialized filters.

**Program:**

8:30 a.m. - 9:00 a.m.	Visible Light Photography Review and Tour of DSLR <i>David G. Pauly, MFS</i>
9:00 a.m. - 9:30 a.m.	ALS — Background <i>Dyer Bennett, MS</i>
9:30 a.m. - 10:15 a.m.	Exercise: Search and Image Bodily Fluids With UV/ALS <i>David Alford, BS</i>
10:15 a.m. - 10:30 a.m.	Break
10:30 a.m. - 11:15 a.m.	Exercise: Imaging Latent Prints and Trace Evidence Using UV and ALS <i>Mark Vecellio, MFS; Steven L. Downs, MFS</i>

*(continued)*

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# WORKSHOPS

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*Pre-Registration Required — \$100 w/registration; \$125 workshop only*

## **#3 Alternate Light Source (ALS) Photography: Ultraviolet (UV), Infrared Radiation (IR), Lights, and Filters**

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### **Program cont.:**

11:15 a.m. - 11:45 a.m.	Exercise: IR to Image Blood and Gun Shot Residue (GSR) on Dark Surfaces <i>Dyer Bennett, MS; Steven L. Downs, MFS</i>
11:45 a.m. - 12:15 p.m.	Exercise: Documents Under UV, IR, and ALS <i>David G. Pauly, MFS; Dyer Bennett, MS;</i>
12:15 p.m. - 12:30 p.m.	Questions and Answers <i>David G. Pauly, MFS; Mark Vecellio, MFS; Dyer Bennett, MS; David Alford, BS; Steven L. Downs, MFS</i>

**Targeted Audience:** Anthropology, Criminalistics, Digital & Multimedia Sciences, Engineering Sciences, General, Jurisprudence, Odontology, Pathology/Biology, Questioned Documents

**Knowledge Level Required:** Basic (little to no knowledge of subject presented)

**Expected Handout Length:** 12 Pages

**Restricted Audience Size:** 30

*Participants are encouraged to bring a work or personal camera to the workshop.*

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# WORKSHOPS



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*Pre-Registration Required — \$100 w/registration; \$125 workshop only*

## #4 Applications of Raman Spectroscopy for Trace Evidence Examinations

Monday, February 19, 2018

8:30 a.m. – 12:30 p.m.

3.25 CE Hours

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**Educational Objective(s):** This presentation focuses on applications of Raman spectroscopy for the analysis of various types of materials that may be encountered as trace evidence. This presentation is intended to provide trace evidence examiners with a better understanding of this underutilized analytical method, which has seen significant developments in instrument technology in the past couple of decades. After attending this presentation, attendees will gain: (1) a better understanding of the theory, principles, and instrumentation of Raman spectroscopy; and, (2) a greater appreciation of Raman spectroscopy's capabilities and limitations for the characterization, comparison, and identification of various types of trace evidence.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by increasing participant knowledge and information as well as providing a framework upon which examiners can better utilize this method for casework and to correctly interpret the spectral data of their evidence.

*Chair:*

**Christopher S. Palenik, PhD**

Microtrace  
Elgin, IL

*Co-Chair:*

**Edward M. Suzuki, PhD**

Washington State Patrol Crime Lab  
Seattle, WA

*Faculty:*

**Andrew M. Bowen, MS**

United States Postal Inspection Service  
Dulles, VA

**Patrick Buzzini, PhD**

Sam Houston State University  
Chemistry/Forensic Science Building  
Huntsville, TX

**Program Description:** The applications of Raman spectroscopy for the analysis of trace evidence are presented in this session, which emphasizes spectral interpretation. This technique has seen several significant instrument developments recently, which have served not only to make it more sensitive, but also more applicable to the wide variety of materials that may be examined as evidence. Because it requires little sample preparation, permits very small areas to be probed in a non-destructive manner, provides structural information about analytes, and produces data that complements those obtained using traditional methods, Raman spectroscopy is ideally suited for the examination of certain types of trace evidence.

### Program:

8:30 a.m. - 9:20 a.m.	Principles of Raman Spectroscopy — A Comparison of Infrared and Raman Methods of Analysis <i>Edward M. Suzuki, PhD</i>
9:20 a.m. - 9:30 a.m.	Break
9:30 a.m. - 10:20 a.m.	The Identification and Classification of Pigments, Nanoparticles, and Other Fine Traces in Forensic Casework <i>Christopher S. Palenik, PhD</i>
10:20 a.m. - 10:40 a.m.	Break

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## WORKSHOPS

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*Pre-Registration Required — \$100 w/registration; \$125 workshop only*

### #4 Applications of Raman Spectroscopy for Trace Evidence Examinations

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**Program cont.:**

10:40 a.m. - 11:30 a.m.	The Complementary Nature of Raman Micro-Spectroscopy and Polarized Light <i>Andrew M. Bowen, MS</i>
11:30 a.m. - 11:40 a.m.	Break
11:40 a.m. - 12:30 p.m.	The Characterization and Discrimination of Textile Fiber Dyes <i>Patrick Buzzini, PhD</i>

**Targeted Audience:** Criminalistics, Engineering Sciences, General, Questioned Documents

**Knowledge Level Required:** Intermediate (some knowledge of subject presented)

**Expected Handout Length:** 25 Pages

**Restricted Audience Size:** 40

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# WORKSHOPS



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*Pre-Registration Required — \$100 w/registration; \$125 workshop only*

## #5 Ohio's Assertive Approach to Scheduling Opioids and Fentanyl Analogs

Monday, February 19, 2018

8:30 a.m. – 12:30 p.m.

3.5 CE Hours

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**Educational Objective(s):** After attending this presentation, attendees will: (1) recognize the role of state government in the scheduling of drugs; (2) understand the importance of rapid scheduling of drugs for law enforcement purposes; (3) identify the parts of the molecular structure of drugs that are responsible for pharmacological interactions; and, (4) realize the importance of communication and cooperation between forensic laboratories and government entities.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by providing an in-depth examination of how one state is combating the opioid epidemic.

*Chair:*

**Douglas E. Rohde, MS**  
Lake County Crime Laboratory  
Painesville, OH

*Co-Chair:*

**Eric S. Lavins, BS**  
Cuyahoga County Medical Examiner's Office  
Toxicology Department  
Cleveland, OH

*Faculty:*

**Joseph A. Felo, DO**  
Cuyahoga County Medical Examiner's Office  
Cleveland, OH

**Jon E. Sprague, PhD**  
Center for the Future of Forensic Science  
Bowling Green State University  
Bowling Green, OH

**Erin C. Reed, JD**  
State of Ohio Board of Pharmacy  
Columbus, OH

**Stanton W. Wheasler, BS**  
Ohio Bureau of Criminal Investigation  
London, OH

**Program Description:** This workshop will highlight several forensic disciplines and their integrated response to the opioid epidemic in Ohio. Session topics will include a review of opioid deaths, the legal processes of drug scheduling on a state level, identification of fentanyl analogs in toxicology and drug chemistry casework, and pharmacophore definition and application in drug scheduling.

**Program:**

8:30 a.m. - 8:45 a.m.	Welcome and Overview <i>Douglas E. Rohde, MS; Eric S. Lavins, BS</i>
8:45 a.m. - 9:00 a.m.	U-47700 Identification in a Fatality <i>Douglas E. Rohde, MS</i>
9:00 a.m. - 10:00 a.m.	Emergency Scheduling of U-47700 <i>Erin C. Reed, JD</i>
10:00 a.m. - 10:15 a.m.	Fentanyl Analogs in Postmortem Examinations <i>Joseph A. Felo, DO</i>

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*(continued)*



## WORKSHOPS

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*Pre-Registration Required — \$100 w/registration; \$125 workshop only*

### #5 Ohio's Assertive Approach to Scheduling Opioids and Fentanyl Analogs

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**Program cont.:**

10:15 a.m. - 10:30 a.m.	Break
10:30 a.m. - 10:45 a.m.	Fentanyl Analogs in Toxicology Examinations <i>Eric S. Lavins, BS</i>
10:45 a.m. - 11:00 a.m.	Fentanyl Analogs in Drug Chemistry Examinations <i>Stanton W. Wheasler, BS</i>
11:00 a.m. - 12:00 p.m.	The Pharmacophore Rule for Fentanyl Analogs <i>Jon E. Sprague, PhD</i>
12:00 p.m. - 12:15 p.m.	Ohio's Continued Response <i>Erin C. Reed, JD</i>
12:15 p.m. - 12:30 p.m.	Questions and Answers <i>Douglas E. Rohde, MS; Eric S. Lavins, BS; Erin C. Reed, JD; Jon E. Sprague, PhD; Joseph A. Felo, DO</i>

**Targeted Audience:** Criminalistics, Jurisprudence, Pathology/Biology, Toxicology

**Knowledge Level Required:** Intermediate (some knowledge of subject presented)

**Expected Handout Length:** 85 Pages

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# WORKSHOPS



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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

## #6 Machine-Readable Technologies in Travel and Identity Documents

Monday, February 19, 2018

8:30 a.m. – 4:30 p.m.

6.25 CE Hours

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**Educational Objective(s):** After attending this presentation, attendees will understand how contemporary machine-readable technologies used in travel and identity documents function and the circumstances under which the encoded data can be accessed using software and/or hardware readers.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by describing novel travel and identity documents examination methods that revolve around document reader technology instead of microscopic and other conventional methods for the examination of questioned documents.

*Chair:*

**Linda L. Mitchell, BS**  
Forensic QDE Lab, LLC  
Escondido, CA

*Co-Chair:*

**Linton Mohammed, PhD**  
Forensic Science Consultants, Inc  
Burlingame, CA

*Faculty:*

**Joel A. Zlotnick, MSFS**  
United States Department of State  
Washington, DC

**Program Description:** Passports, visas, birth records, identity cards, and other identity and travel documents have been manufactured with a diverse array of machine-readable technologies that are capable of very different functions. These include optical character recognition fonts, machine-readable text zones, magnetic stripes, barcodes, optical strips, and both contact and contactless smart chips. Many machine-readable features can be decoded using inexpensive equipment ranging from small magnetic stripe readers to commercial barcode software to a variety of smartphone applications. The goals of this session are to describe the basics of machine-readable document technologies and to outline some straightforward methods for accessing machine-readable document features using low-cost techniques.

**Program:**

8:30 a.m. - 9:20 a.m.	Introduction and Magnetic Stripes <i>Joel A. Zlotnick, MSFS</i>
9:20 a.m. - 9:30 a.m.	Break
9:30 a.m. - 10:20 a.m.	Barcodes and Optical Stripes <i>Joel A. Zlotnick, MSFS</i>
10:20 a.m. - 10:30 a.m.	Break
10:30 a.m. - 11:30 a.m.	Smart Cards and Radio Frequency Identification <i>Joel A. Zlotnick, MSFS</i>
11:30 a.m. - 12:30 p.m.	Lunch

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# WORKSHOPS

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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

## #6 Machine-Readable Technologies in Travel and Identity Documents

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**Program cont.:**

12:30 p.m. - 1:20 p.m.	The Technical Evolution of Passports <i>Joel A. Zlotnick, MSFS</i>
1:20 p.m. - 1:30 p.m.	Break
1:30 p.m. - 2:20 p.m.	Public Key Cryptography and Electronic Security <i>Joel A. Zlotnick, MSFS</i>
2:20 p.m. - 2:30 p.m.	Break
2:30 p.m. - 3:20 p.m.	REAL ID, Enhanced Driver's Licenses, and Trusted Traveler Program Cards <i>Joel A. Zlotnick, MSFS</i>
3:20 p.m. - 3:30 p.m.	Break
3:30 p.m. - 4:30 p.m.	International Cards, e-Government, and Course Summary <i>Joel A. Zlotnick, MSFS</i>

**Targeted Audience:** Questioned Documents

**Knowledge Level Required:** Basic (little to no knowledge of subject presented)

**Expected Handout Length:** 100 Pages

*Limited to AAFS members until January 15, 2018.*

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# WORKSHOPS



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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

## #7 Data Standards, Archiving, and Analytics in Forensic Anthropology

**Monday, February 19, 2018**

**8:30 a.m. – 5:00 p.m.**

**7.25 CE Hours**

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**Educational Objective(s):** After attending this presentation, attendees will understand the benefits of a unified data architecture and ontology of forensic anthropology data, which enables the development and implementation of software applications for data analytics. Attendees of this session will join a community of users and will gain access to open source software for recording and managing biometric data in forensic anthropology.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by providing access to an ecosystem of software applications for forensic anthropology that facilitates casework analyses. Casework efficiencies are realized through a common ontology, enabling data sharing and opportunities for new methods. The ecosystem of applications is based on open source software that fosters collaboration and community engagement via appropriate interfaces and Application Programming Interfaces (APIs).

*Chair:*

**Franklin E. Damann, PhD**

Defense POW/MIA Accounting Agency  
Central Identification Laboratory  
Offutt AFB, NE

*Co-Chair:*

**Nicholas P. Herrmann, PhD**

Texas State University  
Department of Anthropology  
San Marcos, TX

*Faculty:*

**Felix Engel, MA**

Albert Ludwigs University Freiburg  
Freiburg, GERMANY

**Sachin Pawaskar, PhD**

University of Nebraska Omaha  
Omaha, NE

**Alexandria Frye, MA**

San Marcos, TX

**Stefan Schlager, PhD**

Albert Ludwigs University Freiburg  
Freiburg, GERMANY

**Jeffrey James Lynch, MSc**

Omaha, NE

**Stephen D. Ousley, PhD**

Mercyhurst University  
Department of Anthropology/Archaeology  
Erie, PA

**Carl M. Stephan, PhD**

The University of Queensland  
School of Biomedical Sciences  
Saint Lucia, AUSTRALIA

**Program Description:** Presentations of a unified data architecture and ontology for recording and managing biometric data in forensic anthropology will be presented in this session.

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*(continued)*



# WORKSHOPS

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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

## #7 Data Standards, Archiving, and Analytics in Forensic Anthropology

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**Program:**

8:30 a.m. - 9:45 a.m.	Information Management, Project Pipelines, and the Commingled Remains and Analytics Platform <i>Sachin Pawaskar, PhD</i>
9:45 a.m. - 10:00 a.m.	Break
10:00 a.m. - 11:30 a.m.	Knowledge Management and Ontology of Forensic Anthropology Research Data From Texas State <i>Felix Engel, MA; Stefan Schlager, PhD</i>
11:30 a.m. - 12:30 p.m.	Hands-On Exercise: The R-Programming Environment and Its Application to Biometric Data and Analytics in Forensic Anthropology <i>Sachin Pawaskar, PhD; Carl N. Stephan, PhD</i>
12:30 p.m. - 1:30 p.m.	Lunch
1:30 p.m. - 2:00 p.m.	Skelet-O Matic: A Macro-Enabled Inventory Application <i>Carl N. Stephan, PhD</i>
2:00 p.m. - 3:00 p.m.	Osteosort: Lecture, Demonstration, and Hands-On Tutorial <i>Jeffrey James Lynch, MSc</i>
3:00 p.m. - 3:15 p.m.	Break
3:15 p.m. - 4:15 p.m.	FORDISC® Updates and Demonstration <i>Stephen D. Ousley, PhD</i>
4:15 p.m. - 5:00 p.m.	TDStats for Automating Facial Soft Tissue Thickness Analysis <i>Carl N. Stephan, PhD</i>

**Targeted Audience:** Anthropology, General, Odontology, Pathology/Biology

**Knowledge Level Required:** Basic (little to no knowledge of subject presented)

**Expected Handout Length:** 50 Pages

**Restricted Audience Size:** 40

*Attendees should bring their own laptop or tablet for participation in the workshop.*

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# WORKSHOPS



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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

## #8 Innovative Teaching With Active Learning Methods — Implementation in Forensic Science Education

**Monday, February 19, 2018**

**8:30 a.m. – 5:00 p.m.**

**6.5 CE Hours**

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**Educational Objective(s):** After attending this presentation, attendees will be able to: (1) describe general principles of learning, including examples related directly to scientific disciplines; (2) identify and describe a variety of active learning methods; (3) distinguish between active and non-active learning methods; (4) cite examples of useful teaching methods dependent on the environment; (5) evaluate innovative teaching styles that could be incorporated into their classroom; and, (6) generate lesson plans that could be integrated into their classroom.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by exploring a variety of teaching strategies to gain insight into a broader scope of active learning methods useful in forensic science teaching. Attendees will learn how these teaching methods can help forensic science instructors adapt their lesson plans to rapidly changing learning environments. By discussing multiple learning techniques and the application of teaching methods in forensic science education, attendees will be able to incorporate new tools into their forensic science classroom.

*Chair:*

**Amy N. Brodeur, MFS**  
Boston University School of Medicine  
Biomedical Forensic Sciences  
Boston, MA

*Co-Chair:*

**Matthew R. Wood, PhD**  
Ocean County Sheriff's Department  
Forensic Science Laboratory  
Toms River, NJ

*Faculty:*

**Adrienne L. Brundage, PhD**  
Bryan, TX

**Caitlin E. Porterfield, MS**  
Forensic Science Institute  
University of Central Oklahoma  
Edmond, OK

**Sandra Haddad, PhD**  
Bay Path University  
Longmeadow, MA

**Catherine G. Rushton, EdD**  
Marshall University Forensic Science Program  
Huntington, WV

**Gina Londino-Smolar, MS**  
Indiana University – Purdue University Indianapolis  
Indianapolis, IN

**John A. Williams, PhD**  
Western Carolina University  
Department of Anthropology and Sociology  
Cullowhee, NC

**Mark R. McCoy, EdD**  
University of Central Oklahoma  
Forensic Science Institute  
Edmond, OK

**Mark Windschitl, PhD**  
University of Washington  
Seattle, WA

**Program Description:** Many instructors still teach the way they were taught — lecture and test — without realizing that more active learning methods exist. This session, organized jointly by the Council of Forensic Science Educators (COFSE) and the Forensic Science Education Programs Accreditation Commission (FEPAC), will explore innovative teaching strategies currently being used in science education.

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*(continued)*





# WORKSHOPS

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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

## #8 Innovative Teaching With Active Learning Methods — Implementation in Forensic Science Education

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### Program Description cont.:

The active learning methods presented are applicable to undergraduate and graduate-level forensic science programs, educational workshops for forensic science practitioners, and forensic laboratory trainees. Active learning methods improve a student's critical thinking skills, problem-solving abilities, and long-term retention of the material. Such methods include flipped classroom techniques, large lecture teaching methods, service-based learning, gamed-based learning, direct experimentation, and a writing-based approach to scientific learning. Each discussion will include actual classroom examples of how the teaching method is implemented within the forensic curriculum and how to apply the teaching methods to any discipline.

### Program:

8:30 a.m. - 8:40 a.m.	Welcome and Introduction <i>Amy N. Brodeur, MFS</i>
8:40 a.m. - 9:35 a.m.	Principles of Learning <i>Mark Windschitl, PhD</i>
9:35 a.m. - 10:30 a.m.	Flipped Classroom <i>Sandra Haddad, PhD</i>
10:30 a.m. - 10:45 a.m.	Break
10:45 a.m. - 11:40 a.m.	Large Lecturing Teaching <i>Gina Londino-Smolar, MS</i>
11:40 a.m. - 1:00 p.m.	Lunch
1:00 p.m. - 1:55 p.m.	Service-Based Learning <i>Mark R. McCoy, EdD; Caitlin E. Porterfield, MS</i>
1:55 p.m. - 2:50 p.m.	Game-Based Learning <i>Catherine G. Rushton, EdD</i>
2:50 p.m. - 3:00 p.m.	Break
3:00 p.m. - 3:55 p.m.	Directed Experimentation <i>John A. Williams, PhD</i>
3:55 p.m. - 4:50 p.m.	A Writing-Based Approach <i>Adrienne L. Brundage, PhD</i>
4:50 p.m. - 5:00 p.m.	Closing Remarks <i>Matthew R. Wood, PhD</i>

**Targeted Audience:** All Disciplines

**Knowledge Level Required:** Basic (little to no knowledge of subject presented)

**Expected Handout Length:** 100 Pages

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# WORKSHOPS



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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

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## #9 Putting the Expert on Trial

Monday, February 19, 2018

8:30 a.m. – 5:00 p.m.

6.75 CE Hours

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**Educational Objective(s):** After attending this presentation, attendees will: (1) recognize and understand the significance of various pediatric injuries; (2) understand the process of discerning inflicted from accidental injuries causing death; (3) appreciate the effective use of consultants in certain pediatric deaths; (4) realize the potential legal risks of providing opinions as practitioners and consultants; and, (5) be informed about appropriate practices to follow in the event of subsequent allegations of improperly practicing the forensic sciences and providing opinions.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by clarifying the recognition and significance of various pediatric injuries, improving the determination of inflicted from accidental injuries, and preparing practitioners and experts for potential litigation against them for providing their opinions.

*Chair:*

**Joyce L. deJong, DO**

Western Michigan University  
Homer Stryker MD School of Medicine  
Department of Pathology  
Kalamazoo, MI

*Co-Chair:*

**Rudy J. Castellani, MD**

Center for Neuropathology  
Kalamazoo, MI

*Faculty:*

**Carl J. Schmidt, MD**

Wayne County MEO  
University of Michigan  
Detroit, MI

**Michael L. VanErp, JD**

Johnson & Wyngaarden, PC  
Okemos, MI

**Program Description:** Through the thorough analysis of the traumatic death of a child, this session will provide a review of common injuries in fatal child abuse, the determination of inflicted injuries, the effective use of consultants, and recommendations for the provision of informal and formal opinions to the legal and law enforcement community. Using the same case, this session will provide a careful analysis of subsequent litigation against the experts who formulated and provided their opinions, when the accused filed a civil lawsuit against these experts after authorities dropped the criminal charges.

**Program:**

8:30 a.m. - 8:45 a.m.	Welcome and Introductions <i>Joyce L. deJong, DO</i>
8:45 a.m. - 9:45 a.m.	Pediatric Death: The Investigation and Autopsy <i>Joyce L. deJong, DO</i>
9:45 a.m. - 10:45 a.m.	Neuropathology and Ocular Pathology Findings: The Current Case and a Review of Inflicted Pediatric Head and Eye Trauma <i>Rudy J. Castellani, MD</i>
10:45 a.m. - 11:00 a.m.	Break

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*(continued)*



# WORKSHOPS

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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

## #9 Putting the Expert on Trial

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**Program cont.:**

11:00 a.m. - 12:00 p.m.	Inflicted Injuries: Features of Inflicted Injuries, Determination of Manner of Death, and Injury Timing <i>Carl J. Schmidt, MD</i>
12:00 p.m. - 1:00 p.m.	Lunch
1:00 p.m. - 2:00 p.m.	Events: Opinions, Conversations, Emails, Preliminary Testimony, <i>Daubert</i> Hearing, Consultants, Depositions, Department of Human Services (DHS) Hearing, and Decisions to Dismiss <i>Joyce L. deJong, DO; Rudy J. Castellani, MD; Carl J. Schmidt, MD</i>
2:00 p.m. - 3:00 p.m.	A Civil Lawsuit Against the Physicians: A Complaint in the United States District Court for the Western District of Michigan, Initial Disclosure of Information, Fact Witness Depositions, Expert Consults, Expert Depositions, and Motion for Dismissal <i>Michael L. VanErp, JD</i>
3:00 p.m. - 3:15 p.m.	Break
3:15 p.m. - 4:15 p.m.	Lessons Learned: Appropriated Practices to Avoid Being Sued and Guidance on How to Proceed if You Are <i>Michael L. VanErp, JD</i>
4:15 p.m. - 5:00 p.m.	Questions and Answers <i>Joyce L. deJong, DO; Rudy J. Castellani, MD; Carl J. Schmidt, MD; Michael L. VanErp, JD</i>

**Targeted Audience:** Anthropology, Criminalistics, Engineering Sciences, General, Jurisprudence, Odontology, Pathology/Biology, Psychiatry & Behavioral Science, Toxicology

**Knowledge Level Required:** Basic (little to no knowledge of subject presented)

**Expected Handout Length:** 30 Pages

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# WORKSHOPS



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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

## #10 A Multidisciplinary Approach to Dogfighting Cases

**Monday, February 19, 2018**

**8:30 a.m. – 5:20 p.m.**

**7.25 CE Hours**

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**Educational Objective(s):** After attending this presentation, attendees will: (1) possess a basic understanding of dogfighting within the United States, including the breeds of dogs utilized, housing, breeding, training and conditioning of dogs, the rules and procedures of a fight, and recognition of paraphernalia associated with this crime; (2) be familiar with investigative techniques specific to dogfighting; (3) recognize the unique aspects of dogfighting crime scenes; (4) understand evidence analyses typically associated with dogfighting case work; (5) recognize the pattern of injury and animal behavior consistent with dogs utilized in organized dogfighting; (6) understand the link between dogfighting and other violent crimes; and, (7) better understand major legal issues in dogfighting investigations and prosecutions.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by enabling recognition of this clandestine crime and elucidating the most current research and techniques utilized when investigating and prosecuting dogfighting. Additionally, this presentation will illustrate the benefits of a multidisciplinary approach for the most favorable outcome to dogfighting criminal cases.

*Chair:*

**Rachel Touroo, DVM**  
Gainesville, FL

*Co-Chair:*

**Amanda Fitch, MS**  
American Society for Prevention of Cruelty to Animals  
Gainesville, FL

*Faculty:*

**Jennifer Chin, JD**  
American Society for Prevention of Cruelty to Animals  
New York, NY

**Terry Mills**  
American Society for Prevention of Cruelty to Animals  
New York, NY

**Randall Lockwood, PhD**  
American Society for Prevention of Cruelty to Animals  
Falls Church, VA

**Pamela Reid, PhD**  
American Society for Prevention of Cruelty to Animals  
New York, NY

**Program Description:** This session will enable participants to: (1) recognize the clandestine crime of dogfighting; (2) highlight the most current research and techniques utilized in investigating and prosecuting this crime; and, (3) illustrate the benefits of a multidisciplinary approach.

**Program:**

8:30 a.m. - 9:30 a.m.	Introduction to Dogfighting and Investigative Techniques <i>Terry Mills</i>
9:30 a.m. - 10:00 a.m.	Dogfighting Paraphernalia <i>Randall Lockwood, PhD; Terry Mills</i>
10:00 a.m. - 10:15 a.m.	Break
10:15 a.m. - 11:35 a.m.	Documentation and Evidence Analyses for Dogfighting Crime Scenes <i>Amanda Fitch, MS</i>

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*(continued)*



# WORKSHOPS

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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

## **#10 A Multidisciplinary Approach to Dogfighting Cases**

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**Program cont.:**

11:35 a.m. - 12:05 p.m.	The Role of the Forensic Veterinarian and Behaviorist on Scene <i>Rachel Touroo, DVM; Pamela Reid, PhD</i>
12:05 p.m. - 1:05 p.m.	Lunch
1:05 p.m. - 2:05 p.m.	Veterinary Forensic Medical Examination of Fighting Dogs <i>Rachel Touroo, DVM</i>
2:05 p.m. - 3:05 p.m.	Forensic Behavioral Evaluation of Fighting Dogs <i>Pamela Reid, PhD</i>
3:05 p.m. - 3:20 p.m.	Break
3:20 p.m. - 4:20 p.m.	Dogfighting Investigations and Prosecutions: Legal Perspectives <i>Jennifer Chin, JD</i>
4:20 p.m. - 5:20 p.m.	Federal Bureau of Investigation (FBI) Tracking of Organized Animal Abuse and the LINK <i>Randall Lockwood, PhD</i>

**Targeted Audience:** General, Jurisprudence, Pathology/Biology, Psychiatry & Behavioral Science

**Knowledge Level Required:** Basic (little or no knowledge of subject presented)

**Expected Handout Length:** 150 Pages

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# WORKSHOPS



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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

## #11 Some Like It Hot: A Forensic Analysis of Burnt Remains

Monday, February 19, 2018

8:30 a.m. – 5:45 p.m.

7.5 CE Hours

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**Educational Objective(s):** After attending this presentation, attendees will: (1) be introduced to fire scene investigation involving burnt human remains and their recovery; (2) recognize the micro- and macroscopical changes undergone by the body, skeletal, and dental hard tissues when subjected to fire; (3) understand the different techniques, approaches, and challenges for the identification of burnt human remains, including the practical issues; (4) learn what additional information about the incineration event can be gained through burnt bone analysis; and, (5) gain insights through the discussion of forensic casework.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community through the presentation of multidisciplinary and innovative approaches to tackle complex cases of burnt human remains with a more holistic approach to not only facilitate the identification of remains, but to also glean insight into the reconstruction of the incineration conditions.

*Chair:*

**Sara C. Zapico, PhD**

Florida International University  
Department of Chemistry and Biochemistry  
Miami, FL

*Co-Chair:*

**Sarah Ellingham, PhD**

International Committee of the Red Cross  
Baghdad Delegation  
Baghdad, IRAQ

*Faculty:*

**Joe Adserias-Garriga, DDS, PhD**

Barcelona, SPAIN

**Steven A. Symes, PhD**

Mississippi Medical Examiner's Office  
Crime Laboratory  
Pearl, MS

**John Berketa, PhD**

University of Adelaide  
Norwood, AUSTRALIA

**Douglas H. Ubelaker, PhD**

Smithsonian Institution  
Department of Anthropology  
Washington, DC

**Ericka N. L'Abbe, PhD**

University of Pretoria  
Pretoria, SOUTH AFRICA

**Christopher W. Schmidt, PhD**

University of Indianapolis  
Department of Anthropology  
Indianapolis, IN

**Program Description:** This workshop will illustrate the multidisciplinary process of identification of burnt remains and fire scene reconstruction. This will be explained from the recovery of burnt human remains from the scene as well as the analysis of these remains at different levels: macroscopic, microscopic/biochemical, and genetic in order to facilitate the identification of the victims by applying anthropological, odontological, and genetic techniques to finally illustrate the discussed approach and challenges through practical case studies.

**Program:**

8:30 a.m. - 8:45 a.m.

Welcome and Introduction

*Sara C. Zapico, PhD; Sarah Ellingham, PhD; Joe Adserias-Garriga, DDS, PhD*

8:45 a.m. - 9:45 a.m.

Biochemical and Structural Changes to the Bone Matrix When Exposed to Fire

*Sarah Ellingham, PhD*

*(continued)*

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# WORKSHOPS

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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

## #11 Some Like It Hot: A Forensic Analysis of Burnt Remains

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**Program cont.:**

9:45 a.m. - 10:00 a.m.	Break
10:00 a.m. - 11:00 a.m.	Practical Aspects in the Recovery of Burnt Human Remains From the Fire Scene to Maximize Postmortem Information <i>John Berketa, PhD</i>
11:00 a.m. - 11:45 a.m.	Forensic Analysis of Incinerated Bones and Teeth <i>Joe Adserias-Garriga, DDS, PhD</i>
11:45 a.m. - 12:45 p.m.	Lunch
12:45 p.m. - 2:45 p.m.	Fleshed, Wet, and Dry Burn Patterns to Bone <i>Steven A. Symes, PhD; Ericka N. L'Abbe, PhD; Christopher W. Schmidt, PhD</i>
2:45 p.m. - 3:00 p.m.	Break
3:00 p.m. - 3:45 p.m.	Using Analytical Techniques to Determine the Exposure Temperature From Burnt Bone <i>Sarah Ellingham, PhD</i>
3:45 p.m. - 4:30 p.m.	Genetic Analysis of Burnt Human Remains: Issues, Challenges, and Approaches <i>Sara C. Zapico, PhD</i>
4:30 p.m. - 5:30 p.m.	Analysis of Burnt Remains: Case Applications <i>Douglas H. Ubelaker, PhD</i>
5:30 p.m. - 5:45 p.m.	Closing Remarks <i>Sara C. Zapico, PhD; Sarah Ellingham, PhD; Joe Adserias-Garriga, DDS, PhD; Douglas H. Ubelaker, PhD; John Berketa, PhD; Steven A. Symes, PhD; Ericka N. L'Abbe, PhD; Christopher W. Schmidt, PhD</i>

**Targeted Audience:** Anthropology, Criminalistics, Odontology, Pathology/Biology

**Knowledge Level Required:** Intermediate (some knowledge of subject presented)

**Expected Handout Length:** 50 Pages

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# WORKSHOPS



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*Pre-Registration Required — \$150 w/registration; \$175 workshop only*

## #12 Eric Zimmerman's Open Source Forensic Tools Library

Monday, February 19, 2018

1:00 p.m. – 4:00 p.m.

2.0 CE Hours

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**Educational Objective(s):** After participating in this workshop, attendees will better understand the challenges facing digital forensic software developers to both design and maintain open source tools and will understand how to prepare and use an open source digital forensic toolkit to conduct examinations. Attendees will better understand the relative advantages of commercial forensic packages and open source tools and where they can be used in concert to impact the work of digital forensic examiners. Those attending will learn the specific capabilities and methods of use of one of the most well-known open source libraries of digital forensic software. Issues vital to those who would develop and maintain forensic software, such as architecting through plugins to evolve functionality as opposed to monolithic executables, will be discussed as well as how that architecture can allow forensic examiners to expand the tools' capabilities by developing plugins to meet their particular casework needs and challenges. Finally, this session will help forensic examiners better understand how growing complexity and evidence volumes are making the ability to perform triage and focus on those elements most likely to be relevant to the investigation. This session will help the forensic community understand the balance between thoroughness and timeliness that is the hallmark of real-world cases that our examiner community faces every day.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by demonstrating that freely available, open source forensic tools and forensic libraries can help both public and private sector organizations.

*Chair:*

**Alan E. Brill, MBA**  
Kroll Cyber Security  
Secaucus, NJ

*Co-Chair:*

**Marla E. Carroll, BS**  
Forensic Video & Audio Associates, Inc.  
Plantation, FL

*Faculty:*

**Eric Zimmerman, BS**  
Kroll Associates, Inc.  
New York, NY

**Program Description:** This workshop will be presented in two parts. The first part will be discussion of the challenges facing examiners and the need to strike a balance between thoroughness and timeliness, and how open source software may be key in improving our ability to conduct investigative triage in the real world of personnel and financial limitations on examiners and their organizations. The second part of the session will focus on a toolset that participants and their organizations can investigate and use (at no cost) to improve their ability to meet their investigative objectives.

**Program:**

1:00 p.m. - 1:30 p.m.	Introduction <i>Alan E. Brill, MBA</i>
1:30 p.m. - 2:00 p.m.	Introduction to the Toolset, Setup, and General Principles of Use <i>Alan E. Brill, MBA; Eric Zimmerman, BS</i>
2:00 p.m. - 2:30 p.m.	Demonstrations of the Toolset Elements: Part 1 <i>Alan E. Brill, MBA; Eric Zimmerman, BS</i>
2:30 p.m. - 3:00 p.m.	Break

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# WORKSHOPS

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*Pre-Registration Required — \$150 w/registration; \$175 workshop only*

## #12 Eric Zimmerman's Open Source Forensic Tools Library

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**Program cont.:**

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|-----------------------|--|
| 3:00 p.m. - 3:30 p.m. | Demonstrations of the Toolset Elements: Part 2<br><i>Alan E. Brill, MBA; Eric Zimmerman, BS</i>              |
| 3:30 p.m. - 4:00 p.m. | Using the Tools on Participant-Provided Data and Discussion<br><i>Alan E. Brill, MBA; Eric Zimmerman, BS</i> |

**Targeted Audience:** Digital & Multimedia Sciences, General, Jurisprudence

**Knowledge Level Required:** Intermediate (some knowledge of subject presented)

**Expected Handout Length:** 20 Pages

*Participants are encouraged to bring sample drives to discuss and in some cases (depending on time) evaluate using the tools.*

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# WORKSHOPS



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*Pre-Registration Required — \$100 w/registration; \$125 workshop only*

## #13 Moving From the Combined Probability of Inclusion (CPI) to Probabilistic Genotyping for DNA Mixture Interpretation

Monday, February 19, 2018

1:00 p.m. – 6:00 p.m.

4.5 CE Hours

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**Educational Objective(s):** After attending this presentation, attendees will understand the current limitations of interpreting DNA mixtures using “binary” approaches in which alleles are either “included” or “excluded” from analysis. Attendees will develop an understanding and overview of probabilistic approaches that consider missing data (allele drop-out) or spurious alleles (allele drop-in) to interpret DNA profiles.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by providing an overview of the limitations of current statistical approaches and promises for the future of DNA mixture interpretation for forensic DNA analysts, DNA technical leaders, laboratory directors, prosecutors, defense attorneys, and judges.

*Chair:*

**Michael D. Coble, PhD**

National Institute of Standards and Technology  
Gaithersburg, MD

*Co-Chair:*

**Daniele S. Podini, PhD**

Department of Forensic Science  
Washington, DC

**Program Description:** This session will provide information about the limitations of the current methods of DNA mixture interpretation and introduce probabilistic approaches to mixture interpretation. The targeted audience for this session is the laboratory that has not yet committed to a mixture software program, but would like to have an introduction to improve their knowledge base.

### Program:

1:00 p.m.	-	1:10 p.m.	Introduction and Welcome <i>Michael D. Coble, PhD; Daniele S. Podini, PhD</i>
1:10 p.m.	-	2:00 p.m.	Probability Review and Bayes' Theorem <i>Michael D. Coble, PhD</i>
2:00 p.m.	-	3:00 p.m.	The Likelihood Ratio (LR) and Setting Proposition <i>Michael D. Coble, PhD</i>
3:00 p.m.	-	3:20 p.m.	Break
3:20 p.m.	-	4:30 p.m.	Hands-On Exercise With LR Calculations <i>Michael D. Coble, PhD; Daniele S. Podini, PhD</i>
4:30 p.m.	-	5:00 p.m.	Limitations of Current DNA Mixture Statistics <i>Michael D. Coble, PhD</i>
5:00 p.m.	-	5:45 p.m.	Probabilistic Genotyping <i>Michael D. Coble, PhD</i>
5:45 p.m.	-	6:00 p.m.	Questions and Discussions <i>Michael D. Coble, PhD; Daniele S. Podini, PhD</i>

**Targeted Audience:** Criminalistics, Jurisprudence

**Knowledge Level Required:** Intermediate (some knowledge of subject presented)

**Expected Handout Length:** 125 Pages

**Restricted Audience Size:** 125

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# WORKSHOPS

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*Pre-Registration Required — \$125 w/registration; \$150 workshop only*

## #14 Pharmacogenomics — Uses in Forensic and Clinical Toxicology

Monday, February 19, 2018

1:00 p.m. – 6:05 p.m.

4.75 CE Hours

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**Educational Objective(s):** After attending this presentation, attendees will be able to develop effective approaches for the development and validation of genetic assays for drug monitoring applications, identify the benefits associated with pharmacogenetic testing and understand their relevance to the practice of medicine, and utilize toxicology and pharmacogenetic test results in conjunction with other case histories for decisions regarding cause- and manner-of-death determinations.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by illustrating the benefits and utility of pharmacogenetic testing. Case studies will be provided to assist attendees with the interpretation of toxicology and pharmacogenetic test results and explain how these findings can impact death investigation outcomes.

*Chair:*

**Laura M. Labay, PhD**  
NMS Labs  
Willow Grove, PA

*Co-Chair*

**William H. Anderson, PhD**  
NMS Labs  
Willow Grove, PA

*Faculty:*

**Wendy R. Adams, PhD**  
NMS Labs  
Willow Grove, PA

**Gwendolyn McMillin, PhD**  
ARUP Laboratories, Inc  
Salt Lake City, UT

**Jeffrey M. Jentzen, MD**  
University of Michigan  
Ann Arbor, MI

**Alan H. Wu, PhD**  
San Francisco General Hospital  
San Francisco, CA

**Jorge McCormack, MD**  
Pediatric Cardiology Associates  
Mednax Medical Group  
St. Petersburg, FL

**Program Description:** The purpose of this session is to familiarize participants with the study of pharmacogenomics and to cultivate knowledge regarding how genes affect an individual's response to drugs. It is challenging to predict who will benefit from a medication, who will not respond at all, and who will experience adverse drug reactions. Speakers will detail the development and utility of predictive tests, address how genetic makeup influences drug metabolism, disease states and their progression, and describe how test results can have implications for cause- and manner-of-death determinations.

**Program:**

1:00 p.m. - 1:40 p.m.	Introduction to Genetics, Pharmacogenetics, and Pharmacogenomics <i>Laura M. Labay, PhD</i>
1:40 p.m. - 2:30 p.m.	Pharmacogenetic Testing and Development of Predictive Tests for Drug Testing <i>Gwendolyn McMillin, PhD</i>
2:30 p.m. - 2:45 p.m.	Break

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*(continued)*

# WORKSHOPS



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*Pre-Registration Required — \$125 w/registration; \$150 workshop only*

## #14 Pharmacogenomics — Uses in Forensic and Clinical Toxicology

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2:45 p.m. - 3:35 p.m.	Genetics of Drug Metabolism and Drug-Drug Interactions <i>Wendy R. Adams, PhD</i>
3:35 p.m. - 4:25 p.m.	Genetics of Medical Complications and Disease <i>Jorge McCormack, MD</i>
4:25 p.m. - 5:15 p.m.	Personalized and Predictive Medicine <i>Alan H. Wu, PhD</i>
5:15 p.m. - 6:05 p.m.	Implications for Cause- and Manner-of-Death Determinations <i>Jeffrey M. Jentzen, MD</i>

**Targeted Audience:** Pathology/Biology, Toxicology

**Knowledge Level Required:** Basic (little to no knowledge of subject presented)

**Expected Handout Length:** 120

**Restricted Audience Size:** 150

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# WORKSHOPS

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*Pre-Registration Required — \$100 w/registration; \$125 workshop only*

## #15 Postmortem Monocular Indirect Ophthalmoscopy (PMIO)

Tuesday, February 20, 2018

8:30 a.m. – 12:30 p.m.

3.75 CE Hours

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**Educational Objective(s):** After attending this presentation, attendees will be able to: (1) differentiate between direct and indirect ophthalmoscopy, noting advantages and limitations of each technique for the postmortem detection of retinal hemorrhages; (2) discuss the fundal location of retinal hemorrhages relative to their projected aerial image during monocular indirect ophthalmoscopy; and, (3) accurately draw retinal abnormalities observed during monocular indirect ophthalmoscopy on a fundal diagram and capture the projected aerial image with a smartphone.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by providing an overview of PMIO, promoting skill acquisition, evaluating practical training, and facilitating imaging techniques with fundal diagrams and a smartphone.

*Chair:*

**Patrick E. Lantz, MD**

Wake Forest University School of Medicine  
Department of Pathology  
Winston-Salem, NC

*Co-Chair:*

**Candace H. Schoppe, MD**

Southwestern Institute of Forensic Sciences  
Dallas, TX

**Program Description:** PMIO permits examination of the decedent's posterior fundus and portions of the peripheral retina without relying on ocular enucleation. The required equipment necessary for PMIO is relatively inexpensive. PMIO readily detects retinal hemorrhages and folds using a focal light source and an aspheric, convex condensing lens.

Learning how to perform and become proficient at PMIO can be perplexing and intimidating. Most pathology residents and forensic pathology fellows have limited exposure to indirect ophthalmoscopy. This hands-on session will facilitate the learning of PMIO: positioning the light source, correctly holding the indirect lens, and recording fundal abnormalities by drawing on fundal diagrams or image capture with a smartphone.

**Program:**

8:30 a.m. - 8:35 a.m.	Welcome <i>Patrick E. Lantz, MD</i>
8:35 a.m. - 9:05 a.m.	PMIO Introduction <i>Patrick E. Lantz, MD</i>
9:05 a.m. - 9:25 a.m.	A Demonstration of PMIO Using a Headlamp and Smartphone <i>Candace H. Schoppe, MD</i>
9:25 a.m. - 10:25 a.m.	PMIO Hands-On Training <i>Patrick E. Lantz, MD; Candace H. Schoppe, MD</i>
10:25 a.m. - 10:40 a.m.	Break
10:40 a.m. - 12:10 p.m.	PMIO Hands-On Training <i>Patrick E. Lantz, MD; Candace H. Schoppe, MD</i>

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*(continued)*

# WORKSHOPS



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*Pre-Registration Required — \$100 w/registration; \$125 workshop only*

## **#15 Postmortem Monocular Indirect Ophthalmoscopy (PMIO)**

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12:10 p.m. - 12:25 p.m.      Optical PMIO Self-Assessment  
*Patrick E. Lantz, MD; Candace H. Schoppe, MD*

12:25 p.m. - 12:30 p.m.      PMIO Summary and Attendee Feedback  
*Patrick E. Lantz, MD; Candace H. Schoppe, MD*

**Targeted Audience:** Pathology/Biology

**Knowledge Level Required:** Intermediate (some knowledge of subject presented)

**Expected Handout Length:** 25 pages

**Restricted Audience Size:** 32

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# WORKSHOPS

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*Pre-Registration Required — \$150 w/registration; \$175 workshop only*

## #16 Forensic Image Processing

Tuesday, February 20, 2018

8:30 a.m. – 12:45 p.m.

4.0 CE Hours

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**Educational Objective(s):** The goal of this presentation is to provide a working knowledge of forensic image processing to enable an analyst to apply the optimum image processing algorithms to surveillance video and digital photography.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by providing basic forensic image processing skills for the analyst. Surveillance video is nearly ubiquitous and a successful analyst is one who is familiar with forensic image processing and how to use it.

*Chair:*

**Richard Vorder Bruegge, PhD**  
Federal Bureau of Investigation  
Operational Technology Division  
Quantico, VA

*Co-Chair:*

**Zeno J. Geradts, PhD**  
Netherlands Forensic Institute  
Den Haag, NETHERLANDS

*Faculty:*

**Marcus Borengasser, PhD**  
United States Department of Defense  
Melbourne, FL

**Kathleen L. Rettich, MS**  
Melbourne, FL

**Program Description:** This half-day workshop will cover the theory and implementation of forensic image processing by providing an introduction to forensic image processing concepts and application through a series of presentations and exercises. A series of lectures will present processing and enhancement algorithms that can be applied to surveillance video and digital photography. Concepts will be explored via “hands-on” exercises after each lecture. Students can bring laptop computers with open source image processing software already installed or they can contact the instructor for open source software recommendations. Prior knowledge of image processing is not required.

### Program:

8:30 a.m. - 9:05 a.m.	Forensic Image Processing Concepts <i>Marcus Borengasser, PhD</i>
9:05 a.m. - 9:25 a.m.	Hands-On Exercise <i>Marcus Borengasser, PhD</i>
9:25 a.m. - 10:00 a.m.	An Introduction to Digital Filters <i>Marcus Borengasser, PhD</i>
10:00 a.m. - 10:20 a.m.	Hands-On Exercise <i>Marcus Borengasser, PhD</i>
10:20 a.m. - 10:35 a.m.	Break

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*(continued)*

# WORKSHOPS



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*Pre-Registration Required — \$150 w/registration; \$175 workshop only*

## #16 Forensic Image Processing

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10:35 a.m. - 11:10 a.m.	Histogram Analysis <i>Marcus Borengasser, PhD</i>
11:10 a.m. - 11:30 a.m.	Hands-On Exercise <i>Marcus Borengasser, PhD</i>
11:30 a.m. - 12:05 p.m.	Feature Extraction <i>Marcus Borengasser, PhD</i>
12:05 p.m. - 12:25 p.m.	Hands-On Exercise <i>Marcus Borengasser, PhD</i>
12:25 p.m. - 12:45 p.m.	Questions and Answers <i>Marcus Borengasser, PhD</i>

**Targeted Audience:** Criminalistics, Digital & Multimedia Sciences, Engineering Sciences, General

**Knowledge Level Required:** Basic (little to no knowledge of subject presented)

**Expected Handout Length:** 16 Pages

*Participants can bring laptop computers with open source image processing software already installed or they can contact the instructor for open source software recommendations. Prior knowledge of image processing is not required*

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## WORKSHOPS

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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

### #17 An Introduction to Lean Fundamentals and Six Sigma Operational Improvement

Tuesday, February 20, 2018

8:30 a.m. – 4:30 p.m.

6.0 CE Hours

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**Educational Objective(s):** After attending this presentation, attendees will better understand the common tools and techniques used in a Lean Six Sigma (LSS) project to increase productivity and efficiency of the laboratory without increasing employees or purchasing new equipment or software.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by introducing participants to a logical, step-wise procedure to greatly improve the understanding (through actual data collection) of the current laboratory system and to provide a structured method to eliminate waste and make improvements for a more efficient and effective laboratory process.

*Chair:*

**Joanie Brocato, PhD**  
Baton Rouge, LA

*Co-Chair:*

**Linda Razzano, MS**  
Department of Forensic Biology  
New York, NY

*Faculty:*

**Timothy D. Kupferschmid, MFS, MBA**  
Office of the Chief Medical Examiner  
New York, NY

**Program Description:** Attendance at this full-day workshop will introduce the participants to the LSS philosophy of continuous improvement and its methodology to achieve rapid and lasting process improvements while producing a positive culture change.

**Program:**

8:30 a.m. - 10:00 a.m.	Introduction to LSS <i>Timothy D. Kupferschmid, MFS, MBA</i>
10:00 a.m. - 10:15 a.m.	Break
10:15 a.m. - 11:00 a.m.	Lean Fundamentals <i>Linda Razzano, MS</i>
11:00 a.m. - 12:00 p.m.	Push vs. Pull Exercise <i>Timothy D. Kupferschmid, MFS, MBA; Joanie Brocato, PhD; Linda Razzano, MS</i>
12:00 p.m. - 1:30 p.m.	Lunch
1:30 p.m. - 2:30 p.m.	Push vs. Pull Exercise <i>Timothy D. Kupferschmid, MFS, MBA; Joanie Brocato, PhD; Linda Razzano, MS</i>
2:30 p.m. - 2:45 p.m.	Break

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*(continued)*

# WORKSHOPS



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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

## #17 An Introduction to Lean Fundamentals and Six Sigma Operational Improvement

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2:45 p.m. - 3:30 p.m.	Louisiana State Police Crime Laboratory's Experience With LSS <i>Joanie Brocato, PhD</i>
3:30 p.m. - 4:15 p.m.	NYC Office of Chief Medical Examiner Forensic Biology Laboratory's Experience With LSS <i>Linda Razzano, MS</i>
4:15 p.m. - 4:30 p.m.	Wrap-Up <i>Timothy D. Kupferschmid, MFS, MBA</i>

**Targeted Audience:** Anthropology, Criminalistics, Digital & Multimedia Sciences, General, Questioned Documents, Toxicology

**Knowledge Level Required:** Basic (little to no knowledge of subject presented)

**Expected Handout Length:** 100 Pages

**Restricted Audience Size:** 60

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# WORKSHOPS

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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

## #18 Domestic Violence and Child Abuse Deaths

Tuesday, February 20, 2018

8:30 a.m. – 5:00 p.m.

6.0 CE Hours

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**Educational Objective(s):** After attending this presentation, attendees will understand the biomechanics of accelerative/blunt force injury in infants and children; the dynamics of Munchausen Syndrome by Proxy; multiple descriptions of child interview techniques; psychological analysis, which can be conducted in child death investigations; and the Fatality Review Board (FRB) process within the United States Department of Defense. This session will also include homicide presentations by special agents and crime scene investigators who process domestic violence and child abuse death crime scenes.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by providing insight into the many disciplines utilized in domestic violence deaths. The presentations will leave a lasting impact on attendees through the intricate details of each topic, discussing the criminal, physiological, and psychological aspects of domestic violence.

*Chair:*

**Brian L. Janysek, MFS**  
Oakton, VA

*Co-Chair:*

**David J. Zelif, MFS**  
Stafford, VA

*Faculty:*

**Donald Hayden, MFS**  
Richmond Hill, GA

**Edward Mazuchowski II, MD, PhD**  
Dover AFB, DE

**Rick Malone, MD**  
FPO, AP  
JAPAN

**Michelle Miller, PsyD**  
United States Army CID  
Springfield, VA

**Sarah Mannix**  
United States AFOSI  
Springfield, VA

**Jessica Ann Veltri, MS**  
United States Army Criminal Investigation Command  
22nd Military Police Battalion  
Joint Base Lewis-McChord, WA

**Program Description:** Medical examiners, psychologists, special agents, and crime scene investigators will present an array of topics from domestic violence to child deaths. Experts in their field will detail topics such as the biomechanics of accelerative/blunt force injury in infants and children, Munchausen Syndrome by Proxy, child interview techniques, 911 call and psychological analysis, FRB processes within the United States Department of Defense, as well as homicide presentations that illustrate various approaches to processing domestic violence and child abuse death crime scenes.

**Program:**

8:30 a.m. - 8:45 a.m.	Introductions <i>Brian L. Janysek, MFS</i>
8:45 a.m. - 9:45 a.m.	Munchausen Syndrome by Proxy <i>Rick Malone, MD</i>
9:45 a.m. - 10:00 a.m.	Break

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*(continued)*

# WORKSHOPS



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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

## #18 Domestic Violence and Child Abuse Deaths

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10:00 a.m. - 10:30 a.m.	The Murder of a 14-Month-Old Boy <i>Donald Hayden, MFS</i>
10:30 a.m. - 11:00 a.m.	Fatality Review Board <i>David J. Zeliff, MFS</i>
11:00 a.m. - 12:00 p.m.	Child Interview Techniques <i>Donald Hayden, MFS</i>
12:00 p.m. - 1:30 p.m.	Lunch
1:30 p.m. - 2:30 p.m.	Accelerative/Blunt Force Trauma and Sudden Unexplained Infant Death <i>Edward Mazuchowski II, MD, PhD</i>
2:30 p.m. - 2:45 p.m.	Break
2:45 p.m. - 3:45 p.m.	Double Murder and Suicide <i>Sarah Mannix</i>
3:45 p.m. - 4:00 p.m.	Break
4:00 p.m. - 5:00 p.m.	The Death of a 28-Day-Old Infant: Describing the Mother's Pre-Incident Behaviors, Analysis of the 911 Call, and Reenactments <i>Michelle Miller, PsyD; Jessica Ann Veltri, MS</i>

**Targeted Audience:** Criminalistics, General, Jurisprudence, Pathology/Biology, Psychiatry & Behavioral Science, Toxicology

**Knowledge Level Required:** Intermediate (some knowledge of subject presented)

**Expected Handout Length:** 40 Pages

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## WORKSHOPS

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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

### #19 The Evolution of Fire Investigation From the Perspective of Science: Why Science Matters in the Search for Justice

Tuesday, February 20, 2018

8:30 a.m. – 5:00 p.m.

6.25 CE Hours

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**Educational Objective(s):** After attending this presentation, attendees will have an understanding of how: (1) past anecdotally based methods resulted in potentially erroneous convictions; (2) scientific research discredited those methods; (3) applicable standards have evolved as a result; and, (4) science-based research in many disciplines continues to improve our understanding of fire science and its proper application in fire investigation.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by explaining the importance of empirical scientific research as well as how and why the results of such research must be applied when investigating fire scenes, analyzing fire debris and other evidence, and crafting valid conclusions in any investigative discipline.

*Chair:*

**Paul Messner, JD**  
Dry Ridge, KY

*Co-Chair:*

**John J. Lentini, BA**  
Scientific Fire Analysis, LLC  
Islamorada, FL

*Faculty:*

**George A. Coddling, JD**  
International Association of Arson Investigators  
Boulder, CO

**Daniel Madrzykowski, MS**  
Underwriters Laboratory Firefighter Safety Research Institute  
Columbia, MD

**Terry-Dawn Hewitt, LLM**  
McKenna Hewitt  
Denver, CO

**Program Description:** This workshop will look at the methods, processes, and reasoning used in past problematic fire investigations and compare them to modern countervailing science-based analyses developed since those investigations and that were relied upon in post-conviction appeals. Included are discussions of interpretation of burn patterns and evidence, investigator and witness biases, methodology and reasoning issues, and analytical complexities occasioned by the wide variety of potential fire causes.

**Program:**

8:30 a.m. - 9:00 a.m.	Opening Remarks <i>Paul Messner, JD; John J. Lentini, BA; George A. Coddling, JD</i>
9:00 a.m. - 9:30 a.m.	Setting the Stage — The Adam Gray Case: The Fire Scene, Investigation, and Evidence Discovered (or Not) <i>George A. Coddling, JD</i>
9:30 a.m. - 10:15 a.m.	Analysis and Interpretation of the Adam Gray Case: The Selection and Identification of Evidence <i>John J. Lentini, BA; George A. Coddling, JD</i>
10:15 a.m. - 10:30 a.m.	Break

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*(continued)*

# WORKSHOPS



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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

## **#19 The Evolution of Fire Investigation From the Perspective of Science: Why Science Matters in the Search for Justice**

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10:30 a.m. - 11:15 a.m.	The Courtroom — The Weight of the Evidence: Gray; Willis; Garcia; Bunch; Han Tak Lee; et. al <i>Paul Messner, JD</i>
11:15 a.m. - 12:00 p.m.	The Evolution of the Profession Since 1992: Changes to Practices, Knowledge, and Reasoning Through Research <i>John J. Lentini, BA</i>
12:00 p.m. - 1:15 p.m.	Lunch
1:15 p.m. - 2:00 p.m.	Changing the Process Through Standards Development <i>Terry-Dawn Hewitt, LLM</i>
2:00 p.m. - 2:45 p.m.	Current Research to Support the Science of Fire Patterns and Their Interpretation <i>Daniel Madrzykowski, MS</i>
2:45 p.m. - 3:00 p.m.	Break
3:00 p.m. - 3:45 p.m.	Origin and Cause Determination — How Hard Can It Be? Real-World Experiences <i>Daniel Madrzykowski, MS</i>
3:45 p.m. - 4:15 p.m.	Human Bias: Effects on First Responders, Witnesses, Investigators, and the Scientific Community <i>George A. Coddling, JD</i>
4:15 p.m. - 5:00 p.m.	Are We Still Getting Things Wrong? One State's Response and Other Solutions <i>Paul Messner, JD; John J. Lentini, BA</i>

**Targeted Audience:** Criminalistics, Engineering Sciences, General, Jurisprudence, Psychiatry & Behavioral Science

**Knowledge Level Required:** Basic (little to no knowledge of subject presented)

**Expected Handout Length:** 25 Pages

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## WORKSHOPS

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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

### #20 Fentals: The Chemistry, Pharmacology, and Toxicology of Illicit Fentanyl and Emerging Opioids

Tuesday, February 20, 2018

8:30 a.m. – 5:00 p.m.

6.75 CE Hours

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**Educational Objective(s):** After attending this presentation, attendees will be able to describe the origination of fentanyl and fentanyl analogs and describe their pharmacology as well as identify and implement methods for the safe handling of these compounds. In addition, attendees will be able to describe methods used to profile and disseminate information on emerging opioids, assess the findings of fentanyl and fentanyl analogs in casework, and implement appropriate analytical techniques used in their identification

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by providing current information on the opioid epidemic with a specific focus on fentanyl and fentanyl analogs and their chemistry, pharmacology, and toxicology seen in forensic casework.

*Chair:*

**Amanda L.A. Mohr, MSFS**

The Center for Forensic Science Research & Education  
Willow Grove, PA

*Co-Chair:*

**Barry K. Logan, PhD**

NMS Labs/  
The Center for Forensic Science Research & Education  
Willow Grove, PA

*Faculty:*

**Alex J. Krotulski, MS**

The Center for Forensic Science Research & Education  
Willow Grove, PA

**Audrey M. Williams, PhD**

Livermore, CA

**Robert A. Middleberg, PhD**

NMS Labs  
Willow Grove, PA

**Eric Wish, PhD**

National Drug Early Warning System  
College Park, MD

**Lionel Raymon, PhD**

Homestead, FL

**Erin M. Worrell, BSc**

Cuyahoga County Medical Examiner's Office  
Cleveland, OH

**Paul Wax, MD**

University of Texas Southwestern  
Dallas, TX

**Nicole A. Yarid**

King County Medical Examiner's Office  
Seattle, WA

**Timothy Wiegand, MD**

University of Rochester Medical Center  
Rochester, NY

**Program Description:** This workshop will focus on the opioid epidemic related to fentanyl and fentanyl analogs, providing information associated with the origination of these illicit substances, pharmacology and potency, safe handling of suspected fentanyl analogs, monitoring and early detection systems, analytical approaches in forensic investigation casework, and case reports.

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(continued)

# WORKSHOPS



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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

## #20 Fentalogs: The Chemistry, Pharmacology, and Toxicology of Illicit Fentanyl and Emerging Opioids

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### Program:

8:30 a.m. - 8:35 a.m.	Welcome and Introduction <i>Amanda L.A. Mohr, MSFS</i>
8:35 a.m. - 9:15 a.m.	History and Chemistry of Illicit Opioids <i>Barry K. Logan, PhD</i>
9:15 a.m. - 10:00 a.m.	The Pharmacology of Illicit Opioids (Remote Presentation) <i>Lionel Raymon, PhD</i>
10:00 a.m. - 10:15 a.m.	Break
10:15 a.m. - 10:40 a.m.	Safe Handling of Seized Material Containing Heroin, Fentanyl, and Illicit Opioids <i>Robert A. Middleberg, PhD</i>
10:40 a.m. - 11:20 a.m.	Illicit Fentanyl Synthesis and the Use of Chemical Signatures to Identify the Source and Route of Manufacture of Fentanyl and Its Analogs <i>Audrey M. Williams, PhD</i>
11:20 a.m. - 12:00 p.m.	National Drug Early Warning System (NDEWS) — Early Warning Systems for Identifying Emerging Novel Opioids <i>Eric Wish, PhD</i>
12:00 p.m. - 1:15 p.m.	Lunch
1:15 p.m. - 2:00 p.m.	Medical Toxicology of Fentanyl and Opioid Intoxication: Experience in the Emergency Room <i>Timothy Wiegand, MD</i>
2:00 p.m. - 2:40 p.m.	Carfentanil Use at the Moscow Theater Siege <i>Paul Wax, MD</i>
2:40 p.m. - 2:55 p.m.	Break
2:55 p.m. - 3:25 p.m.	Scene and Circumstances: Investigation of Scenes of Death Involving Novel Opioids <i>Erin M. Worrell, BSc</i>
3:25 p.m. - 3:50 p.m.	Autopsy Findings in Opioid- and Fentanyl-Related Deaths <i>Nicole A. Yarid</i>
3:50 p.m. - 4:30 p.m.	Analytical Approaches for Identifying and Confirming Novel Opioids <i>Alex J. Krotulski, MS</i>
4:30 p.m. - 5:00 p.m.	Toxicology Data Related to Fentalogs <i>Amanda L.A. Mohr, MSFS</i>

**Targeted Audience:** Criminalistics, General, Pathology/Biology, Toxicology

**Knowledge Level Required:** Basic (little to no knowledge of subject presented)

**Expected Handout Length:** 300 Pages

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# WORKSHOPS

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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

## #21 Macromorphoscopic (MMS) Traits: Data Collection and Analysis

Tuesday, February 20, 2018

8:30 a.m. – 5:00 p.m.

7.25 CE Hours

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**Educational Objective(s):** After attending this presentation, attendees will: (1) understand the history and theoretical concepts of ancestry estimation via cranial morphology, particularly in reference to MMS traits; (2) have gained experience scoring macromorphoscopic traits in human crania using recently developed software; (3) have learned the basic strategies of various statistical procedures to estimate ancestry with MMS trait scores; and, (4) have acquired working knowledge of the application of MMS trait data in casework.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by providing up-to-date methodologies and theoretical considerations in ancestry estimation using MMS trait data. Additionally, attendees will learn how to record, analyze, and report MMS trait data using the appropriate statistical framework. Attendees will be introduced to a worldwide reference dataset that permits ancestry estimations beyond the historical three-group classifications used in ancestry estimation from cranial morphology.

*Chair:*

**Joseph T. Hefner, PhD**  
Michigan State University  
Department of Anthropology  
East Lansing, MI

*Co-Chair:*

**Kelly R. Kamnikar, MA**  
Michigan State University  
East Lansing, MI

*Faculty:*

**Amber M. Plemons, MA**  
Michigan State University  
Department of Anthropology  
East Lansing, MI

**Program Description:** Estimating ancestry from the skull need not be difficult. In much the same way students first learn metric analysis (e.g., “GOL is measured between these two landmarks and entered into a computer program to obtain an estimate”), macromorphoscopic trait analysis requires visual learning and a hands-on approach. The goal of this session is to increase the utilization of an empirical method to ancestry estimation via cranial morphological traits in the forensic sciences by training a subset of the community to correctly perform the method. In turn, this information can then be disseminated to colleagues and students.

**Program:**

8:30 a.m.	-	8:45 a.m.	Welcome <i>Joseph T. Hefner, PhD</i>
8:45 a.m.	-	9:45 a.m.	An Introduction to Macromorphoscopic Traits <i>Joseph T. Hefner, PhD</i>
9:45 a.m.	-	10:00 a.m.	Break
10:00 a.m.	-	10:45 a.m.	Observer Error in MMS Trait Analysis <i>Kelly R. Kamnikar, MA</i>
10:45 a.m.	-	11:15 a.m.	The Macromorphoscopic Databank <i>Amber M. Plemons, MA</i>

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*(continued)*

# WORKSHOPS



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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

## **#21 Macromorphoscopic (MMS) Traits: Data Collection and Analysis**

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11:15 a.m. - 11:30 a.m.	Break
11:30 a.m. - 12:15 p.m.	Analytical Methods for MMS Data <i>Joseph T. Hefner, PhD; Amber M. Plemons, MA</i>
12:15 p.m. - 1:30 p.m.	Lunch
1:30 p.m. - 2:00 p.m.	Analytical Methods for MMS Data (cont.) <i>Joseph T. Hefner, PhD; Kelly R. Kamnikar, MA</i>
2:00 p.m. - 3:30 p.m.	Hands-On Exercises <i>Joseph T. Hefner, PhD; Kelly R. Kamnikar, MA; Amber M. Plemons, MA</i>
3:30 p.m. - 3:45 p.m.	Break
3:45 p.m. - 4:45 p.m.	Hands-On Exercises <i>Joseph T. Hefner, PhD; Kelly R. Kamnikar, MA; Amber M. Plemons, MA</i>
4:45 p.m. - 5:00 p.m.	Adjournment <i>Joseph T. Hefner, PhD</i>

**Targeted Audience:** Anthropology, General, Pathology/Biology

**Knowledge Level Required:** Intermediate (some knowledge of subject presented)

**Expected Handout Length:** 60 Pages

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# WORKSHOPS

**Pre-Registration Required — \$200 w/registration; \$250 workshop only**

*This program is presented by the Forensic Sciences Foundation, Inc.*



## #22 Science Matters to Everyone: Victims, Offenders, and the Public

Tuesday, February 20, 2018

8:30 a.m. – 5:00 p.m.

6.5 CE Hours

**Educational Objective(s):** The goal of this presentation is to educate attendees regarding systemic issues in forensic science and the strides being taken to address them.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by exploring how the criminal justice system can or should respond in the face of backlogs, lab scandal, error, and publicity involving forensic science.

*Chair:*

**Anjali A. Ranadive, JD**  
SciLawForensics, Ltd  
Brookings, SD

*Co-Chair:*

**Pamela A.W. King, JD**  
Rochester, MN

*Faculty:*

**Rebecca Campbell, PhD**  
Michigan State University  
Department of Psychology  
East Lansing, MI

**Gerald M. LaPorte, MSFS**  
National Institute of Justice  
Office of Investigation & Forensic Science  
Washington, DC

**Joanna L. Collins, MFS**  
LINUS Investigations & Consulting  
San Antonio, TX

**John J. Lentini, BA**  
Scientific Fire Analysis, LLC  
Islamorada, FL

**James Downs, MD**  
forensX, LLC  
Savannah, GA

**Gary McDonald, JD**  
Dallas County Criminal District Attorney's Office  
Dallas, TX

**John P. Kenney, DDS, MS**  
Park Ridge, IL

**Judy Melinek, MD**  
PathologyExpert, Inc  
San Francisco, CA

**Linda Kenney Baden, JD**  
New York, NY

**Program Description:** This workshop will cover multiple areas in forensic science where more inquiry is needed, including the testing of sexual assault kits, conviction integrity units, and what happens when an expert changes his testimony after the fact.

**Program:**

8:30 a.m. - 8:45 a.m.	Introduction and Opening Remarks <i>Anjali A. Ranadive, JD; Joanna L. Collins, MFS</i>
8:45 a.m. - 9:45 a.m.	Tapestry of Trials — Aaron Hernandez Case <i>Linda Kenney Baden, JD</i>
9:45 a.m. - 10:30 a.m.	Tapestry of Trials — When the Science Doesn't Match the Testimony <i>Judy Melinek, MD</i>

*(continued)*

# WORKSHOPS



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*Pre-Registration Required — \$200 w/registration; \$250 workshop only*

## #22 Science Matters to Everyone: Victims, Offenders, and the Public

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10:30 a.m. - 10:45 a.m.	Break
10:45 a.m. - 11:45 a.m.	Tapestry of Trials — Odontology <i>John P. Kenney, DDS, MS</i>
11:45 a.m. - 12:45 p.m.	Lunch
12:45 p.m. - 1:30 p.m.	Discipline-Specific Errors: Arson <i>John J. Lentini, BA</i>
1:30 p.m. - 2:30 p.m.	Sexual Assault Kit Testing Research <i>Rebecca Campbell, PhD</i>
2:30 p.m. - 3:15 p.m.	Sexual Assault Kit Testing <i>Gerald M. LaPorte, MSFS</i>
3:15 p.m. - 3:45 p.m.	Break
3:45 p.m. - 4:45 p.m.	Conviction Integrity Units <i>Gary McDonald, JD</i>
4:45 p.m. - 5:00 p.m.	Questions and Answers <i>James Downs, MD; Pamela A.W. King, JD</i>

**Targeted Audience:** Criminalistics, General, Jurisprudence, Odontology, Pathology/Biology

**Knowledge Level Required:** Intermediate (some knowledge of subject presented)

**Expected Handout Length:** 100 Pages

*Proceeds from this workshop will benefit the Forensic Sciences Foundation, Inc.*





## WORKSHOPS

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*Pre-Registration Required — \$100 w/registration; \$125 workshop only*

### **#23 Cardiovascular Pathology for Medical Examiners and Coroners: Basic and Advanced Techniques for the Investigation of Sudden Cardiac Death**

**Tuesday, February 20, 2018**

**1:00 p.m. – 5:00 p.m.**

**3.5 CE Hours**

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**Educational Objective(s):** After attending this presentation, attendees will: (1) understand basic cardiac anatomy relevant to the investigation of sudden cardiac death; (2) be able to apply basic and select advanced cardiac dissection techniques useful for the investigation of sudden cardiac death; (3) identify situations in which postmortem genetic testing may be useful; (4) appreciate the challenges of interpretation of genetic testing results with respect to determining mechanism of death, underlying cause of death, and contributory cause of death; and, (5) recognize situations in which consultation with a cardiovascular pathologist is warranted.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by providing up-to-date knowledge and practical techniques in cardiovascular pathology and molecular genetics that will assist medical examiners, coroners, death scene investigators, and others involved in the investigation of sudden death.

*Chair:*

**Peter T. Lin, MD**  
Rochester, MN

*Co-Chair:*

**Ross Reichard, MD**  
Mayo Clinic  
Division of Anatomic Pathology  
Rochester, MN

*Faculty:*

**Marie Christine Aubry, MD**  
Mayo Clinic  
Rochester, MN

**Joseph J. Maleszewski, MD**  
Mayo Clinic  
Rochester, MN

**Program Description:** This workshop is intended to be a practical introduction to the investigation of sudden cardiac death. The presenters include practicing cardiovascular and forensic pathologists with extensive experience in autopsy pathology, death investigation, surgical cardiovascular pathology, and molecular genetics. The basic foundations of cardiovascular pathology, including normal cardiac anatomy and histology, normal anatomic variants and standard cardiac dissection methods, will be reviewed. Advanced dissection techniques will also be taught, including long-axis cuts (four-chamber and left ventricular outflow cuts), base of heart dissection for demonstrating valvular heart disease, gross dissection and histologic examination of the cardiac conduction system, and histologic examination of valves, myocardium, and aorta. Both common and rare entities in the differential diagnosis for sudden cardiac death will be discussed, including atherosclerotic coronary artery disease, hypertensive heart disease, hypertrophic cardiomyopathy, dilated cardiomyopathy, arrhythmogenic cardiomyopathy, inherited arrhythmia syndromes, and inherited aortopathy syndromes.

The role of genetic testing in the diagnosis of inherited cardiomyopathy, arrhythmia, and aortopathy syndromes will also be discussed, including the challenges associated with the interpretation of genetic test results that are equivocal for pathogenicity, or when pathogenic variants are discovered in the setting of alternative and equally compelling causes of deaths. A framework for communication of results to families will also be provided. Guidelines for specimen retention and cardiovascular pathology subspecialist consultation will also be discussed. This session will incorporate didactic lectures, informal question-and-answer sessions with questions solicited from the audience, and hands-on tutorials utilizing 3D scanned and printed models.

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*(continued)*

# WORKSHOPS



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*Pre-Registration Required — \$100 w/registration; \$125 workshop only*

## **#23 Cardiovascular Pathology for Medical Examiners and Coroners: Basic and Advanced Techniques for the Investigation of Sudden Cardiac Death**

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### **Program:**

1:00 p.m. - 1:15 p.m.	Introduction <i>Peter T. Lin, MD</i>
1:15 p.m. - 2:00 p.m.	Normal Cardiac Anatomy and Variants, Conduction System, Coronary Artery Disease, and Hypertension <i>Marie Christine Aubry, MD</i>
2:00 p.m. - 2:15 p.m.	Discussion
2:15 p.m. - 3:00 p.m.	Cardiomyopathies, Inherited Arrhythmia Syndromes, and Genetic Testing <i>Joseph J. Maleszewski, MD</i>
3:00 p.m. - 3:15 p.m.	Break
3:15 p.m. - 4:00 p.m.	Myocarditis, Endocarditis, and Aortopathies: Cardiovascular Pathology Pitfalls for Forensic Pathologists <i>Peter T. Lin, MD</i>
4:00 p.m. - 4:15 p.m.	Discussion
4:15 p.m. - 5:00 p.m.	Questions and Answers: Tutorial Sessions With 3D Printed Models <i>Joseph J. Maleszewski, MD; Marie Christine Aubry, MD; Peter T. Lin, MD</i>

**Targeted Audience:** General, Pathology/Biology

**Knowledge Level Required:** Basic (little to no knowledge of subject presented)

**Expected Handout Length:** 20 Pages

**Restricted Audience Size:** 100

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## WORKSHOPS

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*Pre-Registration Required — \$100 w/registration; \$125 workshop only*

### **#24 Think Tank on the Leading Edge of Forensic Science: Drones, Autonomous Vehicles, Big Data/Big Problems, National Security Globalization Into Protrusionism Privacy, Dirty Bombs, and Microbial Forensics**

**Tuesday, February 20, 2018**

**1:00 p.m. – 5:30 p.m.**

**4.0 CE Hours**

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**Educational Objective(s):** After attending this presentation, attendees will understand how the rapid rate of change in society may impact several fields in forensic science.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by demonstrating how the rate of change in society provides new challenges for forensic science. The development of designer drugs as well as the rapid development of methods to extract information from large amounts of data should be considered and perhaps prompt needed changes in laws. The issues with investigation of Chemical, Biological, Radiological, and Nuclear (CBRN) as well as driverless cars, drones, and the insights of cybercrimes and globalization with privacy issues will be discussed.

*Chair:*

**Laura L. Liptai, PhD**  
BioMedical Forensics  
Moraga, CA

*Co-Chair:*

**Zeno J. Geradts, PhD**  
Netherlands Forensic Institute  
Den Haag, NETHERLANDS

*Faculty:*

**Ivo Alberink, PhD**  
Netherlands Forensic Institute  
The Hague, NETHERLANDS

**Kimho Himberg, PhD**  
Police University College  
Tampere, FINLAND

**David O. Carter, PhD**  
Chaminade University of Honolulu  
Forensic Sciences Unit  
Division of Natural Sciences and Mathematics  
Honolulu, HI

**Jeffery K. Tomberlin, PhD**  
Texas A&M University  
Department of Entomology  
College Station, TX

**Carlos Fraga, PhD**  
Pacific Northwest National Laboratory  
Richland, WA

**Erwin Van Eijk, MS**  
Netherlands Forensic Institute  
Den Haag, NETHERLANDS

**Reza R.R. Gerretsen, MD**  
Netherlands Forensic Institute  
The Hague, NETHERLANDS

**Eduard Van Zalen, MSc**  
Netherlands Forensic Institute  
The Hague, NETHERLANDS

**Program Description:** This workshop will provide insight on forensic science leading-edge topics and the impacts that the rapid rate of change have on the field.

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*(continued)*

# WORKSHOPS



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*Pre-Registration Required — \$100 w/registration; \$125 workshop only*

## **#24 Think Tank on the Leading Edge of Forensic Science: Drones, Autonomous Vehicles, Big Data/Big Problems, National Security Globalization Into Protrusionism Privacy, Dirty Bombs, and Microbial Forensics**

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### **Program:**

1:00 p.m.	-	1:10 p.m.	Opening Remarks <i>Laura L. Liptai, PhD; Zeno J. Geradts, PhD</i>
1:10 p.m.	-	1:40 p.m.	Autonomous Cars <i>Laura L. Liptai, PhD</i>
1:40 p.m.	-	2:20 p.m.	National Security Globalization Into Protrusionism Privacy Issues <i>Kimho Himberg, PhD</i>
2:20 p.m.	-	2:50 p.m.	Big Data Forensics and Multimedia Deep Learning <i>Erwin Van Eijk, MS</i>
2:50 p.m.	-	3:05 p.m.	Break
3:05 p.m.	-	3:35 p.m.	Likelihood Ratios and Anthropology With Carbon 14 and Magnetic Resonance Imaging <i>Ivo Alberink, PhD; Reza R.R. Gerretsen, MD</i>
3:35 p.m.	-	4:05 p.m.	Nuclear Forensics and CBRN <i>Eduard Van Zalen, MSc; Carlos Fraga, PhD</i>
4:05 p.m.	-	4:35 p.m.	Chemical Forensics International Technical Working Group: Striving to Prevent and Deter Chemical Attacks <i>Carlos Fraga, PhD</i>
4:35 p.m.		5:15 p.m.	Microbial Forensics <i>David O. Carter, PhD; Jeffery K. Tomberlin, PhD</i>
5:15 p.m.		5:30 p.m.	Closing <i>Laura L. Liptai, PhD; Zeno J. Geradts, PhD</i>

**Targeted Audience:** All Disciplines

**Knowledge Level Required:** Intermediate (some knowledge of subject presented)

**Expected Handout Length:** 80 Pages

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