

Understanding and Using Forensic Science and Expert Testimony in the Courtroom

Abstracts

“The Scientific Method vs. Daubert (Similarities & Differences)”

Daniel Davison, M.S.
Judge Matthew L. Reger

Monday August 12, 2024 8:30 am – 9:30 am (1 CLE Credit)

Abstract:

What do the Daubert standard and the scientific method have in common, and how do they differ? What are the components of each, and how does one affect the other? What is the purpose of both in relation to how evidence is handled in court? This topic will be taught by Mr. Mathew Reger and Mr. Daniel Davison. Both instructors come to this topic with specific areas of expertise. Mr. Reger brings his experience as an attorney and judge to the class and Mr. Davison brings his experience as a forensic scientist with the Ohio Bureau of Criminal Investigation.

***“Alphabet Soup: What is NAS, PCAST, and OSAC
(and Why Should I Care)?”***

Crystal Oechsle, Ph.D.

Monday August 12, 2024 9:30 am – 10:30 am (1 CLE Credit)

Abstract:

Troubled by some recent revelations, Congress directed the National Academy of Science’s (NAS) National Research Council to undertake a study regarding the state of forensic science in this country. The NAS report, “Strengthening Forensic Science in the United States: A Path Forward” was published in 2009 and made a series of recommendations. In 2015, President Obama asked the President’s Council of Advisers on Science and Technology (PCAST) whether there were additional steps on the scientific side, beyond those already taken by the Administration in the aftermath of a highly critical 2009 National Research Council report on the state of the forensic sciences, that could help ensure the validity of forensic evidence used in the Nation’s legal system. The PCAST report, “Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods” was published in 2016. In this session, we will review the history of Quality Assurance, accreditation, and self-policing in the crime laboratory, from which the NAS and PCAST reports arose. This will lead into a discussion of the pertinent findings of the NAS and PCAST reports, the forensic science community’s response, and the creation and role of the Organization of Scientific Area Committees (OSAC) for Forensic Science.

“DNA 101: DNA Evidence in the Courtroom”

Crystal Oechsle, Ph.D.

Monday August 12, 2024 10:45 am – 11:45 am (1 CLE Credit)

Abstract:

DNA has quickly become the “gold standard” for forensic evidence. It can damn the guilty, exonerate the innocent, and is generally expected to be present and tested in every case by the lay public. But, what is it and how did DNA rise to such prominence? This session is meant to provide the novice with a basic working knowledge of forensic DNA analysis, including history and current techniques.

“Case Studies: Making or Breaking a Case with Forensics”

DAS Deputy Director Angeal Canepa, J.D.

Monday August 12, 2024 12:45 pm – 1:45 pm (1 CLE Credit)

Abstract:

Attorney Canepa has been a career prosecutor with tenure in multiple offices and roles across the state of Ohio. Throughout her career she has had direct trial experience with cases that involve use of forensic evidence and expert witness testimony across various disciplines, including child physical and sexual assault cases, adult sexual assault cases, and domestic violence related felonies, including any homicides that result from any of these types of cases. She has tried several death penalty cases, including being the lead prosecutor on the Pike County eight-person homicide case (the Rhoden family homicide case), and has successfully resolved three of the four defendants' cases in that case. In this presentation, Attorney Canepa will provide an overview of her experiences utilizing forensic evidence to make or break her criminal cases. She will use real case examples, provide advice for working with forensic experts, and tips for trial preparation when forensic evidence is required as well as answer audience questions.

“Pattern Interpretation”

Jessica Mendofik, B.S.

Monday August 12, 2024 2:00 pm – 3:00 pm (1 CLE Credit)

Abstract:

“What is a Latent Print?” “Who did the print come from?” “Can this tool mark/footwear impression/tire impression/spent cartridge casing be matched to the tool, shoe, tire, or firearm that created it?” “If so, what does that mean?” If you have ever found yourself in a position where you have been faced with one of these questions, then this presentation is for you! The scientific areas of Latent Prints, Impressions, and Firearms Examination will be discussed by a forensic scientist with the Ohio Bureau of Criminal Investigation. Information regarding an overview of important terminology, methodology, and some courtroom challenges faced will be presented along with general guidance of how the different types of evidence can or, in some instances, cannot be used during criminal proceedings.

“GSR 101: An Introduction to Gunshot Residue”

Daniel Davison, M.S.

Monday August 12, 2024 3:00 pm – 4:00 pm (1 CLE Credit)

Abstract:

The identification of particles characteristic of gunshot residue (GSR) is an examination that some jurisdictions have embraced while others have spurned. Learn what GSR is, how it is identified, and some of the limitations that affect the interpretation of its meaning in a case from a forensic scientist with the Ohio Bureau of Criminal Investigation. Information regarding an overview of important terminology, methodology, and some courtroom challenges faced will be presented along with general guidance of how the different types of evidence can or, in some instances, cannot be used during criminal proceedings.

“DNA 201: An Introduction to DNA Statistics in the Courtroom”

Crystal Oechsle, Ph.D.

Monday August 12, 2024 4:15 pm – 5:15 pm (1 CLE Credit)

Abstract:

This session is meant to build on the understanding established in the “DNA 101: DNA Evidence in the Courtroom” presentation by attempting to answer the question: Are DNA results always reliable or relevant? We will introduce, explore, and review DNA results and expert conclusions, and perhaps most importantly, what reported statistics mean, or don’t mean.

“Clear as Mud? *Deciphering Expert Testimony*”

Crystal Oechsle, Ph.D.

Tuesday August 13, 2024 8:30 am – 9:30 am (1 CLE Credit)

Abstract:

Have you ever spoken to a forensic scientist and been completely lost, not understanding what they were telling you or why, or why they couldn't just answer the question in plain English?

Scientific experts have reasons for being precise or explaining concepts in a particular way, and rightly or wrongly, probably assume attorneys know and understand those reasons. In this talk we'll delve into what you can do to prepare for expert testimony, questions you can ask your expert, and some of the reasoning behind why experts speak the way they do. Time permitting, arguments and rebuttals to address common forensic misconceptions and counter the CSI effect will also be presented.

“Current Trends in Forensic DNA and Issue Spotting”

Tiffany Roy, M.S., J.D.

Tuesday August 13, 2024 9:30 am – 10:30 am (1 CLE Credit)

Abstract:

The last decade has brought about significant changes in forensic DNA analysis that are being challenged in courts across the country. As DNA technologies have become more sensitive, the threat of contamination has increased, and mixture interpretation has become more complex. To deal with this change, labs have implemented new interpretation and statistical software and maybe even altered the methods they use to calculate statistics, which has led to great changes in the language of expert opinions. Here, the presenter will discuss some of the problems they see when reviewing work from laboratories around the country and will offer methods to spot issues in your cases. This presentation is designed to arm attorneys with the skills they need to spot problem results and testimony so that they might retain the expertise necessary to preserve these issues and keep bad science out of court.

Small Group Rotations

Tuesday August 13, 2024 (4.5 CLE Credit Total; 1.5 Credit per Rotation)

10:45 am – 12:15 pm (Rotation 1)

2:00 pm – 3:30 pm (Rotation 2)

3:45 pm – 5:15 pm (Rotation 3)

Participants will be split into small groups and will spend Tuesday late-morning and afternoon rotating through each of three demonstrative sessions, see below for details.

*Application of Bloodstain Patterns to Violent Crime Scenes
(Lead by BCI Special Agent Megan Roberts)*

Participants will be guided the short distance to the Forensic Science Crime Scene House, located just off-campus on Troup Avenue. Here, mock crime scene(s) will be staged for participants to view, and BCI Special Agent Roberts will lead a presentation on bloodstain pattern analysis. Training will provide participants with the practical applications of bloodstain pattern analysis, and participants will learn about the potential benefits and limitations of bloodstain pattern analysis for court room presentations.

*Evidence Receiving Processes and Tour of Ohio Bureau of Criminal Investigations Facility
(Lead by Jeffrey Lynn, Center for the Future of Forensic Science) Coupled with a Lecture on Fentanyl and Illicitly Manufactured Fentanyls (IMFs) (Lead by Jeremy Canfield & Jon E. Sprague, Center for the Future of Forensic Science)*

Participants will be guided the short distance to the Ohio Bureau of Criminal Investigations facility located on-campus, across from the Life Sciences building that houses the Center for the Future of Forensic Science. While at the BCI facility, the Laboratory Information Management System (LIMS), chain of custody, and evidence security procedures will be explained. The tour will chronicle the journey of evidence as it makes its way from receiving through the various sections of an operation forensics lab. Following the tour, participants will attend a lecture on Fentanyl and Illicitly Manufactured Fentanyls (IMFs): The number of fentanyl overdose deaths and reported

fentanyl crime lab cases has drastically increased in recent years. In addition to fentanyl, illicitly manufactured fentanyls (IMFs) have seen an increase in prevalence. IMFs are clandestinely produced compounds that are structurally similar to fentanyl. Unlike fentanyl, these compounds do not have any medical uses and have not been tested in animals or humans. Therefore, the dangers and potencies are unknown to potential users as well as those who can come into contact with these substances. Additionally, these compounds are frequently mixed into drug powders or incorporated into and sold as fake prescription tablets. Here we will review the history, abuse potential, chemistry and the Ohio Pharmacophore Rule as it applies to fentanyl and IMFs.

Laboratory Process Hands-On Demonstrations

(Lead by Center for the Future of Forensic Science Faculty: Crystal Oechsle, Travis Worst, Daniel Davison, Jessica Mendofik)

The Center for the Future of Forensic Science will open its laboratory spaces for exploration. Faculty will be on-hand to explain techniques, processes, and instrumentation that are available in the fully equipped forensic chemistry and forensic biology laboratories. Stations where participants can try their hand at body fluid identification, chemical color tests, microscopy, latent fingerprint development, and more will be available.

“Ask the Experts”

Panel and Group Discussion Lead by Crystal Oechsle, Ph.D.

Tuesday August 13, 2024 12:30 pm – 1:45 pm (1 CLE Credit)

Abstract:

This session will begin with an introduction to the panel of forensic scientists (subject to availability): Daniel Davison, Jeffrey Lynn, Jessica Mendofik, Crystal Oechsle, Megan Roberts, Tiffany Roy, Jon Sprague, and Travis Worst. The host will elicit topics and questions from attendees prior to the panel and throughout the workshop. Workshop attendees and presenters alike will attempt to bring a better understanding to issues that arose throughout the training or have been plaguing practitioners for longer. Attendees are encouraged to come with their own specific topics of interest or forensic questions that they wish to discuss. Potential topics include the emerging forensic-related caselaw and questions that are currently being considered in front of the Ohio and US Supreme Courts; the admissibility of probabilistic genotyping software-generated statistics, the use of genetic genealogy, or Rapid DNA; the wording of typical crime laboratory reports.