

WORKSHOPS

Pre-Registration Required by Jan. 30

W20 A Gentle Introduction to the Likelihood Ratio: Basic Ideas, Implementation, Limitations

Tuesday, February 14, 2023

8:30 AM – 12:00 PM

CE Hours: 3.25

Learning Overview: Participants in this workshop will understand the basic idea behind the LLR and how to correctly interpret results from an LLR analysis. They will also understand some of the challenges that must still be resolved before the LLR can be used in a wide range of forensic disciplines.

Impact Statement: Forensic scientists are increasingly expected to provide a quantitative, data-based assessment of the strength of the evidence in favor of a proposition. The LLR approach has emerged as a plausible approach to do so. Yet, correctly arriving at and interpreting those assessments requires some understanding of the statistical foundations of the LLR approach. This presentation will impact the forensic science community by presenting foundations and best practices in an accessible, easy to follow format, aiming to increase the statistical and quantitative literacy of forensic practitioners and provide them with the background they need to more confidently work with LLRs.

Program Description: This workshop will focus on the LLR approach to evaluating evidence. The LLR is a one-number summary that quantifies the weight of the evidence in favor of the prosecution's or the defense's propositions. While the basic idea behind the LLR is simple and intuitive, the challenges arise when trying to implement the approach on different types of evidence. Presenters will discuss the statistical foundations of the LLR, but will spend significant time on examples, applications in different forensic disciplines, best practices, and limitations.

Chair:

Alicia L. Carriquiry, PhD

CSAFE–Iowa State University

Ames, IA

Co-Chair:

Micael J. Salyards, PhD

CSAFE–Iowa State University

Ames, IA

Presenter:

Danica M. Ommen, PhD

CSAFE–Iowa State University

Ames, IA

Target Audience: Anthropology, Criminalistics, Digital & Multimedia Science, Engineering & Applied Sciences, General, Jurisprudence, Odontology, Toxicology

Knowledge Level Required: Basic

Program:

8:30 AM – 8:45 AM	Motivating the Application of Quantitative Approaches to Evaluate Science <i>Michael J. Salyards, PhD</i>
8:45 AM – 9:15 AM	A Gentle Introduction to Basic Statistical Ideas: Conditional Probabilities, Bayes Rule, Statistical Models, and Examples <i>Alicia L. Carriquiry, PhD</i>
9:15 AM – 10:00 AM	Formulating Propositions and the Corresponding Likelihood Ratios: Examples from Biological and Trace Disciplines <i>Danica M. Ommen, PhD</i>
10:00 AM – 10:15 AM	BREAK
10:15 AM – 10:45 AM	The Special Case of Pattern Comparison Disciplines and the Score-Based Likelihood Ratio (SLR) <i>Alicia L. Carriquiry, PhD</i>
10:45 AM – 11:15 AM	FRStats as an Example of SLR in Practice <i>Michael J. Salyards, PhD</i>
11:15 AM – 11:45 AM	The ENSFI Qualitative LR (QLR) and Other Odds and Ends <i>Danica M. Ommen, PhD</i>
11:45 AM – 12:00 PM	Discussion and Questions