



# Southern Association of Forensic Scientists American Society of Trace Evidence Examiners



2019 Annual Meeting  
April 29<sup>th</sup> -May 3<sup>rd</sup>, 2019

Crowne Plaza Tennis and Golf Resort-Asheville, North Carolina

## REGISTRATION FORM

Name: \_\_\_\_\_

Agency: \_\_\_\_\_

Address/Phone: \_\_\_\_\_

Email: \_\_\_\_\_

ABC Affiliation (for name tag): \_\_\_\_\_

Discipline: \_\_\_\_\_

SAFS Member #: \_\_\_\_\_

ASTE E Member #: \_\_\_\_\_

### Registration Fees:

Early (through March 15, 2019):	Member \$300	Non-Member \$350
Regular (through April 5, 2019):	Member \$350	Non-Member \$400
Late (through April 19, 2019):	Member \$400	Non-Member \$450

Registration includes the following: welcome package, Thursday plenary session, Friday poster and breakout session, breakfast Tuesday through Friday, Wednesday evening vendor reception, Thursday lunch and Thursday evening Banquet.

**For those attending only workshops, no registration fee is required**

In order to plan appropriate space and meals, we ask that you indicate if you plan on attending the included events by checking the appropriate box(es) below. Thank you for your assistance.

<input type="checkbox"/>	Tuesday Breakfast
<input type="checkbox"/>	Wednesday Breakfast
<input type="checkbox"/>	Wednesday Evening Vendor Reception
<input type="checkbox"/>	Thursday Morning Breakfast
<input type="checkbox"/>	Thursday Lunch and Business Meeting
<input type="checkbox"/>	Thursday Evening Banquet
<input type="checkbox"/>	Friday Breakfast with posters and breakout sessions
<input type="checkbox"/>	<b>ABC Exam (Wednesday, May 1, 2019 from 2-6 pm)</b>

**Additional Banquet Tickets:** \$75.00 each (# needed: \_\_\_) \$ \_\_\_\_\_

**Student Registration:** \$20.00 – Note: Students must be currently registered in a curriculum leading to a career in Forensic Science to qualify. This fee **ONLY** covers the Thursday breakfast and plenary session as well as the Friday breakfast and breakout sessions. This fee does not include the banquet.



## Workshops

	ASTEE/SAFS Member	Non-Member		
<b>Tuesday, April 30, 2019</b>				
To Find a Needle in a Haystack, It Helps If You Know Where to Look! The Challenges of Drug-Facilitated Sexual Assault Investigation (8:00-12:00)				
\$125	\$175		\$ _____	
GCMS Fundamentals of Troubleshooting and Maintenance (1:00-5:00)				
\$125	\$175		\$ _____	
Fentanyl and Other Synthetics: Synthesis, Prevalence, and Unique Trends (8:00-5:00)				
\$250	\$300		\$ _____	
Elements of Statistical Inference (8:00-5:00)				
\$250	\$300		\$ _____	
Forensic Wood Examination (Tuesday and Wednesday)				
\$400	\$450		\$ _____	
The Forensic Analyzing of Knots and Ligatures (Tuesday and Wednesday)				
\$400	\$450		\$ _____	
Not Just Surviving the Trial: How to Prepare for and Provide Effective Courtroom Testimony (8:00-12:00)				
\$125	\$175		\$ _____	
<b>Wednesday, May 1, 2019</b>				
MassHunter Boot Camp (8:00-5:00)				
\$250	\$300		\$ _____	
Emerging Cell Separation Techniques for Sexual Assaults (8:00-5:00)				
\$250	\$300		\$ _____	
Combining a Theoretical and Practical Approach to Method Development and Validation in a Forensic Drug Chemistry Laboratory (8:00-12:00)				
\$125	\$175		\$ _____	
Comparison of Vapor Phase Infrared and Mass Spectral Methods for the Identification of Isomeric Synthetic Drugs (1:00-5:00)				
\$125	\$175		\$ _____	
LC-TOF/QTOF for Drug Screening Applications in the Toxicology Lab: Theory, Development, and Application (8:00-12:00)				
\$125	\$175		\$ _____	
<b>Workshop Total:</b>				\$ _____
<b>Meeting Registration Total:</b>				
Registration, Workshops, and Extra Meals:				\$ _____

Make Checks Payable to: SAFS

Send Form and Payments to:

GBI-DOFS Coastal Regional Crime Laboratory  
 ATTN: Tanja Kopp, SAFS Treasurer  
 925A Mohawk Street  
 Savannah, GA 31419



## SAFS/ASTEE Workshop Abstracts

### **To Find a Needle in the Haystack, It Helps If You Know Where to Look! The Challenges of Drug-Facilitated Sexual Assault Investigations**

**Instructor: Marc Lebeau – Federal Bureau of Investigation Laboratory**

**Abstract:** This session will discuss the crime of drug-facilitated sexual assault (DFSA) and its impact on victims, law enforcement, crime laboratories, and society. The challenges of this crime include the drugs used, the reporting of the crime, proper evidence collection, and the toxicological analyses of specimens. The challenge associated with strong, central nervous system depressants used to commit DFSA emphasizes their pharmacological effects and how these drugs create difficulties in the investigation. For example, while sexual assaults in general are significantly underreported, the drug effects in DFSAs further complicate victims' reporting to law enforcement. Any delay in reporting decreases the ability of a laboratory to detect the presence of drugs or metabolites in useful evidentiary specimens. Finally, differences in instrumentation and mission from one laboratory to the next will affect the ability of a laboratory to provide unequivocal identification of DFSA drugs or metabolites in these cases. While the true prevalence of DFSAs may never be fully recognized, acknowledgement of the many challenges that come with these cases provides insight as to how to improve chances of successfully investigating allegations of a DFSA.

## **LC-TOF/QTOF for Drug Screening Applications in the Toxicology Laboratory: Theory, Development, and Application**

### **Instructors:**

**Jason S. Hudson, Ph.D., F-ABFT**, Toxicology Section Chief, Alabama Department of Forensic Sciences

**Rebecca Wagner, Ph.D.**, Research Analyst, Virginia Department of Forensic Science

### **Abstract:**

The emergence of LC-TOF/QTOF (Liquid Chromatography-Time of Flight/Quadrupole Time of Flight) mass spectrometers available for toxicological analysis supports the need for a better understanding of the fundamental principles of the instrumentation, as well as the advantages and disadvantages of the analytical technique. Toxicology laboratories require rapid screening techniques to guide their confirmation testing. LC-TOF/QTOF instrumentation allows for screening by accurate mass without the need for robotic instrumentation or specific immunoassay kits traditionally required for enzyme immunoassay screening. This characteristic permits general drug screening that can be more specific and not limited by cross reactivity. Additionally, accurate mass databases/libraries can be rapidly expanded to detect emerging drug targets such as fentanyl analogs and other designer drugs. This course will focus on the fundamentals of LC-TOF/QTOF theory as well as applications that are relevant to toxicology laboratories. Considerations for general acceptance criteria and method development/validation of these methodologies will also be addressed.

### **Learning Objectives:**

1. Attendees will learn basic LC-TOF/QTOF theory and operational modes of instrumentation.
2. Attendees will gain knowledge of the method development process for LC-TOF/QTOF instrumentation.
3. Attendees will gain exposure to data acquisition, data processing, and general acceptance criteria for targeted and general screening applications.

**GCMS Fundamentals of Troubleshooting and Maintenance  
(597X/68XX/78XX/Intuvo 9000)**

**Instructors: KIRK LOKITS and ERIC PAVLICH**

**Abstract:**

The GC and GCMS workshop will be focused on the fundamental instrumental aspects (theory/troubleshooting/maintenance) of GC (Split/Splitless) inlets, FID detectors, as well as MS EI sources, as they all relate specifically to forensic analysis (street drugs, toxicology, accelerants/fire debris). Theory of GC inlet pneumatics, GC detector operation, and enhancing MSD sensitivity, will be discussed. Column selection and inlet and flow path troubleshooting will be presented for the **68XX/78XX** technology and the **Intuvo 9000** technology. The workshop presentation will be PowerPoint based but will have hands on involving split/splitless inlet modules, FID modules, MS EI sources, and an **Intuvo 9000**. The workshop will cover an entire day and will be divided into **68XX/78XX** technology and **Intuvo 9000** technology. The amount of individual hands on participation will depend on the size of the class.

## **Fentanyl and Other Synthetics: Synthesis, Prevalence and Unique Trends**

Brian Escamilla, Clan Lab Program Director, NES, Inc.

Recent trends have influenced clandestine laboratories to produce highly toxic and, in many cases, never seen before narcotics. The rise in the designer synthetic narcotics is posing new challenges to law enforcement and forensic laboratories across the country. This course will highlight the current trend for manufacturing fentanyl and some of the other synthetic opioid compounds including krocodil and heroin. In addition, the production of other potent stimulant and hallucinogenic compounds such as the substituted cathinones and synthetic cannabinoids will be discussed.

## **Combining a Theoretical and Practical Approach to Method Development and Validation in a Forensic Drug Chemistry Laboratory.**

**Erin Shonsey and Andrea Headrick**

Any laboratory currently accredited or seeking accreditation is familiar with the ISO/IEC 17025 document. The provided guidelines are vague to allow for the variety of casework performed in a forensic laboratory. When it comes to method validation with the laboratory, ISO/IEC 17025 states that an accredited laboratory must at minimum verify the proper performance of a standard method prior to use in casework, and at most it must validate any “non-standard methods, laboratory-developed methods and standard methods used outside their intended scope or otherwise modified.” ANAB further adds that the validation procedure shall include “associated data interpretation; establishes the data required to report a result, opinion, or interpretation; and identifies limitations of the method, reported results, opinions, and interpretations.” ISO/IEC 17025 provides further suggestions on what to include in a validation study under 7.2.2.1 Note 2. The ultimate goal of the method development and validation is to provide a method that is accurate, specific, and robust. This can be achieved a variety of ways, and often it is found that each lab takes their own approach in what to include in method validation. The Alabama Department of Forensic Sciences (ADFS) has outlined different studies to perform individually or in combination to achieve compliance with the ISO requirement. The Drug Chemistry section at ADFS has developed a standard template for all method validated within the section that meets all the requirements and provides a strong foundation for case conclusions. The workshop will discuss this approach from two different viewpoints: the research based viewpoint that routinely thinks, “More is better” and the productivity viewpoint that must keep track of efficiency and defensibility.

## **Comparison of Vapor Phase Infrared and Mass Spectral Methods for the Identification of Isomeric Synthetic Drugs**

C. Randall Clark, Lewis W. Smith\* and Younis Abiedalla, Department of Drug Discovery and Development, Harrison School of Pharmacy, Auburn University, Auburn, AL 36849 and

\*Forensic Spectral Research, Bridgeton, N.J. 08302

After attending this presentation, attendees will better understand the value of gas chromatography-infrared spectroscopy (GC-IR) for confirming the identity of regioisomeric synthetic drugs. Additionally, attendees will gain an appreciation for the role of alternate analytical methods such as GC-IR in the analysis of regioisomeric substances having equivalent mass based analytical signatures.

This presentation will impact the forensic science community by providing attendees with a description of the role of GC-IR in concert with gas chromatography-mass spectrometry (GC-MS) for the specific identification of synthetic drug substances.

The overall goal of our studies is to provide an analytical framework for the identification of isomeric forms of synthetic drugs. This presentation will focus on vapor phase infrared spectroscopy (GC-IR) as a confirmatory method of identification for regioisomeric synthetic drugs having equivalent mass based analytical signatures. Examples from a number of drug categories will be used to illustrate the advantages of GC-IR in the identification of regioisomeric synthetic drug substances, synthetic intermediates and precursor chemicals.

The relentless development of new designer substances of synthetic origin creates challenges in forensic drug identification. The availability of a wide variety of precursor substances can yield numerous isomeric substances in a number of drug categories. Issues of regioisomerism are prominent in the cannabinoids, cathinone derivatives, N-methoxybenzyl-phenethylamines (N-BOMe) compounds as well as most other synthetic drug categories. Regioisomeric substances have the identical elemental composition, nominal and exact masses and in many cases yield regioisomeric fragment ions of equivalent elemental composition (equal mass).

**2019 SAFS/ASTEE Meeting – Asheville, NC**  
**1 Day Workshop Title: Elements of Statistical Inference**

**Presenter:** Cedric Neumann, PhD.

**Workshop description:**

This one-day workshop is intended for forensic scientists with no or limited experience in statistics and logical inference. Instruction will mix exercises designed such that the audience can discover general principles of interpretation of forensic evidence, and short lectures focused on reinforcing the theory behind these general principles. The workshop will cover the logic of decision-making (induction, deduction, abduction); will offer a general model that explains the interplay between different types of information in the decision-making process and allows to discuss errors, bias, and different types of conclusions commonly encountered in forensic science. This model is the crux of the workshop and will help forensic scientists to structure their thinking process when interpreting their analytical observations.

**Workshop abstract:**

There exists a large variability between the different types of conclusions reported by forensic scientists depending on the evidence type that they are considering. In many cases, the observations resulting from the forensic examination is only part of the information that is used to reach a conclusion. Such information may include case circumstances, personal beliefs, training, experience, statistical data, and risks and rewards. This workshop explores the logic behind decision-making processes. During this workshop, the audience will use a decision-making model that structures and explains how the different types of information interacts with each other and with the forensic observations to support conclusions in casework. The practice of the decision-making model will reveal to the audience why the use of certain types of information is necessary to reach certain types of conclusions, but can also result in errors or bias. Conversely, it will show what types of conclusions can be supported if one wants to report error- and bias-free conclusions. Overall, the workshop will help the audience organize, support and describe their reasoning process when forming conclusions.

**Learning objectives:**

The goal of this workshop is to introduce forensic scientists from multiple sub-disciplines to the decision-making process behind forensic conclusions. At the end of the workshop, the audience will be able to:

- Identify the different types of information entering into a decision-making process and describe their interplay;
- Recognize the hierarchy between the different types of forensic conclusions and their respective benefits and limitations.

**2019 SAFS/ASTEE Meeting – Ashville, NC**  
**2 Day Workshop Title: Forensic Wood Examination**

**Presenter:** Larry Peterson, BS, Emeritus ASTEE, Emeritus ABC, SAFS and AAFS Retired

**Workshop description:**

This is a two day workshop intended for microscopists with no or limited experience in forensic wood examinations. Instruction will include lectures on macroscopic and microscopic features useful for discrimination/classification as well as sample preparation. Instruction will include lab exercises for hands-on examinations. Students with experience can concentrate on lab exercises during introductory instruction. Microscopes will be available for the lab exercises. Discussions will include case examples and considerations for courtroom testimony.

**Workshop abstract:**

Wood examination is one area of the ever shrinking specialty areas of trace evidence that needs to be supported. Training in such areas is difficult for individual labs to provide. The object of this workshop is to combine an introductory type workshop for inexperienced examiners and also provide a platform for examiners who infrequently perform examinations and would like to expand their experience. The hands-on approach is crucial to the understanding of both the sample prep techniques and morphological characteristics needed for success in wood characterization. Examining whole wood blocks and forensic sized samples will be included in the lab exercises. Examiners with no experience can begin with lectures of wood structure and sample prep techniques. Examiners with experience can be paired together and begin lab exercises right away.

**Learning objectives:**

At the conclusion of the workshop, beginning examiners would have the knowledge and confidence to further develop their experience. Experienced examiners will have gained a deeper knowledge of the discriminatory potential for wood examinations. Resources for additional information will be emphasized. This workshop experience will further develop/expand background knowledge/skills and, in addition, strengthen courtroom testimony.

**2019 SAFS/ASTEE Meeting – Ashville, NC**  
**2 Day Workshop Title: Forensic Wood Examination**

**4 very useful references for wood characterization... REFERENCES 1 AND 2 VERY USEFUL TO BRING TO WOKSHOP!**

- 1) Textbook of Wood Technology, Panshin and de Zeeuw,., McGraw-Hill, 4th ed, 1980  
(ebay or Amazon ... \$30 to \$40; earlier editions also OK)
- 2) Identifying Wood, Hoadley, The Taunton Press, 1990 (ebay or Amazon ... \$30 to \$40)
- 3) Anatomy of Seed Plants, Esau, John Wiley and Sons, 1960
- 4) Wood as an Engineering Material. General Technical Report 113.  
Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products  
Laboratory. 463 p. ([www.fpl.fs.fed.us](http://www.fpl.fs.fed.us))

# THE FORENSIC ANALYSING OF KNOTS AND LIGATURES

Course Outline (Draft #2)

SAFS & ASTEE, ASHEVILLE NC, MAY, 2019

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## COURSE FACILITATOR BIOGRAPHY

Robert Chisnall, B.Sc., B.Ed., M.Ed.

- § Independent Forensic Knot Consultant and Researcher since 1983
- § Member: AAFS, IAI
- § Author: “The Forensic Analysis of Knots and Ligatures” (2000)
- § More than 200 domestic and international cases and dozens of court appearances
- § Ongoing research interests include handedness of knot tiers, mathematical classification of knots, knot strength and security, knot structure and chirality, case data analysis, combinatorics of factor knots, mathematical modelling of knot security, and other topics.
- § Previous Courses and Lectures:

**Third Annual Ontario Forensic Identification Officer's Seminar:**

C. O. Bick College, Scarborough, Ontario, November 4, 1988.

**Seventh Annual Advanced Homicide Investigator's Seminar:**

Metropolitan Toronto Police Station, Toronto, Ontario, February 9, 1989.

**Canadian Identification Society 12th Annual Conference:**

Edmonton, Alberta, July 13, 1989.

**Advanced Criminal Investigation Training Homicide Module:**

Ontario Police College, Aylmer, Ontario, October 3, 1991.

**Forensic 310, Trends in Forensic Science - Forensic Analysis of Knots and Ligatures**

Trent University, Ontario, Canada, March 2006, January 2007-2012, 2014-2018

**MAFS Fall Meeting - Forensic Analysis of Knots and Ligatures**

Midwestern Association of Forensic Scientists, Inc., October 12, 2006.

**Forensic Analysis of Knots and Ligatures – Five-Day Course**

Chemistry and Physics Laboratory, Health Sciences Authority, Singapore, May 19-23, 2014.

**Forensic Analysis of Knots and Ligatures, Review – One-Day Course**

Chemistry and Physics Laboratory, Health Sciences Authority, Singapore, October 28, 2016.

## **OVERVIEW** (See ASTEE Website for more details)

The forensic analysis of knots and ligatures draws on traditional knotting lore, behavioural research and the physical sciences in order to analyze evidence. The examination of knots and rope can be relevant in civil cases, wherein safety equipment has failed resulting in an accident involving injury or death. The activity under investigation could be recreational (like rock climbing or water skiing for example) or professional (such as construction at height or arborist work). More frequently, knots and ligatures may have contributed to suspicious deaths, therefore becoming a matter of criminal investigation. Knots are sometimes discovered at various crime scenes (including homicide, rape and robbery) and they can become significant pieces of evidence deserving careful preservation, examination and analysis.

A detailed analysis includes the following details: accurate structural identification of all knots, determination of the tying sequence, recognition of potential knot changes, establishing knot function and efficacy, and noting any peculiarities that could be relevant. Knotted materials may also harbour a variety of trace evidence.

Knot evidence is group characteristic, like blood typing, and individualization is not possible. It can be corroborative or equivocal, offering several possible explanations. Qualitative features and certain patterns may suggest self-tying or external tying – thus distinguishing between suicide, homicide and autocratic fatalities. It may be possible to determine the number of tiers, and perhaps the handedness of those tiers, although the research in this regard is currently too limited to allow any statistical inferences.

In those rare cases involving more sophisticated knots that require training and experience, certain hobbies or occupations could be suggested. Knot evidence may provide grounds for search warrants and wire taps in order to acquire further evidence related to suspect knot-tying habits and activities.

## **LEARNING OUTCOMES**

The intent of this course is to raise awareness of the capabilities and limitations of knot analysis. Toward this end, course participants will:

- Learn about knots in general
- § Tie and identify knots
- Understand knot behavior
- Understand tier behavior
- § Recognize tying materials
- Know basic analysis principles

## COURSE FORMAT AND OUTLINE

The proposed course will be 12 hours in duration. Subsequent to the classroom sessions, participants will undertake an afternoon site visit to a rope manufacturer – amounting to an additional four hours, with travel. Subject to change based on interest and time limitations, the course will be presented in six two-hour modules, with midmorning, mid-afternoon and lunch breaks in between:

DAY	AM 1	AM 2	PM 1	PM 2
TUESDAY	Introduction I. Background II. Forensic Analysis Overview	III. Knot Fundamentals IV. Chirality and Combinations	V. Change and Variance VI. Basic Procedures	VII. Materials VIII. Analysis
WEDNESDAY	IX. Behavioural Research X. Civil Cases and Testing Research	XI. Reporting XII. Sample Practice Cases Conclusion	Rope Manufacturer Site Visit	

## REFERENCES AND RECOMMENDED READING

Budworth G. Knots and Crime. Great Britain: Police Review Publishing Co. Ltd., 1985.

Nute, H.D. Mirror images in knots. Journal of Forensic Sciences 1986, Volume 31, No.1, pp. 272-9.

Chisnall R. The Forensic Analysis of Knots and Ligatures. Salem, Oregon: Lightning Powder Company, Inc, 2000.

Ibid. What knots can reveal: the strengths and limitations of forensic knot analysis. Journal of Forensic Identification. 2007, Volume 57, No. 5, pp. 726-49.

Ibid. Tying Anomalies and their significance in analysing knot evidence. The Canadian Society of Forensic Science Journal, 2009, Volume 42, No. 3, pp. 172-94.

Ibid. Knot-tying habits, tier handedness and experience. The Journal of Forensic Sciences, 2010, Volume 55 , No. 5, pp. 1232-44.

Ibid. Basic principles of forensic knot analysis: a qualitative study of tying behaviour. The Investigative Sciences Journal, 2010, Volume 2, No. 3, pp. 33-44 .

Ibid. An analysis of more than 100 cases involving knots and ligatures: knot frequencies, consistent tying habits and noteworthy outliers. The Australian Journal of Forensic Sciences. 2011, Volume 43, No. 4, pp. 245-262.

Ibid. Structural Recognition and Nomenclature Standardization in Forensic Knot Analysis. Science and Justice. 2016, Volume 56, Issue 4, pp. 282-301.

Ibid. Analysing knot evidence: associating innate habits with sophisticated tying tasks. The Scandinavian Journal of Forensic Science. 2016, Volume 22, No. 2, pp. 21-32.

Ibid. Categorizing Innate Tying Behaviour and Knot Sophistication Using Fundamental Principles. Journal of Forensic Identification. 2017, Volume 67, Issue 3, pp. 447-472.

## **Not Just Surviving the Trial: How to Prepare for and Provide Effective Courtroom Testimony**

**Presenter: Amy M. Curtis, Esquire-Department Counsel with the Virginia Department of Forensic Sciences**

As forensic science has come under closer scrutiny in recent years, forensic scientists have to be prepared for anything as they take the witness stand as expert witnesses. As criminal lawyers are increasingly seeking training on understanding, presenting, and refuting forensic science evidence, the days of “I have no questions for this witness” may become a distant memory. Even in the routine cases, forensic scientists need to be prepared, not only to effectively explain the foundations of their discipline, their processing of the evidence, and their conclusions to the factfinder, but also to survive and thrive during an effective cross-examination. This workshop will walk the novice (and the seasoned forensic scientist) through the criminal trial process, the pertinent evidentiary rules, the keys to an effective direct examination, and the pitfalls to avoid during cross-examination. Discussion will include the prosecutor’s duties under Brady, the rise in Giglio inquiries, and the forensic scientist’s ethical obligations during the criminal trial process. The testimony of forensic scientists in some high profile cases as examples for discussion. The presenter has seen both sides of the criminal justice system as a criminal defense attorney and as a local prosecutor. She currently serves as in-house counsel for the Virginia Department of Forensic Science, advising forensic scientists on legal issues, and often serving as the “bridge” between the scientists and the lawyers. Workshop participants are encouraged to bring their questions and their commentary.

# AGILENT TECHNOLOGIES MASSHUNTER BOOT CAMP

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for a day of learning and hands-on experience with the latest version of Agilent's MassHunter Data Analysis software.

The MassHunter Boot Camp is designed to be a full-day session of lecture, hands-on exercises, and serve as an introduction to MassHunter software so that attendees can see the many advantages of the software. This workshop is not offered as or intended to be a training session.

## Agenda Title

- 8:15<sup>a.m.</sup> Registration Opens
- 8:30<sup>a.m.</sup> Introduction to MassHunter
  - Translating ChemStation data to MassHunter format
  - Retention Time Locking (RTL) basics, setup, and adjustments
- 10:00<sup>a.m.</sup> Qualitative Analysis
  - Spectral tasks – TIC/EIC, integration, background subtraction, peak lists, annotations, spectral tables, mass caliper, creation of compound list and analysis
  - Library – selection, searching, creation
  - Action List – integration, library searches, library spectral comparisons, report generation
  - Deconvolution – identifying compounds, library search comparisons
- 12:00<sup>p.m.</sup> Lunch Break
- 12:45<sup>p.m.</sup> Quantitative Analysis
  - Generate sample batch, calibration curve, batch table review, and batch-at-a-glance
  - Unknowns analysis
  - Library editor
- 2:00<sup>p.m.</sup> Introduction to Reporting
- 4:10<sup>p.m.</sup> Q&A
- 4:30<sup>p.m.</sup> Adjourn

Register at: <https://agilent.cvent.com/MHBC>

