

## **Sarah S. Urfer, M.S., D-ABFT-FT**

sarah@chematox.com

### **EDUCATION**

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- University of Illinois Chicago, Chicago, IL** *July 2006*  
M.S. Forensic Science
- University of Colorado Boulder, Boulder, CO** *May 2005*  
B.A. Biochemistry
- Minor: Chemistry
  - Graduated with Departmental Honors
- University of Lancaster, Lancaster, England** *2004*  
Study Abroad

### **EXPERIENCE**

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- ChemaTox Consulting** *October 2019 - Present*  
Chief Forensic Toxicologist
- Expert consulting and testimony related to: toxicological testing methods including reliability, and accuracy of results; the review of toxicology results, and associated interpretation of the results, as they relate to a specific case; pure drug testing methods including reliability, and accuracy of results; the effects of drugs, including alcohol, on the human body with a focus on impairment relating to the performance of tasks such as the ability to operate a motor vehicle, sex assault, and homicide cases.
- ChemaTox Laboratory, Inc.** *May 2006 - September 2019*  
Forensic Chemist/Toxicologist, Lab Director
- Responsible for alcohol analysis in blood samples. Validation and calibration of the Head-space Gas Chromatographs. Other responsibilities include the analysis of blood and other body fluids for the presence of drugs and other toxic substances using Immunoassay and Gas Chromatography/Mass Spectrometry. Expert testimony on alcohol analysis, drug determination and the effects of drugs and alcohol on the body. Providing services to governmental and private agencies for analysis of body fluids and tissues for alcohol, drugs and other toxic substances. Supervise laboratory operations and train personnel.
- University of Illinois Chicago, College of Pharmacy** *August 2005 - July 2006*  
Forensic Science M.S. Program Teaching Assistant
- Assisting professors prepare for class by photocopying and providing any necessary equipment for the lecture. Set up lab experiments for students to complete. Make reagents for student labs. Help students with class-related issues.

**University of Colorado Boulder, Biochemistry Laboratory***May 2003 - July 2005*

Student Researcher supervised by Dr. Shelley Copley

- Developed a new research project from a previously unnoticed pattern I observed. Designed and implemented effective methods for conducting my research. Wrote a final report summarizing my two years of research and drawing conclusions on its possible implications.

**University of Colorado Boulder, Chemistry and Biochemistry Department***Fall 2003, Fall 2004*

Teaching Assistant

- Introduction to General Chemistry teaching assistant for two semesters. Wrote and graded quizzes, instructed students on the proper use of equipment and chemicals in the lab, supervised lab activities and evaluated students for part of the final grade.

**PRESENTATIONS****Drug Testing: Monitoring Drug and Alcohol Abuse - Presenter***December 5<sup>th</sup> 2008*

Colorado Bar Association, Continuing Legal Education in Colorado, Inc. Accredited Class

**SOFT Young Forensic Toxicologist Symposium - Effect of Changing Marijuana Laws on Toxicology Laboratories - Speaker***October 27<sup>th</sup> 2013*

Annual Society of Forensic Toxicologists meeting

**SOFT-TIAFT Young Forensic Toxicologist/Scientists Symposium - DUI Laws and Legislation in the US - Speaker***September 25<sup>th</sup> 2011*

Joint Annual Society of Forensic Toxicologists and The International Association of Forensic Toxicologists meeting

**Expert Testimony***February 27<sup>th</sup> 2012*

Colorado Senate State, Veteran and Military Affairs Committee

- Testified as an Expert in Forensic Toxicology regarding SB 12-117: Concerning the establishment of a THC blood content threshold for the purpose of charging a person with the criminal offense of DUI per se.

**The Changing Landscape of Marijuana Legislation and DUI testing in Colorado***October 23<sup>rd</sup> 2014*

Annual Society of Forensic Toxicologists meeting

**Green Lab - Teacher***November 19<sup>th</sup> 2015*

Understanding Legal Marijuana, LLC.

**Buyer Beware: Cannabinoid Analysis in Cannabis Products***December 9<sup>th</sup> 2015*

A Legal "PotPourri"- American College of Medical Toxicology

**The Changing Landscape of DUI Testing and Legalized Marijuana***June 23<sup>rd</sup> 2016*

DRI

**SOFT Workshop Is This What the Doctor Ordered? Medical Marijuana Update - The Colorado Experience***October 18<sup>th</sup> 2016*

Annual Society of Forensic Toxicologists meeting

<b>Workshop “Progress in Field Forensics”</b>	<i>June 4<sup>th</sup> 2008</i>
American Society for Mass Spectrometry Annual Meeting	
<b>The Colorado Experience - Marijuana</b>	<i>May 31<sup>st</sup> 2017</i>
Drugs and Driving Symposium - Centre of Forensic Sciences Canada	
<b>Tox 101 - Teacher</b>	<i>April 27<sup>th</sup> 2016</i>
CDAC Impaired Driving Class	
<b>DRE Toxicology Update</b>	<i>May 25<sup>th</sup> 2017</i>
WY Governor’s Conference on Impaired Driving	
<b>Toxicology for the Prosecutor</b>	<i>May 25<sup>th</sup> 2017</i>
WY Governor’s Conference on Impaired Driving	
<b>Marijuana Commercialization Impact</b>	<i>April 25<sup>th</sup> 2017</i>
IACT	
<b>DUI Update 2010 - Teacher</b>	<i>January 21<sup>st</sup> 2010</i>
Colorado Bar Association, Continuing Legal Education in Colorado, Inc. Accredited Class. Testing for Drugs in Blood and Urine: What it Does and Doesn’t Mean	
<b>Marijuana Tox 101</b>	<i>May 19<sup>th</sup> 2017</i>
CDAC	
<b>Sleep-Driving is a Nightmare: Driving Under the Influence of Zolpidem Cases in Colorado</b>	<i>February 19<sup>th</sup> 2015</i>
Annual American Academy of Forensic Sciences meeting	
<b>Guest Lecture - Forensic Toxicology</b>	<i>January 24<sup>th</sup> 2019, January 19<sup>th</sup> 2017, January 18<sup>th</sup> 2018</i>
CSU	
<b>Toxicology and Prosecution</b>	<i>December 18<sup>th</sup> 2018</i>
CDAC	
<b>Advanced DUI Program</b>	<i>October 18<sup>th</sup> 2018</i>
CBA CLE Office	
<b>Expert Testimony</b>	<i>April 18<sup>th</sup> 2011</i>
Colorado Senate Judiciary Committee	
<ul style="list-style-type: none"> <li>• At the request of Sen. Steven King testified as an Expert in Forensic Toxicology regarding HB11-1261: Concerning the establishment of a THC blood content threshold for the purpose of charging a person with the criminal offense of DUI per se.</li> </ul>	
<b>DA Training</b>	<i>October 6<sup>th</sup> 2017</i>
Jefferson County	

<b>Cannabis and Driving 101</b> CDAC	<i>September 13<sup>th</sup> 2018</i>
<b>Toxicology for Coroners - Presenter</b> Colorado Coroners Association 21 <sup>st</sup> Annual Death Investigation Conference	<i>June 13<sup>th</sup> 2009</i>
<b>Comprehensive DUI/D: Toxicology - Teacher</b>  Colorado District Attorneys' Council	<i>December 13<sup>th</sup> 2013, September 27<sup>th</sup> 2013, September 9<sup>th</sup> 2013, August 28<sup>th</sup> 2014, April 19<sup>th</sup> 2013, March 21<sup>st</sup> 2013, March 14<sup>th</sup> 2014, August 8<sup>th</sup> 2014</i>
<b>Blood Alcohol Analysis 101 - Teacher</b>  Colorado Bar Association, Continuing Legal Education in Colorado, Inc. Accredited Class	<i>November 11<sup>th</sup> 2008, September 9<sup>th</sup> 2008</i>
<b>DFSA Training for Police</b> Denver Police Department	<i>August 7<sup>th</sup> 2018</i>
<b>Zolpidem and Driving - Case Reviews from Colorado</b> Annual Society of Forensic Toxicologists meeting	<i>July 5<sup>th</sup> 2012</i>
<b>Stories from states that have decriminalized cannabis</b> National Safety Council Cannabis Symposium: Cannabis: It's Complicated	<i>June 26<sup>th</sup> 2019</i>
<b>Improving Colorado's Road Health Summit Keystone Conference Resort - Panelist: Marijuana Driving</b> CDOT Highway Health Summit	<i>June 5<sup>th</sup> 2015</i>
<b>The Toxicology of Marijuana</b> Missouri DWI/Traffic Safety and DRE Recertification Conference	<i>June 5<sup>th</sup> 2014</i>
<b>Buyer Beware: Analysis of Cannabis Products for Sale</b> CAT - The Future Looks Green	<i>May 5<sup>th</sup> 2017</i>
<b>Drugs in our World Today</b> Torrey Pines High School	<i>May 3<sup>rd</sup> 2017</i>
<b>Criminalist Panel - What they can and can't do / how to prep a criminalist</b> California District Attorneys Association Drug Impaired Driver Training for Law Enforcement & Prosecution Professionals	<i>June 1<sup>st</sup> 2017</i>
<b>Drug Testing 101</b> El Paso County Court	<i>May 17<sup>th</sup> 2019</i>

<b>Toxicology in DUI/DUID Cases</b> Colorado Criminal Defense Bar	November 13 <sup>th</sup> 2019
<b>Sleep-Driving is a Nightmare: Driving Under the Influence of Zolpidem Cases in Colorado</b> California Association of Toxicologists	May 2 <sup>nd</sup> 2015
<b>Colorado: The ongoing experiment in progressive marijuana policy</b> California Association of Toxicologists	May 2 <sup>nd</sup> 2014
<b>Buyer Beware: High Grade THC Products Are Here to Stay</b> CAT	April 3 <sup>rd</sup> 2016
<b>Tox 101 for DRE's</b> WDOT	May 1 <sup>st</sup> 2016
<b>Forensic Science</b>	2018, 2017, 2016, 2015, 2014, 2013, 2012, 2011, 2010, 2009, 2008, 2007
Annual Molecular Cellular Developmental Biology Mentors Meeting	

## **PUBLICATIONS**

**Analysis of  $\Delta^9$ -tetrahydrocannabinol Driving Under the Influence of Drugs Cases in Colorado from January 2011 to February 2014** 2014  
Sarah Urfer; Jaime Morton; Vanessa Beall; Jeanna Feldmann; Justin Gunesch *Journal of Analytical Toxicology* 38.8: 575-581 doi:10.1093/jat/bku089

## **CERTIFICATIONS**

**Diplomate - Forensic Toxicology**  
American Board of Forensic Toxicology

## **CONTINUING EDUCATION**

**International Association of Chiefs of Police DRE Section Conference on Drugs, Alcohol and Impaired Driving** July 28<sup>th</sup>-30<sup>th</sup> 2014  
Phoenix, AZ

**CDAC Traffic Safety Training Program: Marijuana Related Impaired Driving** August 12<sup>th</sup> 2016  
Lakewood, CO  
• Presenter and attendee

**The International Association for Chemical Testing Annual Meeting** April 24<sup>th</sup>-28<sup>th</sup> 2017  
Colorado Springs, CO

- California Association of Toxicologists meeting** *November 7<sup>th</sup>-8<sup>th</sup> 2014*  
San Diego, CA
- California Association of Toxicologists meeting** *November 5<sup>th</sup>-7<sup>th</sup> 2015*  
Orange County, CA
- Colorado Coroners Association 29<sup>th</sup> Annual Death Investigation Conference** *June 7<sup>th</sup>-9<sup>th</sup> 2017*  
Colorado Springs, CO
- Colorado Coroners Association 30<sup>th</sup> Annual Death Investigation Conference** *June 8<sup>th</sup> 2018*  
Fort Collins, CO
- California Association of Toxicologists 50th Anniversary Meeting** *May 5<sup>th</sup>-6<sup>th</sup> 2017*  
San Diego, CA
- California Association of Toxicologists meeting** *May 2<sup>nd</sup>-3<sup>rd</sup> 2016*  
Incline Village, NV
- Annual Society of Forensic Toxicologists meeting** *October 27<sup>th</sup>-31<sup>st</sup> 2008*  
Phoenix, AZ  
Workshops
- Effects of Drugs on Human Performance and Behavior - A Borkestein Sampler
- Joint Annual Society of Forensic Toxicologists and The International Association of Forensic Toxicologists meeting** *September 25<sup>th</sup>-30<sup>th</sup> 2011*  
San Francisco, CA  
Workshops
- Pairing Clinical & Postmortem Toxicology Findings for Interpretive Purposes
  - Spice: Detection in Various Biological Matrices
  - Scientific Writing for Dummies and Smarties Too!
  - Publishing in Journals for Forensic Toxicologists
- Annual Society of Forensic Toxicologists meeting** *October 20<sup>th</sup>-24<sup>th</sup> 2014*  
Grand Rapids, MI  
Workshops
- Implementing the DUID Laboratory Recommendations
  - A Practical Approach to Calculating and Reducing Uncertainty of Measurement in the Laboratory
  - The Drug Recognition Expert (DRE) Program with Demonstration DRE Evaluation and Mock Court

**Annual Society of Forensic Toxicologists meeting***October 19<sup>th</sup>-23<sup>rd</sup> 2015*

Atlanta, GA

Workshops

- The Role of Benzodiazepines in DUID
- Sample Preparation in Forensic Toxicology: Back to the Past and a Look into the Future (Teacher)
- Expert Testimony: How to be Comfortable in an Uncomfortable Situation-The Basics (Workshop Chair)

**Annual Society of Forensic Toxicologists meeting***October 19<sup>th</sup>-23<sup>rd</sup> 2009*

Oklahoma City, OK

Workshops

- “Newer” Prescription Drugs: Impairment Potential and Identified Polypharmacies
- Bridging the Gap in Postmortem Laboratory Practices and Case Interpretations
- Envenomations: Toxins, Anti-Venoms and Clinical Course
- Toxicology of Opiate Overdose: Strategies for Analysis and Interpretation

**Annual Society of Forensic Toxicologists meeting***October 18<sup>th</sup>-22<sup>nd</sup> 2010*

Richmond, VA

Workshops

- Marijuana Pharmacology
- Drug Recognition Expert Program - Principles and Practice
- To Err Is Human... To Identify It Is Divine

**Annual Society of Forensic Toxicologists meeting***October 17<sup>th</sup>-21<sup>st</sup> 2016*

Houston, TX

Workshops

- Is This What the Doctor Ordered? Medical Marijuana Update

**Colorado Coroners Association 26<sup>th</sup> Annual Death Investigation Conference***June 18<sup>th</sup>-20<sup>th</sup> 2014*

Fort Collins, CO

- Completed three day training seminar on Medicolegal Death Investigation

**Annual Society of Forensic Toxicologists meeting***October 14<sup>th</sup>-18<sup>th</sup> 2019*

San Antonio, TX

**IACP Training Conference on Drugs, Alcohol, and Impaired Driving***August 13<sup>th</sup>-15<sup>th</sup> 2016*

Denver, CO

**Missouri DWI/Traffic Safety and DRE Recertification Conference***June 5<sup>th</sup>-6<sup>th</sup> 2014*

Osage Beach, MO

**Colorado Coroners Association 20<sup>th</sup> Annual Death Investigation Conference***June 12<sup>th</sup>-14<sup>th</sup> 2008*

Cripple Creek, CO

- Completed three day training seminar on Medicolegal Death Investigation

**Colorado Coroners Association 21<sup>st</sup> Annual Death Investigation Conference** *June 11<sup>th</sup>-13<sup>th</sup> 2009*

Colorado Springs, CO

- Completed three day training seminar on Medicolegal Death Investigation

**Annual Society of Forensic Toxicologists meeting** *October 8<sup>th</sup>-12<sup>th</sup> 2018*

Minneapolis, MN

**Colorado Coroners Association 22<sup>nd</sup> Annual Death Investigation Conference** *June 10<sup>th</sup>-12<sup>th</sup> 2010*

Colorado Springs, CO

- Completed three day training seminar on Medicolegal Death Investigation

**Colorado Coroners Association 23<sup>rd</sup> Annual Death Investigation Conference** *June 8<sup>th</sup>-11<sup>th</sup> 2011*

Blackhawk, CO

- Completed three day training seminar on Medicolegal Death Investigation

**Colorado Coroners Association 28<sup>th</sup> Annual Death Investigation Conference** *June 8<sup>th</sup>-10<sup>th</sup> 2016*

Fort Collins, CO

Workshops

- Completed three day practical medicolegal death investigation training course

**Colorado Coroners Association 27<sup>th</sup> Annual Death Investigation Conference** *June 3<sup>rd</sup>-5<sup>th</sup> 2015*

Colorado Springs, CO

**Annual Society of Forensic Toxicologists meeting** *July 1<sup>st</sup>-6<sup>th</sup> 2012*

Boston, MA

Workshops

- Opioid Drugs: 21<sup>st</sup> Century Killers
- Polypharmacy & Human Performance in Antipsychotic Cases

**The International Association of Forensic Toxicologists Meeting** *August 30<sup>th</sup> - September 4<sup>th</sup> 2015*

Florence, Italy

**California Association of Toxicologists meeting** *May 1<sup>st</sup>-2<sup>nd</sup> 2015*

San Francisco, CA

**Joint Society of Forensic Toxicologists and The International Association of Forensic Toxicologists meeting** *January 6<sup>th</sup>-11<sup>th</sup> 2018*

Boca Raton, FL

**Annual Society of Forensic Toxicologists meeting** *October 30<sup>th</sup> - November 4<sup>th</sup> 2022*

Cleveland, OH



- Annual Society of Forensic Toxicologists meeting** *October 30<sup>th</sup> - November 3<sup>rd</sup> 2023*  
Denver, CO
- Canada Drugs and Driving Symposium - Centre of Forensic Sciences Canada** *May 31<sup>st</sup> - June 1<sup>st</sup> 2017*  
Toronto, ON
- California Association of Toxicologists meeting** *May 2<sup>nd</sup>-3<sup>rd</sup> 2014*  
Sacramento, CA
- Annual Society of Forensic Toxicologists meeting** *October 28<sup>th</sup> - November 1<sup>st</sup> 2013*  
Orlando, FL  
Workshops
- SWGTOX Standard Practices for Method Validation in Forensic Toxicology
  - Marijuana: Old drug, New data
  - Usual causes of death: Analysis to interpretation
- Annual Society of Forensic Toxicologists meeting** *September 26<sup>th</sup> - October 1<sup>st</sup> 2021*  
Nashville, TN
- Annual Society of Forensic Toxicologists meeting** *September 2020*  
Online
- Annual American Academy of Forensic Sciences meeting** *February 22<sup>nd</sup>-27<sup>th</sup> 2016*  
Las Vegas, NV
- Annual American Academy of Forensic Sciences meeting** *February 22<sup>nd</sup>-26<sup>th</sup> 2010*  
Seattle, WA  
Workshops
- Assessment and Interpretation of Toxicology in Neonatal, Paediatric, and Geriatric Deaths
  - Investigation of Deaths in Custody - Evolution of Police Practices and Medical Examiner Methods
  - Navigating the World of Forensic Journals & Forensic Information
- Annual American Academy of Forensic Sciences meeting** *February 21<sup>st</sup>-25<sup>th</sup> 2011*  
Chicago, IL  
Workshops
- Tips and Tricks to Improve the Interpretative Value of Postmortem Toxicology
  - K2 and Beyond: A Synthetic Cannabinoid Primer
- Annual American Academy of Forensic Sciences meeting** *February 19<sup>th</sup>-23<sup>rd</sup> 2024*  
Denver, CO
- Annual American Academy of Forensic Sciences meeting** *February 18<sup>th</sup>-23<sup>rd</sup> 2019*  
Baltimore, MD  
Workshops
- Interdisciplinary Symposium - Insane or Just Bad? The Anatomy of the Not Guilty by Reason of Insanity (NGRI) Defense

**Annual American Academy of Forensic Sciences meeting** *February 19<sup>th</sup>-23<sup>rd</sup> 2018*

Seattle, WA

Workshops

- Pharmacogenomics: Uses in Forensic and Clinical Toxicology

**Annual American Academy of Forensic Sciences meeting** *February 18<sup>th</sup>-22<sup>nd</sup> 2013*

Washington, DC

Workshops

- Beyond the Numbers: An Objective Approach to Forensic Toxicological Interpretation
- Developments in Emerging and Designer Drug Markets 2013

**The Robert F. Borckenstein Course on the Effects of Drugs on Human Performance and Behavior** *October 1<sup>st</sup>-5<sup>th</sup> 2012*

Philadelphia, PA

Through the Indiana University Robert F. Borckenstein Center for Studies of Law in Action and The Center for Forensic Science Research & Education

**Topics:** DUID Overview; National Roadside Survey and Crash Risk Assessment; DRE Program Overview; Principles of Pharmacology and Drug Effects - Stimulants, Hallucinogens, Benzodiazepines, CNS Depressants, Opiates, and Cannabinoids; Effects on Human Performance and Behavior - Cocaine, Amphetamines, MDMA, Carisoprodol, Butalbital, Opiates, Cannabis, Synthetic Cannabinoids, Hallucinogens, and Dissociative Drugs; Effects of Drugs on Driving - Benzodiazepines, Zolpidem, and Imidazopyridines; On Road Driving Studies - CNS Depressants - Antidepressants, and Anxiolytics, Cannabis, and MDMA; Evaluation of SFST's for Detection of Marijuana Impairment; Case Studies of "Bath Salts" Compounds; Survey of Analytical Practices in Labs Serving DUID Programs; DUID Information Resources; Forensically Defensible Drug and Alcohol Testing in DUID - Laboratory Aspects; Implementation of Zero Tolerance DUID Laws in Scandinavia; DUID Investigation and Legal Approaches in England; Presenting DUID Evidence in Court - Direct Exam, Cross Examination, and Redirect

**Postmortem Interpretive Toxicology** *January 26<sup>th</sup>-30<sup>th</sup> 2015*

Philadelphia, PA

- Forensic Pharmacology & Toxicology of Major Drug Categories Design of Analytical Approaches
- Interpretation of Results
- Assessment of Postmortem Redistribution

**Summation of AAA study "An Evaluation of Data from Drivers Arrested for Driving Under the Influence in Relation to Per se Limits for Cannabis"** *August 15<sup>th</sup> 2016*

Presented by Barry K. Logan, Ph.D., F-ABFT

**Presenting Courtroom Testimony Regarding Drug and Alcohol Lab Test Results** *June 4<sup>th</sup> 2013*

Taught by Chris Halsor, TSRP, Colorado District Attorneys' Council

**WY Governor's Conference on Impaired Driving***May 25<sup>th</sup> 2017*

Laramie, WY

**Annual American Academy of Forensic Sciences meeting***February 13<sup>th</sup>-18<sup>th</sup> 2017*

New Orleans, LA

**DRI Marijuana Law Seminar***June 23<sup>rd</sup>-24<sup>th</sup> 2016*

Boulder, CO

**IACP/NHTSA Drug Evaluation and Classification Training - Audited***May 16<sup>th</sup>-27<sup>th</sup> 2016***WDOT Drug Recognition Expert 7-Day School**

Laramie, WY

**Annual American Academy of Forensic Sciences meeting***February 20<sup>th</sup>-24<sup>th</sup> 2012*

Atlanta, GA

## Workshops

- High-Profile Cases: The Los Angeles Experience
- Using Pharmacokinetics to Analyze Forensic Toxicology Cases
- Hell on Earth - Just Another Day at Work: An Overview of the Tri-State Crematory Catastrophe

**Annual American Academy of Forensic Sciences meeting***February 17<sup>th</sup>-21<sup>st</sup> 2014*

Seattle, WA

## Workshops

- Designer Drug Detection in Forensic Toxicology: From Basics to Brilliant!
- Root Cause Analysis - When Blaming the Analyst Completely Misses the Point
- Managing the 21st Century Forensic Science Organizations

**Annual American Academy of Forensic Sciences meeting***February 16<sup>th</sup>-20<sup>th</sup> 2015*

Orlando, FL

**Annual American Academy of Forensic Sciences meeting***February 16<sup>th</sup>-20<sup>th</sup> 2009*

Denver, CO

## Workshops

- Solid Phase Extraction in Forensic Science - Principles and Applications
- Pharmacology and Pharmacokinetics for Forensic Toxicologists

**The Robert F. Borkenstein Course on Alcohol, and Highway Safety: Testing, Research and Litigation***May 12<sup>th</sup>-17<sup>th</sup> 2012*

Bloomington, IN

Through the Indiana University Robert F. Borkenstein Center for Studies of Law in Action and The Center for Forensic Science Research & Education

**Topics:** The Legal Framework for DUI - Constitutional Issues and Case Law; Historical Perspectives on Alcohol; Testing in Traffic Law Enforcement; Chemistry and Biochemistry of Alcohol; Physiology of Alcohol; Pharmacology of Alcohol; Biochemical and Physiological Research on the Disposition and Fate of Alcohol in the Body; Principles and Application of Standardized Field Sobriety Tests; Recent Research on Forensic Aspects of Alcohol; Approaches to Widmark Calculations; Practice and Pitfalls of Retrograde Extrapolation; Cognitive and Psychomotor Domains of Driving;

Assessing Alcohol Impairment Through the Use of Driving Simulators; Testifying about Alcohol and Driving Impairment; Forensically Defensible Blood Alcohol Analysis; Breath Alcohol Instrumentation: Theory and Practice; Predicting Impairment: The Role of BAC and Complexity of the Driving Task; Basic Principles of Mathematics and Statistics in Alcohol Toxicology; Analysis of and Response to Defense Challenges in Forensic Alcohol Testing; ISO 17025 Accreditation for Breath Alcohol Calibration Laboratories; Uncertainty of Measurement Determination in Blood and Breath Alcohol Testing; The Confrontation Clause and Scientific Testimony; Expert Testimony: Basic Principles; Expert Testimony: Practical Considerations

**CDAC Impaired Driving Class**

*March 16<sup>th</sup>-19<sup>th</sup> 2016*

Aspen, CO

**A Legal "PotPourri"- American College of Medical Toxicology**

*December 9<sup>th</sup>-10<sup>th</sup> 2015*

Denver, CO

**Green Lab Understanding Legal Marijuana, LLC.**

*November 19<sup>th</sup> 2015*

Denver, CO

**PROJECTS**

**Master's Research Project**

- Conducted research at ISP Forensic Science Center Chicago on the on-column thermal decomposition properties of propoxyphene and norpropoxyphene using gas chromatography mass spectrometry (GC/MS). From this research I was able to develop a procedure to analyze propoxyphene such that it does not break down on column.

**COMMITTEES**

**Young Forensic Toxicologist Committee**

*January 2012 - Present*

Society of Forensic Toxicologists

- 2014 Co-Chair
- 2015-2016 Chair
- 2017 Executive Committee

**Subcommittee on toxicology/pharmacology**

*July 2012 - July 2013*

Advisory Committee for the Evaluation of Controlled Substance Analogs

**Alcohol, Drugs & Impairment Division**

*October 2014 - Present*

National Safety Council

- Chair since February 2017

**Driving Under the Influence of Drugs**

*May 2015 - Present*

California Association of Toxicologists

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**AFFILIATIONS**

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<b>American Academy of Forensic Sciences</b>	<i>Member</i>
• Toxicology Section	
<b>American Chemical Society</b>	<i>Member</i>
<b>The International Association of Forensic Toxicologists</b>	<i>Member</i>
<b>National Association of Medical Examiners</b>	<i>Affiliate Member</i>
<b>Society of Forensic Toxicologists</b>	<i>Member</i>

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**SCHOLARSHIPS**

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<b>Chemistry Club University of Colorado Boulder</b>	<i>August 2001 - May 2005</i>
<b>Tour Biochemistry Scholarship</b>	<i>2004 - 2005</i>
<b>Touff Memorial Chemistry Scholarship</b>	<i>2003 - 2004</i>

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**SPECIAL COURSES**

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**Miscellaneous**

- Forensic Drug Analysis and Toxicology
- Forensic Chemistry and Trace Evidence
- Expert Witness Testimony
- QA/QC in Forensic Laboratories
- Forensic Analysis of Biological Evidence
- Physical Pattern Evidence Analysis
- Organic Structure Determination using NMR, UV-spec, IR-spec and MS data