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

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EDUCATION

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

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**Toxicology in DUI/DUID Cases***November 13th 2019*

Colorado Criminal Defense Bar

Stories from states that have decriminalized cannabis*June 26th 2019*

National Safety Council Cannabis Symposium: Cannabis: It's Complicated

Drug Testing 101*May 17th 2019*

El Paso County Court

Toxicology and Prosecution*December 18th 2018*

CDAC

Advanced DUI Program*October 18th 2018*

CBA CLE Office

Cannabis and Driving 101*September 13th 2018*

CDAC

DFSA Training for Police*August 7th 2018*

Denver Police Department

DA Training*October 6th 2017*

Jefferson County

Criminalist Panel - What they can and can't do / how to prep a criminalist*June 1st 2017*

California District Attorneys Association Drug Impaired Driver Training for Law Enforcement & Prosecution Professionals

The Colorado Experience - Marijuana*May 31st 2017*

Drugs and Driving Symposium - Centre of Forensic Sciences Canada

DRE Toxicology Update*May 25th 2017*

WY Governor's Conference on Impaired Driving

Toxicology for the Prosecutor WY Governor's Conference on Impaired Driving	<i>May 25th 2017</i>
Marijuana Tox 101 CDAC	<i>May 19th 2017</i>
Buyer Beware: Analysis of Cannabis Products for Sale CAT - The Future Looks Green	<i>May 5th 2017</i>
Drugs in our World Today Torrey Pines High School	<i>May 3rd 2017</i>
Marijuana Commercialization Impact IACT	<i>April 25th 2017</i>
Guest Lecture - Forensic Toxicology CSU	<i>January 24th 2019, January 18th 2018, January 19th 2017</i>
SOFT Workshop Is This What the Doctor Ordered? Medical Marijuana Update - The Colorado Experience Annual Society of Forensic Toxicologists meeting	<i>October 18th 2016</i>
The Changing Landscape of DUID Testing and Legalized Marijuana DRI	<i>June 23rd 2016</i>
Tox 101 for DRE's WDOT	<i>May 1st 2016</i>
Tox 101 - Teacher CDAC Impaired Driving Class	<i>April 27th 2016</i>
Buyer Beware: High Grade THC Products Are Here to Stay CAT	<i>April 3rd 2016</i>
Buyer Beware: Cannabinoid Analysis in Cannabis Products A Legal "PotPourri"- American College of Medical Toxicology	<i>December 9th 2015</i>
Green Lab - Teacher Understanding Legal Marijuana, LLC.	<i>November 19th 2015</i>
Improving Colorado's Road Health Summit Keystone Conference Resort - Panelist: Marijuana Driving CDOT Highway Health Summit	<i>June 5th 2015</i>
Sleep-Driving is a Nightmare: Driving Under the Influence of Zolpidem Cases in Colorado California Association of Toxicologists	<i>May 2nd 2015</i>

Sleep-Driving is a Nightmare: Driving Under the Influence of Zolpidem Cases in Colorado*February 19th 2015*

Annual American Academy of Forensic Sciences meeting

The Changing Landscape of Marijuana Legislation and DUID testing in Colorado*October 23rd 2014*

Annual Society of Forensic Toxicologists meeting

The Toxicology of Marijuana*June 5th 2014*

Missouri DWI/Traffic Safety and DRE Recertification Conference

Colorado: The ongoing experiment in progressive marijuana policy*May 2nd 2014*

California Association of Toxicologists

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

Annual Society of Forensic Toxicologists meeting

Comprehensive DUI/D: Toxicology - Teacher*August 28th 2014,
August 8th 2014,
March 14th 2014,
December 13th 2013,
September 27th 2013,
September 9th 2013,
April 19th 2013,
March 21st 2013*

Colorado District Attorneys' Council

Zolpidem and Driving - Case Reviews from Colorado*July 5th 2012*

Annual Society of Forensic Toxicologists meeting

Expert Testimony*February 27th 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.

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

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

Expert Testimony*April 18th 2011*

Colorado Senate Judiciary Committee

- 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.

DUI Update 2010 - Teacher*January 21st 2010*

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

Toxicology for Coroners - Presenter*June 13th 2009*

Colorado Coroners Association 21st Annual Death Investigation Conference

Drug Testing: Monitoring Drug and Alcohol Abuse - Presenter*December 5th 2008*

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

Blood Alcohol Analysis 101 - Teacher*November 11th 2008,
September 9th 2008*

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

Workshop "Progress in Field Forensics"*June 4th 2008*

American Society for Mass Spectrometry Annual Meeting

Forensic Science*2018, 2017, 2016,
2015, 2014, 2013,
2012, 2011, 2010,
2009, 2008, 2007*

Annual Molecular Cellular Developmental Biology Mentors Meeting

PUBLICATIONS**Analysis of Δ^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

Annual Society of Forensic Toxicologists meeting
Cleveland, OH

October 30th - November 4th 2022

Annual Society of Forensic Toxicologists meeting
Nashville, TN

September 26th - October 1st 2021

Annual Society of Forensic Toxicologists meeting
Online

September 2020

Annual Society of Forensic Toxicologists meeting
San Antonio, TX

October 14th-18th 2019

- Annual American Academy of Forensic Sciences meeting** *February 18th-23rd 2019*
Baltimore, MD
Workshops
- Interdisciplinary Symposium - Insane or Just Bad? The Anatomy of the Not Guilty by Reason of Insanity (NGRI) Defense
- Annual Society of Forensic Toxicologists meeting** *October 8th-12th 2018*
Minneapolis, MN
- Colorado Coroners Association 30th Annual Death Investigation Conference** *June 8th 2018*
Fort Collins, CO
- Annual American Academy of Forensic Sciences meeting** *February 19th-23rd 2018*
Seattle, WA
Workshops
- Pharmacogenomics: Uses in Forensic and Clinical Toxicology
- Joint Society of Forensic Toxicologists and The International Association of Forensic Toxicologists meeting** *January 6th-11th 2018*
Boca Raton, FL
- Colorado Coroners Association 29th Annual Death Investigation Conference** *June 7th-9th 2017*
Colorado Springs, CO
- Canada Drugs and Driving Symposium - Centre of Forensic Sciences Canada** *May 31st - June 1st 2017*
Toronto, ON
- WY Governor's Conference on Impaired Driving** *May 25th 2017*
Laramie, WY
- California Association of Toxicologists 50th Anniversary Meeting** *May 5th-6th 2017*
San Diego, CA
- The International Association for Chemical Testing Annual Meeting** *April 24th-28th 2017*
Colorado Springs, CO
- Annual American Academy of Forensic Sciences meeting** *February 13th-18th 2017*
New Orleans, LA
- Annual Society of Forensic Toxicologists meeting** *October 17th-21st 2016*
Houston, TX
Workshops
- Is This What the Doctor Ordered? Medical Marijuana Update
- 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 15th 2016*
Presented by Barry K. Logan, Ph.D., F-ABFT

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

Denver, CO

CDAC Traffic Safety Training Program: Marijuana Related Impaired Driving*August 12th 2016*

Lakewood, CO

- Presenter and attendee

DRI Marijuana Law Seminar*June 23rd-24th 2016*

Boulder, CO

Colorado Coroners Association 28th Annual Death Investigation Conference*June 8th-10th 2016*

Fort Collins, CO

Workshops

- Completed three day practical medicolegal death investigation training course

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

Laramie, WY

California Association of Toxicologists meeting*May 2nd-3rd 2016*

Incline Village, NV

CDAC Impaired Driving Class*March 16th-19th 2016*

Aspen, CO

Annual American Academy of Forensic Sciences meeting*February 22nd-27th 2016*

Las Vegas, NV

A Legal "PotPourri"- American College of Medical Toxicology*December 9th-10th 2015*

Denver, CO

Green Lab Understanding Legal Marijuana, LLC.*November 19th 2015*

Denver, CO

California Association of Toxicologists meeting*November 5th-7th 2015*

Orange County, CA

Annual Society of Forensic Toxicologists meeting*October 19th-23rd 2015*

Atlanta, GA

Workshops

- The Role of Benzodiazepines in DUI/D
- 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)

The International Association of Forensic Toxicologists Meeting*August 30th - September 4th 2015*

Florence, Italy

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

Colorado Springs, CO

California Association of Toxicologists meeting*May 1st-2nd 2015*

San Francisco, CA

Annual American Academy of Forensic Sciences meeting*February 16th-20th 2015*

Orlando, FL

Postmortem Interpretive Toxicology*January 26th-30th 2015*

Philadelphia, PA

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

California Association of Toxicologists meeting*November 7th-8th 2014*

San Diego, CA

Annual Society of Forensic Toxicologists meeting*October 20th-24th 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

International Association of Chiefs of Police DRE Section Conference on Drugs, Alcohol and Impaired Driving*July 28th-30th 2014*

Phoenix, AZ

Colorado Coroners Association 26th Annual Death Investigation Conference*June 18th-20th 2014*

Fort Collins, CO

- Completed three day training seminar on Medicolegal Death Investigation

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

Osage Beach, MO

California Association of Toxicologists meeting*May 2nd-3rd 2014*

Sacramento, CA

Annual American Academy of Forensic Sciences meeting*February 17th-21st 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 Society of Forensic Toxicologists meeting*October 28th - November 1st 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

Presenting Courtroom Testimony Regarding Drug and Alcohol Lab Test Results*June 4th 2013*

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

Annual American Academy of Forensic Sciences meeting*February 18th-22nd 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. Borkenstein Course on the Effects of Drugs on Human Performance and Behavior*October 1st-5th 2012*

Philadelphia, PA

Through the Indiana University Robert F. Borkenstein 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

Annual Society of Forensic Toxicologists meeting*July 1st-6th 2012*

Boston, MA

Workshops

- Opioid Drugs: 21st Century Killers
- Polypharmacy & Human Performance in Antipsychotic Cases

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

Annual American Academy of Forensic Sciences meeting*February 20th-24th 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

Joint Annual Society of Forensic Toxicologists and The International Association of Forensic Toxicologists meeting*September 25th-30th 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

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

Blackhawk, CO

- Completed three day training seminar on Medicolegal Death Investigation

Annual American Academy of Forensic Sciences meeting *February 21st-25th 2011*

Chicago, IL

Workshops

- Tips and Tricks to Improve the Interpretative Value of Postmortem Toxicology
- K2 and Beyond: A Synthetic Cannabinoid Primer

Annual Society of Forensic Toxicologists meeting *October 18th-22nd 2010*

Richmond, VA

Workshops

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

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

Colorado Springs, CO

- Completed three day training seminar on Medicolegal Death Investigation

Annual American Academy of Forensic Sciences meeting *February 22nd-26th 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 Society of Forensic Toxicologists meeting *October 19th-23rd 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

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

Colorado Springs, CO

- Completed three day training seminar on Medicolegal Death Investigation

Annual American Academy of Forensic Sciences meeting *February 16th-20th 2009*

Denver, CO

Workshops

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

Annual Society of Forensic Toxicologists meeting*October 27th-31st 2008*

Phoenix, AZ

Workshops

- Effects of Drugs on Human Performance and Behavior - A Borkenstein Sampler

Colorado Coroners Association 20th Annual Death Investigation Conference*June 12th-14th 2008*

Cripple Creek, CO

- Completed three day training seminar on Medicolegal Death Investigation

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
Analogues**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

AFFILIATIONS**American Academy of Forensic Sciences***Member*

- Toxicology Section

American Chemical Society*Member***The International Association of Forensic Toxicologists***Member***National Association of Medical Examiners***Affiliate Member***Society of Forensic Toxicologists***Member*

SCHOLARSHIPS

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

SPECIAL COURSES

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