

***DEPARTMENT OF FORENSIC SCIENCE***  
***COLLEGE OF CRIMINAL JUSTICE***

*Dissertation Research Topics*  
*Forensic Science*

**Sam Houston State University**

12 July 2024



## **Academic Year 2023-2024**

The Analysis of Intact Explosives and Explosive Residues Using Confocal Raman Microscopy and DART-QTOF – Dr. Jared Estevanes

Differentiation of Hemp from Marijuana: Genetic and Chemical Challenges – Dr. Ya-Chih Cheng

Development of Nanomaterials in Solid Phase Microextraction and Application of Artificial Intelligence for Ignitable Liquids Detection and Classification in Forensic Fire Debris Analysis – Dr. Ting-Yu Huang

DNA Recovery from Challenging Forensic Samples Using Alternative Markers and Next Generation Sequencing – Dr. Lucio Avellaneda

Identification of Fentalogs in Forensic Toxicology Investigations – Dr. Madison Schackmuth

## **Academic Year 2022-2023**

The Evaluation of the Combined Use of UV-VIS Microspectrophotometry and Plane-Polarized Microscopy for the Forensic Examination and Discrimination of Textile Fibers – Dr. Andra Lewis

## **Academic Year 2021-2022**

Development and Validation of Toxicological Methods for Cognitive Stimulants in Traditional and Alternative Matrices – Dr. Christina Smith

Forensic Applications of DNA Sequencing to Combat Drug Trafficking and Biothreats – Dr. Kari Graham

High Resolution Mass Spectrometry Drug Screening in Forensic Toxicology: A Cost Benefit Analysis – Dr. Jessica Ayala



## **Academic Year 2020-2021**

Alternative Sample Processing Techniques for Rootless Hair Shafts and Other Challenging Samples – Dr. Ryan Gutierrez

Development and Applications of Analytical Methods for Fentanyl Analogs in Traditional and Alternative Matrices – Dr. Kaitlyn Palmquist

Development and Validation of a Technique for Analysis of Toner Printed Documents Using Magnetic Flux Measurements – Dr. Carrie Polston

Development of Magnetic Carbon Nanotubes Facilitated Dispersive-Micro Solid Phase Extraction (MAG-CNTS/D- $\mu$ SPE) for Forensic Applications – Dr. Sun Yi Li

## **Academic Year 2019-2020**

Alternate DNA Extraction and STR Profiling Strategies for Skeletal and Other Challenging Samples – Dr. LeAnn Michelle Harrel

Applications of Forensic Plant Science in Drug Trafficking and Environmental Crimes – Dr. Madeline Roman

Identification and Metabolism of Suvorexant: Implications for Forensic Toxicology – Dr. Britni Skillman

Identifying the Challenges of Emerging Novel Psychoactive Substances – Dr. Michael Truver

Improved Detection of Kratom Alkaloids in Forensic Toxicology – Dr. Stephanie Basiliere

## **Academic Year 2018-2019**

Collection, Direct Amplification, and Alternate Genotyping Methods for DNA Recovered from Pipe Bombs and Firearms – Dr. Esirioghene Tasker



Development and Evaluation of miRNA and mRNA Panels for Body Fluid Identification – Dr. Carrie Mayes

Enhanced Sample Preparation and Data Interpretation Strategies Using Massively Parallel

Influence of Genetic Variation on Social Behaviors and Frontal Cortex Differences in Generalized Anxiety Disorder – Dr. Elizabeth Chesna

Metabolism and Analysis of Desomorphine – Dr. Jessica Winborn

Sequencing for Human Identification in Missing Persons' and DVI Casework – Dr. Kyleen Elwick

## **Academic Year 2017-2018**

The Collection, Preservation, and Processing of DNA Samples from Decomposing Human Remains for More Direct Disaster Victim Identification (DVI) – Dr. Amy Sorensen Holmes

Development of a Comprehensive Genetic Tool for Identification of *Cannabis Sativa* Samples for Forensic and Intelligence Purposes – Dr. Rachel Houston

Identification and Stability of Synthetic Cathinones in Biological Samples – Dr. Lindsay Glicksberg

