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| NAME: | Jessica Lynn Ayala | DATE: | 8/26/2022 |
| LABORATORY: | Houston Forensic Science Center | | |
| JOB TITLE: | Supervisor-Toxicology | | |

Indicate all disciplines in which you do casework:

| | | | |
|--------------------------|-------------------|-------------------------------------|----------------------|
| <input type="checkbox"/> | Seized Drugs | <input type="checkbox"/> | Forensic Biology/DNA |
| <input type="checkbox"/> | Crime Scene | <input type="checkbox"/> | Latent Prints |
| <input type="checkbox"/> | Digital Forensics | <input checked="" type="checkbox"/> | Toxicology |
| <input type="checkbox"/> | Firearms | <input type="checkbox"/> | Forensic Audio/Video |

List all categories or sub-disciplines in which you do casework:

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|------------------------------|
| Human Performance Toxicology |
|------------------------------|

Texas Forensic Science Commission (TFSC) Licensing

Per TFSC section 651.203, starting January 1, 2019, the following disciplines are subject to licensing: Seized Drugs, Toxicology, Forensic Biology & Firearms/Toolmarks. If applicable, select the type of license issued by TFSC (Select N/A if not applicable):

| | |
|-------------------------|-------------------------------|
| Type of License: | Toxicologist (Interpretative) |
|-------------------------|-------------------------------|

Certifications:

| Organization | Discipline | Type/Level (N/A if not applicable) |
|---|---------------------|---------------------------------------|
| American Board of Forensic Toxicologists (ABFT) | Forensic Toxicology | Diplomate |
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Education:

List all higher education institutions attended (list high school if no college degree has been attained)

| Institution | Dates Attended | Major | Type of Degree Earned |
|-------------------------------------|-----------------|------------------|-----------------------|
| Texas A&M University-Corpus Christi | 08/2002-05/2006 | Chemistry | Bachelor of Science |
| Sam Houston State University | 08/2006-05/2008 | Forensic Science | Master of Science |
| Sam Houston State University | 08/2018-08/2022 | Forensic Science | Doctor of Philosophy |

Other Training:

List continuing education, workshops, in service, and other formal training received. Please include the course title, source, and dates of training

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| RTI International-Forensic Science Education: Online Courses Expert Testimony: Training for the Prosecutor and Scientist I, II (February 1-2, 2010) |
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SOP Writing ISO 17025 (February 2, 2010)
Uncertainty Measurements in Forensic Toxicology I, II, III (February 3, 2010, March 23, 2010, and June 18, 2010)
Best Practices for Volumetric Measurements (February 10, 2010)
Opioids and Pain Management (February 10, 2010)
Fundamentals of LC/MS/MS (February 15, 2010)
The ZZZ Drugs: From Analysis to Interpretation (February 16, 2010)
Ethics I: Professional Responsibility and Ethics for the Forensic Scientist (March 30, 2010)
Oxymorphone (June 21, 2010)
Answering the NAS: The Ethics of Leadership and the Leadership of Ethics (March 25, 2011)
Specimen Validity Testing: The Workplace Experience (March 28, 2011)
Drug Facts: A DFSA Perspective (January 25, 2012)
Fundamentals of Immunoassay Testing Used in Toxicology (January 31, 2012)
Fundamentals of Non-Mass Selective Detectors (February 7, 2012)
Analytical Method in Drug Testing-Sample Preparation (April 4, 2012)
How to Be a Good Expert Witness (November 16, 2012)
Fundamentals of Mass-Selective Mass Spectrometer Used in Toxicology (January 11, 2013)
Fundamentals of Chromatography Used in Toxicology (March 4, 2013)
Fundamentals of Sample Preparation Used in Toxicology (March 8, 2013)

Sam Houston State University

Spring 2010: Huntsville, TX
Drug Classification (January 27, 2010)
Drug Extraction (February 10, 2010)
Pharmacology (February 17, 2010)

Southwestern Association of Toxicologists

April 29, 2010 to May 1, 2010: Dallas, TX
Semi-Annual Meeting

New York State Criminal Justice and Society of Forensic Toxicologists

June 7-8, 2010: Albany, NY
Pharmacology for Forensic Toxicologists

National Institute of Justice and West Virginia University Forensic Science Initiative

August 2010: Boston, MA
Introduction to Drug Chemistry (August 3, 2010)
Mass Spectrometry 1: Drug and Trace (August 5, 2010)
Transition to Leadership/Bridging Generational Gaps (August 6, 2010)
Testimony (August 7, 2010)

JusticeTrax

December 8-10, 2010: The Woodlands, TX
LIMS-plus User Training



West Virginia University Extended Learning

June 27, 2011: Online Course

Forensic Mass Spectrometry: Continuing Professional Education Program

Indiana University

May 17, 2013: Bloomington, IN

Robert F. Borkenstein Course on Alcohol and Highway Safety: Testing, Research, and Litigation

Indiana University

November 8, 2013: Sacramento, CA

Robert F. Borkenstein Course on the Effects of Drugs and Human Performance and Behavior

Houston Police Department Crime Laboratory

November 2013: Houston, TX

Uncertainty of Measurement (Determining a 95% Confidence Interval) (November 13, 2013)

A Practical Approach to Ethics in the Forensic Science Laboratory (November 20, 2013)

Southwestern Association of Toxicologists

May 15-17, 2014: Houston, TX

Semi-Annual Meeting

Harris County Institute of Forensic Sciences

April 2, 2015: Houston, TX

General Knowledge of Forensic Science Training

Harris County Institute of Forensic Sciences

April 24, 2015: Houston, TX

Designer Drugs: Not All They're Cracked Up to Be

Agilent Technologies

October 19-20, 2015: Houston, TX

Agilent 6460 LCQQQ Software and Hardware

Agilent Technologies

March 8, 2016: Houston, TX

Agilent GCMS Software, Hardware, and Methods Development Training

Southwestern Association of Toxicologists

March 31-April 2, 2016: Austin, TX

Semi-Annual Meeting

NMS Labs Center for Innovation

August 9, 2016: Houston, TX



Designer Drug Update Summer 2016: Novel Synthetic Cannabinoids and Designer Opioids Dominate the Market

Society of Forensic Toxicologists

August 29-30, 2016: Dayton, OH

Alcohol and Drugs of Abuse Affecting the Central Nervous System: Pharmacology, Toxicology, and Impairment

The Center for Forensic Science Research and Education

June 12-15, 2017: Philadelphia, Pennsylvania

Postmortem Interpretive Toxicology

Forensic Technology Center of Excellence

August 25, 2017: Online Webinar

Fentalogs: Pharmacology, Toxicology, and Analytics-Archival

Strategic Government Resources

August 27, 2017: Online Courses

Building a Respectful Workplace 1: Defining Respect-2016

Building a Respectful Workplace 2: Benefits of Respect-2016

Building a Respectful Workplace 3: Addressing Disrespect-2016

Building a Respectful Workplace 4: Common Threats to Respect-2016

Honing your Emotional Intelligence: Self-Awareness-2016

Embracing Diversity in the Workplace-2016

Preventing Workplace Violence-2016

Anger and Stress Management-2016

Ethics: The Heart of Public Service-2016

Strategic Government Resources

August 28, 2017: Online Courses

Extraordinary Customer Service-2016

Seasonal Employee Orientation: Extraordinary Customer Service Part 2-2016

Learning the Language of Multiple Generations-2016

Recognizing and Responding to Workplace Bullying-2016

Strategic Government Resources

August 29, 2017: Online Courses

Pruning Negativity-2016

Supervisory Practices Lesson 1: Traits and Responsibilities-2016

Supervisory Practices Lesson 2: Supervisor as Teacher-2016

Supervisory Practices Lesson 3: Supervisor as Motivator-2016

Supervisory Practices Lesson 4: Supervisor as Troubleshooter-2016

Supervisory Practices Lesson 5: Supervisor as Inspector-2016



Forensic Technology Center of Excellence

September 5, 2017: Online Webinar

Dreamland: Sam Quinones Explores America's Opiate Epidemic

Society of Forensic Toxicologists

October 19-20, 2017: Fort Worth, TX

Fundamental Topics in Forensic Toxicology: Present and Future

Forensic Technology Center of Excellence

October 26, 2017: Online Webinar

Strategies and Considerations for Trace Detection of Fentologs

Human Resources and Risk Management

December 5, 2017: Houston, TX

Building Team and Organizational Excellence

Forensic Technology Center of Excellence

June 19, 2018: Online Webinar

Opioids & Death Investigation: A "Perfect Storm"-Archival

Harris County Institute of Forensic Sciences

July 16, 2018: Houston, TX

Courtroom Testimony Training

Forensic Technology Center of Excellence

July 25, 2018: Online Symposium

Session III: Interpretive Toxicology for NPS in Forensic Casework

Forensic Technology Center of Excellence

July 30, 2018: Online Symposium

Session II: Analysis of NPS-Practical Considerations and Analytical Approaches

Forensic Technology Center of Excellence

August 1, 2018: Online Symposium

Session I: The Synthetic Drug Crisis-Identifying NPS in Forensic Casework

American College of Medical Toxicology (ACMT)

December 14-15, 2018: Dallas, TX

Seminar in Forensic Toxicology: Opioids, Toxicology, and the Law: Medical-Legal Aspects of the Opioid Epidemic

Southwestern Association of Toxicologists

May 1-3, 2019: Houston, TX

Annual Meeting



RTI International: Forensic Science Education

May 13-17, 2019: Online Symposium

2nd Annual Online Symposium: Current Trends in Forensics and Forensic Toxicology

Society of Forensic Toxicologists (SOFT)

October 14-18, 2019: San Antonio, TX

Annual Meeting

Workshops Attended:

- Driving Under the Influence: The NPS Edition
- Recommended Specimens, Scope, Cutoffs, and Strategies for DUI/D Testing and the Impact of Stop Limit Tests
- Application of QTOF Techniques: Approaches and Workflows

American Academy of Forensic Sciences (AAFS)

February 17-21, 2020: Anaheim, CA

Annual Meeting

Workshop Attended:

- A Decade of Designer Drugs: Lessons Learned and Future Directions

PITTCON

March 1-5, 2020: Chicago, IL

Annual Meeting

Society of Forensic Toxicologists (SOFT)

September 2020: Virtual Conference

Annual Meeting

The Center for Forensic Science Research and Education (CFSRE)

January 18-22, 2021: Online Symposium

2021 Current Trends in Seized Drug Analysis Symposium

The Center for Forensic Science Research and Education (CFSRE)

June 1-3, 2021: Online Symposium

2021 Current Trends in Forensic Toxicology

California Association of Toxicologists (CAT)

August 4-5, 2021: Virtual Conference

Annual Meeting

Society of Forensic Toxicologists (SOFT)

September 26-October 1, 2021: Nashville, TN

Annual Meeting

Workshop Attended:

- Strategies for Screening of NPS in Forensic Toxicology



American Academy of Forensic Sciences (AAFS)
February 21-25, 2022: Seattle, WA
Annual Meeting

Courtroom Experience:

List the disciplines/sub-disciplines in which you have testified as an expert witness and indicate over what time period and approximately how many times you have testified in each.

| Discipline or Sub-Discipline | Time Period | Times Testified |
|------------------------------|------------------------------|-----------------|
| Human Performance Toxicology | January 2010 – November 2021 | ~30 |
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Professional Affiliations:

List any professional organizations of which you are or have been a member. Indicate any office(s) or positions held and the dates of these activities.

| Organization | Member Status & Position(s) Held | Dates of Membership |
|---|----------------------------------|---------------------|
| American Academy of Forensic Sciences | Associate Member | 2012 - present |
| Society of Forensic Toxicologists | Full Member | 2017 - present |
| Southwestern Association of Toxicologists | Member | 2016 - present |

Employment History:

List all scientific or technical positions held, particularly those related to forensic science. List current position first. Be sure to indicate employer and give a brief summary of duties. Please list your dates of employment by month and year.

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|---|---------------------------------|-----------------------------|-------------------|
| Job Title: | Supervisor-Toxicology | Dates of Employment: | 07/2022 - present |
| Employer: | Houston Forensic Science Center | | |
| Provide a brief description of duties below: | | | |
| Assist the toxicology manager with laboratory operations including case workflow, evidential sample Testing, root-cause analysis, standard operating procedure writing, and interpretation of analytical results. Supervise and train laboratory personnel. Perform postmortem, technical, and administrative reviews for DUI and DFC investigations. Provide courtroom testimony as necessary. | | | |

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|---|------------------------------|-----------------------------|-------------------|
| Job Title: | Graduate Assistant | Dates of Employment: | 08/2018 – 08/2022 |
| Employer: | Sam Houston State University | | |
| Provide a brief description of duties below: | | | |



Research using a liquid chromatography quadruple time-of-flight mass spectrometer to screen for drugs of abuse, prescription medications, over-the-counter medications, and novel psychoactive substances. Perform literature searches, run reference standards on the instrument, and optimize instrumental parameters for drug identification.

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| Job Title: | Contract Reviewer | Dates of Employment: | 08/2018 – 09/2019 |
| Employer: | Harris County Institute of Forensic Sciences | | |
| Provide a brief description of duties below: | | | |
| Perform batch review of Co-oximetry, CO-UV spectrophotometry, ELISA, GC/MS, GC/MS/MS, LC/MS/MS, and LC/TOFMS. Complete case and expert review of postmortem laboratory casework. | | | |

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|---|--|-----------------------------|-------------------|
| Job Title: | Deputy Chief Toxicologist | Dates of Employment: | 01/2017 – 08/2018 |
| Employer: | Harris County Institute of Forensic Sciences | | |
| Provide a brief description of duties below: | | | |
| Assist the Chief Toxicologist with laboratory operations including casework flow, evidence testing, root cause analysis, procedure writing, and interpretation of analytical results. Help the Chief Toxicologist manage the budget, travel, and training events. Supervise and train laboratory personnel. Perform technical review and expert review of postmortem, DUI, and DFSA laboratory casework. Provide courtroom testimony as needed. | | | |

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| Job Title: | Toxicologist II | Dates of Employment: | 06/2014 – 01/2017 |
| Employer: | Harris County Institute of Forensic Sciences | | |
| Provide a brief description of duties below: | | | |
| Conduct forensic analysis of biological specimens, operate laboratory instruments (LC/MS/TOF and GC/FID), analyze and report instrumental data utilizing JusticeTrax, participate in external/internal training, competency testing, proficiency testing and continuing education, perform technical and administrative reviews of instrumental data and case documentation. | | | |

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|--|--|-----------------------------|-------------------|
| Job Title: | Criminalist Specialist | Dates of Employment: | 09/2012 – 06/2014 |
| Employer: | Houston Police Department Crime Laboratory | | |
| Provide a brief description of duties below: | | | |
| Conduct forensic analysis of biological specimens, operate and maintain laboratory instruments (GC/MS, GC/FID, and ELISA), analyze and report instrumental data utilizing LIMS, perform method development and validation, compose laboratory documents for standard operating procedures and training protocol, participate in annual proficiency testing, complete technical and administrative reviews of instrumental data and case documentation. | | | |

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|---|--|-----------------------------|-------------------|
| Job Title: | Forensic Scientist II | Dates of Employment: | 01/2010 – 09/2012 |
| Employer: | Sam Houston State University Regional Crime Laboratory | | |
| Provide a brief description of duties below: | | | |



Conduct forensic analysis of biological specimens, operate and maintain laboratory instruments (GC/MS, GC/FID, and ELISA), analyze and report instrumental data utilizing JusticeTrax, perform method development and validation, compose laboratory documents for standard operating procedures and training protocol, participate in annual proficiency testing, complete technical reviews of instrumental data and case documentation.

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| Job Title: | Forensic Chemist | Dates of Employment: | 06/2009 – 01/2010 |
| Employer: | Expertox | | |
| Provide a brief description of duties below: | | | |
| Perform analysis of biological specimens, analyze and report instrumental data, operate laboratory instruments (GC/MS, EIA, ELISA, and LC/MS), participate in annual proficiency testing | | | |

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|---|--|-----------------------------|-------------------|
| Job Title: | Chemist II | Dates of Employment: | 11/2008 – 06/2009 |
| Employer: | Texas Commission on Environmental Quality (TCEQ) | | |
| Provide a brief description of duties below: | | | |
| Perform total suspended/volatile suspended solids analysis, ion chromatography analysis, BOD/COD analysis, and phenol analysis on water samples | | | |

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| Job Title: | Summer Intern | Dates of Employment: | Summer 2007 |
| Employer: | Texas Department of Public Safety Regional Crime Laboratory | | |
| Provide a brief description of duties below: | | | |
| Create a GC/MS and FTIR drug library for the controlled substances division and participate in a paint project utilizing FTIR and UV Spectrophotometry within the trace division. | | | |

Other Qualifications:

List below any scientific papers authored or co-authored and/or scientific presentations given, research in which you have been involved, academic or teaching positions you have held, and any other information you consider relevant to your qualification as a forensic scientist.

DOCTORAL DISSERTATION

“High Resolution Mass Spectrometry Drug Screening in Forensic Toxicology: A Cost Benefit Analysis”- Jessica Ayala, M.S., D-ABFT-FT. Sam Houston State University, Huntsville, TX; August 2022

PUBLICATIONS

Jessica Ayala, Kelsie Simons, and Sarah Kerrigan (2009). Journal of Analytical Toxicology, 33, 27-33. Quantitative Determination of Caffeine and Alcohol in Energy Drinks and the Potential to Produce Positive Transdermal Alcohol Concentrations in Human Subjects.

PRESENTATIONS

“The Effects of Alternative Sources of Alcohol on Transdermal Alcohol Measurement”-Jessica Ayala, B.S. Sam Houston State University, Huntsville, TX; May 2008.

“Alcohol Pharmacodynamics (Internal Training)”-Jessica Ayala, M.S., D-ABFT-FT.



Harris County Institute of Forensic Sciences, Houston, TX; June 2016.

“Comparison of Data Acquisition Methods for High Resolution Mass Spectrometry Drug Screening”- Jessica Ayala, M.S., D-ABFT-FT, and Sarah Kerrigan, PhD. American Academy of Forensic Sciences, Anaheim, CA; February 2020.

“HRMS-based Drug Screening in Forensic Toxicology: Data Acquisition Comparison”-Jessica Ayala, M.S., D-ABFT-FT and Sarah Kerrigan, PhD. PITTCON, Chicago, IL; March 2020.

“Efficacy of Sample Preparation Techniques on Whole Blood Prior to High-Resolution Mass Spectrometry (HRMS) Drug Screening”-Jessica Ayala, M.S., D-ABFT-FT and Sarah Kerrigan, PhD. Society of Forensic Toxicologists, Virtual Conference; September 2020.

“High Resolution Mass Spectrometry Screening in Impaired Driving Investigations”-Jessica Ayala, M.S., D-ABFT-FT and Sarah Kerrigan, PhD. Forensic Technology Center of Excellence (FTCoE), National Forensic Science Week – FTCoE Student Research Poster Session. U.S. Department of Justice, National Institute of Justice, Office of Investigative and Forensic Sciences Virtual Conference; September 2021.

“Comprehensive Drug Screening Using Supported Liquid Extraction (SLE) and Liquid Chromatography Quadrupole Time-of-Flight Mass Spectrometry (LC-QTOF-MS)”-Jessica Ayala, M.S., D-ABFT-FT and Sarah Kerrigan, PhD. Society of Forensic Toxicologists, Nashville, TN; September 2021.

“High Resolution Mass Spectrometry Screening in Impaired Driving Investigations”-Jessica Ayala, M.S., D-ABFT-FT and Sarah Kerrigan, PhD. Northeastern Association of Forensic Scientists, Newport, RI; November 2021.

“Comprehensive Drug Screening Using Supported Liquid Extraction (SLE) and Liquid Chromatography Quadrupole Time-of-Flight Mass Spectrometry (LC-QTOF-MS)”-Jessica Ayala, M.S., D-ABFT-FT and Sarah Kerrigan, PhD. Center for Forensic Science Webinar; January 2022.

“Application of All Ions Data Acquisition and SureMass Quantitative Data Analysis for Comprehensive Drug Screening Detection in Whole Blood”-Jessica Ayala, M.S., D-ABFT-FT and Sarah Kerrigan, PhD. American Academy of Forensic Sciences, Seattle, WA; February 2022.