

Curriculum Vitae

Michael J. Spence, Ph.D.

Forensic DNA Consultant-Spence Forensic Resources

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Educational Background:

<u>Institute and location</u>	<u>Degree</u>	<u>Conferred</u>	<u>Field of Study</u>
New Mexico State University Las Cruces, New Mexico	Ph.D.	Dec., 1990	Molecular Biology
University of Texas El Paso El Paso, Texas	M. S.	Dec., 1985	Applied Microbiology
University of Texas El Paso El Paso, Texas	B. S.	Aug., 1983	Applied Microbiology

Professional Experience in Forensic Biology:

2/08-Present: Forensic DNA Consultant, Spence Forensic Resources, Las Cruces, NM

6/07-2/08: Technical Manager, Forensic Testing Laboratories, Las Cruces, NM

5/03-5/07: Forensic Biologist, Indiana State Police, Evansville Regional Laboratory

Summary of Forensic Training:

- **Spence Forensic Resources (SFR)**: From February 2008 through the present date: Founded forensic biology/DNA consulting company. SFR provides a range of services—available to both the prosecution and the defense—including examination of case reports and supporting documentation, consulting and expert witness testimony at criminal case hearings, depositions, and trials. These services have necessitated the review of the Quality Assurance Policies, Standard Operating Procedures (SOPs) and DNA Technical Manuals originating from over 90 forensic DNA crime laboratories and private DNA testing facilities spanning across the United States.
- **Recent webinar reviews covering forensic biology/DNA**. Copies of all Certificates of Completion are available upon request:
- **January 2, 2021**: Completed review of the webinar: “DNA Advancements in Analysis of Human Remains.” This one-hour webinar was initially aired on September 10, 2020, and was sponsored by ThermoFisher Scientific. This webinar included presentations provided by Dr. Sheree Hughes, and Ms. Rachel Oefelein.

- **January 2, 2021:** Completed review of the webinar: **“Tips, Tricks, and Best Practices for Gaining Efficiency in Your Forensic DNA Laboratory.”** This one-hour webinar was initially aired on August 20, 2020, and was sponsored by ThermoFisher Scientific. This webinar included presentations from Mr. David Miller, and Mr. Gareth Stead.
- **January 2, 2021:** Completed review of the webinar: **“Finding the Right Tool for the Job: CE Tools that Improve Efficiency and Save Time.”** This one-hour webinar was initially aired on July 16, 2020, and was sponsored by ThermoFisher Scientific. This webinar included presentations from Ms. Jaime Brachold, and Mr. Robert O’Brien.
- **January 1, 2021:** Completed review of the webinar: **“The Power of Rapid DNA Results.”** This one-hour & twenty minute webinar was initially aired on June 11, 2020, and was sponsored by ThermoFisher Scientific. This webinar included presentations from Ms. Anna Dadhania, and Ms. Amy Jeanguenat.
- **January 1, 2021:** Completed review of the webinar: **“Transforming the Forensic DNA Workflow: In for a Penny, ...In for a Pound.”** This one-hour webinar was initially aired on May 14, 2020, and was sponsored by ThermoFisher Scientific. This webinar included presentations from Mr. Dave Jackson, and Ms. Amy Jeanguenat.
- **December 16, 2020:** Completed review of the webinar: **“DNA Hit of the Year: Database Programs Help Solve More Crime.”** This one-hour webinar was initially aired on October 15, 2020, and was sponsored by ThermoFisher Scientific. This webinar included a presentation from Mr. Tim Schellberg.
- **May 17, 2020:** Completed review of the webinar: **“Module 8: Probabilistic Genotyping Summation and Special Topics.”** This four-hour webinar was held on July 17, 2019, by the Forensic Technology Center of Excellence (FTCoE), the National Institute of Justice (NIJ), and the Research Triangle Institute (RTI). This module included presentations from Dr. Jo-Anne Bright, Dr. John Buckleton, Mr. Ted Hunt, and Dr. Klaas Slooten
- **May 12, 2020:** Completed review of the webinar: **“Module 7: Uncertainty and Limitations of Probabilistic Genotyping Systems Workshop.”** This 4-hour webinar was held on June 26, 2019, by the FTCoE, the NIJ, and the RTI. This module included presentations from Dr. Klaas Slooten, Dr. Amke Caliebe, Zane Kerr, and Dr. Bianca Szkuta.
- **April 30, 2020:** Completed review of the webinar: **“Module 6: Probabilistic Genotyping In Court.”** This 4-hour webinar was held on June 19, 2019, by the FTCoE, the NIJ, and the RTI. This module included presentations from Dawn Herkenham, Esq., Dr. Mark Perlin, and Ms. Jerrilyn Conway.
- **April 26, 2020:** Completed review of the webinar: **“Module 5: Representation of Statistical Weight to Stakeholders and the Court.”** This four-hour webinar was held on June 12, 2019, by the FTCoE, the NIJ, and the RTI. This module included presentations from Dr. Tamyra Moretti, Mr. Steven Myers, and David Kaye, Esq.
- **April 14, 2020:** Completed review of the webinar: **“Module 4: Validation of Probabilistic Genotyping Systems for Casework Usage.”** This 4-hour webinar was held on May 29, 2019, by the FTCoE, the NIJ, and the RTI. This module included presentations from Dr. Tamyra Moretti, Dr. Sarah Noël, and Dr. Duncan Taylor.

- **April 9, 2020:** Completed review of the webinar: **“Module 3: Probabilistic Genotyping Software and Output.”** This 4-hour webinar was held on May 22, 2019, by the FTCoE, the NIJ, and the RTI. This module included presentations from Dr. Michael Coble, Dr. Mark Perlin, Dr. Peter Gill, and Dr. John Buckleton.
- **March 30, 2020:** Completed review of the webinar: **“Module 2: Statistical Genetics and the Mechanics of Probabilistic Genotyping.”** This four-hour webinar was held on May 8, 2019, by the FTCoE, the NIJ, and the RTI. This module included presentations from Dr. David Balding, Dr. Michael Coble, Mr. Steven Myers, and Dr. John Buckleton.
- **March 28, 2020:** Completed review of the webinar, entitled: **“Module 1: The Elements of DNA Profile Interpretation and Probabilistic Genotyping.”** This four-hour webinar was held on May 1, 2019, by the FTCoE, the NIJ, and the RTI. This module included presentations from Dr. Tamyra Moretti, Dr. Peter Gill, and Ms. Lynn Garcia.
- **February 4, 2019:** Completed review of the webinar bearing the title: **“From Training to Trial: A Reflection on Nearly Three Years of Probabilistic Genotyping”**. This webinar was held January 31, 2018. Presentations were sponsored by Promega Corporation, *Forensic Magazine*, and the Institute of Environmental Science and Research.
- **February 4, 2019:** Completed review of the webinars, bearing the title: **“Expert Systems for Interpreting DNA Data – System Overviews.”** This webinar, covering **ArmedXpert, GeneMarker HID, STRmix, and TrueAllele**, was held by the Forensic Technology Center of Excellence, on September 4, 2014.
- **February 3, 2019:** Completed review of the archived webinar bearing the title: **“SWGDM Recommendations on Communicating Likelihood Ratios.”** This webinar was held on October 18, 2018, by the Forensic Technology Center of Excellence—which is a National Institute of Justice program.
- **Forensic Testing Laboratories:** From June 2007 through February 2008. Development of a Quality Assurance Policy in preparation for an accreditation process with Forensic Quality Services (FQS-I). Design and validation of Standard Operating Procedures and worksheets for documentation of Chain of Custody, Evidence Screening, body fluid testing, DNA extraction/purification, real-time PCR quantification, STR-based DNA typing, statistical data interpretation, case report writing, and case review. Preparation of Forensic Biologist training manuals, including a strategy for competency and proficiency testing. Interviewing employee prospects. Work with law enforcement investigators on non-probative cases.
- Promega Corporation demonstration and training on the use of Plexor H/Y Real-Time PCR Quantification System, February 1-2, 2008.
- Applied Biosystems, Inc. (ABI) Instrument Training-3130 Capillary Electrophoresis, 7500 Real-Time PCR, and Quantifiler Duo DNA Quantification System, January 28-29, 2008.
- **Indiana State Police Laboratory:** Evidence Screening/DNA Proficiency Training Program. Included the following: chain of custody, evidence handling and screening for biological material, presumptive and confirmatory testing for blood, semen, saliva, human origin testing, comparative hair analysis, DNA extraction and purification, real-time PCR-based DNA quantification systems, Promega PowerPlex16-based typing of DNA, statistical assessment of single-source and mixture DNA profiles. Training and mock cases were used to emphasize preparation for courtroom testimony. Case report writing and technical review of reports prepared by associated forensic biologists.

- IN St. Police proficiency training-ABI Real-Time PCR, completed Dec., 2006
- Training on the use of a new Lab Information Management System (LIMS), Sept. 2006
- FBI DNA Auditing Training Workshop and Certification, Fredericksburg, VA, July 2006
- Bode Technology Workshop: Advances in Human Identification, San Diego, April 2006
- SPEX Forensics Alternate Light Source Crime Scope Training, November 2005
- ABI Training for Capillary Electrophoresis and Real-Time PCR Processes, August 2005
- Statistics-Forensic Biology Applications Training, November 2004
- Statistics Workshop presented by Charles Brenner, Ph.D., March 2004
- **Auditor-National Forensic Science Technology Center (NFSTC):** June 2008-May 2009. Assessments of DNA labs at the following locations: Texas DPS Crime Lab-Austin; TX, Fort Worth PD Crime Lab; Univ. of N. TX-Center for Human Identification; Tarrant Co. Medical Examiner; Balt. City PD. Crime Lab; K.C. PD Crime Lab; FL Dept. of Law Enforcement Labs Tampa/Orl., FL; Lab Corp Burlington, NC; NC Dept. of Public Safety, Raleigh, NC. Dr. Spence is no longer active as an NFSTC auditor.

Crime Laboratory Examinations: Evidence Screening and DNA Case Analysis:

Cases completed: 101 case examinations. **52** of these cases were examined by Dr. Spence—entirely, from start to finish, **40** cases involved *only* body fluid analysis of evidence and **9** cases involved analysis of DNA *only*. Note that Dr. Spence is no longer a bench Forensic Biologist.

Provided Continuing Legal Education (CLE): PowerPoint presentation entitled: *DNA: Fight It or Embrace It?* June 3, 2020: **Harris County Criminal Lawyers Association. (Provided presentation via GoToMeeting™ web-hosted service);**

Provided Continuing Legal Education (CLE): PowerPoint presentation entitled: *DNA: Fight It or Embrace It?* June 9, 2017: **New Mexico Criminal Defense Lawyers Assoc. (Albuquerque, NM);**

Provided Continuing Legal Education (CLE): PowerPoint presentation entitled: *Hey DNA! You Can Drop-in Anytime.* February 18, 2016: **Group of Case Investigators invited by the NM Public Defender's Office. (Albuquerque, NM);**
December 4, 2015: **New Mexico Criminal Defense Lawyers Assoc. (Albuquerque, NM);**

Provided Continuing Legal Education (CLE): PowerPoint presentation entitled: *How Forensic DNA Analysis is Prone to Misinterpretation*
September 19, 2014: **Texas Criminal Defense Lawyers Association (El Paso, TX);**
March 29, 2013: **Pima County Office of the Public Defender (Tucson, AZ);**
March 28, 2013: **Maricopa County Office of the Public Defender (Phoenix, AZ);**
December 7, 2012: **New Mexico Criminal Defense Lawyers Assoc. (Albuquerque, NM);**

Technical Review of Forensic Biology/DNA Cases:

Estimated total number of case reviews: 1100+

Expert Witness Experience: Testimony in a total of 142 criminal proceedings.

Testimony: 16 trials—all for the prosecution: All occurring in the state of Indiana.

Testimony: 126 additional proceedings—all for the defense—across 14 other states:
56 New Mexico hearings & trials: (10/28/08, 04/08/09, 04/09/09, 05/08/09, 07/17/09, 08/05/09, 05/11/10, 05/27/10, 06/18/10, 07/28/10, 08/06/10, 01/13/11, 01/20/11, 04/20/11, 08/10/11, 11/16/11, 05/08/12, 05/25/12, 07/13/12, 08/02/12, 09/10/12, 10/25/13, 02/28/14, 05/07/14, 08/07/14, 02/11/15, 03/27/15, 11/02/15, 04/11/16, 04/15/16, 05/23/16, 06/02/16, 06/08/16, 08/30/16, 09/22/16, 10/13/16, 01/31/17, 02/23/17, 03/09/17, 08/24/17, 08/31/17, 09/15/17, 10/31/17, 12/11/17, 04/05/18, 05/08/18, 06/14/18, 06/22/18, 07/03/18, 08/20/18, 01/15/19, 05/16/19, 08/22/19, 09/05/19, 01/31/20, & 10/02/20); **Four hearings, twenty-three trials—Texas:** (10/06/08, 03/03/10, 08/04/11, 10/10/13, 01/15/14, 01/30/14, 08/01/14, 01/30/15, 04/10/15, 04/13/15, 11/01/16, 12/06/16, 04/20/17, 08/11/17, 09/11/18, 10/10/18, 11/09/18, 12/06/18, 01/09/19, 01/30/19, 01/31/19, 05/22/19, 07/18/19, 08/16/19, 11/08/19, 01/06/20, & 02/05/20); **Six hearings, eighteen trials—Arizona:** (07/12/11, 03/28/12, 9/26/12, 12/13/12, 01/02/13, 06/09/15, 02/25/16, 07/18/16, 10/24/16, 11/21/16, 02/21/17, 08/29/17, 09/28/17, 02/08/18, 02/15/18, 07/23/19, 01/23/20, 01/31/20, 02/04/20, 02/11/20, 03/11/20, 07/16/20, 11/17/20, & 02/11/21). **Two trials, one hearing—Michigan:** (10/07/15, 12/21/16, & 01/11/17). **Two trials, one hearing—Colorado:** (09/22/14, 05/21/15, and 07/31/18). **Two Maryland trials:** (03/31/09 & 10/07/11). **Two South Carolina trials:** (06/19/15 & 06/30/17). **One hearing, one trial—Florida:** (03/09/16 & 11/29/18). **Two trials—Iowa:** (05/03/19 & 02/20/20). **One trial—Oklahoma:** (09/13/19). **One trial—California:** (09/20/19). **One trial—Louisiana:** (10/31/19). **One trial—Arkansas:** (12/11/19). **One trial—Alaska:** (09/10/20).

Publications in Forensic Biology

(Not listed—are fourteen additional, previous research publications in biological sciences)

Christina T. Kline, Demosthenes Lorandos, Michael J. Spence. **If DNA, then guilty: Strategies for overcoming juror assumptions about DNA evidence in criminal trials.** January/February 2015 issue of *The Champion*: Pages 22-28.

Michael J. Spence and Demosthenes Lorandos, **Chapter 8: Forensic Use of DNA.** In May 2021, this multi-volume—28 Chapter reference set, bearing the title: *“The Litigator’s Handbook on Forensic Medicine, Psychiatry, and Psychology”*, will go to press—via Thomson Reuters WEST. An advance copy of **Chapter 8** can be made available, upon request.

Post-doctoral Research Experience:

1/91-11/94: **Post-doctoral Research Assistant, University of Vermont Department of Molecular Genetics, Burlington, VT. Research Summary:** Molecular genetics of protein processing.

12/94-4/03: **Assistant Scientist, V.A. Medical Center, Boise, ID. Research Summary:** Secured funding for an independent research project on anticancer properties of the cytokine—oncostatin M.

2/08-Present: **Forensic DNA Consultant, Spence Forensic Resources, Las Cruces, NM.**
Research Summary: Literature review of forensic biology/DNA, including the following: Proper crime lab procedures in forensic biology, minimization of contamination risks in DNA testing laboratories, DNA evidence handling and proper reporting of data, DNA contamination errors—during crime lab processing of evidence, failure of crime labs to properly document corrective action issues, DNA mixture analysis and the history of DNA mixture misinterpretations, the fundamentals of probabilistic genotyping technology (e.g. use of STRmix™), the representation of comparative DNA profile results—using likelihood ratio calculations, DNA transfer theory, low copy number (LCN) DNA typing, interpretation of RFU limits and reporting thresholds.

Teaching Experience in Molecular Biology and Forensic Biology:

December 2006: **Visiting Presentation: Southern Indiana Technology Career Training Center.** Provided forensic biology presentations to two classes composed of approximately sixty junior/senior level high school students.

February 2006: **Visiting Presentation: Riley Children's Hospital of Indianapolis.** Provided a training presentation to twenty-five sexual assault nurse examiners. Discussion focused on optimal collection and preservation of evidence associated with sexual assault kits. The presentation also summarized the state of advancing technologies in evidence screening and DNA typing.

Fall 2002 Semester: **Adjunct Faculty Instructor: Boise State University.** Worked on a team-taught course organized by Dr. Cheryl Jorcyk, Department of Biology, Boise State University. This course was entitled: Introduction to Bioinformatics. Presented a section entitled: “Data Mining: DNA Microarrays & Cluster Analysis”.

REFERENCES

A list of qualified references can be provided—upon request.