Bryan Edward Hettick

EDUCATION

M.S. of Chemistry, Spring 2022, Baylor University, Waco, TX
M.S. of Environmental Toxicology, Summer 2016, Texas Tech University, Lubbock, TX
B.S. of Chemistry, Spring 2014, Lubbock Christian University, Lubbock, TX

PROFESSIONAL EXPERIENCE

Instructor of Analytical Chemistry, Berry College, Mount Berry, GA
July 2025 – Present

Supervisor: Dr. Alice Suroveic

- Served as instructor for laboratory and lecture classes
    - General Chemistry II, Analytical Chemistry Lab
- Acted as department's manager for liquid chromatography and mass spectrometry instruments

Chemist II, Battelle Contractor, Centers for Disease Control and Prevention (CDC), Atlanta, GA
March 2022 – July 2025

Supervisor: Dr. Marcus Boone

- Contractor serving in Emergency Response Branch at CDC
    - Working in Toxins and Drugs of Abuse Lab (TDAL) under Elizabeth Hamelin
- Specializing in use of liquid chromatography paired with high resolution mass spectrometry (LC-HRMS) to detect natural toxins
    - Gained experience with Agilent, Thermo and Sciex platforms and accompanying software
- Developed non-targeted LC-HRMS method for detection of natural toxins
    - Manuscript recently published in Journal of Analytical Toxicology
- Certified analyst for retired LC-HRMS method for detection of fentanyl compounds

Graduate Research Assistant, Baylor University, Waco, TX
August 2018 – December 2021

Supervisor: Dr. Elyssia Gallagher

- Performed research for academic advisor while working on Master's degree
    - Focused on glycomics and proteomics method development
- Trained in use of mass spectrometry, nuclear magnetic resonance, and liquid chromatography
    - Experience with Thermo Orbitrap systems and accompanying software
- Served as teaching assistant for analytical chemistry and advanced instrumentation coursework

Adjunct Professor, Lubbock Christian University, Lubbock, TX
August 2017 – August 2018

Supervisor: Dr. Julie Marshall

- Served as instructor in laboratory classes designed to accompany lecture courses
    - General Chemistry I and II, General Physics I and II
- Managed laboratory activities and monitored student experiments
- Wrote final exams for classes to test overall comprehension
- Graded lab reports and other assignments submitted by students

Substitute Teacher, Lubbock Independent School District, Lubbock, TX

October 2016 – May 2017

Supervisor: Mrs. Elena Jackson

- Acted as substitute for absent teachers in classrooms for students of all ages
- Specialized in secondary education for subjects of mathematics and science

Graduate Research Assistant, The Institute of Environmental Toxicology, Lubbock, TX

August 2014 – August 2016

Supervisor: Dr. David Klein

- Performed research for academic advisor while working on Master's degree
- Reviewed scientific literature as part of thesis work
- Maintained and repaired graphite furnace and flame atomic absorption spectrometer
- Assisted with teaching in lab classes on matters of atomic absorption and mass spectrometry
- Conducted original research involving cantaloupe plants and arsenic as part of thesis work
- Worked with relationship between wine and arsenic as part of thesis work

Laboratory Assistant, Biochemistry Research Lab (BRL) Analytical, Lubbock, TX

June 2013 – August 2014

Supervisor: Dr. Julie Marshall

- Served as assistant in analytical lab while working on undergraduate degree
- Worked on analysis of 2013 peanut harvest for quality assurance
    - Tested samples for fat content and free fatty acid percentage
- Participated in taste-testing of peanut butter samples
- Participated in project concerning Canadian geese migration patterns and bacteria in playa lakes
    - Collected samples from goose excrement and water for analysis
- Limited experience with gel electrophoresis and PCR techniques

Teaching Assistant, Lubbock Christian University, Lubbock, TX

January 2012 – May 2014

Supervisor: Mrs. Jessica Rogers

- Served as assistant to instructors in laboratory classes
- Prepared equipment and chemical reagents for class experiments
- Maintained laboratory area to ensure a safe environment for class participants
- Graded lab reports and other assignments submitted by students

Resident Assistant, Lubbock Christian University, Lubbock, TX

August 2011 – May 2013

Supervisor: Mr. Roy Worley

- Employed by university to maintain order in men's dormitory
- Served as mentor to residents for educational, spiritual, and personal guidance
- Performed miscellaneous tasks assigned by supervisor to maintain quality of life for residents
- Assisted with volunteer efforts in the community to promote positive experiences

PROFESSIONAL CERTIFICATIONS

Project Management Professional (PMP), conferred June 2024, Project Management Institute

PUBLICATIONS

Hettick, B., Saddy, A., Krajewski, L., Johnson, R., Hamelin, E. (2024). Method for detection of naturally occurring toxins in human urine using liquid chromatography high-resolution mass spectrometry. Journal of Analytical Toxicology. Accepted manuscript. Doi: 10.1093/jat/bkae086

Kasumba, J., Hettick, B., French, A., Wickliffe, J., Lichtveld, M., Hawkins, W., van Sauers-Muller, A., & Klein, D. (2016). Analysis of pesticides and toxic heavy metals contained in mosquito coils. Bulletin of Environmental Contamination and Toxicology, 975(5), 614-618. doi: 10.1007/s00128-016-1938-9

Hettick, B. E., Cañas-Carrell, J. E., Martin, K., French, A. D., & Klein, D. M. (2016). Arsenic Uptake by Muskmelon (Cucumis melo) Plants from Contaminated Water. Bulletin of Environmental Contamination and Toxicology, 97(3), 395-400. doi: 10.1007/s00128-016-1893-5

Hettick, B. E., Cañas-Carrell, J. E., French, A. D., & Klein, D. M. (2015). Arsenic: A Review of the Element's Toxicity, Plant Interactions, and Potential Methods of Remediation. *Journal of Agricultural and Food Chemistry, 63*(32), 7097-7107. doi:10.1021/acs.jafc.5b02487

PRESENTATIONS

Oral Presentation: "Detection of Exposure to Naturally Occurring Toxins Using High Resolution Mass Spectrometry — March 2025

- Applied for acceptance to and scheduled to present at the Atlanta Athens Mass Spectrometry Discussion Group (AAMSDG) 2024 symposium. Presentation delayed and re-scheduled due to Hurricane Helene.

Poster Presentation: "Detection of Exposure to Naturally Occurring Toxins by Liquid Chromatography High Resolution Mass Spectrometry" — March 2024

- Applied for acceptance to and scheduled to present at CDC's internal Laboratory Science Symposium (LSS). Presenting on behalf of first author Logan Krajewski

Poster Presentation: "Detection of Exposure to Naturally Occurring Toxins by Liquid Chromatography High Resolution Mass Spectrometry" — November 2023

- Accepted for presentation at Society of Environmental Toxicology and Chemistry (SETAC) North America conference in Louisville, Kentucky. Presentation delivered by Elizabeth Hamelin

Poster Presentation: "Detection of Exposure to Naturally Occurring Toxins by Liquid Chromatography High Resolution Mass Spectrometry" — January 2023

- Applied for acceptance to and presented at CDC's internal Laboratory Science Symposium (LSS)

Poster Presentation: "Optimizing the duration of hydrazine hydrate chemical deglycosylation for MS analysis of mucin-type O-linked glycans — May 2020

- Applied for acceptance to and presented at virtual meeting of American Society Mass Spectrometry (ASMS)

Thesis Presentation: "Arsenic Determination in Cantaloupe (Cucumis melo) — May

and Various Wines from West Texas" 2016

- Prepared thesis from results of literature review and original research with cantaloupe and wine
- Defended thesis orally before a committee and an audience of my peers
- Conducted in partial fulfillment of my Master's degree plan

Oral Presentation: "Arsenic Uptake by Muskmelon (*Cucumis melo*) Plants from Contaminated Water" March 2016

- Applied for acceptance to and presented at regional meeting of Society of Environmental Toxicology and Chemistry (SETAC) at Texas Christian University in Ft. Worth, Texas

Poster Presentation: "Arsenic Uptake by Muskmelon (*Cucumis melo*) Plants from Contaminated Water" December 2015

- Applied for acceptance to and subsequently presented at international Pacifichem conference for the American Chemistry Society (ACS) in Honolulu, Hawaii

Poster Presentation: "Quality and Stability of Peanut Oils In Raw Nuts Treated With Ultraviolet Light to Reduce Bacterial Loads" April 2014

- Applied for acceptance to and subsequently presented at the Texas Tech University Undergraduate Research Conference in Lubbock, Texas

Oral Presentation: "Quality and Stability of Peanut Oils In Raw Nuts Treated With Ultraviolet Light to Reduce Bacterial Loads" April 2014

- Applied for acceptance to and subsequently presented at the Lubbock Christian University Scholar's Colloquium in Lubbock, Texas
- Conducted in partial fulfillment of my undergraduate degree

Poster Presentation: "Quality and Stability of Peanut Oils In Raw Nuts Treated With Ultraviolet Light to Reduce Bacterial Loads" March 2014

- Applied for acceptance to and subsequently presented at the Council on Undergraduate Research's National Conference of Undergraduate Research (NCUR) in Lexington, Kentucky

ABSTRACT OF MOST RECENT RESEARCH

Natural toxins present an ongoing risk for human exposure that requires a rapid, accurate diagnosis for proper response. In this study, a qualitative liquid chromatography high resolution mass spectrometry (LC-HRMS) method was developed and validated for the detection of a large, diverse selection of natural toxins. Data-dependent acquisition was performed to identify compounds with an in-house mass spectral library of 129 hazardous toxins that originate from plants, animals, and fungi. All 129 compounds were spiked into human urine, extracted, and evaluated for spectral library matching. Of these, 92 toxins met the quality criteria and underwent validation in urine matrix based on American National Standards Institute (ANSI) guidelines. A generalized workflow for method expansion was developed and enables the rapid addition of relevant compounds to the established method. This LC-HRMS method achieves efficient detection of natural toxins in urine, and the created workflow can rapidly increase compound coverage via method expansion.

RELEVANT COURSEWORK

I took the following advanced classes in Chemistry as part of my Master's studies

- Organic Spectroscopy
- Special Topics in Bioanalytical Chemistry
- Responsible Conduct Research
- Scientific Communication
- Chemical Biology
- Physical Biochemistry
- X-Omics in Mass Spectrometry
- Advanced Chemical Instrumentation

I took the following advanced classes in Environmental Toxicology as part of my Master's studies:

- Principles of Toxicology I & II
- Professional Development and Career Planning
- Advanced Topics in Analytical Chemistry and Toxicology
- Advanced Topics in Molecular Carcinogenesis
- Chemical Sources and Fates
- Analytical Toxicology w/ Lab
- Advanced Topics in Mass Spectrometry

I took the following chemistry-related classes during my undergraduate studies:

- General Chemistry w/ lab I & II
- Organic Chemistry w/ lab I & II
- Physical Chemistry w/ lab I & II
- Analytical Chemistry w/ lab I & II
- Biochemistry I & I

Other undergraduate classes relevant to this position may include:

- Calculus I, II, and III
- Engineering Physics w/ lab I & II
- Communications for the Professional
- Microcomputer Applications
- Advanced Spreadsheets
- Differential Equations

TEACHING EXPERIENCE

While employed as an adjunct professor at Lubbock Christian University, I taught the following classes:

- General Chemistry Laboratory I & II
- General Physics Laboratory I & II

I would be prepared to teach in the following areas:

- Analytical Chemistry
- Biochemistry
- Principles of Toxicology
- General Chemistry
- College or High School Algebra
- General Physics
- Calculus I
- High School Biology

AFFILIATIONS AND MEMBERSHIPS

American Society of Mass Spectrometry (ASMS) December 2019 – December 2022

Llano Estacado Society of Environmental Toxicology and Chemistry (SETAC) August 2014 – August 2016

American Chemical Society (ACS) January 2014 – August 2016

HONORS AND AWARDS

Syngenta Outstanding Masters Student May 2016
- Awarded by Texas Tech University Department of Environmental Toxicology

Scholar's Colloquium Best Undergraduate Quantitative Research April 2014
- Awarded by Lubbock Christian University

Outstanding Chemistry Senior April 2014
- Awarded by American Chemistry Society South Plains Branch

Senior Chemistry Student of the Year April 2014
- Awarded by Lubbock Christian University Department of Physical Science