



- Objective** My goal is to promote deeper critical thinking skills by engaging students in practical applications of chemistry.
- Education**
- Vanderbilt University, Nashville, TN  
**Ph.D., Department of Chemistry**  
Advisor: Dr. David E. Cliffler  
Conferred: May 13, 2011  
"Gravimetric Detection of Pathogens and an Electrochemical Study of the Immunological Consequences of Tuberculosis Exposure"
- Freed-Hardeman University, Henderson, TN  
**B.S., Biochemistry**  
Conferred: May 13, 2006
- Minor: Mathematics
  - Graduated *magna cum laude* with Honors
- Teaching Experience**
- Associate Professor**  
August 2015 – Present *Austin Peay State University, Clarksville, TN*
- Taught courses in quantitative analysis, instrumental analysis, senior seminar, special topics, research, introductory chemistry and general chemistry
  - Continued responsibilities that originated as an assistant professor
  - Participated in a Faculty Advising Program to learn about and make suggestions for improving advising across the campus
  - Learned about the leadership on APSU's campus and how to get more involved in the Faculty Leadership Program
  - Expanded research in collaboration with Prof. Meagan Mann by utilizing more of APSU's instrumental suite for student projects
- Assistant Professor**  
August 2012 – July 2015 *Austin Peay State University, Clarksville, TN*
- Taught courses in quantitative analysis, instrumental analysis, senior seminar, research, general chemistry, chemistry majors in the classroom, and chemistry for non-chemistry majors
  - Taught accompanying labs for quantitative analysis, instrumental analysis, general chemistry, and chemistry for non-chemistry majors
  - Coordinated monthly general chemistry meetings
  - Organized seminar speakers
  - Advised pre-pharmacy chemistry majors
  - Mentored six students on three different research projects
- Chemistry Lecturer and College of Arts and Science Pre-Major Academic Adviser**  
August 2011 – July 2012 *Vanderbilt University, Nashville, TN*
- Advised over 250 students on course selection and career objectives
  - Developed and taught a new chemistry writing course on science and society
  - Guided student analytical thinking to develop evidence-based arguments
  - Began foundational experiments for research on carotenoid electrochemistry

### **Adjunct Faculty**

January 2011 – May 2012 *Lipscomb University, Nashville, TN*

- Developed new course content for advanced analytical chemistry which focused on electrochemistry and forensic chemistry
- Reinforced learning in advanced analytical chemistry with reviews and examples from current literature
- Applied pedagogical practices to teach general chemistry lecture and labs

### **Adjunct Faculty**

January – July 2011 *Austin Peay State University, Clarksville, TN*

- Instructed undergraduate labs in the areas of general chemistry and chemistry for non-science majors
- Prepared quizzes and pre-lab lessons to improve student understanding of the course objectives
- Encouraged non-science majors to find direct application of the lab to their current career choices

### **Weekend Academy at Vanderbilt University Lecturer**

February 26 – 27, 2011 *Vanderbilt University Programs for Talented Youth, Nashville, TN*

- Designed an accelerated two-day course for middle school students on the chemistry of microfluidic devices
- Provided students with hands on learning through jell-o and other materials to explore the field of lab-on-a-chip technologies
- Expanded on student interest in global problems by investigating the current methodologies behind disease diagnostics

### **Vanderbilt Summer Academy Lecturer**

June 14 – 18, 2010 *Vanderbilt University Programs for Talented Youth, Nashville, TN*

- Utilized discussion based lectures to introduce forensic chemistry to 8<sup>th</sup> graders
- Assessed students misconceptions about forensic science and prepared activities that could combat these ideas
- Facilitated laboratory experiments to supply a framework and motivation for their daily lessons
- Coordinated group projects to familiarize students with instruments common to forensic chemistry

### **Teaching Affiliate**

August 2009 – December 2010 *Vanderbilt University Center for Teaching, Nashville, TN*

- Designed and conducted a teaching workshop for new teaching assistants
- Served as a mentor to these new teaching assistants for their first semester
- Produced a video to highlight student expectations for future workshops

### **Forensics Teaching Assistant**

January – May 2008 *Vanderbilt University, Nashville, TN*

- Supervised lab sessions focused on forensic science
- Developed methods for improving student scientific writing
- Coordinated field applications with the Tennessee Bureau of Investigation

### **Vanderbilt Student Volunteers for Science (VSVS)**

January – May 2007 *Vanderbilt University, Nashville, TN*

- Instructed four basic scientific lessons to 5<sup>th</sup> and 6<sup>th</sup> grade students at Martha Vaught Middle School and West End Middle School
- Organized and mentored two teams of four undergraduates to teach these lessons
- Set up lessons and coordinated supply acquisition

## Research Experience

### **General Chemistry Teaching Assistant**

August – December 2006 *Vanderbilt University*, Nashville, TN

- Instructed weekly laboratory experiments of approximately 22 students
- Assisted students with data analysis during office hours and study sessions
- Graded written lab reports and exams

### **Organic Chemistry Teaching Assistant**

August 2004 – May 2006 *Freed-Hardeman University*, Henderson, TN

- Helped students understand course material through study sessions
- Oversaw weekly laboratory sessions
- Graded lab notebooks

### **Associate Professor**

August 2015 – Present *Austin Peay State University*, Clarksville, TN

- Continued regular troubleshooting, rebuilding, installation, training, and maintenance on specific instruments in the instrumental laboratory (MS, AA, HPLC, UV-Vis, Fluorimeter, and EChem)
- Expanded on collaboration with Prof. Meagan Mann to quantitate the amount of nicotine present in electronic cigarettes using electrochemistry and colorimetry, in addition to improving HPLC methodology
- Mentored 14 undergraduate students and 2 research theses
- Resumed carotenoid research to build on approaches established by previous graduated research students

### **Assistant Professor**

August 2012 – July 2015 *Austin Peay State University*, Clarksville, TN

- Regular troubleshooting, rebuilding, installation, training, and maintenance on specific instruments in the instrumental laboratory
- Collaborated with Prof. Meagan Mann to quantitate the amount of nicotine present in electronic cigarettes using HPLC
- Collected electrochemical data on  $\beta$ -carotene to establish methodology for analysis of purified carotenoids
- Separated and characterized carotenoid content of red bell peppers and egg yolk as a precursor for electrochromic pigments
- Trained two research students on the fluorimeter for biochemical assay usage
- Developed a collaboration with Prof. Jesse Carrick at TN Tech for HPLC analysis of chiral molecules for advanced instrumental analysis course in spring 2015

### **Chemistry Lecturer**

January – May 2012 *Vanderbilt University*, Nashville, TN

Independent Research Proposal

- Utilized the research proposal written as part of graduation requirements to initiate autonomous research with collaborators in chemistry and chemical and biomolecular engineering
- Characterizing  $\beta$ -carotene spectroelectrochemistry and electrochemistry with the intent of incorporation into a thin-layer cell
- Determining if  $\beta$ -carotene would be suitable for incorporation into an electrochromic device

### **Research Assistant**

February 2007 – February 2011 *Vanderbilt University*, Nashville, TN

Advisor: Dr. David E. Cliffe

- Designed and implemented a method to detect *Mycobacterium tuberculosis*
- Constructed a microfluidic electrochemical assay for the detection of oxidative burst
- Mentored the research of a high school student, an undergraduate student, and multiple graduate students as they worked in our lab
- Provided training to peers who required usage of the materials printer or quartz crystal microbalance in collaboration with Vanderbilt Institute of Nanoscale Science and Engineering (VINSE)

### **Lab Assistant**

August 2004 – May 2006 *Cancer Research Institute of West Tennessee*, Henderson, TN

Advisor: Dr. Jerry Thornthwaite

- Performed DNA analysis using flow cytometry
- Analyzed literature looking for new methods for the prevention of angiogenesis

### **Research Experience for Undergraduates (REU)**

May – August 2004 *University of Memphis*, Memphis, TN

Advisor: Dr. Theodore Burkey

- Performed synthetic organic chemistry in an oxygen-free environment while networking with peers that I would see at future conferences
- Monitored synthetic progress using  $^1\text{H}$  NMR
- Studied organometallic systems through photosubstitution and characterization for ultrafast IR studies for a joint project with National Institute of Standards and Technology Laboratories

## **Research Summary**

The popularity of electronic cigarettes has increased drastically over recent years. While e-cigarettes are often marketed as safer alternatives to traditional cigarettes, the lack of government regulation of e-cigarettes presents a potential for products that could vary significantly from the labels of the products. The FDA has approved legislation that has begun to increase the regulation of e-cigs, but mainly only the sale to minors. Assuming more stringent regulations will be developed, our group is working to develop an assay for the detection of nicotine in complex samples using electrochemistry and colorimetry. This assay could be used commercially to help small stores demonstrate the quality of their product. We are also continuing to use high performance liquid chromatography and nicotine calibration curves to quantitatively analyze the quality control of electronic cigarettes. This work has produced good quantitation with a low limit of detection, but limited selectivity. By turning to electrochemistry and colorimetric methods, we hope to improve the selectivity of our assays.

An electrochemical study of carotenoids for use in electrochromic devices can be conducted using a UV-Vis spectrophotometer and a potentiostat. This research examines the potential of carotenoids, which are organic pigments that occur naturally in plants and other photosynthetic organisms, to meet requirements of an electrochromic device. This research experience works toward separating carotenoids from their natural carrier, either red bell peppers or egg yolk. Then the carotenoids will be characterized and assessed for whether they are suitable for incorporation into electrochromic devices. Previous students have established methodology and backgrounds for this project, but no conclusive results have been achieved. This project has not been worked on as much by students due to student interest in the electronic cigarette project over this carotenoid project. Dr. Mann is currently working with students to synthesize new carotenoids for incorporation into electrochromic devices. Our research students will explore the electrochromic shifts of these new carotenoids.

## Professional Development

*Spring 2016* Participated in APSU's Faculty Leadership Program (FLP) where I worked with other faculty to understand leadership across our university and how we can make a difference. Researched institutional repositories as a way of increasing cross-campus collaboration.

*March 8, 2016* Attended a short course at PittCon (Pittsburg Conference on Analytical Chemistry and Applied Spectroscopy) entitled, "Highly Successful Strategies for LC/MS Quantitation: Current Applications and Emerging Technologies". The lessons I learned in this short course will be used to make a graduate level course on LC/MS.

*Fall 2015* Participated in APSU's Faculty Advising Program (FAP). Participated in a small faculty cohort to study, evaluate, and develop ideas for improved advising across campus. This leadership program allowed me to identify weaknesses in our advising and advising systems across the university, while working on a plan for improving these shortcomings. I also learned how to improve my own advising practices based on those I worked with weekly.

*November 4, 2015* Attended a training session put on by the Center for Teaching on behalf of the department in order to learn how to conduct accessibility audits, and then conducted these audits for our general chemistry courses

*April 4-6, 2013* Attended the Southeastern Association of Advisors for the Health Professions (SAAHP) to network and learn more about pre-professional schools in order to serve as a stronger resource in the department for advising APSU students

*October 5-6, 2012* Attended a session to increase skills and knowledge utilizing nuclear magnetic resonance (NMR)

*January – May 2012* Deliberate Pedagogy Work Group at Vanderbilt University- voluntarily met twice a month with colleagues from various disciplines to discuss teaching practices and conduct classroom observations

*March 29, 2012* Small Group Analysis- worked with Vanderbilt's Center for Teaching to gain feedback about the pedagogical practices employed in my first-year writing seminar

Center for Teaching Graduate Student Teaching Event for Professional Development (GradSTEP) 2008- 2011:

*January 22, 2011* GradSTEP participated in sessions focusing on alternative assessment, teaching science to non-science students, and using visual thinking in the classroom

*January 23, 2010* GradSTEP incorporated learning about giving effective presentations as well as working towards an ecological pedagogy

*January 17, 2009* GradSTEP included a session on course design for student learning and a session on assessment and grading

*January 19, 2008* GradSTEP focused on engaging students and using formative assessment to recognize when learning is occurring in the classroom

*August 22-23, 2007 and August 18-21, 2008* Led practice teaching sessions as part of Vanderbilt Center for Teaching's (CFT) Teaching Assistant Orientation (TAO) workshop

## Scientific Skills

**HPLC-** Trained multiple students on the high performance liquid chromatography instrumentation and supervised student-led training for new interested students

**Mass Spectrometry-** In addition to graduate work using LC-MS, MALDI, and GC-MS, completely rebuilt an ESI/TOF/MS using the rebuild as a teaching lesson for multiple students. Procured and set up a newer LCQ Advantage ESI/MS/MS. Trained students on this new system and have collected data, but overheating issues are prohibiting consistent use.

**Electrochemistry-** Amperometry, voltammetry, chronoamperometry, reference electrode fabrication, spectroelectrochemistry, electrolysis, electrode polishing

**Cell Culture-** Maintained cell lines for doctoral research (seeding, splitting, plating, etc.)

**Microfluidic design-** PDMS fabrication, troubleshooting, profilometry, plasma and silanization treatments, clean room techniques, spin-coating, photocurable PDMS

**Quartz crystal microbalance (QCM)-** Instrument repair, kinetics analysis, software creation, piranha cleaning, self-assembled monolayer formation

**National Instruments LabVIEW Software-** Interfaced multiple SRS QCMs with one computer and setup electronic control of syringe pumps interfaced with microfluidic systems

**Additional techniques-** Materials printing, ELISA, FTIR, DLS, UVO cleaner, <sup>1</sup>H NMR, AA and UV-Vis Spectroscopy, Fluorescence, SEM, TEM

**Software-** Microsoft Office 2007, Endnote, Dreamweaver website design, Adobe Suite, ChemBioDraw, SciFinder Scholar, OriginPro Graphing Software, LoggerPro

## Publications

Jacob Williams, Martin E. Miller, Brianna Avitabile, Dillon Burrow, Allison Schmittou, Meagan Mann, and **Leslie Hiatt**. "Teaching Students to be Instrumental in Analysis: Peer-Led Team Learning in the Instrumental Laboratory" *J Chem Ed*, **2017**, accepted for publication.

Danielle W. Kimmel, Mika E. Meschievitz, **Leslie A. Hiatt**, and David E. Cliffl. "Multianalyte Microphysiometry of Macrophage Responses to Phorbol Myristate Acetate, Lipopolysaccharide, and Lipoarabinomannan" *Electroanal*, **2013**, 25, 1706-1712.

**Leslie A. Hiatt** and David E. Cliffl. "Real time Recognition of *Mycobacterium tuberculosis* and Lipoarabinomannan using the Quartz Crystal Microbalance." *Sens Actuators, B*, **2012**, 174, 245-252.

Reese S. Harry, **Leslie A. Hiatt**, Danielle W. Kimmel, Clare K. Carney, Kristin C. Halfpenny, David E. Cliffl and David W. Wright. "Metabolic Impact of 4-Hydroxynonenal on Macrophage-Like RAW 264.7 Function and Activation." *Chem Res Toxicol*, **2012**, 25, 1643-1651.

**Leslie A. Hiatt**, Jennifer R. McKenzie, Leila F. Deravi, Reese S. Harry, David W. Wright, and David E. Cliffl. "A printed superoxide dismutase coated electrode for the study of macrophage oxidative burst." *Biosens Bioelectron*, **2012**, 33, 128-133.

Scott A. Miller, **Leslie A. Hiatt**, Robert G. Keil, David E. Cliffl, and David W. Wright. "Multifunctional nanoparticles as simulants for a gravimetric immunoassay" *Anal Bioanal Chem*, **2011**, 399, 1021-1029.

## Personal Presentations

*The 68<sup>th</sup> Southeastern Regional Meeting of the American Chemical Society*  
Columbia, SC  
Session: Chemical Education  
Regional Meeting, Oral Presentation- October 25, 2016  
Leslie A. Hiatt, Meagan K. Mann  
"Electronic cigarettes: Teaching students to be instrumental in analysis"

*The 68<sup>th</sup> Southeastern Regional Meeting of the American Chemical Society*  
Columbia, SC  
Session: Women Chemists in the Southeast  
Regional Meeting, Invited Oral Presentation- October 24, 2016  
Susan Verberne-Sutton, Leslie Hiatt, Jennifer McKenzie  
"Volunteerism: Jumping in feet-first"

*Tennessee State University College of Agriculture, Human and Natural Science Dean's Seminar Series*  
Invited by TSU's Chemistry Department, chosen to be a joint lecture in the Dean's Seminar Series  
Nashville, TN  
Invited Presentation, Oral Presentation- October 23, 2014  
"Plant Chemistry: The answer to color changing, low energy devices?"

*The 66<sup>th</sup> Southeastern Regional Meeting of the American Chemical Society*  
Nashville, TN  
Session: Analytical Chemistry Poster Session  
Regional Meeting, Poster Presentation- October 17, 2014  
Leslie A Hiatt, Jonathon Pezzuto, Lolita A Hicks, James Thomas  
"Spectroscopic, electrochemical, and chromatographic examination of carotenoids"

*Tennessee Technological University Chemistry Seminar Series*  
Cookeville, TN  
Invited Presentation, Oral Presentation- April 4, 2014  
"Spectroelectrochemical Study of Carotenoids for use in Electrochromic Devices"

*The 247<sup>th</sup> American Chemical Society National Meeting and Exposition*  
Dallas, TX  
Division of Analytical Chemistry  
National Meeting, Poster Presentation- March 18, 2014  
Leslie A Hiatt, Jonathon Pezzuto, James Thomas  
"Spectroelectrochemical study of carotenoids for use in electrochromic devices"

*The 61<sup>st</sup> Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy*  
Orlando, FL  
SEAC Organized Session: Bioanalytical Applications of Electrochemistry II  
National Meeting, Oral Presentation- March 2, 2010  
Leslie A Hiatt, David E Cliffl  
"A Superoxide Dismutase Coated Electrode for the Study of Macrophage Oxidative Burst"

*Chemical and Biological Defense Science and Technology Conference*  
Dallas, TX  
Session: Novel Analytical Techniques for Biological and Chemical Agents: Detection and Diagnosis  
National Meeting, Oral Presentation- November 20, 2009  
Leslie Hiatt, Yibin Zhang, Brian Turner, Brian Huffman, Robert Keil, David Cliffl  
"Rapid Detection of Biological Threat Agents by Using Quartz Crystal Immunosensors"

*The 60<sup>th</sup> Southeastern Regional Meeting of the American Chemical Society*  
Nashville, TN  
Session: Analytical Chemistry-I  
Regional Meeting, Oral Presentation- November 12, 2008  
Leslie A Hiatt, David E Cliffl  
"Detection Strategy for Mycobacterium Tuberculosis"

Student  
Presentations

*The 59<sup>th</sup> Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy*  
New Orleans, LA  
Session: Adsorption-Based Sensors  
National Meeting, Poster Presentation- March 5, 2008  
Leslie Ann Hiatt, David Cliffel

*"Quartz Crystal Microbalance Detection of Tuberculosis using Gold-Thiol Chemistry"*  
*The 126<sup>th</sup> Meeting of the Tennessee Academy of Science*  
Clarksville, TN  
Regional Meeting, Chemistry Division, Poster Presentation- November 19, 2016  
Awarded third place in the chemistry division  
*Student Presented:* Dillon Burrow, Leslie A. Hiatt, Meagan K. Mann  
"Fluorescence assay analyzing the oxidative properties of nicotine"

*The 126<sup>th</sup> Meeting of the Tennessee Academy of Science*  
Clarksville, TN  
Regional Meeting, Chemistry Division, Poster Presentation- November 19, 2016  
Awarded honorable mention in the chemistry division  
*Student Presented:* Allison N. Schmittou, Brianna C. Avitabile, Leslie A. Hiatt, Meagan K. Mann  
"A Simple Assay for Nicotine: Colorimetric and Electrochemical Characterization of Electronic Cigarettes"

*The 126<sup>th</sup> Meeting of the Tennessee Academy of Science*  
Clarksville, TN  
Regional Meeting, Chemistry Division, Poster Presentation- November 19, 2016  
*Student Presented:* Jacob L. Williams, Martin E. Miller, Allison N. Schmittou, Leslie A. Hiatt, Meagan K. Mann  
"Quantification of nicotine concentration in electronic cigarettes"

*The 126<sup>th</sup> Meeting of the Tennessee Academy of Science*  
Clarksville, TN  
Regional Meeting, Chemistry Division, Poster Presentation- November 19, 2016  
*Student Presented:* Becca Rae Campbell, Leslie A. Hiatt, Meagan K. Mann  
"Lycopene in watermelon"

*The Third Annual Fall Undergraduate Research Symposium of APSU Chemistry Department*  
Clarksville, TN  
Department Symposium, Poster Presentation- November 18, 2016  
Awarded second place by peer judges  
*Student Presented:* Allison Schmittou, Leslie A. Hiatt, Meagan K. Mann  
"A Simple Assay for Nicotine: Colorimetric and Electrochemical Characterization of Electronic Cigarettes"

*The Third Annual Fall Undergraduate Research Symposium of APSU Chemistry Department*  
Clarksville, TN  
Department Symposium, Poster Presentation- November 18, 2016  
*Student Presented:* Dillon Burrow, Leslie A. Hiatt, Meagan K. Mann  
"Oxidative and Colorimetric Properties of Nicotine in Electronic Cigarettes"

*The Third Annual Fall Undergraduate Research Symposium of APSU Chemistry Department*  
Clarksville, TN  
Department Symposium, Poster Presentation- November 18, 2016  
*Student Presented:* Jacob Williams, Martin Miller, Allison Schmittou, Leslie A. Hiatt, Meagan K. Mann  
"Quantification of Nicotine Concentration in Electronic Cigarettes"



*The Third Annual Fall Undergraduate Research Symposium of APSU Chemistry Department*  
Clarksville, TN  
Department Symposium, Poster Presentation- November 18, 2016  
*Student Presented:* Rae Campbell, Leslie A. Hiatt, Meagan K. Mann  
"Extraction of Lycopene from Watermelon for Electrochromic Analysis"

*11th Annual Research and Creativity Forum and Graduate Research Extravaganza*  
Clarksville, TN  
APSU Symposium, Poster Presentation- April 15, 2016  
*Student Presented:* Brianna Avitabile, Leslie A. Hiatt, Meagan K. Mann  
"Assay and Method Development to Analyze the Oxidative Properties of Flavored Electronic Cigarette Fluids"

*11th Annual Research and Creativity Forum and Graduate Research Extravaganza*  
Clarksville, TN  
APSU Symposium, Poster Presentation- April 15, 2016  
*Student Presented:* Dillon Burrow, Leslie A. Hiatt, Meagan K. Mann  
"The Study of the Oxidative Properties of Nicotine Using Di-chlorofluorescein"

*11th Annual Research and Creativity Forum and Graduate Research Extravaganza*  
Clarksville, TN  
APSU Symposium, Poster Presentation- April 15, 2016  
*Student Presented:* M. Eric Miller, Allison N. Schmittou, Jacob L. Williams, Leslie A. Hiatt, Meagan K. Mann  
"Analysis of Nicotine Levels in Electronic Cigarettes"

*The 67<sup>th</sup> Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy*  
Atlanta, GA  
Session: Undergraduate Poster Session  
National meeting, Poster Presentation- March 9, 2016  
*Student Presented:* Martin E. Miller, Jacob Williams, Dillon Burrow, Leslie A. Hiatt, Meagan K. Mann  
"Analysis of Nicotine Levels in Electronic Cigarettes"

*The Second Annual Fall Undergraduate Research Symposium of APSU Chemistry Department*  
Clarksville, TN  
Department Symposium, Poster Presentation- November 13, 2015  
Awarded first place by peer judges  
*Student Presented:* M. Eric Miller, Jacob Williams, Leslie A. Hiatt, Meagan K. Mann  
"Quality control analysis of nicotine levels in electronic cigarettes using high performance liquid chromatography"

*The Second Annual Fall Undergraduate Research Symposium of APSU Chemistry Department*  
Clarksville, TN  
Department Symposium, Poster Presentation- November 13, 2015  
Awarded second place by peer judges  
*Student Presented:* Brianna Avitabile, Dillon Burrow, Leslie A. Hiatt, Meagan K. Mann  
"Assay and Method Development to Analyze the Oxidative Properties of Flavored Electronic Cigarette Fluids"

*Tennessee Undergraduate Posters at the Capitol*  
Nashville, TN  
Poster Presentation- February 25, 2015  
*Student Presented:* M Eric Miller, Jacob L Williams, Leslie A Hiatt, Meagan K Mann  
"Quality of Nicotine within Electronic Cigarettes"

*The Inaugural Fall Undergraduate Research Symposium of APSU Chemistry Department*  
Clarksville, TN  
Department Symposium, Poster Presentation- November 21, 2014  
Awarded first place by peer judges  
*Student Presented:* M Eric Miller, Jacob L Williams, Leslie A Hiatt, Meagan K Mann  
"Quality control analysis of nicotine levels in electronic cigarettes using high performance liquid chromatography"

*The 66<sup>th</sup> Southeastern Regional Meeting of the American Chemical Society*  
Nashville, TN  
Session: Undergraduate Poster Session: Analytical Chemistry I  
Regional Meeting, Poster Presentation- October 19, 2014  
*Student Presented:* M Eric Miller, Jacob L Williams, Leslie A Hiatt, Meagan K Mann  
"Quality control analysis of nicotine levels in electronic cigarettes using high performance liquid chromatography"

*Research and Creativity Forum*  
Clarksville, TN  
Office of Undergraduate Research, Oral Presentation- April 13, 2013  
*Student Presented:* Jonathon Pezzuto and Leslie Hiatt  
"Evaluation of Extraction Methods of Carotenoids in Red Bell Peppers and HPLC Characterization"

## Scholarly Proposals and Activities

*April 21, 2017* Organized and ran the Chemistry Department's first Spring Chemistry Research Symposium. These poster presentations involved almost 100 people in attendance and 20 student presenters.

*March 15, 2017* Awarded APSU Technology Access Fee (TAF) funds to purchase a GCMS for our department. (\$65,000)

*January 17, 2017* Took 18 students to learn about the chemistry of Sharpies at Newell Rubbermaid in Manchester, TN and the chemistry of aquariums at the Tennessee Aquarium in Chattanooga, TN. This was funded by the Student Academic Success Initiatives (SASI) entitled, "Analytical Laboratory Field Trip".

*November 18, 2016* Organized and ran the Chemistry Department's Third Annual Fall Research Symposium. A total of 13 students presented their research.

*November 2, 2016* Helped write a NSF IUSE Grant to fund the purchase of a LCMS for our department, "Hands on Experimental Learning Using LCMS to Support Chemistry and Biology Curriculum at APSU". My role was writing the technical, instrument specific areas of the grant, as well as many other areas deemed appropriate. This grant was not funded.

*July 6, 2016* As part of the ACS Nashville Section, I helped write and was awarded a "Bridging the Gap Mini-Grant" (\$500) to help increase the technology for our section. This grant has enabled multiple seminars (first seminar we hosted at APSU) to be live streamed for collaborations across the section.

*May 4, 2016* Received approval for a new IRB study entitled, "Using Instruments for Analysis of Electronic Cigarette Content in the Classroom". I presented the results of this study at SERMACS on October 25, 2016. I am currently working on a journal article describing this study for submission to the *Journal of Chemical Education*.

*April 21, 2016* Awarded funding for two Student Academic Success Initiatives (SASI) entitled, "Analytical Laboratory Field Trip" (\$1625) and "Chemistry Senior Seminar Speakers and Fall Research Symposium" (\$1285). These have funded our chemistry symposium (12 students presented to almost 100 people in attendance), multiple fall seminars, and snacks for a

seminar speaker from the Indianapolis Museum of Art. It will fund more seminars and a trip to an analytical laboratory this spring.

*February 11, 2016* Received continuing approval for an IRB study entitled "Systematic Comparison of Classroom Learning based on Class Structure: Online, Face-to-face and Face-to-face with Structured Learning Assistance (SLA)." (Study number 14-001.)

*November 13, 2015* Organized and ran the Chemistry Department's Second Annual Fall Research Symposium. A total of 9 students presented their research.

*May 3, 2015* Awarded funding for a Student Academic Success Initiative (SASI) entitled "Chemistry Senior Seminar Speakers and Fall Research Symposium" for \$1,460. This money was used to hold our second annual undergraduate fall research symposium and seminar speakers. Our inaugural symposium was such a success, that the department wanted to continue the tradition and hold another symposium this past fall. The symposium took place on November 13, 2015. A total of 9 students presented 7 posters. Most seminar speakers will be hosted in the spring.

*January 21, 2015* Received continuing approval for an IRB study entitled "Systematic Comparison of Classroom Learning based on Class Structure: Online, Face-to-face and Face-to-face with Structured Learning Assistance (SLA)." (Study number 14-001.)

*December 10, 2014* Awarded an E<sup>3</sup> Explore Activities Grant entitled "Chemists Without Borders Invited Speaker" for \$1,250. This grant was initiated by students in XEM and used to bring in a founding member from Chemists Without Borders. This speaker discussed with the students the global opportunities that are available to them that could allow them to use their education within their field to serve the developing world.

*November 21, 2014* Organized and ran the Chemistry Department's Inaugural Fall Research Symposium. A total of 11 students presented their research.

*April 14, 2014* Awarded funding for a Student Academic Success Initiative (SASI) entitled "Fall Chemistry Senior Seminar Speakers and Research Symposium" for \$1,400. This initiative allowed students to practice networking by meeting with speakers in a lunch environment prior to seminars. We created the inaugural annual chemistry research symposium which showcased research within the department and provided students a place to see potential research opportunities. This required organization and collaboration to host a total of 90 students plus faculty, staff, and guests. A total of 11 students presented 9 posters. The symposium took place on November 21, 2014. Four seminars took place during the fall 2014 semester and more will take place during spring of 2015.

*April 8, 2014* Received approval for an Institutional Review Board (IRB) study entitled "Project-Based Experimental Design in the Instrumental Lab." (Study number 14-012.) This IRB study allowed me to examine the outcome of a new approach to teaching laboratory experiments in instrumental analysis.

*January 22, 2014* Received approval for an IRB study entitled "Systematic Comparison of Classroom Learning based on Class Structure: Online, Face-to-face and Face-to-face with Structured Learning Assistance (SLA)." (Study number 14-001.) This IRB study is allowing me to examine the learning occurring within our CHEM 1010 course. This course is now being taught with SLA, without SLA, and online. As more classes are being placed online, our department is wanting to determine the pros and cons of each type of class structure. This IRB was renewed for 2015 and continuing review will be requested for 2016 in January of 2016.

## Awards

November 11, 2017 Inducted into the Athletic Hall of Fame at Freed-Hardeman University for performance in Women's Soccer from 2002-2005

2015 Nominated for the 2015-2016 Student Organization and Leader Award: Exemplary Faculty Member of the Year (not awarded)

2006-2007 Graduate Assistance in Areas of National Need Fellow, Vanderbilt University

2006 Outstanding Chemistry Graduate, Freed-Hardeman University

2005-2006 Alpha Chi National Honor Society, President, Freed-Hardeman University

2005-2006 Honors Council, Vice President, Freed-Hardeman University

2004-2005 NAIA Academic All-American, Freed-Hardeman University

2003-2005 TranSouth Scholar Athlete, Freed-Hardeman University

2002-2006 Trustee's Academic Scholarship, Freed-Hardeman University

## Volunteer Work

April 22, 2017 Represented the Chemistry Department at APSU's Academic Signing Day. Helped the student group present about Chemistry majors and served liquid nitrogen ice cream.

March 29, 2017 Taught a class to elementary age students at Burns Church of Christ on the story of Joseph and the coat of many colors and chemistry. Used friction and the mentos and coke reaction to teach about self-control. Taught about specific heat and temperature affects and then finished with a liquid nitrogen ice cream demo.

February – March, 2017 Helped prepare APSU Chemistry website for migration

March 10, 2017 Served on the Peay Read book selection committee

March 2, 2017 Helped judge science fair projects at White Bluff Elementary School

October 1, 2016 Represented the chemistry department at AP day

August 2015 – Present Appointed webmaster of the Nashville local section of the American Chemical Society. Serving by maintaining the website and by attending board meetings. This is a regional section that serves 23 counties in Tennessee and 6 counties in Kentucky.

Fall 2012 – Present Serve as a faculty advisor to our chemistry club, XEM. In this capacity, I recruit students outside of meetings, help with event planning, maintain XEM website (apsu.edu/xem) and social media, and co-wrote an E<sup>3</sup> grant with officers for a Spring 2015 activity

November 10, 2015 Represented the Chemistry Department at APSU's Career Night by rotating through rooms telling each group about careers in chemistry

October 31, 2015 Represented the chemistry department at AP day

September 26, 2015 Helped students prepare for the E<sup>3</sup> Family Weekend by making them a poster they could use for the presentation about our explore activities event entitled "Chemists Without Borders Invited Speaker"

September 22, 2015 Participated in the Fall 2015 Peay Read Creative Response Competition and the 2015-2016 Freshman Legacy Project book by serving as a poetry reviewer

March 19, 2015 Judged science fair posters for the ACS award as part of the Middle TN Science and Engineering Fair (MTSEF) hosted at APSU

November 4, 2014 Introduced high school students to analytical chemistry investigative work and instrumentation available to chemists as part of Scientist for a Day (SciFAD)

November 1, 2014 Represented the chemistry department at AP day

March 20, 2014 Judged science fair posters as part of the Middle TN Science and Engineering Fair (MTSEF) hosted at APSU

November 8, 2013 Introduced high school students to analytical chemistry investigative work and instrumentation available to chemists as part of Scientist for a Day (SciFAD)

October 8, 2013 Represented the Chemistry Department at APSU's Career Night

March 21, 2013 Judged science fair posters for the ACS award as part of the Middle TN Science and Engineering Fair (MTSEF) hosted at APSU

November 3, 2012 Helped represent the Chemistry Department and XEM at AP day

October 2, 2012 Helped represent and assist the Chemistry Department at APSU's Career Night

February 19, 2011 Judged a Science Olympiad at Lipscomb University for middle and high school students

Spring 2009-2010 Judged science fair projects at Head Magnet Middle School

August 2008 - May 2009 Served on Vanderbilt's chemistry graduate student steering committee to help greet first year students at the department's annual picnic and bring in lecturers for the student-organized annual lectures

August - December 2006 Served as a mentor to inner city Nashville children working as a tutor through Youth Encouragement Services (YES)

## Professional Affiliations & Committees

American Chemical Society (ACS) local section webmaster and APSU student chapter (XEM) advisor, Council on Undergraduate Research (CUR), and Tennessee Academy of Science (TAS)  
Current Committees: Student Academic Suspension Appeal Committee (Since Fall 2014) and Undergraduate Research & Creative Activities Committee (Since Fall 2016).  
Past Committees: Environmental Affairs Committee (Fall 2014 – Spring 2016)

## References

Available on request