

Jaime M. Murphy

29 Brentwood Dr. • Vilonia, AR 72173 • (864)327-2282 • jmurphy3@harding.edu • www.linkedin.com/in/jaime-murphy-527a81ab/

SUMMARY OF QUALIFICATIONS

Dedicated educator and accomplished chemist with a Ph.D. in Inorganic Chemistry, specializing in bio-relevant metal complexes of sulfur and selenium antioxidants. Self-motivated to plan, organize, and implement new ideas in the research laboratory and in the classroom. Communicates effectively with students, parents, and administrators of a wide cultural background. Committed to improving the quality of education in the chemistry field through quality instruction and hands-on research experience in the laboratory.

EDUCATION

Doctor of Philosophy (Ph.D.), Chemistry Clemson University Research Focus: Bioinorganic Chemistry, Julia Brumaghim, PI	August 2018 Clemson, SC GPA 3.90
Bachelor of Science (B.S.), Chemistry University of South Carolina Aiken	May 2001 Aiken, SC
Harding University	August 1997-May 1999 Searcy, AR

TEACHING EXPERIENCE

Assistant Professor

August 2018-Present

Chemistry and Biochemistry Department, Harding University

- **Honors Fellow, 2023-current**
- Primary professor of record for the following courses:
 - Inorganic Chemistry (Spring 2019, Spring 2020, Spring 2022)
 - Bioinorganic Chemistry (Spring 2022)
 - Environmental Chemistry (Fall 2022)
 - Analytical Chemistry, co-taught (Fall 2021)
 - Science and Social Justice (Spring 2023)
 - College Chemistry I (Spring 2023)
 - College Chemistry II (Fall 2023)
 - Engineering Chemistry (Fall 2018-Fall 2021)
 - Honors Science: The Physical World (Fall 2023, Fall 2022, Fall 2021)
 - Energy, Pollution, and Society (Spring 2019)
- Primary instructor for the following Labs:
 - Inorganic Chemistry Lab (Spring 2019, Spring 2020, Spring 2022)
 - Environmental Chemistry Lab (Fall 2022)
 - Physical Chemistry Lab (Fall 2022)
 - Organic Chemistry I Lab (Fall 2020)
 - Organic Chemistry II Lab (Spring 2021)
 - College Chemistry I and II Lab (Fall 2018-current)
- Primary instructor for the following Seminar Courses:
 - Chemistry and Biochemistry Capstone (Spring 2023)
 - Current Chemical Research (Fall 2023, Fall 2022, Fall 2021)

- Research Methods (Spring 2023, Spring 2022)
- Organized invited speakers and research presentations as the primary professor of record for Current Chemical Research Seminar (Junior) and Research Methods Seminar (Sophomore)
- Honors Thesis and Honors Contract Advisor
- Scholarship administrator for Chemistry and Biochemistry Department (2021-present)
- Alumni Coordinator for the Chemistry and Biochemistry Department (2022-present)
- Served on the Research Certification committee
- Served on a committee to create a new major, “Environmental Science”
- Advised students in the development of Four Year Plans and semester schedules
- Delta Nu Sponsor (2021-present)
- Harding University American Chemical Society Club Sponsor (2022-present)
- Started and sponsored Women in Science and Engineering (WISE) Club (2021-present)
- Planned and co-taught STEM Summer Camp for Middle School Students of Migrant Farm Workers hosted at Harding University
- Served on the Undergraduate Affairs Committee (2023-2024)
- Served on the Higher Learning Commission Criterion 3 Committee for Accreditation (2023-2024)

Teaching Assistant

August 2013 – December 2017

Chemistry Department, Clemson University

Clemson, SC

- Taught Instrumental, Organic, and General Chemistry laboratory classes
- Substitute instructor for General Chemistry classes
- Implemented inquiry-based curriculum to promote depth of comprehension and writing skills
- Consistently ranked among top TAs, based on student evaluations
- Oversaw the development of undergraduate research projects, including Eureka summer internships
- Developed lab activity for high school chemistry classes incorporating key components of my antioxidant research utilizing strawberry DNA
- Nominated for the K. Patricia Cross Award by the Chemistry Graduate Student Chair

High School Chemistry Teacher

JL Mann Academy of Science, Math and Technology

August 2011 – June 2013

Greenville, SC

- Taught Chemistry I Honors, College Prep, and Advanced Placement (AP) classes, 100 students/day
- Obtained AP certification and developed course for implementation at JL Mann
- Developed original curriculum in accordance with state standards, incorporating SmartBoard activities, multimedia presentations, and hands-on activities including labs and modeling
- Senior Magnet Project Director, assisting Magnet Coordinator with development and implementation of Magnet Senior Projects
- Co-Faculty Advisor of Outdoor Club, organizing and participating in local hikes and excursions

South Aiken High School, Aiken

August 2010 – June 2011

Aiken, SC

- Taught Chemistry I Honors and College Prep classes, 125 students
- Finalist for the Creech Award, awarded by the local chapter of the American Chemical Society for excellence in science education
- Co-Faculty Advisor for Interact Club, sponsored by the Sunshine Rotary Club of Aiken

- Completed SmartBoard graduate course through College of Charleston to familiarize with technology available in the classroom
- Received ETS Recognition of Excellence Award for Praxis Principles of Learning and Teaching (PLT) test scores

Pacific Horizons School, American Samoa

August 2006 – June 2010
Tafuna, American Samoa

- Secondary Teacher for Middle and High School courses, including Chemistry, Physics, Environmental Science, Physical Science, Anatomy, Health and Physical Education, Career Planning, Algebra I, Algebra II, Precalculus.
- Served as first Faculty Advisor for a new chapter of the National Honor Society.
- Assisted in the coordination and implementation of clean-up efforts and food drives in the wake of the 2009 tsunami in American Samoa.
- Directed and executed Science Fair for Pacific Horizon School (Elementary and High School)
- Arranged multiple field trips for science classes, including a hike through the US National Park in American Samoa to identify native and invasive species, snorkeling in the Marine Sanctuary on Tutuila, and an excursion to the local water treatment plant.
- Planned and directed college preparation schedules for junior and senior students at a small private school.
- Reviewed and offered recommendations for future science curriculum development at the middle school level.
- Vocational missionary that worked with the youth group of the Tafuna Church of Christ (currently, the Lupelele Church of Christ).

RESEARCH EXPERIENCE

Student Research Advisor

January 2020 - Present

Chemistry and Biochemistry Department, Harding University

Searcy, AR

- Awarded a Collaborative Research INBRE Grant, “Arkansas Water Quality Project”, with Sara Hubbard, Ph.D. at Ouachita Baptist University, 2023
- Guided five Harding University Honors Students through the assembly and application process for the Arkansas Department of Higher Education Student Undergraduate Research Fellowship, three of five students awarded.
- Student awarded Work Force Development Grant – Arkansas Space Grant Consortium, 2023
- Honors Thesis Project by Audrey Lawrence, “Synthesis and characterization of silver(I) thione complexes”, 2022
- Coordinated multiple student projects and honors contracts related to metal complexes, including interdisciplinary projects with an engineering student, posters and presentations included in publications and presentations.
- Previous and current student researchers: Audrey Lawrence (Chem, 2022), Emeth Camano (ME, 2023), Emily Fronck (Biology), Aaron Whaley (CogNeuro, 2022), Aiden Duty (BC, 2023), Maggie Greer (Env. Sci., 2023), Shannon Keyser (Chem), Walker Hendricks (Chem/Phys), Andrew Headley (BC), Kaci Geer (BC), Kolten Kluesner (BC), Samuel Chesshir (BC), Abigail Howell (Env. Sci.)

Graduate Research Assistant, PhD Candidate

January 2014 – August 2018

Chemistry Department, Clemson University

Clemson, SC

- Completed all candidacy requirements, including oral defense of research proposal, “Sulfur and Selenium Antioxidants: Analyzing the Contribution of Sacrificial Oxidation and Metal Binding”
- Prepared bioinorganic complexes with iron and copper in oxygen-free atmosphere
- Characterized complexes with UV-Vis, MALDI-TOF, NMR, FTIR, CV and XRD

- Determined stability constants for sulfur and selenium antioxidants in copper complexes by potentiometric and spectrophotometric titrations
- Awarded “Doctoral Dissertation Completion Grant” by the Clemson Graduate School, Clemson University

Scientist

June 2001 – June 2003

Westinghouse Savannah River Company

Aiken, SC

- Planned and implemented new method for the analysis of neptunium by diode array spectrometry
- Principle scientist responsible for the oversight of plutonium, uranium, and neptunium analyses solutions by diode array ultraviolet/visible spectrometry
- Received two WSRC awards for laboratory method improvements

PUBLICATIONS AND PRESENTATIONS

Hosted the [MidSouth Inorganic Chemists Association \(MICA\) Fall 2023 Conference](#) October 2023

“Synthesis and characterization of low valent transition metals with thione imidazoles,” Shannon Keyser, Audrey Lawrence, Jaime Murphy, Ph.D., *MICA*, Fall 2023, Poster Presentation October 2023

“[Activation of Carbon Dioxide using a Borafluorene monoanion](#)”, VIPeR (Virtual Inorganic Pedagogical Electronic Resource), Literature Discussion Activity June 2023

“An analysis of the antioxidant effects of methimazole on the Fenton reaction via the deoxyribose assay,” Aiden Duty, Aaron Whaley, Jaime Murphy, Ph.D., *MICA*, Spring 2023, Poster Presentation April 2023

“The Pursuit of Coordination Polymers with Transition Metals and Thione Heterocycles,” Shannon Keyser, Jaime Murphy, Ph.D., *MICA*, Spring 2023, Poster Presentation April 2023

“Water Contaminants in Arkansas”, Maggie Greer, Jaime Murphy, Harding Undergraduate Research Conference 2023, Presentation April 2023

“Analysis of the Antioxidant Effects of Methimazole on the Fenton Reaction Via the Deoxyribose Assay,” Aiden Duty, Jaime Murphy, Harding Undergraduate Research Conference 2023, Presentation April 2023

Circle of Excellence, Harding Academy March 2023

- Invited Keynote Speaker – “Excellence is Progress and Perseverance, not Perfection”

“Disulfide Versus Diselenide Complexes of Copper: Air-Free and Air-Exposed Syntheses Result in Variable Ligands and Coordination,” *Journal of Chemical Crystallography*, 2023

Southeastern Research Meeting of the American Chemical Society November 2022

- Women in Chemistry Session invited Presenter – “From AP Certification to Ph.D. in Six Intense Years: Obstacles and Advantages to Second Career Ph.D. Students in Chemistry”

“Synthesis and Characterization of Silver Coordination Complexes,” Audrey Lawrence, Jaime Murphy, Harding Undergraduate Research Conference 2022, Presentation April 2022

“Coordination complexes of methimazole with copper: Controlling redox reactions and sulfur extrusion,” *Inorganica Chim Acta*, 2020

“Stability constants of bio-relevant, redox-active metals with amino acids: The challenge of weakly binding ligands,” *Coordination Chemistry Reviews*, 2020

“Zinc(II) thione and selenone complexes: The effect of metal redox activity on ligand-based oxidation,” *Inorganica Chim Acta*, 2020

“Stability constant determination of sulfur and selenium amino acids with Cu(II) and Fe(II),” *Journal of Inorganic Biochemistry*, 2019

Conversations with Chemists – Central Arkansas ACS December 2020

- Virtual Presentation to Central Arkansas – ACS – “Complexation and Redox Activity of Transition Metals with Sulfur- and Selenium-containing Small Molecules”

Southeastern Research Meeting of the American Chemical Society October 2016

- Inorganic Division Presentation – “Coordination complexes of methimazole with copper: Controlling redox reactions and sulfur extrusion”

Gordon Research Seminar in Bioinorganic Chemistry January 2016

- Poster Presenter – “Stability of Copper(II) Complexes of Sulfur and Selenium Antioxidants”

Chemistry Best Practices Workshop, Furman University, Greenville, SC June 2014 and 2015

- Session Presenter – “You Are What You Eat: DNA Damage Prevention by Tea Extract”

Three Minute Thesis Competition, Clemson University April 2015

- Finalist – “Determining the Structure-Function Relationships of Metal Amino Acid Complexes”

Literature Seminar, Student Seminars Clemson Chemistry Department September 2014

- Presented a literature-based seminar entitled “Elucidating the role of biorelevant metals in α -synuclein oligomerization in Parkinson’s disease”

GRANTS

INBRE Collaborative Grant September 2023

Arkansas Water Quality Collaboration Project

Workforce Development Grant (Student Funded), Arkansas Space Grant Consortium April 2023

Student Research Support for Coordination Polymer Materials Project

Doctoral Dissertation Completion Grant January 2018

Graduate Assistantship for Dissertation Completion

Clemson University, Clemson Graduate School

Professional Enrichment Grant for Conference Presentation October 2016

Travel and Expense Funding for Southeastern Regional Meeting of the American Chemical Society

Clemson University, Graduate Student Government

Professional Enrichment Grant for Conference Presentation January 2016

Travel Funding for Gordon Research Seminar for Bioinorganic Chemistry

Clemson University, Chemistry Graduate Student Organization

LEADERSHIP AND PROFESSIONAL EXPERIENCE

American Chemical Society

- Central Arkansas Division Member January 2020 – Present
 - Executive Board – Secretary (2021 and 2022), Treasurer (2023)
 - Volunteer of the Year Award – 2022

- Western Carolinas Division Member August 2012 – August 2018

Alpha Epsilon Lambda, Eta Chapter

- Secretary May 2016 – May 2017
 - Recorded meeting minutes, planned and tracked volunteer hours
 - Organized AEL induction ceremony

- Member November 2015 – Present
- Graduate Student Government
- Finance Committee Member August 2016 – May 2017
 - Distributed funds for graduate activities to a variety of graduate student organizations
 - Met monthly to hear funding requests
 - Senator August 2016 – May 2017
 - Discussed and voted on various legislation to support graduate students at Clemson
 - Served as a communicator and disseminator of information between the Chemistry graduate students and the larger graduate student body
- Chemistry Graduate Student Organization (CGSO)
- GSG Representative August 2016 – May 2017
 - Selected by peers to represent Chemistry graduate students
 - Selected by CGSO President to serve on Hiring Committee for Chemistry Department Chair as the graduate student representative
 - Member August 2016 – August 2018
 - Organized Chemistry Demonstration Day at local middle school
- National Science Teachers Association August 2008 – August 2012