

Shelby J. Noland, Ph.D.

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(618)340-1479

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- Instructor with a demonstrated history teaching undergraduate students, developing laboratory protocols and experiments, and managing teams of graduate and undergraduate Teaching Assistants.
 - Researcher specializing in analytical and physical chemistry methods for determining spectroscopic properties of fluorescent compounds for biological applications.
 - Polished interpersonal skills, time-management, and technical skills from experience as a Laboratory Coordinator for General Chemistry at Saint Louis University.

Education

University of Missouri – St. Louis (UMSL) • St. Louis, MO

Doctor of Philosophy, Chemistry (2022)

- Research: Cynthia M. Dupureur Group – Designed, synthesized, and characterized silicon or germanium-based fluorene compounds for fluorescent bioimaging applications. Molecules were designed and properties predicted computationally then synthesized using Sonagashira Coupling reactions. Spectroscopic characterization included fluorescence quantum yield, solvatochromic and charge transfer studies using fluorescence, UV-Vis, and optical rotation spectroscopy.
- Highlighted Coursework: Biological Inorganic Chemistry, Physical Biochemistry, Advanced Inorganic Chemistry, Proteins as Polymers

Saint Louis University (SLU) • St. Louis, MO

Master of Science in Chemistry, non-thesis (2018)

- Highlighted Coursework: Organometallic Chemistry, Medicinal Chemistry, Mass Spectrometry, Analytical Separations, Computational Chemistry, Solid State Chemistry, Nanomaterials & Nanostructures

University of Illinois – Springfield (UIS) • Springfield, Illinois

Bachelor of Science in Chemistry (2015)

- Highlighted Coursework: Advanced Inorganic Chemistry, Physical Chemistry, Instrumental Analysis, Chemical Analysis, Biochemistry

Professional Experience

University of Colorado, Colorado Springs

Colorado Springs, CO

Assistant Teaching Professor of Chemistry

August 2023 – Present

- Courses Taught: Analytical Chemistry Lab, General Chemistry I and II Lab

Southern Illinois University Edwardsville

Edwardsville, IL

Chemistry Lecturer (Part-Time)

August 2022 – December 2022

- Instructed students enrolled in General, Organic, and Biological Chemistry as part of the Teaching for Inclusive Excellence initiative at SIUE, which focused on closing equity gaps in STEM and Health Sciences gateway courses, improving student self-perception of belonging, enhancing peer-to-peer and faculty-to-peer interactions, and ultimately student retention.

Maryville University

Town and Country, MO

Laboratory Instructor/Lecturer (Part-Time)

August 2022 – December 2022

- Courses Taught: General, Organic, and Biological Chemistry; Biochemistry Laboratory
- Developed flipped classroom style course material including presentations, in-class activities, and assessments; recorded lectures and activities.

University of Missouri-St. Louis
Graduate Teaching/Research Assistant (Full-Time)

St. Louis, Missouri
August 2018 – August 2022

- Manage a team of graduate and undergraduate Teaching Assistants as Head TA of Introductory Chemistry Laboratory courses.
- Played a vital role in improving introductory chemistry laboratory experiments by incorporating Vernier Technology, inquiry-based experiments, and streamlining waste; ultimately contributing to retention rates of chemistry majors by 29% in 2019.
- Implemented and designed curriculum for annual TA Training for all chemistry graduate and undergraduate Teaching Assistants.
- Mentored an Active Learning Assistant (a first-year undergraduate student chosen to assist students with studying and learning after successfully completing the course a prior semester) to help them ask more effective questions and better assist students in learning.
- Courses Taught: Introductory Chemistry I Laboratory, Introductory Chemistry I (modular), Introductory Chemistry I Recitation, Chemistry for Health Professions (online)

University of Missouri-St. Louis
Writing Mentor for Students and Teachers as Research Scientists (STARS)

St. Louis, Missouri
May 2019 – August 2022

- Mentored groups of high school students on how to effectively write a research paper as part of the summer program STARS.
- Provided feedback to students weekly on their research and writing progress; lead practice sessions for students to receive feedback on their presentations.

Saint Louis University
Laboratory Coordinator (General Chemistry) (Full-Time)

St. Louis, Missouri
June 2015 – July 2018

- Developed the curriculum for General Chemistry I and II Laboratory by designing 24 new experiments that incorporate Vernier technology. Co-authored a laboratory manual that included designed worksheets, experimental setups, and procedures. Assessed student satisfaction of new curriculum using mid-semester and end-of-semester surveys.
- Managed a team of over 10 Teaching Assistants, 5 Preparatory Assistants, and 10 Grading Assistants each year. Lead weekly meetings, resolved any issues with equipment, and designed grading rubrics.
- Planned, developed, and lead training for new graduate and undergraduate assistants each year that included laboratory safety training, teaching training, and emergency training.
- Managed and taught the General Chemistry Lab I and II courses with an enrollment of 700 students a semester and prepare course materials such as quizzes, PowerPoints, and lab materials.
- Courses Taught: General Chemistry I Lab, General Chemistry II Lab

University of Illinois – Springfield
The Learning Hub Teaching Assistant/Tutor (Part-Time)

Springfield, Illinois
August 2013 - May 2015

- Mentored students in classes ranging from General Chemistry to Physical Chemistry in one-on-one appointments.
- Instructed students enrolled in University Physics I and II by discussing physics concepts and problems and attending the lecture as a teaching assistant (Supplemental Instruction Leader). Prepared study material and held study sessions to help students.
- Assist students enrolled in mathematics courses ranging from remedial algebra to trigonometry. Worked one-on-one with students to help them understand the material.

Professional Development

- Awarded M. Thomas Jones Memorial Fellowship at UMSL (2022) for best graduate student seminar
- Outstanding Graduate Teaching Assistant Award at UMSL (2022)

- Graduate Certificate in Workplace Diversity, Equity, and Inclusion (2022)
- Certified Vernier Technology Educator (2016)
- The Learning Hub (University of Illinois) - Tutor Appreciation Award (2015)
- American Chemical Society (ACS) Certified Chemist (2015)

Publications

- **Jarrett-Noland, S.**, Bandrowsky, T., Rajamoni, J., McConnell, W., Braddock-Wilking, J., & Dupureur, C. M. (2024). Tuning emission of luminescent 2-7 disubstituted sila- and germafluorenes with –(trifluoromethyl)phenyl, - (malononitrile)phenyl, and -nitrobenzene substituents. *Journal of Organometallic Chemistry*, 1005, 122977. <https://doi.org/https://doi.org/10.1016/j.jorganchem.2023.122977>
- **Jarrett-Noland, S.J.**; McConnell, W.; Braddock-Wilking, J.; Dupureur, C.M. Solvatochromic Behavior of 2,7-Disubstituted Sila- and Germafluorenes. *Chemosensors* **2023**, 11, 160. <https://doi.org/10.3390/chemosensors11030160>
- Dupureur, C. M.; **Jarrett-Noland, S.J.**; McConnell, W.; Germann, S.; Braddock-Wilking, J, inventors. Curators of the University of Missouri. Chimeric environment sensitive fluorescent probes. Invention Disclosure, **2021**.
- Spikes, H.J.; **Jarrett-Noland, S.J.**; Germann, S.M.; Olivas, W.M.; Braddock-Wilking, J.; Dupureur, C.M. Group 14 Metallafluorenes for Lipid Structure Detection and Cellular Imaging. *Chem. Proc.* **2021**, MDPI: Basel, Switzerland, doi:10.3390/CSAC2021-10455
- Spikes, H. J., **Jarrett-Noland, S. J.**, Germann, S. M., Braddock-Wilking, J., and Dupureur, C. M. (2021) Group 14 Metallafluorenes as Sensitive Luminescent Probes of Surfactants in Aqueous Solution. *J. Fluoresc.* 31, 961-969.
- Germann, S., **Jarrett, S. J.**, Dupureur, C. M., Rath, N. P., Gallaher, E., and Braddock-Wilking, J. (2020) Synthesis of Luminescent 2-7 Disubstituted Silafluorenes with alkynyl-carbazole, -phenanthrene, and -benzaldehyde substituents. *J. Organomet. Chem.* 927, 121514.
- **Jarrett, S. J.**, Sokic-Lazic, D. General Chemistry I & II Lab Manual for Saint Louis University (2017) (ISBN: 978-0-7380-9497-7), *MacMillan Publishing*

University Service

- President of Chemistry Graduate Student Association at UMSL (2021-2022)
- American Chemical Society Career Day at UMSL Volunteer (2019)
- Expanding Your Horizons (EYH) Women in Chemistry Panelist (2017)
- Expanding Your Horizons (EYH) Group Lead Volunteer (2016)

Community Service

- Saint Louis Science Center – James S. McDonnell Planetarium Volunteer (November 2015 – July 2018)

Research Experience

UMSL Thesis: “Electronic Structure of Sila- and Germafluorenes and their Application in Biological Systems”

- Designed environment-sensitive fluorescent compounds using Density Functional Theory (DFT) calculations; synthesized 2,7-disubstituted and asymmetric sila- and germafluorenes via Sonagashira coupling reactions; characterized library of highly fluorescent 2,7-disubstituted sila- and germafluorenes to determine optical and spectroscopic properties for applications in bioimaging; investigated self-assembly mechanisms; supervised undergraduate researchers; developed analytical protocols for measuring quantum yield

Presentations:

- Co-presented a poster at the 33rd Annual Gibbs Society of Biological Thermodynamics Conference. Spikes, H., **Jarrett, S. J.**, Germann, S., Braddock-Wilking, J., and Dupureur, C.M. “Investigating Group 14 sila- and germa-fluorenes as Efficient Fluorophores for Biological Imaging” (2019)
- Co-presented a poster at the 34th Annual Gibbs Society of Biological Thermodynamics Conference. Spikes, H., **Jarrett, S. J.**, Germann, S., Braddock-Wilking, J., and Dupureur, C.M. “Group 14 Metallafluorenes as

Solvatochromic Probes of Membrane Order.” (2020)

- Presented a poster at the 1st Annual Graduate Women in Science (GWIS). **Jarrett, S. J.**, Spikes, H., Germann, S., Braddock-Wilking, J., Dupureur, C.M. “Sila- and Germafluorenes as Efficient Fluorophores for Bioimaging” (2020)
- Presented Dissertation Seminar to the UMSL Chemistry Department titled “Electronic Structure of Sila- and Germafluorenes and their Application in Biological Systems” (2022)

UIS Undergraduate Research

- T Tauri stars (2014) - Collected photometry data on BP Tau, DN Tau, and v827 Tau from January 2014 - May 2014 under the supervision of Dr. John Martin at UIS. The data was reduced, analyzed by photometric analysis, and submitted to the American Association of Variable Star Observers (AAVSO) under my unique observer code: JSHB.
- Epsilon Aurigae (2014 - 2015) - Analyzing spectroscopy data collected since the 2011 eclipse for CHE 400 Undergraduate Research with Dr. John Martin at UIS.

Presentations:

- Presented a poster on H-alpha of Eps Aur at the 103rd Annual Meeting of the AAVSO in November 2014. The abstract is published in the Journal of the AAVSO (2015)
- Presented a 20-minute talk at the Student Arts and Research Symposium at UIS (2015)
- Presented a poster at The University of Illinois Undergraduate Research Day at the Illinois State Capitol (2015).

Technical Skills

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| • UV – Vis Spectroscopy | • Organometallic Synthesis |
| • Fluorescence Spectroscopy | • Physical Chemistry |
| • Scanning Electron Microscopy (SEM) | • Computational Chemistry |
| • Analytical Chemistry | • Nuclear Magnetic Resonance Spectroscopy (NMR) |
| • Chemical Analysis | • Mass Spectrometry |
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