

# Brandi James

Visiting Assistant Professor - The College of Wooster - Wooster, Ohio - [LinkedIn](#)

## Summary

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- Trained physical organic chemist with 5+ years of research experience including direct training of over 10 undergraduate and graduate peers collectively in technical characterization and analysis techniques including UV-Vis, NMR, IR, GC-MS, matrix isolation spectroscopies, XRD, and molecular modeling using Gaussian 16.
- Led a team of 2-3 peer graduate scholars and implemented a plan of action for the Department of Chemistry NSF-funded research experience to maximize the overall student experience of over 50 undergraduate scholars and their graduate mentors for 4 summers and presented at selected professional development seminars.
- Originated an efficient method for 8+ lab staff to be well-informed of new contributions to the field by increasing literature discussions by ~10% per month.

## Education

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- Ph.D.** University of Cincinnati, Ph.D. in Physical Organic Photochemistry August 2018 – December 2023
- B.Sc.** Wilmington College of Ohio, Dean's List (2016-2018)  
**Majors:** *Chemistry, Mathematics.* **Minor:** *Music.* August 2014 – May 2018

## Experience

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*Visiting Assistant Professor* January 2024 - present  
The College of Wooster, Wooster, OH

Topics include:

General Chemistry 112 | Spring 2024  
Organic Chemistry 212 Lab | Spring 2024

*Graduate Teaching Associate* August 2018 – December 2023  
University of Cincinnati, Cincinnati, OH

- Gained substantial knowledge in interpersonal relations through serving over 350 students (virtually and in-person) via leading general and organic chemistry classrooms with 25+ students, safely training and teaching fundamentals in organic labs, and tutoring students on how to flourish in their academic journey.
- Expertise includes helping students achieve scores nearly a full letter grade above the regular course average. Effectively communicate teaching goals for a classroom setting orally and in writing.

Topics include:

Organic Chemistry - Co-instructor | CHEM 2041 | Fall 2023  
Organic Chemistry - TA | CHEM 2040 / 2041 / 2041L | Spring 2019 - Spring 2021  
General Chemistry - TA | CHEM 1040 | Fall 2018, Fall 2022  
Introduction to Spectroscopy - Grader | CHEM 7071 | Fall 2021 – Spring 2022

*TRIO Upward Bound Math and Science Instructor* (9-12<sup>th</sup> grade), *summer, 6 weeks.* June 2018 – July 2018  
Cuyahoga Community College, Cleveland, Ohio

- Instructed four classrooms of under-represented groups of 12-15 high-school students, 10th-grade Pre-Calculus (2) and 11th-grade Chemistry (2), before the school year began.
- Adapted lesson plans according to the student's grasp of the material and used integrative and constructive pedagogies by designing in-class and college laboratory experiments so the high school students can retain the daily lesson.

*Graduate Research Associate* January 2019 – present  
*Advisor:* Distinguished Professor, Dr. Anna Gudmundsdottir  
University of Cincinnati, Cincinnati, OH

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- Motivated physical organic chemist with 5+ years of research experience in photochemistry, and synthesis of minimally studied small organic materials (azides) leading to the discovery of fundamental mechanistic pathways and understanding the macroscopic effects of these molecules (solid-state photochemistry).
- Trained undergraduate and graduate peers in technical characterization techniques such as UV-Vis, NMR, IR, GC-MS, matrix isolation spectroscopies using UV-Vis and Argon-IR, X-ray crystallography (XRD), and molecular modeling using Gaussian 16.
- Directly trained and mentored four (4) undergraduates in conducting research including synthesis and have effectively communicated findings of complex scientific concepts to audiences of various backgrounds.
- Proficient in rheology techniques, formulation of gels, Microsoft Office, and handling chemicals and chemical equipment.

*Undergraduate Research Associate*

January 2017 – April 2018

Advisor: Professor, Dr. Dore Meinholtz  
Wilmington College, Wilmington, OH

- Gained proficiency in technical expertise on multiple characterization techniques such as UV-Vis, NMR, IR, GC-MS Spectroscopies, and Atomic Absorption (AA).
- Designed an experimental plan to understand the fundamental components of a single hair strand, and the properties of hair, and test the efficacy of the hair dye removal main ingredient, sodium hydrosulfite, on different color and types of hair strands.

*Laboratory Manager | Skill gained as a graduate scholar.*

May 2022 - September 2023

University of Cincinnati | ~20-25 hours per week

- Oversaw ordering, maintained organization and safety in the lab by enforcing monthly lab clean-ups, and kept lab safety information updated.
- Coordinated weekly meetings with different topics and organized new ideas for lab enhancement.
- Trains ~2+ incoming lab members (graduate and undergraduate) on lab protocols and design of lab.

*Safety Officer | Skill gained as a graduate scholar.*

January 2019 – January 2022

University of Cincinnati | ~20-25 hours per week

- Managed safety in the lab by giving safety literature presentations on the latest reports, enforced annual EHS Safety training, and trained incoming undergraduates and graduates on lab safety SOPs.
- Knowledge of GHS chemical hazard classifications, labeling requirements, and physical properties.

*NSF- REU Program Manager, summer, 10 weeks.*

May 2019 – August 2023

University of Cincinnati, Cincinnati, OH

- Successfully led a team of 2-3 peer graduate scholars to maximize the overall student experience of over 50 undergraduate scholars total and their graduate mentors, presented at selected professional development seminars, and directly trained one undergraduate while overseeing the program.
- Collaboratively designed and implemented a plan of action for the Department of Chemistry NSF-funded research experience for undergraduates (REU) summer program (four summers) and gave structure to ensure adequate management development of the program.
- Developed and managed constrained budgets for student activities that promote inclusivity.

*ACS Mentor (virtual and in-person), summer, 8 weeks.*

May 2020 – August 2023

University of Cincinnati, Cincinnati, OH

- Directly mentored 40+ high school scholars interested in the field of STEM with skills as their Cabin Leader.
- Planned and led (3) meetings a week to maximize the student experience over the 8-week program.
- Designed lesson plans for the enhancement of professional skills, and gave advice on how to be successful.

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## Publications

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1. **James, B.**, Maxwell, K., McVay, B., Krause, J. A., Gudmundsdottir, A. D. Photo-explosivity of 1-azido-2-nitrobenzene crystals. *In preparation. 2024.*
2. H. Dushanee M. Sriyaratne, **James, B.**, Leon, A. et al. Mechanistic Investigation on Geminal Diazide: Formation of Isocyanates in Cryogenic Matrices. *In preparation, to be submitted to Organic Letters (OL) in 2024.*
3. Gatlin, D. **James, B.**, Joseph, J. Perry, A. Hadad, C. M.; Gudmundsdottir, A. D. Photostability and Kinetic Dynamics of Ethyl Benzoylacetate (EBA) in Solution and Gels: Model Studies for Commercial Sunscreen Application. *In preparation. to be submitted to Journal of Organic Chemistry (JOC) in 2024.*

## Volunteer Work

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- Representing the chemistry department by giving an integrative talk with hands-on outreach for over 60 high school students October 2023
- Recruitment for ACS Project SEED at nearby high schools led to increase of applicant over one-week span April 2023
- Teach musical parts to ages 5+ at Rocklife Church, lead worship services, and serve the community through outreach. June 2021 – present

## Special Opportunities

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- Enhancement of Freshman Chemistry Lab Curriculum through literature dive, *UC West Campus* August 2022 – April 2023
- iRiS Working Group Conference, Book Chapter, *Cincinnati, OH* April 2023
- ACS Career Kickstart Workshop, *Washington, D.C.* November 2022

## Scholarships and Awards

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- ACS Graduate Student and Postdoctoral Scholar Recognition Program Recipient August 2023  
[\*Leadership in the Promotion of Diversity, Equity, Inclusion, and Respect.\*](#)
- Advancing Science Conference Grant, *NOBCCHE* May 2023  
Identified as one of the country's best and brightest upcoming scientists
- H. Brian Halsall Award, *University of Cincinnati* April 2023  
Supports a graduate student in their third year or beyond to promote and encourage perseverance and dedication to the field of chemistry.
- Thomas B. Cameron Prize, *University of Cincinnati* April 2023  
To the graduate assistant in Freshman Chemistry who represents the highest ideals and achievements in the teaching of Chemistry
- Cassandra McGee Award, *University of Cincinnati* April 2021  
For graduate students who demonstrate random acts of kindness, outstanding service to the department or overall excellence in humanitarian efforts
- Graduate Dean's Excellence Scholarship, *University of Cincinnati* April 2018
- Achievement Awards: [\*Recipient of the top academic award in Chemistry\*](#), *Wilmington College of Ohio* March 2018
- Departmental Scholarship of Chemistry, *Wilmington College of Ohio* April 2014

## Selected Presentations

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- Oral Presentation.** LS-PAC Models Building Future Faculty (BFFs) Program. New Orleans, LA. July 2023  
*Photoexplosivity of Organic Azides.*
- Poster Presentation.** Inter-American Photochemical Society (I-APS), Sandestin, FL. *Photo-explosive dynamics of 1-azido-2-nitrobenzene crystals.* January 2023
- Poster Presentation.** SciX Conference, Cincinnati, OH. *Photofracking of 2-nitrophenyl azide crystals: External pressure affects macroscopic motion.* October 2022
- Poster Presentation (international).** 2<sup>nd</sup> Confinement-Controlled Chemistry Symposium, Bochum, Germany. *Photofracking of 1-azido-2-nitrobenzene crystals: Effects of external pressure on macroscopic motion.* September 2022
- Poster Presentation.** Ohio Photochemical Society (OoPS) Conference, Bowling Green, OH. July 2022  
*Temperature-Dependent Mechanistic Pathways of a Geminal Alkyl Diazide.*
- Oral Presentation.** NOBCCChE Southwest Regional Meeting, Oxford, MS. *Metal-free C-N bond formation using Geminal Diazides.* April 2022
- Poster Presentation.** ACS Regional Meeting, Oesper Symposium, Cincinnati, OH. *Can Geminal Azides be useful in Sustainable Synthesis?* September 2021
- Poster Presentation.** Ohio Valley Chapter of the Society of Cosmetic Chemists (OVSCC) Conference, Sharonville, OH. *Examining the Photoreactivity of Ethyl Benzoylacetate (EBA) in Various Environments as a Potential Chemical Filter in Sunscreens* November 2019
- Poster Presentation.** ACS Regional Meeting, Oesper Symposium, Cincinnati, OH. *Investigating Sunscreens: Determining the Photoreactivity of Ethyl Benzoylacetate in Varying Environments.* September 2019
- Poster Presentation.** Ohio Photochemical Society (OoPS) Conference, Maumee Bay, OH. *The Photoreactivity of Chemical Filters in Sunscreen.* May 2019

## University Organizations

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*President* August 2023 – December 2023  
National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, NOBCCChE (Student Chapter *in progress*)

- Making efforts to instate a chapter at the University of Cincinnati including recruitment of student body, advertisement of interest meetings, and planning engaging events.

*Mentoring and Outreach Chair*, Department of Chemistry May 2020 – June 2023  
Consortium for Cultural Diversity in Chemistry, CCDC

- Created a suitable and repeatable method for publishing scientific interviews for the organization.
- Expressing mentorship and any needed guidance for UC Chemistry undergraduates (ChemCats) while pushing for self-motivation and excellence in future career of choice.
- Help undergraduate students navigate their coursework and future by participating in graduate student panels and coordinating engaging events.

## Professional Affiliations

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- Member, Inter-American Photochemical Society, I-APS June 2022 – present
- Member, American Chemical Society, ACS May 2021 – present
- Member, National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, NOBCCChE November 2019 – present