

# BREANA KYKER

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## EDUCATION

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**University of Tennessee**, Knoxville, TN August 2017 – August 2022  
Ph.D. in Chemistry  
Graduate Teaching and Research Assistant

**Coastal Carolina University**, Conway, SC August 2014 – May 2017  
B.S. Biochemistry, 3.95 GPA Magna Cum Laude  
University Honors Program and Honors Fellow  
Undergraduate Researcher, Department of Chemistry  
Resident Adviser, University Housing

## EXPERIENCE

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**Lecturer** Coastal Carolina University August 2022 – Current  
Instructor for General and Organic Chemistry lectures and labs

**Graduate Research Assistant** August 2017 – August 2022  
*Exploring Chemical Space Utilizing Fischer Carbenes, Brown Alkylations, and Electrochemistry*  
Advisor: Prof. Johnathan Brantley, Ph.D.

Fischer Carbenes were used as tunable handles for synthesis of metallopolymers as functional materials. Brown alkylations were investigated for their applicability towards polymer modification and diversification. Electrochemistry was utilized for polymer functionalization and decomposition.

**Graduate Teaching Assistant** – Department of Chemistry, UTK July 2017 – May 2022  
Teaching and grading laboratory coursework for organic chemistry  
Development of instructional videos for students to use as study materials

**Undergraduate Researcher** August 2016 – May 2017  
*Synthesis of Phidianidine Analogs*  
Advisor: Prof. Bryan Wakefield, Ph.D.  
Analogues of the Phidianidine molecule were synthesized and purified to maximize biological efficiency such as anti-inflammation.

**Laboratory Assistant** – Department of Chemistry, CCU August 2015 – May 2017  
Direct assistant to professor in aiding students with general chemistry laboratory coursework, setup and cleanup of laboratory equipment, and grading.  
Assistant to laboratory manager in solution preparation and laboratory setup across general and organic chemistry labs.

**Tutor** Fall 2015 – Current  
Aided students in understanding general chemistry and organic chemistry principles for laboratory and lecture coursework at the undergraduate level and chemistry, biology, and math at the high school level.

## **PUBLICATIONS & PRESENTATIONS**

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- Electroediting of Soft Polymer Backbones* May 2022  
*J. Am. Chem. Soc.* **2022**, 144, 8885-8891. DOI: 10.1021/jacs.2x02098  
Fried, A. D.; Wilson, B. J.; Galan, N. G.; Brantley, J. N
- UTK Student Meeting of the American Chemical Society – Invited Speaker September 2021  
*Fischer Carbenes: Unique Monomers for New Functional Materials*  
Breana Wilson and Johnathan Brantley
- UTK Chemistry Departmental Research Symposium (Virtual) July 2020  
*Fischer Carbenes: The Building Blocks for New Functional Materials*  
Breana Wilson and Johnathan Brantley
- UTK Board of Visitors Poster Presentation November 2019  
*Fischer Carbenes: Unique Monomers for New Functional Materials*  
Breana Wilson and Johnathan Brantley
- Synthesis and Reactivity of Metallocarbene-Containing Polymers* July 2019  
*J. Am. Chem. Soc.* **2019** 141, 32, 12453-12457. DOI: 10.1021/jacs.9b04077  
Wilson, B. J.; Brantley, J. N.
- Gordon Research Seminar on Polymers Poster Presentation June 2019  
*Fischer Carbenes: Unique Monomers for New Functional Materials*  
Breana Wilson and Johnathan Brantley
- South Carolina Academy of the Sciences Poster Presentation April 2017  
*Phidianidine Analogs Containing an Isoxazole Ring Structure*  
Breana Wilson, Nehemiah Stafford, and Bryan Wakefield

## **LEADERSHIP & INVOLVEMENT**

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- International Academic Competitions History and Science Bee Regional Finals Moderator March 2022
- Scorekeeper, Smoky Mountain Shootout – Charity Paintball Tournament October 2021
- Association of Chemistry Graduate Students Seminar Committee Representative May 2020 – May 2021
- Science Olympiad State Event Coordinator – Density Lab April 2021
- Science Olympiad Volunteer April 2018, 2019, 2021
- National History Bee and Bowl Moderator January 2019
- NSF REU Graduate Student Mentor Summer 2018 & 2019
- UTK Forensics Camp Volunteer July 2018 & 2019
- Secret City Classic Quiz Bowl Tournament Moderator October 2017 & 2019
- Biochemistry and Chemistry Club, CCU August 2015 – May 2017
- Treasurer Fall 2015
- President Spring 2016 – 2017
- Planned events, coordinated a schedule for tutoring, and performed demonstrations at local elementary schools
- Quiz Bowl Team: Big South Conference, Member August 2014 – May 2015

## **AWARDS & HONORS**

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### **University of Tennessee**

Tennessee Fellowship for Graduate Excellence

August 2017

### **Coastal Carolina University**

Outstanding Student in Biochemistry, Department of Chemistry

May 2017

Best Graduating Senior, Biochemistry and Chemistry Club

May 2017

Underclassman of the Year, Biochemistry and Chemistry Club

May 2016

Chemistry and Physics Departmental Scholarship Recipient

Spring 2016 & 2017

President's List

Spring 2015 – Fall 2016

Dean's List

Fall 2014 & Spring 2017