BRANDON SHANNON

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I graduated with a B.S. in Chemistry from the University of Central Florida in 2018 and worked for three years in the industrial air pollution monitoring industry before pursuing graduate school to follow my passion of honey bee research. For my master's research, I am determining the effects of pesticide tank mixtures on honey bees under my advisor, Dr. Reed Johnson, while taking classes in the Environmental Sciences Graduate Program. Post-completion of my master's degree, my goal is to continue uncovering a better understanding of honey bee toxicology as a doctoral, post-doctoral, and eventual faculty researcher.

Education

Master of Science in Environmental Sciences — **Expected Graduation May 2023**
The Ohio State University — *Wooster, OH*
GPA: 4.0

Bachelor of Science in Chemistry — **May 2018**
University of Central Florida — *Orlando, FL*
GPA: 3.14

Professional Experience

The Ohio State University Department of Entomology — **Wooster, OH**
Graduate Research Assistant — *July 2021 – Present*

- Performed simulated spray applications of adjuvant-pesticide combinations to honey bees using a Potter Spray Tower to generate mortality data.
- Analyzed data using R Studio to determine statistically significant dose-response curves, determine LC_{50} values, and perform pairwise comparisons and ratio tests to determine significant difference between treatments.
- Developed new methods to determine adjuvant mode of action in honey bee physiological systems using weights after desiccation, fluorimetry and spectrophotometry of honey bees on 96-well plates, and ImageJ analysis of fluorescence microscopy.
- Managed honey bee colonies by applying varroa treatment, fed colonies during times of dearth, practiced swarm management, and processed collected honey.

Ambient Air Services, Inc. — **Starke, FL**
Team Leader — *July 2018 – July 2021*

- Extracted gas and particulate matter samples from industrial sources using wet chemistry and instrumental analyzers by following procedures outlined in the Code of Federal Regulations (CFR)
- Performed troubleshooting, repairs, and calibration of instruments such as NO_x chemiluminescence detectors, SO_2 pulsed fluorimeters, CO and CO_2 infrared spectrophotometers, and O_2 paramagnetic analyzers both in the laboratory and in the field.
- Calculated source output results from raw data using Microsoft Excel and presented values and statistical analysis in a report sent to the client and State Department of Environmental Protection.
- Led small teams to plan projects, oversee safety and work permits, and execute testing while coordinating with state inspectors and facility environmental managers.

University of Central Florida Department of Chemistry — **Orlando, FL**
Undergraduate Research Assistant — *Aug. 2017 – May 2018*

- Cooperated with a team of three in sterile laboratory conditions to determine the ability of bacteria found in local water samples to degrade a group of toxic contaminants known as parabens.
- Calculated mass ratios to mix and autoclave agar solutions to grow over 750 bacterial colonies.
- Performed spectrophotometry at OD-600 to determine the kinetic growth curve of bacteria in solutions of different derivatives of parabens.

University of Central Florida Department of Biology **Orlando, FL**

Undergraduate Teaching Assistant: Honey Bee Biology and Beekeeping *Jan. 2018 – May 2018*

- Instructed a class of twelve students in hive management, personal protection and safety, and general bee knowledge through experiential learning in the classroom and apiary.
- Prepared class materials and coursework in association with the class professor.
- Managed the health and productivity of three beehives, each with approximately 60,000 bees.
- Located feral honey bee colonies in the local environment, captured local swarms, tested for Africanization through aggressive behavior, and relocated safe bees to UCF apiary.

University of Central Florida Department of Housing and Residence Life **Orlando, FL**

Resident Assistant *Aug. 2016 – May 2018*

- Coordinated events for 54 residents to educate about self-awareness, cultural competence, community engagement, and global impact.
- Administered and enforced housing and university policies for a community of 400 residents by responding to emergency incidents such as fire safety, illegal substances, and domestic violence.
- Documented incident reports in accordance with university standards.
- Utilized communication skills to mediate conflict between residents and staff.

Presentations

Mifflin Elementary Field Trip Presentation and Activity Session **May 2022**
Presenter, Activity Coordination and Design
Pollination, Honey Bees, and Beekeeping

CFAES Annual Research Conference **April 2022**
Presenter, Primary Author, Poster Presentation
Toxicity of Spray Adjuvants and Tank Mix Combinations to Adult Honey Bees

Spring Delong and Root Competition **March 2022**
Presenter, Primary Author
Toxicity of Spray Adjuvants and Tank Mix Combinations to Adult Honey Bees

Entomological Society of America North Central Branch **March 2022**
Secondary Author
Effect of Adjuvants, Pesticides and Combinations Applied to Almonds During Bloom on Honey Bees

American Bee Research Conference **January 2022**
Presenter, Primary Author
Toxicity of Spray Adjuvants and Tank Mix Combinations to Adult Honey Bees

Ohio State Beekeepers Association Annual Meeting **October 2021**
Presenter, Primary Author
Toxicity of Pesticide-Adjuvant Tank Mix Combinations to Honey Bees

Undergraduate Research Report Presentation and Oral Examination **April 2018**
Presenter, Primary Author
Isolation of Environmental Bacteria and Their Growth in Paraben Solution

Honors / Awards

Third Place, Master's Category **April 2022**
CFAES Annual Research Conference Poster Competition

Delong Presentation Competition Winner **March 2022**
Spring Delong and Root Awards

Dean's List **Fall 2014**
University of Central Florida College of Sciences **Fall 2017**
Spring 2018

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Notable Coursework

Graduate Level

- Insect Physiology and Molecular Biology
- Pesticide Science
- Experimental Design
- Communicating Environmental Risk
- Graduate Environmental Sciences Seminar

Undergraduate Level

- Environmental Chemistry
- Organic Chemistry I, II, III with Lab
- Inorganic Chemistry with Lab
- Physical Chemistry I, II with Lab
- Advanced Analytical Techniques with Lab
- Analytical Chemistry with Lab
- Biochemistry I
- Honey Bee Biology and Beekeeping
- Undergraduate Chemistry Seminar

Organizations

- Ohio State University Code Club — January 2022 - Present
- American Chemical Society — August 2015 – August 2018
- University of Central Florida Residence Hall Association — August 2015 – May 2018

Skills

Computer Programs

- Microsoft Office
- R Studio
- SAS 9.4
- ImageJ
- ChemDraw Prime
- Telogers Data Recorder for Windows

Certifications

- *EPA Method 9 and 22 Visible Emissions* — *Jan 2021*