

# Josie K. Welker

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## EDUCATION

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**Bachelor's of Science in Chemistry**  
Monmouth College, Monmouth, IL

Expected graduation: May 2021

## RESEARCH EXPERIENCE

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### **Undergraduate Researcher**

August 2018-Present

*Analytical Chemistry Lab, Department of Chemistry, Monmouth College*

Advisor: Dr. Bradley Sturgeon

- Determining the concentrations of volatile organic compounds in the atmosphere of Monmouth, Illinois, utilizing the Griffin X-Sorber.
- Performed oxidation reactions with different substrates and enzymes, then analyzed the kinetics data to evaluate the methodology.
- Collaborated with a biochemistry research group to extract and purify sea urchin otoperoxidase from live specimens.
- Presented data at a local section ACS conference, weekly research meetings, and will present data in a science seminar course in the spring of 2021.
- Was scheduled to present data at the National ACS Conference (cancelled due to COVID-19.)
- Trained five students on how to use two different models of HPLC instrumentation.

### **Summer Stevens Research Fellowship Program**

Summer 2020

*Inorganic Chemistry Lab, University of Missouri, Columbia, Missouri*

Advisor: Dr. Wes Bernskoetter

- Anticipated performing experiments with inorganic and organometallic complexes.
- This research experience was cancelled due to COVID-19.

### **Doc Kieft Summer Research Experience**

May 2019-August 2019

*Analytical Chemistry Lab, Department of Chemistry, Monmouth College*

Advisor: Dr. Bradley Sturgeon

- Evaluated the oxidation products of 4-Hydroxyphenylacetic acid (HPA).
- Predicted the oxidation products of HPA using biochemical kinetics software.
- Delivered a talk about the research project to the rest of the department.
- Presented a poster at the local Illinois-Iowa ACS conference.
- Assisted other research groups with HPLC data collection, analysis, and presentation.

## PRESENTATIONS

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### *Oral Presentations*

**J. K. Welker**, W. Fox, and B. E. Sturgeon “Enzymatic Oxidation of Biophenols”, Doc Kieft Research Meeting, Monmouth, IL, July 2019.

### *Poster Presentations*

**J. K. Welker**, W. Fox, and B. E. Sturgeon “Enzymatic Oxidation of Biophenols”, IL-IA American Chemical Society Undergraduate Research Conference, St. Ambrose University, Davenport, IA, October 2019.

**J. K. Welker** and B. E. Sturgeon “Oxidation of Oxybenzone”, National American Chemical Society Undergraduate Research Conference, Philadelphia, PA, March 2020 (cancelled due to COVID-19).

## TEACHING ASSISTANT EXPERIENCE

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### **General Chemistry Laboratory Teaching Assistant**

Fall 2019 & Fall 2020

*Monmouth College*

- Prepared solutions, instruments, and demonstrations for 3 the general chemistry laboratory sections.
- Answered questions from approximately 60 general chemistry students about laboratory procedure, data analysis, and safety procedures.
- Graded laboratory notebooks and reports for all general chemistry laboratory sections.

### **Inorganic Chemistry Laboratory Teaching Assistant**

Spring 2020

*Monmouth College*

- Prepared solutions and instruments for every inorganic chemistry laboratory period.
- Assisted approximately 15 upper-level chemistry students in completing experiments.
- Graded laboratory notebooks and reports for the inorganic chemistry laboratory.

## MENTORING EXPERIENCE

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### **First Year Mentor**

August 2019-Present

Introduction to the Liberal Arts Program

*Monmouth College*

- Developed programs and discussion topics in collaboration with another student for the rest of the first year mentors, as a Lead First Year Mentor (August 2020-Present).
- Organized orientation activities and led discussion among the first year mentors about how to better the program.
- Taught five Introduction to the Liberal Arts classes on topics such as time management and stress management.
- Attended weekly meetings about how the course was going and how the first year students were doing.

- Communicated with the students and answered any questions they had about college life.

## HONORS AND AWARDS

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### Honors Societies

#### *Monmouth College*

- Alpha Lambda Delta Honor Society Fall 2017-Present
- Order of Omega Honor Society Fall 2019-Present
- Blue Key Honor Society Spring 2019-Present
- Mortar Board Honor Society Spring 2019-Present

### Awards

#### *Monmouth College*

- Monmouth College Dean's List Fall 2017/2019 & Spring 2020
- Academic All-Conference for NCAA Division III Track and Field Fall 2017-Present
- President's Scholarship Fall 2017-Present

## LEADERSHIP

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### **New Member Director**

Spring 2019-Fall 2020

Kappa Kappa Gamma Women's Fraternity

*Monmouth College*

### **Vice President**

Spring 2020-Fall 2020

Order of Omega Honor Society

*Monmouth College*

### **Vice President**

Spring 2020-Fall 2020

Blue Key Honor Society

*Monmouth College*

### **Vice President**

Fall 2019-Fall 2020

Students for Environmental Awareness

*Monmouth College*

## STUDENT ORGANIZATIONS

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Kappa Kappa Gamma Women's Fraternity

Spring 2018-Present

*Monmouth College*

Students for Environmental Awareness

Fall 2018-Present

*Monmouth College*

American Chemical Society

Fall 2019-Present

*Monmouth College*

NCAA Division III Track and Field  
*Monmouth College*

Fall 2017-Present

## **VOLUNTEERING**

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Reading is Fundamental

Spring 2018-Present

- Read books to 30 children at the elementary school in Monmouth.
- Collected books to donate to the children of Monmouth.

MLK Day Service Opportunities

MLK Day 2018-2020

- Participated in the Monmouth College MLK Day of Service each year.
- Cleaned a local church.
- Created blankets for children with cancer.