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## EDUCATION

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### Chemistry PhD Candidate

University of Illinois at Urbana-Champaign, Champaign, IL  
Advisor: Dr. Lisa Olshansky

*Fall 2018 – Present*  
*Expected Graduation:*  
*December 2023*

### B.A. in Chemistry (Summa Cum Laude)

Rollins College, Winter Park, FL  
Thesis: Developing Iron Catalysts for Organic Reactions  
Advisor: Dr. Laurel Goj Habgood

*May 2018*

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## RESEARCH EXPERIENCE

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### Doctoral Research

University of Illinois at Urbana-Champaign  
Advisor: Dr. Lisa Olshansky

*November 2018 – Present*

- Synthesize biomimetic bis( $\mu$ -hydroxo)dicobalt complexes in which substituents on various ligands are modified to control the intramolecular hydrogen bonding network and subsequent proton and electron transfer capabilities
- Characterize complexes with NMR, FT-IR, EPR, and UV-vis spectroscopies and X-ray Crystallography, mass spectrometry and elemental analysis
- Trained in variable temperature NMR, Stopped-flow UV-vis spectroscopies, and electrochemical methods
- As a founding member, mentored fellow graduate students, aided in creation of laboratory policies, and crafted guidelines for manuscripts and general operating protocols

### 3M Research and Development Intern

Corporate Research Analytical Lab

Supervisor: Wayne Maurer Mentors: Gereon Yee and Mark McCormick

*Summer 2022*

- Investigated the reaction mechanism of a redox mediated polymerization process found in numerous 3M structural adhesives primarily using NMR techniques
- Collaborated with product developers to transfer the findings of these fundamental studies into potential changes for the formulation of those structural adhesives
- Disseminated findings through internal written report, poster, and presentation

### Undergraduate Research

Rollins College

Advisor: Dr. Laurel Goj Habgood

*Fall 2016 – Spring 2018*

- Synthesized and characterized iron-NHC complexes utilizing air-free (Schlenk and glove-box) techniques and FT-IR and  $^1\text{H}$ -NMR for structural confirmation
- Screened the complexes for catalytic ability on Kumada, Aza-Michael, and Michael additions
- Analyzed catalytic activity of iron complexes in cross-coupling reactions utilizing gas chromatography and  $^1\text{H}$ -NMR for a pedological experiment

### Georgia Tech Research Experience for Undergraduates

Georgia Institute of Technology

Advisor: Dr. Joseph Sadighi Mentor: Kevin Omolo

*Summer 2017*

- Synthesized PNP pincer ligands and formation of complexes with palladium and cobalt utilizing air-free techniques and  $^1\text{H}$ -NMR,  $^{31}\text{P}$ -NMR and FT-IR spectroscopies for characterization

### Summer Program for the Advancement of Research Knowledge

Moffitt Cancer Center

Advisor: Dr. Jin Q. Cheng Mentor: Dr. Yajuan Li

*Summer 2016*

- Screened modified small molecule inhibitors on lung cancer cell lines using MTT assays, western blots, luciferase assays, and cell migration assays



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## PUBLICATIONS

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**Alyssa A. DeLucia**<sup>††</sup>, Kimberly A. Kelly<sup>††</sup>, Kevin A. Herrera, Danielle L. Gray, and Lisa Olshansky. These <sup>††</sup> authors contributed equally to the work. Intramolecular Hydrogen-Bond Interactions Tune Reactivity in Biomimetic Bis( $\mu$ -hydroxo)dicobalt Complexes. *Inorganic Chemistry*. **2021**, *60*, 15599–15609.

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## POSTERS AND PRESENTATIONS

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**A. DeLucia**, K. Kelly, K.C. Khanadand, L. Olshansky. “Modeling Oxidase Metalloenzymes with dicobalt bis( $\mu$ -hydroxo) complexes” *Gordon Research Conference Bioinorganic Active Sites that Drive Challenging Chemical Conversions*, Newport, RI, **2022**. Poster.

**A. DeLucia**, K. Omolo, J. Sadighi, L. Habgood. “Synthesis of Transition-Metal Catalysts with Diverse Potential Reactivity” *American Chemical Society National Meeting and Exposition*, New Orleans, LA, 2018. ABS # 2867652. Poster.

**A. DeLucia**, K. Omolo, J. Sadighi. “Synthesis of Unconstrained PNP Pincer Complexes for Potential use in Nitrogen Fixation” *Georgia Tech Research Experience for Undergraduates Symposium*, Atlanta, GA, 2017. Poster and Presentation.

**A. DeLucia**, Y. Li., J. Q. Cheng. “Analysis of Small Molecule Inhibitor of MicroRNA-155” *Moffitt Cancer Center Research Day*, Tampa, FL, **2016**. Presentation.

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## SCIENCE EDUCATION OUTREACH AND LEADERSHIP

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**Women in Chemistry Conference Planning Committee** Summer 2021  
*University of Illinois at Urbana-Champaign*

### Science Education Outreach

- St. Elmo Brady Academy Leader at Booker T. Washington STEM Academy Fall 2021
- Encouraging Tomorrow’s Chemists demonstrations at Urbana Middle School Spring 2019/Fall 2020
- Women’s Chemist Committee Day Camp for Girls Station Leader Dec 2020/June 2021
- Orlando Science Center Cell Day Station Leader Spring 2015

### Mentorship

*Certified mentor by University of Illinois Graduate College*

- Goldwater Ambassador Mentor Summer 2022 – Present
- University of Illinois at Urbana-Champaign ADJUST mentoring program Fall 2021
- Research mentor for undergraduate in Olshansky Lab Fall 2020 – Spring 2022
- Women’s Chemist Committee Mentor Fall 2019

**Student Affiliates of American Chemical Society (SAACS)** Fall 2016 – Spring 2018  
Chapter President, Rollins College

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## TEACHING EXPERIENCE

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### Teaching Assistant

*University of Illinois at Urbana-Champaign*

- Inorganic Lecture and Laboratory Spring 2019 – 2020
- General Chemistry, Ranked as Excellent by Students Fall 2018

### Tutor at Tutoring and Writing Center

*Rollins College* Spring 2015 – 2018

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## SELECTED AWARDS

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Phillip W. Rhymer Graduate Fellowship for Outstanding Inorganic Preliminary Exam and Research 2021  
NSF Graduate Research Fellowships Program Honorable Mention 2020  
American Institute of Chemists Outstanding Senior Chemistry Major Award, *Rollins College* 2018  
Goldwater Scholar 2017