

# Nathaniel Johnston

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## Education

University of California, Los Angeles | Los Angeles, CA August 2020 – Present  
PhD student, Theoretical and Computational Chemistry GPA: 3.896

Westmont College | Santa Barbara, CA September 2015 – May 2019  
Bachelor of Science, Chemistry GPA: 3.99 | Major GPA: 4.0

## Research Experience

Graduate Student Researcher August 2020 – Present  
University of California, Los Angeles | Supervisor: Professor Anastassia Alexandrova

- Use QM-DMD software to computationally analyze enzyme structure and function

Undergraduate Researcher: Computational Chemistry January 2019 – May 2019  
Westmont College | Supervisor: Professor Brandon Haines

- Utilized Unix commands and Gaussian software to run computer calculations
- Analyzed energetic and geometric data to explain experimentally observed enantioselectivity

Full-Time Undergraduate Research Fellow: Interfacial Chemistry May 2018 – July 2018  
Westmont College | Supervisor: Professor Michael Everest

- Analyzed ion interactions at the surface of a prism using evanescent wave cavity ring-down spectroscopy
- Presented and discussed results with other research fellows at weekly group meetings

Undergraduate Researcher: Organic Chemistry January 2018 – May 2018  
Westmont College | Supervisor: Professor Amanda Silberstein

- Synthesized sulfamate starting materials used to develop a novel borylation method

## Teaching Experience

Chemistry Teaching Assistant September 2020 – June 2021  
University of California, Los Angeles

- Taught laboratory sections for CHEM 14BL and 14CL: General and Organic Chemistry Lab I and II
- Led discussion and tutorial sections for CHEM 110B: Physical Chemistry: Introduction to Statistical Mechanics and Kinetics
- Prepared and graded homework problem sets and exams

PEERS Tutor March 2021 – June 2021  
University of California, Los Angeles

- Led weekly chemistry study sessions for underrepresented minority students in the sciences

Teaching Assistant: General/Organic Chemistry  
Westmont College

August 2016 – May 2019

- Answered students' questions about chemistry concepts in biweekly study sessions
- Graded homework problem sets

Writers' Corner Tutor  
Westmont College

September 2016 – January 2017

- Tutored students in writing skills to develop their arguments and communicate clearly

## **Employment**

Research Associate

July 2019 – May 2020

DNA Electronics | Carlsbad, CA

- Tested a new method of capturing pathogens from blood for comparison to the traditional blood culture method
- Blocked active sites on streptavidin-functionalized particles to control binding capacity
- Used aseptic technique to minimize contamination of experiments

## **Presentations**

Johnston, N. W.; Muhire, F. M.; Everest, M. A. *Measuring Adsorption Using Absorption*. Southern California Undergraduate Research Conference, Mount Saint Mary's University, Los Angeles, CA, April 13, 2019.

## **Skills**

- QM-DMD for computational analysis of enzymes
- Gaussian molecular modeling and computation software
- Surface modification of streptavidin-conjugated magnetic beads
- Fluorescence assays and zeta potential analysis for characterization of modified beads
- Aseptic technique to prevent contamination of biological experiments
- Microbiological techniques, including bacterial culture, capture from whole blood, and plating
- Evanescent wave cavity ring-down spectrometry, including operating a laser, precision cleaning and adjusting optics, and troubleshooting issues
- Organic chemistry methods, including Schlenk techniques for handling air-sensitive compounds under inert atmospheres
- UV-Vis, AAS, GC-MS, NMR, and HPLC
- Preparation of scientific reports for audiences of various experience levels, including following GLP documentation protocols in an industrial setting
- Unix commands, Microsoft Office, and Igor Pro for data visualization and analysis

## **Extracurricular Activities/Positions**

Science and Faith Club President

Westmont College

- Organized and hosted lectures from Westmont professors and visiting speakers on issues related to science and the Christian faith, such as CRISPR-Cas9 genome editing

## **Honors and Awards**

### Westmont College

- *Summa cum laude*, John Stauffer Summer Research Fellowship, Phi Kappa Phi Membership, Westmont President's Scholarship, and National Merit Scholarship