

EDUCATION

Master of Science in Chemistry | Polymer Science | Expected 2018
The University of Oregon, Eugene, Oregon

Bachelor of Arts in Chemistry | Minor in Physics | Cum Laude | May 2015
The College of Wooster, Wooster, Ohio

INDUSTRY EXPERIENCE

Oregon Growers Analytical | Analytical Chemist | Eugene, OR | Sept 2015 – May 2017

- Performed quality assurance testing for the agricultural and cannabis industries at a state-accredited laboratory.
 - Developed a high-throughput, low cost, analytical method for detection and quantitation of 43 residual solvents by headspace-gas chromatography/mass spectrometry with improved detection limits and repeatability.
 - Increased sample throughput by 50% by eliminating time-wasting practices and optimizing laboratory workflow within a group of 4 chemists.
 - Established a procedure for quantification of dietary supplement astaxanthin in red algae extracts by using a fast and reliable spectrophotometric method.
 - Ensured performance of liquid and gas chromatographic instruments through maintenance, diagnosis and troubleshooting of issues, and continual improvement of operating procedures.
 - Served as laboratory safety officer through implementation of a chemical hygiene plan, education about laboratory hazards, and management of disposal duties.
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RESEARCH EXPERIENCE

Senior Independent Study Thesis | College of Wooster | 2014 – 2015

- Investigated the thermodynamics of various structural conformations of a photoresponsive azobenzocrown ether as a supramolecular host using a density functional theory computational method.
- Developed an optimized method for the synthesis of various sized azobenzocrown ethers by utilizing a novel, photoassisted, Williamson ether reaction.
- Communicated research in a 100-page written thesis, a departmental presentation, and an oral defense to a faculty panel. Received the highest mark of honors for work.

Whitmore-Williams Science Scholar | College of Wooster | Summer 2014

- Synthesized precursors for subsequent syntheses with fewer contaminants and 50% higher yield by adapting and improving on published methods.
- Purified final product using column chromatography, and characterized it using ^1H NMR spectroscopy and mass spectrometry.
- Improved synthesis was used as a teaching reaction for organic chemistry lab students based on reproducibility and ease of purification.

Howard Hughes Medical Institute (HHMI) Research Fellow | College of Wooster | Summer 2013

- Shortened the synthesis of benzo-24-crown-8 from a 4-step to a 2-step synthesis, increasing yield by over 30% while producing a pure product characterized by ^1H NMR spectroscopy.
- Examined the supramolecular interactions by comparing benzo-functionalization of crown ethers with strength of binding to various dibenzylammonium ions using ^1H NMR titration and isothermal titration calorimetry.
- Presented research in a poster session at the 2014 National ACS Conference.

HHMI Summer Early Engaged Research (Mentor) | College of Wooster | Summer 2012

- Synthesized various 7-azaindole based ligands for use as anti-tumor agents in 39% overall yield using a copper iodide-mediated cross coupling reaction.
- Characterized final product using ^1H NMR and IR spectroscopy, mass spectrometry, and X-ray crystallography.
- Mentored two incoming first-year chemistry students in the synthesis of necessary precursors by teaching them laboratory skills, research methods, and effective communication of science.
- Presented research in a poster session at the 2013 National ACS Conference.

HHMI Summer Early Engaged Research | College of Wooster | Summer 2011

- Synthesized benzo-30-crown-10 in high yield and purity using a 4-step synthetic approach in under 4 weeks.
- Demonstrated purity of recrystallized product to be 99%+ using ^1H and ^{13}C NMR spectroscopy.

LEADERSHIP EXPERIENCE

Introductory Chemistry Table Instructor | College of Wooster | 2012 – 2015

- Led a weekly peer-led team-learning group aimed to help struggling chemistry students with homework.
- Facilitated peer discussion by promoting team learning and group exercises over solo work.
- Ensured all students were able to grasp necessary concepts by answering questions in individual and group settings.

Organic Chemistry Lab Assistant | College of Wooster | 2013 – 2014

- Assisted lab instructor in running an organic chemistry lab section by acting as an avenue of communication between students and the professor.
- Identified and relayed potential issues to the lab instructor before they became serious problems.
- Prepared reagents and chemicals accurately and efficiently before each lab.
- Ensured safety of 20+ students by overseeing their work.

Chemistry Department Tutor | College of Wooster | 2012 – 2013

- Tutored students in introductory and organic chemistry courses by breaking down complex principles into more digestible information using clear and concise language.
- Advised students on study strategies and methods for test preparation that fit their individual learning styles.
- Built rapport with students through open communication by creating a comfortable space to discuss academic issues.

AWARDS & HONORS

The American Chemical Society Undergraduate Award in Organic Chemistry | 2015

Awarded for excellence in the field of organic chemistry in all aspects of coursework and research.

Cary R. Wagner Prize in Chemistry | 2014

Awarded to the student showing the greatest aptitude and drive to succeed in chemistry out of 60+ chemistry majors.

Whitmore-Williams Science Scholarship | 2014

Awarded a scholarship for excellence in classwork and research as funding for a summer of research, as well as a financial award covering tuition for the school year. Chosen as 1 of 6 out of 300+ physical science majors.

American Chemical Society Polymer Education Committee Award | 2012

Awarded for overall achievement in organic chemistry as an underclassman.

INSTRUMENTATION

Extensive experience with:

Gas chromatography/mass spectrometry (GC/MS)
High-performance liquid chromatography (HPLC)
NMR Spectroscopy
Fourier transform infrared spectroscopy (FT-IR)
UV-visible spectroscopy (UV-vis)

Experience with:

Liquid chromatography/tandem mass spectrometry (LC/MS/MS)
Differential scanning calorimetry (DSC)
Thermogravimetric analysis (TGA)
Thermomechanical analysis (TMA)
Dynamic mechanical analysis (DMA)
Gel permeation chromatography (GPC)
Isothermal titration calorimetry (ITC)