

Katherine Buxton

Department of Chemistry
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Education

Bachelor of Science, Saint Lawrence University, Canton, New York

May 2014

Overall GPA: 3.992/4.000

Majors: ACS Chemistry (4.000/4.000) & Mathematics (4.000/4.000)

Research Experience

Undergraduate Researcher

Fall 2013-Spring 2014

Saint Lawrence University

- Completed a senior honors project studying the thermodynamics and kinetics of the association of doxorubicin with DNA
- Utilized fluorescence spectroscopy as a probe for understanding the binding mode of interest
- Presented a poster at the Spring 2014 ACS National Meeting in Dallas, Texas
- Paper in preparation

Research Experiences for Undergraduates Student

Summer 2013

University of Colorado Colorado Springs

- Worked in an analytical chemistry lab developing a green method for extracting chlorogenic acid, an antioxidant and potential chemotherapeutic agent, from various foods and beverages
- Developed and tested extraction techniques including solid-phase extraction, microwave-assisted extraction, dispersive liquid-liquid microextraction, and simple dilution/filtration
- Performed instrumental analysis using high-performance liquid chromatography with diode-array detection
- Presented a poster at the Council on Undergraduate Research's Conference of Research Experiences for Undergraduates in Arlington, Virginia (October 2013)
- Presented a poster at the Spring 2014 ACS National Meeting in Dallas, Texas
- Paper in preparation

Research Intern

Summer 2012

Nalco Company, Naperville, Illinois

- Worked in the chemistry research and development group under the supervision of two staff scientists and one senior research chemist
- Synthesized both wet and dry polyacrylamides to be used for large-scale wastewater treatment
- Characterized and evaluated polymers via measurements of reduced specific viscosity and propensity to form gels

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Teaching Experience

Teaching Assistant

Chemistry Department, University of Wisconsin-Madison

Fall 2014-present

- Teaching two sections of Chemistry 109
- Leading discussion for each section once per week
- Supervising lab for each section once per week
- Grading lab reports and exams
- Holding office hours and answering student questions

Chemistry Department, Saint Lawrence University

Fall 2012-Fall 2013

- Taught in both general and organic chemistry labs
- Supervised students, maintained a safe lab environment, answered questions, and graded papers

Mathematics Department, Saint Lawrence University

Spring 2012

- Worked as a teaching assistant for a multivariable calculus course
- Graded and provided feedback on homework assignments

Research Techniques

Instrumental Techniques

- High-performance liquid chromatography
- Gas chromatography-mass spectrometry
- NMR spectroscopy
- UV/visible spectroscopy
- Fluorescence spectroscopy
- FTIR spectroscopy
 - Attenuated total reflectance, transmission, and microscope

Lab Techniques

- Column chromatography
- Thin-layer chromatography
- Rotary evaporation
- Titration
- Distillation
- Extraction
 - Liquid-liquid, dispersive liquid-liquid, microwave-assisted, and solid-phase

Academic Honors

Pei Wang Fellowship, University of Wisconsin-Madison, Department of Chemistry

Fall 2014

Trustee Academic Achievement Award, Saint Lawrence University

- Awarded to the member of the senior class with the highest cumulative grade point average over four years of study

Spring 2014

Northern New York American Chemical Society Outstanding Senior Award

Spring 2014

Undergraduate Award in Analytical Chemistry, American Chemical Society

Fall 2013

Chemistry REU Student, University of Colorado Colorado Springs & NSF

- Also accepted to the University of Oregon, University of Michigan, and North Dakota State University chemistry REU programs

Summer 2013

SCI Scholar, Society of Chemical Industry & American Chemical Society

- One of 32 students selected nationwide

Summer 2012

Dean's List, Saint Lawrence University

Fall 2010-present

Member, Phi Beta Kappa, academic honorary

Inducted Fall 2013

Member, Iota Sigma Pi, women in chemistry honorary

Inducted Fall 2013

Member, Omicron Delta Kappa, leadership honorary

Inducted Spring 2013

Member, Chymist, chemistry honorary

Inducted Spring 2013

Member, Sigma Pi Sigma, physics honorary

Inducted Spring 2013

Member, Pi Mu Epsilon, mathematics honorary

Inducted Fall 2012

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Scholarships

Army Aviation Association of America Scholarship, Connecticut chapter

Fall 2013-present

Class of 1934 Chemistry Scholarship, Saint Lawrence University

Fall 2013-Spring 2014

Carolyn Susan Conkey Scholarship, Saint Lawrence University

Spring 2012

- Recognizes the female with the highest GPA in her freshman year

Momentum Scholarship, Saint Lawrence University

Fall 2010-Spring 2014

Thomas J. Watson Memorial Scholarship, IBM

Fall 2010-Spring 2014

Operation Enduring Freedom/Operation Iraqi Freedom Scholarship,

Fall 2010-Spring 2014

Vermont Student Assistance Corporation

S.T.E.M. Scholarship, New England Federal Credit Union

- Recognizes scholastic excellence in science, technology, engineering & mathematics

Fall 2011-Spring 2012