

Andrea Van Wyk

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Education

Bachelor of Arts — Simpson College, Indianola, IA

Expected May 2019

Majors: Chemistry and Mathematics

GPA in Major: 3.89/4.00

Cumulative GPA: 3.87/4.00

Related Coursework:

- AP Calculus
- AP Chemistry
- General Chemistry
- Organic Chemistry
- Quantitative Analysis
- Introduction to Programming
- Biochemistry
- Calculus I, II & III
- Linear Algebra
- Data Science
- Introduction to Advanced Math
- Physics I & II
- Differential Equations
- Complex Variables
- Abstract Algebra
- Physical Chemistry
- Chemistry Capstone
- Mathematics Capstone

Research

Research and Development Intern — Kemin Industries; Des Moines, IA.

May 2018 — present

- Coordinate with research assistants and R&D director on projects.
- Analyze data and compile monthly reports and white papers.
- Keep a detailed electronic notebook.
- Troubleshoot instrumental problems and maintain functioning equipment.
- Manage time and workload.

NSF funded Chemistry REU — Southern Illinois University; Carbondale, Illinois

June — July 2017

- Investigated the effects of different solvents on the fluorescence of two chemically identical, but topologically different pyrene-based metal-organic frameworks (NU-1000 and NU-901).
- Collaborated with research advisor and graduate students on assigned project.
- Used state of the art lab instrumentation and lab equipment.
- Managed time and workload.
- Enhanced writing skills, organization skills and presentation skills.
- Created and organized data tables and graphs.

Palmer Amaranth Research Project — Simpson College; Indianola, Iowa

June — July 2016

- Created a model that would predict the spread of Palmer Amaranth across the state of Iowa and the other corn belt states if left unchecked.
- Collected and organized data into spreadsheets and completed calculations to be used in the model.
- Collaborated with advisors and other student researchers on presentations, papers and conducting interviews of farmers.
- Enhanced research skills, collaborations skills and presentations skills.
- Experience in Microsoft Excel Sheet.

Publications

Van Wyk, Andrea; Smith, Tanner; Ohkita, Hideo; Park, Jeahong; Deria, Pravas. "Charge-Transfer within Zr-Based MOF: The Role of Polar Node." *Journal of American Chemical Society* 2018 140 (8), 2756-2760.

Yu, Jierui; Park, JaeHong; Van Wyk, Andrea; Rumbles, Garry; Deria, Pravas. "Excited-State Electronic Properties in Zr-Based Metal-Organic Frameworks as a Function of a Topological Network." *Journal of American Chemical Society* 2018 140 (33), 10488-10496.

Presentations

Solvent Dependent Fluorescence Study in Topologically Different MOFs

- Simpson College Research and Creativity Symposium 2018
- Conference for Undergraduate Women in Physical Sciences 2017, University of Nebraska Lincoln
- Simpson College Summer Research Symposium 2017
- Southern Illinois University-Carbondale REU Summer Research Symposium 2017

Modeling the Spread of Palmer Amaranth Across Iowa and the Corn Belt States

- Simpson College Undergraduate Research Symposium 2017
- Midwest Undergraduate Mathematical Symposium 2017
- North Central Weed Science Society Annual Meeting 2016

The Palmer Project

- Simpson College Summer Research Symposium 2016
- Simpson College Summer Series 2016
- Iowa Agricultural Educator's Professional Development Summer Conference 2016

Teaching Experience

Supplemental Instruction Leader for General Chemistry — Simpson College; Indianola, IA

August 2016 — present

- Communicate with professors and students about course material.
- Hold two sessions a week reviewing the concepts taught in lecture.
- Design activities and supplemental materials.
- Explain the course material in different ways to different learners.
- Maintain student attention and promoted enthusiasm for the course content in sessions.

General Chemistry Laboratory Teaching Assistant — Simpson College; Indianola, IA

January 2018 — April 2018

- Assist in obtaining needed chemicals and equipment and making sure that all instruments are working properly.
- Answer student questions during the lab as well as the post-lab report.
- Trouble-shoot problems with instrumentation.
- Communicate with the students, professor and the stockroom manager.
- Complete safety training.

Work Experience

IT Team Leader – Simpson College; Indianola, IA

January 2016 – present

- Communicate with supervisor, helpdesk consultants and lab consultants.
- Check shifts to make sure lab consultants and helpdesk consultants are present and working.
- Schedule shifts for the weekend and extended hours before finals.
- Maintain clean and fully functioning labs.
- Serve as a first point of contact for student employees when problems arise.
- Fix minor computer problems.

Pharmacy Clerk – The Medicine Shoppe Pharmacy; Newton, IA

August 2012– August 2015
as well as college breaks

- Communicate with customers, pharmacy technicians and pharmacists.
- Collaborate with other store clerks, pharmacists and technicians.
- Maintain a clean and well-organized store.
- Assist customers in locating needed items.
- Operate computer, printer, fax, and phone system.
- Operate cash register, make change, and count down cash drawer upon closing.

Awards

Omicron Delta Kappa member, Simpson College

2017

Trustee Scholarship, Simpson College

2015 - present

WHO'S WHO member, Simpson College

December 2016

Honorable Mention, Interdisciplinary Contest in Modeling

2017, 2018

Valedictorian, Newton Senior High School

May 2015

Campus Activities

Chemistry Club, President

2015 - present

Math Club, Member

2015 - present

The Light Company College Ministry, Intern

2015 - present

Instrumentation

- UV-Vis Spectroscopy
- NMR Spectroscopy
- IIR Spectroscopy
- Mass Spectrometry
- Spectrofluorometer
- Atomic Force Microscopy
- Gas Chromatography

Computer Languages

- Python
- R
- LaTeX
- Mathematica