Alyssa Grube

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Education

Pennsylvania State University State College, PA

Bachelor of Engineering Science and Mechanics Associate of Engineering Leadership and Development Graduated May 2020

- Women in Engineering Program
- Impact of Culture on Engineering in China
- International Exchange Program at the University of Sussex
- Global Engineering Fellow

University of Nebraska-Lincoln Lincoln, NE

Chemical and Biomolecular Engineering PhD *Expected May 2025*

- Women in Engineering Program
- Impact of Culture on Engineering in China
- International Exchange Program at the University of Sussex
- Global Engineering Fellow

Professional Experience

Global Engineering Fellow August 2016 – May 2020

Pennsylvania State University *State College, PA*

- Presented frequently to a variety of audiences advocating for participation in international academic programs
- Mentored incoming Fellows in presentation and outreach skills
- Provided peer advising to engineering students

Summer Research Intern June - August 2018

University of Nebraska-Lincoln *Lincoln, NE*

- Initiated a hyperthermophilic microbial fuel cell collaborative project for Dr. Shudipto Dishari and Dr. Paul Blum
- Developed laboratory skills and protocols for the ongoing bioenergy systems research project
- Presented on research results at a concluding Summer Research Program Poster Session

Logan Labs Undergraduate Research Assistant December 2018 - April 2020

Pennsylvania State University *State College, PA*

- Conducted research on hyperthermophilic microbial fuel cells
- Applied microbial laboratory skills and protocols for hyperthermophilic fuel cell research
- Successfully employed problem solving techniques to resolve issues on the research project

Bavarian Process Systems Engineering Graduate Researcher August 2020 - Present

University of Nebraska-Lincoln *Lincoln, NE*

- Synthesized MXenes in aqueous solutions and in powder forms
- Established laboratory safety protocols, drills, and required training for lab members
- Designed research projects and experiments to synthesize and study supercapacitors

Teaching Experience

Women in Engineering Program Study Group Facilitator August – December 2018

Pennsylvania State University *State College, PA*

- Facilitated discussion among study group members
- Organized material for review during study group sessions
- Generated study guides for study group attendees

Graduate Teaching Assistant August 2021 - Present

University of Nebraska-Lincoln *Lincoln, NE*

- Assisted students in developing their understanding of course material
- Developed knowledge of course material and skills
- Organized grading of assignments

Technical Skills

Circuits and Devices | *Multisim* 2019

- Developed knowledge of electrical physics concepts and electrical engineering
- Utilized Multisim to design and test circuit designs
- Built circuits as proof of concept

Materials Engineering | *MEGA-X* 2019

- Developed understanding of techniques used to develop different materials used in construction
- Developed understanding of failure of materials
- Developed understanding of uses of different engineering materials

Electrochemical Engineering | *Technologies used* 2019

- Developed knowledge of different methods of energy storage
- Utilized mathematical functions to generate and understand chemical reactions and half reactions

Student Coaching | *MEGA-X* 2019

- Served as a student coach to assist multiple student teams in developing solutions to engineering problems
- Delivered feedback to student leaders on their performance as leaders
- Facilitated collaborative team activities

Engineering Leadership and Development | *MEGA-X* 2016-2020

- Lead a student team to deliver a communications project in collaboration with the Discovery Space Children's Museum
- Collaborated with an international team to deliver a remote monitoring app to the La Pieus Aqua Holdings business
- Presented regular project updates to professors and to clients for feedback

Cellular and Molecular Functions | *MEGA-X* 2019

- Developed knowledge in cellular and molecular functions and their significance in biomedical engineering
- Developed knowledge in using mathematics to describe molecular functions and SIR models
- Utilized MATLAB scripts to simulate cellular functions and SIR models

Computer Programming | *MATLAB, R, SAS, LaTeX, Git* 2018-Present

- Developed skills in modeling cellular systems, chemical reactors, and recursive problem solving
- Created algorithms and functions to solve complex mathematical equations and model various systems

Publications and Presentations

- UNL REU Poster Presentation, 2018
- PSU Current and Power Generation of Hyperthermophiles in Two-Chamber Microbial Fuel Cells Thesis Defense, 2020

Awards and Honor

- Global Engineering Fellows Scholarship, 2016-2018
- Vernon H. Neubert Dynamics Award in Engineering Science and Mechanics, 2019
- Rod Erickson Discovery Grant, 2019
- Women in Engineering Program Study Group Facilitator Scholarship, 2019

Professional Membership

- Member, Women in Engineering Program
- Member, Out in Science, Technology, Engineering, Mathematics
- Member, Nritya Dance Organization
- Mentor, Global Engineering Fellowship
- Secretary of the PSU Capoeira Club