

ALYSSA PLETCHER

Albuquerque, NM (580) 695-8190 pletcheralyssa@gmail.com

EDUCATION

Doctor of Philosophy | Industrial Engineering
Purdue University | West Lafayette, IN | *In Progress*
GPA: 3.45/4.00

Master of Science | Industrial and Systems Engineering
University of Oklahoma | Norman, OK | Graduated: Dec 2022
GPA: 4.00/4.00

Bachelor of Science | Industrial and Systems Engineering
University of Oklahoma | Norman, OK | Graduated: May 2021
GPA: 3.76/4.00

EXPERIENCE

Graduate Research Assistant: Environmental Decision Making (EDM) Lab | Aug 2023 – Present
Purdue University | West Lafayette, IN

- PhD student researching disaster risk, infrastructure resilience, and community-centered mitigation strategies.

F45 Coach | May 2024 – Dec 2025
Purdue University | West Lafayette, IN

- Led high-intensity group training sessions, prioritizing participant safety, technique, and engagement.

Lab Manager | May 2022 – Aug 2023
T&G Construction | Lawton, OK

- Managed construction materials lab and performed asphalt, concrete, and soils testing, holding Aggregates, Asphalt Mix Design (Lv. 1-2), PCC, and Soils certifications.

Graduate Assistant: CoE Outreach and Recruiting | August 2021 – May 2022
University of Oklahoma | Norman, OK

- Coordinated K-12 engineering outreach and supported on- and off- campus recruitment initiatives.

Graduate Teaching Asst: ISE 4223 Fundamental of Engineering Economy | January 2021 – May 2021
University of Oklahoma | Norman, OK

- Supported student learning and ensured timely grading and feedback for coursework

Undergraduate Research Assistant | June 2020 – July 2020
University of Oklahoma | Norman, OK

- Supported NSF proposal development through literature synthesis and background research analysis under Dr. Kash Barker.

Retail Banker | July 2018 – December 2019
City National Bank | Norman, OK & Lawton, OK

- Provided teller services, processed loan applications, and advised customers on financial products.

Engineering Intern | May 2019 – August 2019
Armacell | Yukon, OK

- Applied Voice of the Customer in value stream mapping and designed a production Pack-Off table to reduce packing labor.

SKILLS & CERTIFICATIONS

- Certified SolidWorks Associate | 2019
- Microsoft Excel VBA
- SAS Analytics Software
- ARENA Modeling Software
- AMPL
- RStudio
- Java
- Python
- CPR/AED for Professionals (exp. May 2027)
- Oklahoma Highway Construction Materials Technician (Aggregates, Asphalt, Asphalt Mix Design Level 1 & 2, PC Concrete, Soils)
- Lean/Six-Sigma | Green Belt | 2019
- Lean/Six-Sigma | Fundamentals/Yellow Belt | 2019

HONORS & ACTIVITIES

Gallogly College of Engineering, Council of Excellence | August 2020 – May 2021
Oklahoma Academic All-Big 12 First Team, Rowing | 2020
Rowing Team, University of Oklahoma | 2019 – 2020

President's Honor Roll | 4 Semesters
Dean's Honor Roll | 8 Semesters
President's Leadership Class | 2017 – 2018
National Award Scholar
Glenn Doser Character Award, Eisenhower High School | 2017

PROJECTS

Evaluating Relocation-Induced Risk Tradeoffs with Manufactured Housing | October 2025 – Present
Purdue University | West Lafayette, IN

- Developed a spatial risk assessment framework to evaluate whether relocation from single-family to manufactured housing reduces flood exposure while inadvertently increasing overall structural vulnerability.
- Analyzed probabilistic flood damage estimates, relocation alternatives, and demographic characteristics to identify risk tradeoffs and implications for equitable climate adaptation.

Cascading Risk in Cyber-Physical Systems (RiFT) | January 2025 – September 2025

Purdue University (*The Center for Education and Research in Information Assurance and Security*) | West Lafayette, IN

- Investigated cascading risks in interdependent cyber-physical infrastructure systems, examining how cyber threats and natural disasters interact to disrupt critical infrastructure and essential services.
- Examined the downstream consequences of infrastructure damage and degradation to inform risk assessment and resilience planning under compound hazard scenarios.

Cyclist Safety and Mobility Risk | January 2025 – May 2025

Purdue University | West Lafayette, IN

- Conducted pilot research examining how undergraduate and graduate students perceive and manage cycling risks on and around Purdue University's campus.
- Investigated student experiences and risk-related decision-making to inform equitable campus mobility planning and develop a framework for future cycling safety research.

Flood Risk Mapping and Communication | January 2024 – January 2025

Purdue University | West Lafayette, IN

- Systematically evaluated 50 U.S. state- and territory-level flood mapping portals against literature-derived risk communication criteria, assessing usability, clarity, risk presentation, and actionable preparedness information.
- Identified gaps in flood risk communication and disparities in the accessibility and effectiveness of state-level mapping resources, highlighting opportunities to improve public understanding and informed decision-making.

Green Belt Project | May 2019 – August 2019

Fanatics Inc. | Norman, OK

- Led team project reducing inventory miscounts using Kanban, VSM, and DMAIC, achieving 876% ROI through low-cost process improvements.