Ms. Morgan E. DeBouse
Department of Chemistry
Xavier University of Louisiana
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EDUCATION

Xavier University of Louisiana, Bachelor of Science, May 2025
Major: Dual Degree Chemistry and Chemical Engineering ACS
Minor: Mathematics
GPA: 4.0/4.0 (major)
Thesis Title: Synthesis of high entropy cathode for high energy lithium-ion batteries Advisor: Dr. Lamartine Meda

SCHOLARLY ACHIEVEMENTS

- Dean's List Fall 2025
- Research Experience for Undergraduates (REU) Scholar Fall 25-present
- Xavier University of Louisiana Fellowship
- National Honor Society at James E. Taylor High School in Katy, Texas

RESEARCH EXPERIENCE

- **MICHESS (Materials for Interfaces Center for High Energy Storage and Sensing) Program**

Research Experience for Undergraduates (REU) with Dr. Lamartine Meda (2025 - present)

Developing high energy cathode materials for application in electric vehicles

- Lithium, Nickel, Manganese, Cobalt, and Iron Oxide Cathodes were produced by ball milling and heated to high temperature
- Familiar with X-ray powder diffraction and analysis
- Slurries were made casting onto aluminum sheets and drying them in an oven
- Perform electrochemical testing on half cells
- Experience in using an Argon Glove Box equipped with electrical feed through outposts with H_2O and O_2 pressures < 0.5 ppm
- Familiar with Gamry 600TM Potentiostat and Arbin Battery
- Give weekly PowerPoint presentations on the composition and advantages of the Composite Polymer solid-state electrolyte

COMMUNITY SERVICE

- Vincent's Vault Food Pantry, Spring 2025
- Peace by Peace NOLA, Spring 2025
- Hotel Hope, Spring 2025
- American Red Cross Office, Spring 2025
- Pre-College Program: Pre-College Tutoring, Fall/Spring 2025
- Broadmoor Community Association, Fall 2025
- New Orleans Recreation Development Commission, Fall 2025
- City of New Orleans Office of Engagement: Neighborhood Summit, Fall 2025
- Life Transformation Community Center, Fall 2025

SKILLS

- Gloveboxes
- High Entropy Cathode synthesis using solution method
- Casting method
- Arbin/Gamry

- Galvanostatic Charge-Discharge
- Plating and stripping
- Cyclic Voltammetry
- Ionic conductivity measurement at different temperatures
- Originlab Software for data plotting
- Microsoft Excel, Microsoft PowerPoint, Graphic Design
- Excellent communication and public speaking capabilities

PRESENTATIONS

Fall 2025 **"Introduction to the Lithium-ion battery"** Research Experience for Undergraduates MICHESS Program
Fall 2025 **"Cathode Synthesis for Lithium-Ion Batteries"** Introduction to Engineering Course
Fall 2025 "**Engineering Design Process"** Introduction to Engineering Course

PROFESSIONAL MEMBERSHIPS

- National Society of Black Engineers (NSBE)
- National Council of Negro Women (NCNW)