

Maggie Robbins

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EDUCATION

University of Michigan

Ann Arbor, MI

B.S.E. Chemical Engineering, Minors: Data Science and Biochemistry

May 2026

Concentration: BioPharmaceutical Engineering

- GPA: 3.97/4.0

- *Honors:* Dept. of Chemistry Alumni First-Year Achievement Award (2023), University Honors (2022-2023)

- *Relevant Coursework:* Thermodynamics, Fluid Mechanics, Material and Energy Balances, Programming and Introductory Data Structures, Biochemistry, Organic Chemistry I and II (Honors), Differential Equations

RESEARCH EXPERIENCE

University of Michigan College of Engineering - Eniola-Adefeso Lab

Ann Arbor, MI

Research Assistant

May 2023-Present

- Adjusted single emulsion-solvent evaporation method for PLGA nanoparticle fabrication to produce nanoparticles in 100 nm range and 200 nm range respectively with varying surface conjugations
- Studied drug release from PLGA and albumin nanoparticles to predict behavior upon administration into the body
- Isolated and cultured mouse adipocytes to study uptake of PLGA nanoparticles into adipose tissue
- Developed protocol to conjugate surface of PLGA and albumin nanoparticles for enhanced targeting

Michigan Medicine - LiPuma Lab

Ann Arbor, MI

Research Assistant

June 2022-April 2023

- Produced media for bacteria cultivation and plated bacteria samples to study associations between sputum metabolites and bacterial infections in cystic fibrosis
- Transferred physical patient data into online database to consolidate and update data storage
- Aided in general lab upkeep to ensure lab environment was available for use: restocking solutions, autoclaving glassware, organizing stored sputum samples, cleaning laboratory equipment

PROJECT EXPERIENCE

M-HEAL Solar Fridge

Ann Arbor, MI

Temperature Control Subteam Member

Sept. 2023-Present

- Researched optimal insulating materials to ensure solar-powered cooler for vaccine storage could maintain temperature range from 2°C and 8°C for 72 hours and avoid heat transfer from outside environment
- Built high-fidelity prototype of insulative cooler for implementation in a clinic in the Dominican Republic, ensuring it could maintain viability for over fifty vaccines and up to nine different types of vaccines

UM ChemE Car

Ann Arbor, MI

Stopping Subteam Member

Jan. 2023-Sept. 2023

- Tested reaction powering a small car and gathered data on distance traveled and speed to optimize these traits
- Volunteered at fundraising events to raise money for team competitions

SKILLS

Laboratory: Cell Culture, Nanoparticle Fabrication/Characterization, SEM Microscopy, Dynamic Light Scattering, NanoSight, FTIR, DSC, UV-Vis Spectroscopy, ¹H-NMR, Media Preparation

Computer: C++, MATLAB, Java, Microsoft Office, ImageJ

ACTIVITIES

Tau Beta Pi Engineering Honor Society - Michigan Gamma Chapter

Ann Arbor, MI

Professional Development Officer

Nov. 2023-Present

- Coordinated professional development opportunities for chapter members including career fairs, industry information sessions, and professional skills workshops
- Led committee to brainstorm new professional development events and improvements for current ones

UM Red Cross Club

Ann Arbor, MI

Blood Services Committee Chair

Aug. 2022-Present

- Organized and volunteered at monthly blood drives on UM campus
- Led Blood Services Committee within club to strategize expanding donor and volunteer outreach