Kaylyn R. Stewart

(571) 359-9912 Kaylyns1@umbc.edu

EDUCATION

University of Maryland Baltimore County (UMBC)

Bachelor of Science in Chemistry
3.817 GPA
Expected May 2024

RESEARCH INTERESTS

Environmental and analytical chemistry, water quality and contaminant removal, wastewater treatment, and renewable resource development.

RESEARCH EXPERIENCE

Undergraduate Research Assistant Fall 2021 – Present
University of Maryland Baltimore County, Department of Chemical, Biochemical, and Environmental Engineering
Research Advisor: Dr. Lee Blaney
Research Topic: Nutrient recovery from wastewater systems via Donnan dialysis, Separation of perfluoroalkyl substances (PFAS) from contaminated water via Donnan Dialysis
Skills and techniques used: Chromeleon, ion chromatography, reactor design, and construction.

Chem-SURF Research Experience for Undergraduates Summer 2022
University of California, Irvine Department of Chemistry
Research Advisor: Dr. Shane Ardo
Research Topic: Analyzing electrode-ionomer interfaces
Skills and techniques used: EC-Lab, electrode and electrochemical cell preparation, Origin software, Potentiostat.

Sustainable Chemistry Research Experience for Undergraduates Summer 2021
Texas A&M University Department of Chemistry
Research Advisor: Dr. Sarbajit Banerjee
Research Topic: Fabrication of coatings with precise control of wettability
Skills and techniques: Ball mill, Camtasia software, doctor-blading, FTIR spectroscopy, goniometer, ImageJ software, Origin software.

PUBLICATIONS AND PRESENTATIONS

Publications

Chen, H.; Souizi, S.; **Stewart, K.**; Blaney, L. Application of the Rd/w framework to assess Donnan dialysis performance. *Current Opinion in Chemical Engineering* (accepted with revisions)

Chen, H.; Amurrio, F.; **Stewart, K.**; Shashvatt,U.; Blaney, L. (2023). Sustainable nutrient recovery from synthetic urine by Donnan dialysis with tubular ion-exchange membranes. *Chemical Engineering Journal* 460, 141625

Oral Presentations (*presenting author in bold lettering*)

Kaylyn Stewart, Hui Chen, Fabian Amurrio, Lee Blaney. December 2022
Advances in Donnan dialysis reactor configuration for efficient nutrient recovery.
Presented at University System of Maryland LSAMP Research Symposium. University of Maryland College Park.

Kaylyn Stewart, Jennifer Urbine, Shane Ardo. August 2022
Utilizing Donnan Theory to Understand the Microenvironments of Electrodes Under Ionomer Coatings.
Presented at Summer Undergraduate Research Fellowship Symposium. University of California, Irvine.

Kaylyn Stewart, Hui Chen, Fabian Amurrio, Lee Blaney. April 2022
Development of novel tube-in-tube Donnan dialysis reactors for simultaneous recovery of anionic and cationic nutrients from synthetic urine.
Presented at Undergraduate Research and Creative Achievement Day (URCAD). Virtual.

Utsav Shashvatt, Hui Chen, Fabian Amurrio, Kaylyn Stewart, Charles Portner, **Lee Blaney**.
Phosphorus recovery by Donnan dialysis: Membrane selectivity, diffusion coefficients, and speciation effects. March 2022
Spring 2022 ACS National Meeting. San Diego, CA.

Poster Presentations

Kaylyn Stewart, Hui Chen, Fabian Amurrio, Lee Blaney. March 2023
Separation of per- and polyfluoroalkyl substances from contaminated water via Donnan dialysis.
Presented at American Chemical Society (ACS) Spring 2023 National Meeting. Indianapolis, IN.

Kaylyn Stewart, Jennifer Urbine, Shane Ardo. November 2022
Utilizing Donnan Theory to Understand the Microenvironments of Electrodes Under Ionomer Coatings.
Presented at Annual Biomedical Conference for Minoritized Scientists (ABRCMS) Annual Conference. Anaheim, CA.

Kaylyn Stewart, Jennifer Urbine, Shane Ardo. August 2022
Utilizing Donnan Theory to Understand the Microenvironments of Electrodes Under Ionomer Coatings.
Presented at SoCal Undergraduate Chemistry Symposium. Virtual.

Kaylyn Stewart, Lacey Douglas, Natalia Rivera-González, Sarbajit Banerjee. September 2021
Fabrication of coatings with precise control of wettability.
Presented at National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) Annual Conference. Virtual.

Kaylyn Stewart, Lacey Douglas, Natalia Rivera-González, Sarbajit Banerjee. August 2021
Fabrication of coatings with precise control of wettability.
Presented at Research Experience for Undergraduates Symposium. Texas A&M University.

HONORS AND AWARDS

ACS Scholar — May 2023 – Present
National Institute on Drug Abuse (NIDA) UMBC EDUCATE Scholar — September 2022 – Present
Meyerhoff Scholar (M32) — June 2020 – Present
ACS Bridge Career and Professional Development Award — February 2023
ACS Student Leadership Award — December 2022
Johns Hopkins University Vivian Thomas Scholars Initiative (VTSI) Scholar — Spring 2022
Louis Stokes Alliances for Minority Participation (LSAMP) Research Fellow — Spring 2022

TEACHING, MENTORING, AND EXTRA-CURRICULAR ACTIVITIES

Marketing and Outreach Coordinator, Blaney Lab — May 2023 – Present
University of Maryland Baltimore County

Undergraduate Advisory Board Member — October 2022 – May 2023
University of Maryland Baltimore County - Department of Chemistry & Biochemistry

President, American Chemical Society Student Chapter — September 2022 – May 2023
University of Maryland Baltimore County

Tutor, General chemistry — Fall 2022
University of Maryland Baltimore County - Academic Success Center

Learning Assistant, General chemistry — Fall 2021 – Spring 2022
University of Maryland Baltimore County - Department of Chemistry & Biochemistry

Tutor, Geometry — Fall 2020 – Spring 2021
Private Tutoring

Tutor, Math — Fall 2020
Morrell Park Elementary School

TECHNICAL SKILLS

- Chromeleon
- Origin
- ImageJ
- EC-Lab
- Camtasia

AFFILIATIONS

- American Chemical Society — 2021 – Present
- National Organization for the Professional Advancement for Black Chemists and Chemical Engineers — 2021 – Present

SERVICE ACTIVITIES

Panelist, *Circular Nutrient Economy.* December 2022
Maryland Section of the American Chemical Society. Virtual.

Panelist, *Panel on Summer Research Applications* November 2022
Liquid Sunlight Alliance. Virtual.

Panelist, *Louis Stokes Alliances for Minority Participation (LSAMP)* October 2022
University of Maryland Baltimore County.

Chemistry outreach for Texas A&M University July 2021
Downtown Bryan, College Station, TX.

REFERENCES

Lee Blaney, Ph.D.
Professor, Associate Director of Sustainability Engineering
Department of Chemical, Biochemical, and Environmental Engineering
University of Maryland Baltimore County
401-455-8608
blaney@umbc.edu

Shane Ardo, Ph.D.
Associate Professor
Department of Chemistry
University of California, Irvine
949-824-3796
ardo@uci.edu

Sarbajit Banerjee, Ph.D.
Professor, Davidson Chair in Science
Department of Chemistry
Texas A&M University
979-862-3102
banerjee@chem.tamu.edu