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SUSAN OKRAH
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EDUCATION

University of Chicago, Chicago, IL
PhD in Molecular Engineering — Expected Jun 2025

Hampton University, Hampton, VA
B.S. in Chemical Engineering, *Magna Cum Laude* — May 2019
GPA: 3.53, Freddye T. Davy Honors College — Dean's List

RESEARCH EXPERIENCE

The University of Chicago, Chicago, IL — Oct 2019- Present
Laboratory of Savas Tay, Ph.D., Principal Investigator

- Developing an automated, high throughput method for respiratory virus testing and analysis

Hampton University, Hampton, VA
Undergraduate Researcher, Laboratory of Brian Aufderheide, Ph.D. — April 2018 – May 2019

- Conducted chemical engineering research modeling bioreactors

PREM Fellow, Laboratory of Jerald Dumas., Ph.D. — Aug 2017 – May 2019

- Conducted research examining viscoelastic properties of polyurethane bone composites
- Trained and mentored 4 undergraduates on laboratory techniques

PREM Fellow, Laboratory of Raymond Samuel, M.D., Ph.D. — Aug 2016 – Aug 2017

- Accepted into the Partnership for Research, Education in Materials (PREM) Fellows program
- Explored the methodology of analyzing the Growth Patterns of Poly-L- Arginine (PLA), Protamine Sulfate (PrS), and sodium sulfonated polystyrene (SPS) Bilayers using UV-Vis spectroscopy

University of Wisconsin - Madison, Madison, WI — May 2018 – Aug 2018
Summer Undergraduate Research Experience (SURE), Laboratory of Randolph Ashton, Ph.D.

- Assisted a postdoc in researching and developing dorsal interneurons using human pluripotent stem cells (hPSCs)
- Interpreted and analyzed data to draw appropriate conclusions to establish subsequent procedures
- Organized and summarized findings into a research report and a research poster

University of Pennsylvania, Philadelphia, PA — May 2017 – July 2017
Research Experience for Undergraduates (REU), Laboratory of Paulo Arratia, Ph.D.

- Conducted mechanical engineering research observing how *E. coli* move through a sharp contraction channel
- Utilized COMSOL Multiphysics to understand basic laminar fluid flows through different pipe geometries

Brandeis University, Waltham, MA — May 2016 – July 2016
Research Experience for Undergraduates (REU), Laboratory of Seth Fraden, Ph.D.

- Selected to participate in highly competitive national REU, sponsored by Brandeis Division of Science and MRSEC
- Conducted research with a team under the supervision of graduate students and PI to determine how to control the oscillation patterns of droplets of Belousov-Zhabotinsky, or BZ reaction
- Mentored students from Lexington High School during a one-day science program designed to engage students' interest in science

CAMPUS LEADERSHIP & VOLUNTEER EXPERIENCE

The University of Chicago, Chicago, IL
National Society of Black Engineers

- Chapter founder — Oct 2019
- Vice President — Oct 2019- June 2021
- President — June 2021-Present

PME Diversity, Equity and Inclusion Committee

- Member — Dec 2019- Present

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Hampton University, Hampton, VA
National Society of Black Engineers (NSBE)

- Facilities & Ops CPC Subcommittee — Sept 2019 – March 2020
- Evaluation and Metrics Manager — Sept 2018 – May 2019
- Parliamentarian (Chapter) — May 2018 – May 2019
- FRC Volunteer Coordinator (Regional) — Oct 2017 – May 2019
- Vice-President (Chapter) — Apr 2017 – May 2018
- Membership Chair (Chapter) — May 2016 – Apr 2017

American Institute of Chemical Engineers (AIChE)

- Member — May 2019 – Present
- Vice President — May 2018 – May 2019
- Member — Aug 2017 – May 2018
- Treasurer — Aug 2016 – Aug 2017

Society of Women Engineers, Member — Sept 2015 – May 2019
Quintessence Community Service Committee, Member — July 2018 – May 2019
Independent Tutor — Dec 2015 – May 2019

- Virtually tutor a high school in various areas of Mathematics
- Tutor college freshman in Math and Chemistry courses

HONORS AND AWARDS

University of Chicago, Chicago, IL

- PME Graduate Fellowship — Feb 2019

Hampton University, Hampton, VA

- Golden Key Honour Society Inductee — Apr 2018
- PREM Director's Conference Second Place Winner — Nov 2016
- Freddye T. Davy Honors College Inductee — Apr 2016
- Presidential Scholarship Recipient — Nov 2014

NSBE Regional Conference, Norfolk, VA — Nov 2016

- Technical Research Exhibition Preliminary Track First Place Winner

NSBE Annual Convention, Kanas City, MO — Mar 2017

- Technical Research Exhibition Preliminary Track Third Place Winner

Black Engineer of the Year Awards (BEYA), Washington, D.C. — Feb 2018

- Student Leadership Research Award

Delta Sigma Theta Sorority Inc., Phoenix, AZ — Jun 2018

- Phoenix Metropolitan Alumnae Chapter Scholarship

Black Engineer of the Year Awards (BEYA), Washington, D.C. — Feb 2019

- Advancing Minorities' Interest in Engineering (AMIE) Design Competition First Place Winner
  - Designed and presented a bulletproof door for use in school shootings
  - Developed financial model for project

PRESENTATIONS

1. Okrah, S., White, S., Mabrey, J., Upsher, C., Smalls, K., Palmer, J., Huntley J., Edmonson, A., "Safe Space: The Bulletproof Automated Locking System," oral presentation, 2019 AMIE Annual Conference, Hampton, VA, Sep 2019
2. Okrah, S., Cuskey, S., Iyer, N., Ashton, R., "Understanding Dorsal Patterning in the Spinal Cord," poster presentation, final presentation, Madison, WI, Aug 2018
3. Okrah, S., Dumas, J., "Determining solid dispersion effects on the viscosity of polymeric composites," oral presentation, Hampton University Advisory Board, Hampton University, Hampton, VA, May 2018
4. Okrah, S., Held, J., Tompkins, N., Fraden, S., "Observations of Three Ringed Networks of BZ Droplets," poster presentation, NOBCChE National Conference, Minneapolis, MN, Nov 2017
5. Okrah, S., Held, J., Tompkins, N., Fraden, S., "Observations of Three Ringed Networks of BZ Droplets," poster presentation, AIChE Annual Student Meeting, Minneapolis, MN, Oct 2017

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6. Okrah, S., Kleinwaks, G., Qin, B., Gagon, D., Arrtatia, P., "Non-Newtonian Fluids in Microchannels," poster presentation, PREM Research Symposium, Hampton University, Hampton, VA, Oct 2017
7. Okrah, S., Kleinwaks, G., Qin, B., Gagon, D., Arrtatia, P.., "Non-Newtonian Fluids in Microchannels," oral presentation, LSRM final presentations, University of Pennsylvania, Philadelphia, PA, Aug 2017
8. Okrah, S., Held, J., Tompkins, N., Fraden, S., "Observations of Three Ringed Networks of BZ Droplets," oral presentation, Department of Engineering Alumni Symposium, Hampton University, Hampton, VA, May 2017
9. Okrah, S., Held, J., Tompkins, N., Fraden, S., "Observations of Three Ringed Networks of BZ Droplets," poster presentation, NSBE 44th Annual Convention, Kanas City, MO, Mar 2017
10. Okrah, S., Held, J., Tompkins, N., Fraden, S., "Observations of Three Ringed Networks of BZ Droplets," poster presentation, NSBE Region 2 Fall Regional Conference, Norfolk, VA, Nov 2016
11. Okrah, S., Held, J., Tompkins, N., Fraden, S., "Observations of Three Ringed Networks of BZ Droplets," poster presentation, PREM Directors Meeting, Arlington, VA., Oct 2016
12. Okrah, S., Held, J., Tompkins, N., Fraden, S., "Observations of Three Ringed Networks of BZ Droplets," poster presentation, Summer Science Research Program, Brandeis University, Waltham, MA, Aug 2016

TECHNICAL SKILLS

Imaging: Programmable Illumination Microscope; Confocal Fluorescence Microscopy Imaging
Characterization techniques: Mass Spectroscopy; Immunohistochemistry; Immunocytochemistry; Sterile technique
Microfluidics and materials: Microfluidic drop maker; Microfluidic PDMS fabrication
Computer Skills: MATLAB; Microsoft Office; Python