K'yal Bannister

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RESEARCH INTERESTS

biofuels production; metabolic engineering; protein engineering; bioprocess design

EDUCATION

Massachusetts Institute of Technology – Cambridge, MA **August 2019 - Present**
Doctor of Philosophy Student

Carnegie Mellon University – Pittsburgh, PA **August 2018 – May 2019**
Master of Science in Energy Science, Technology, & Policy

- GPA: 3.9/4.0

California Institute of Technology – Pasadena, CA **September 2016 – June 2018**
Bachelor of Science in Chemical Engineering

- GPA: 3.8/4.0

Spelman College – Atlanta, GA **August 2013 – June 2018**
Bachelor of Science in Chemistry

- GPA: 4.0/4.0

RELEVANT EXPERIENCE

National Renewable Energy Laboratory (Principal Investigator: Gregg Beckham) **2018-2019**
GEM Masters Engineering Fellow and Post-Undergraduate Research Assistant

- Conducted research centered on improving the efficiency of biopolymer (polyhydroxyalkanoate (PHA)) extraction from *P. putida.*
- Designed genetic circuits for improved muconate and PHA production in *P. putida*

California Institute of Technology **September 2017 – June 2018**
Undergraduate Teaching Assistant

- Served as a teaching assistant for undergraduate courses in thermodynamics and chemical engineering separation processes.
- Acted as a liaison between students and faculty members.

University of Wisconsin, Madison (Principal Investigator: Brian Pfleger) **Summer 2016**
Undergraduate Research Assistant

- Engineered *E. coli* toward increased PHA titers via a surface-protein mediated metabolic pathway.

Spelman College **August 2014 – May 2016**
Undergraduate Teaching Assistant

- Served as a teaching assistant for general chemistry and organic chemistry.
- Developed exams, provided homework assistance, and led weekly recitation sessions.

Morehouse College (Principal Investigator: Juana Mendenhall) **January 2014 – May 2016**
Undergraduate Research Assistant

- Contributed to a project focused on the preparation and application of composite, "smart" polymers for use in the production of biofuels.
- Collaborated with researchers across multiple disciplines and institutions.

HONORS AND AWARDS

- GEM Conference Technical Presentation Competition – 2nd Place (September 2018)
- **GEM Masters and PhD Engineering Fellowship Recipient (2018 – Present)**
- **Spelman College Class of 2017 Valedictorian (May 2017)**
- Tau Beta Pi Honor Society (2017 – Present)
- **Phi Beta Kappa Honor Society (2016 – Present)**
- Spelman College Research Day – 1st Place (May 2015, May 2016)
- ExxonMobil WISE Scholarship Recipient (2014 – 2016)
- Alpha Lambda Delta Honor Society (2014 – Present)
- Spelman College Dean's List, (2013 – 2016)
- Spelman College Dewitt Dean's Scholarship Recipient (2013 – 2016)

SELECTED PRESENTATIONS

Oral Presentations

Bannister, K.R.; Bentley, G.J. Engineering *Pseudomonas putida* for 3-Hydroxy Acid Production & Programmed Cell Death. Presented at the 2018 GEM Annual Board Meeting and Conference, Los Angeles, CA, September 14-16, 2018.

Bannister, K.R. Comparison of Cellulose Derived Composite Fibers and Biomass Pretreatment Techniques for Biofuel Production. Presented at the 2016 Spelman College Research Day, Atlanta, GA, April 2016.

Poster Presentations

Bannister, K.R.; Korosh, T. Phasin Driven Production of Polyhydroxyalkanoates from *Escherichia coli.* Presented at the Chemistry of Materials for Renewable Energy Research Symposium, Madison, WI, August 2016.

Bannister, K.R.; Davis, T. The Pretreatment and Preparation of Composite, Smart Fibers from Perennial Grasses for Use in the Production of Biofuels. Presented at the Dr. John H. Hopps Defense Research Symposium, Atlanta, GA, October 2015.