

**Marisa G. Rodríguez**  
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## EDUCATION

**Biosystems Engineering Major**, Auburn University, AL  
Expected Graduation Date: Spring 2022, GPA: 3.30

## EXPERIENCE

### Undergraduate Researcher,

Summer 2019

*Advised by Dr. Wei Niu, University of Nebraska-Lincoln*

- Part of the Nebraska Summer Research REU program
- Worked with PhD candidate Levi Kramer on engineering carboxylate reductases for activity on dicarboxylates
- Cloned DNA and transformed vectors into *E. coli* host
- Performed Michaelis-Menten analyses of mutant enzyme activity

### Buckman Laboratories Intern,

Summer 2018

*West Rock-Mahrt Mill: Pittsview, AL*

- Controlled microbicide (Oxamine) releases into mill water
- Monitored microbiological levels in water and clays
- Performed chemical inventory, ordered chemicals, unloaded trucks

### Undergraduate Researcher,

Sum. 2017-Spring 2018, Spring 2019, Fall 2019- Spring 2020

*Advised by Prof. Virginia A. Davis, Auburn University*

- Part of team focused on understanding the effects of substrates on algal attachment and growth
- Maintained algae cultures and assisted with algae harvesting
- Prepared polylactic acid/ cellulose nanocomposite substrates
- Performed contact angle measurements and surface energy calculations
- Used optical microscopy to aid in algae identification
- Helped develop test method for *Scenedesmus dimorphus* attachment under static conditions
- Helped lead nanotechnology outreach activities for summer camps and open houses

## PUBLICATIONS AND PRESENTATIONS

- L. Kramer, X. Lee, **M. Rodríguez**, M.A. Wilson, J. Guo, W. Niu, Engineering Carboxylic Acid Reductase (CAR) through a Whole-Cell Growth-Coupled NADPH Recycling Strategy, *ACS Synthetic Biology*, Jun. 2020.
- **M. Rodríguez**, D.W. Herring, Z. Karimi, D.M. Blersch, V.A. Davis, Understanding the Growth and Attachment of Algae on Nanocomposites, *Auburn University Journal of Undergraduate Scholarship (AUJUS)*, 2019.
- **M. Rodríguez**, L. Kramer, W. Niu, "Engineering Carboxylate Reductases for Activity on Dicarboxylates," This is Research Student Symposium, University Nebraska-Lincoln, NE, (Aug 2019).
- **M. Rodríguez**, Z. Karimi, D. M. Blersch, V. A. Davis, "Analyzing the Effects of Surface Energy on Algae with Specialized Attachment Mechanisms," This is Research Student Symposium, Auburn U., AL, (April 2019).
- **M. Rodríguez**, D. W. Herring, Z. Karimi, D. M. Blersch, V. A. Davis, "Understanding and Controlling the Growth of Algae Species on Nanocomposites", AIChE Student Regional Meeting, Baton Rouge, LA, (April 2018).
- D. W. Herring, **M. Rodríguez**, Z. Karimi, D. M. Blersch, V. A. Davis, "Investigating Algae-Substrate Interactions using Polylactic Acid and Cellulose Nanocrystal Composites," This is Research Student Symposium, Auburn U., AL, (Mar 2018)

## HONORS AND AWARDS

- Awarded Top Undergraduate Oral Presentation for the Samuel Ginn College of Engineering (April 2019)
- Awarded one of 20 Auburn University Undergraduate Research Fellowships (*Summer 2017-Spring 2018*)
- Dean's List (Fall 2016, Spring 2017, Spring 2020)
- Alabama Power Academic Excellence Program (AEP) Scholarship (*Aug. 2016-Present*)
- Provost Leadership Undergraduate Scholarship (PLUS) Program Scholarship (*Aua. 2016-Present*)