Alexandria L. Williams

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Education:

Master of Philosophy, Cell Biology, December 2015
Yale University, New Haven, CT

Bachelor of Science, Applied Biology, May 2013
Chemistry Minor
Rose-Hulman Institute of Technology, Terre Haute, IN
GPA: 3.80/4.00

Experience:

Thesis Research June 2014-December 2015
Yale University
Departments of Cell Biology and Microbial Pathogenesis
Dr. Craig Roy

- Established a system to study the intracellular pathogen *Coxiella burnetii* in mouse macrophage cell lines
- Screened *C. burnetii* secreted protein mutants to see how they help establish an intracellular niche for the bacterium

Operation Catapult lab assistant Summer 2013
Rose-Hulman Institute of Technology
Department of Biology & Biomedical Engineering

- Assisted with Operation Catapult, a STEM outreach program for high school students at Rose-Hulman Institute of Technology
- Aided high school students in completing experiments involving crayfish microsurgery, acquiring and reading electrocardiograms, and extracting biofuels from green algae
- Taught students basic tenets of chemical and biological laboratory safety

Senior Thesis Research Fall 2012 - 2013
Rose-Hulman Institute of Technology
Department of Biology & Biomedical Engineering
Dr. J. Peter Coppinger
Confirmation of a Potentially Novel Strain of Phytoplasma as a Causative Agent of Flower Greening in Trillium

- Confirmed the discovery of a novel strain of phytoplasma
- Collected data on virulence and host specificity of phytoplasma

Stanford Biosciences Summer Research Program Summer 2012
Stanford University School of Medicine
Department of Developmental Biology
Dr. Lucy Shapiro
Lipids, metabolism, and cell shape in *Caulobacter crescentus*

- Attempted to determine the role of *1987*, a putative squalene synthase
- Used gas chromatography in attempt to confirm products of *1987*
- Determined why Δ*1987* mutants create ectopic poles in minimal media
- Confirmed that λred recombineering can be utilized in *C. crescentus*

Integrated Biological Science Summer Research Program Summer 2011
University of Wisconsin-Madison
Department of Plant Pathology
Dr. Caitilyn Allen
The Role of Nitrate Respiration in Chronic Infections of *Ralstonia solanacearum*

- Conducted research on the metabolism of *Ralstonia solanacearum*
- Created protocol for observing anaerobic respiration in *R. solanacearum*
- Confirmed the function of a section of genetic code in *R. solanacearum*
- Revealed that nitrate is not important for the infection of *R. solanacearum* during pathogenesis of resistant tomato plants

Awards and Accomplishments:

- Graduated *Magna Cum Laude* May 2013
- RHIT National Merit Scholarship 2009-2013
- Rose-Hulman Merit Scholar 2009-2013
- RHIT Alumni Scholarships 2009-2013
- Dunlap Grant (1 of 2 awardees) 2012-2013
- Amgen Scholar Summer 2012
- Dean's List Fall 2009-Graduation
- Gruber Science Fellow Fall 2013-December 2015

Conference Presentations:

2011 **Williams, A**., Dalsing, B., and Allen, C.
The Role of Nitrate Respiration in Chronic Infections of *Ralstonia solanacearum*
Integrated Biological Science Summer Research Program Symposia, University of Wisconsin-Madison, Madison, WI
Interdisciplinary Research Collaborative Symposium, Rose-Hulman Institute of Technology, Terre Haute, IN
2012 **Williams, A**., Kern, J., and Shapiro, L.
Lipids, Metabolism, and Cell Shape in *Caulobacter crescentus*

Conference Presentations (continued):

Stanford Biosciences Summer Research Program Final Symposium, Stanford University, Stanford, CA

Interdisciplinary Research Collaborative Symposium, Rose-Hulman Institute of Technology, Terre Haute, IN

Annual Biomedical Research Conference for Minority Students, San Jose, CA

Teaching and leadership experience:

- Tutor; Kaplan, Varsity, and Catalyst tutoring (January 2016-present)
  - Tutor online or face-to-face in various math and science fields
  - Edit and revise written documents
  - Assist in running short SAT or ACT courses
- Adjunct Professor, Southern Connecticut State University (2016-2017)
  - Taught non-majors biology with lab
  - Taught Environmental Biology and Conservation
- Lead instructor, Yale Young Global Scholars (Summers 2016-2018)
  - Designed and taught several unique seminars on scientific topics of my choosing
  - Aided students with a capstone literature research project
  - Led discussion sections with students after faculty lectures
- Teaching scholar, BIOL101 and BIOL102, Yale University (Fall 2015)
  - Assisted Yale fundamental biology courses BIOL101 (Biochemistry and Biophysics) and BIOL102 (Cell Biology)
  - Ran a weekly small group session in which we discussed experimental methods and primary scientific literature
- Tutor and Supervisor, Rose-Hulman Learning Center (2010-2013)
  - Tutor students on campus who need help with core classes
  - Supervise other workers during evening shifts
  - Mentor incoming tutors during their first month of employment
- Teaching Assistant, BE100 (Problem Solving in Biological Sciences and Engineering—MATLAB programming) (December 2010-February 2011)
- Grader, ES203 (Electrical Systems) (Fall 2012)
- Secretary, Panhellenic Council (March 2011-February 2012)
  - Planned and implemented Greek women's recruitment
  - Recorded and distributed meeting minutes
  - Acted as a liaison between Panhellenic and the RHIT Student Affairs and Activities Offices