
EDUCATION

- Virginia Tech, Blacksburg, VA** Expected May 2020
Ph.D. Candidate
- Biological Systems Engineering
 - GPA: 3.9/4.0
- Virginia Tech, Blacksburg, VA** May 2017
M.S.
- Biological Systems Engineering
 - GPA: 3.6 / 4.0
- Allegheny College, Meadville, PA** May 2015
B.S.
- Environmental Science (major)
 - Chemistry, Spanish (minors)
 - GPA: 3.4 / 4.0
- Marine Biological Lab, Woods Hole, MA** September- December 2013
- Semester in Environmental Science sponsored through Brown University
 - Independently researched soil-warming effects on leaf litter chemistry and decomposition at the Harvard Forest under Dr. Jerry Melillo of the MBL Ecosystems Center

RESEARCH EXPERIENCE

- Graduate Research Assistant, Virginia Tech, VA** Fall 2015-Present
- Characterizing the Agricultural Antibiotic Resistome: studying the pathways in which antibiotic resistance travels from “Farm to Fork” in agriculture practices (antibiotic usage, manure treatment, soil, runoff, vegetables) through culture-, molecular-, and next generation sequencing-based techniques
 - ✦ Research areas: soil chemistry, water chemistry, biogeochemistry, hydrology, microbiology, molecular genetics, microbial community composition, metagenomics, risk assessment
 - Identify the most critical control points that resistance moves throughout agricultural practices
 - Lead author and co-authorship for peer-reviewed manuscripts
 - Fluent in R and C programming languages
 - Software skills include: JMP/SAS, Microsoft Suite, and ArcGIS
- Undergraduate Research Assistant, Allegheny College, PA** Fall 2012-Spring 2015
- Study effects of soil carbon and nitrogen enzyme degradation with respect to atmospheric nitrogen deposition in a temperate mixed deciduous hardwood forest
 - ✦ Research areas: soil manipulation, soil chemistry, microbial enzymatic relationships, degradation assays, CNS analysis, litter decomposition
 - Nitrogen Fertilization and Detritus Input and Removal Treatment (D.I.R.T.) LTER Study at the Bousson Environmental Research Reserve in Western PA

- Identify tree species and navigate/use GPS/GIS through the forest
- Senior Lab Researcher from 2013-2015 (managed the lab, the Bousson Reserve studies etc)

National Science Foundation-Research Experience for Undergraduates, Virginia Tech, VA Summer 2014

- Undergraduate research assistant to Dr. A. Dietrich, Civil and Environmental Engineering Department
- Determined how to measure the reactivity of nanoiron through lipid oxidation
- Continued to develop analytical chemical skills (GCMS, Atomic Absorption, Spectroscopy)

RESEARCH PROJECTS

- Correlation of the co- and cross-selection between antibiotic resistance and metal presence and resistance in agricultural soils, *Virginia Tech* 2019-Present
- Understanding if stream restoration mitigates the effects the long-term impacts of climate change in an urban watershed in Blacksburg, Virginia, *Virginia Tech* 2019-Present
- Tracking the antibiotic resistome from Farm to Fork using mobile genetic element markers, *Virginia Tech* 2018-Present
- Microbial taxonomic and functional analysis and corresponding antibiotic resistance genes presence in soils from manure-amended vegetable fields, *Virginia Tech* 2017-Present
- Persistence of culturable antibiotic resistant fecal coliforms from manure-amended vegetable fields, *Virginia Tech* 2015-2017
- Effects of Chronic Nitrogen Addition on Soil Enzyme Activity in a Deciduous Northwestern Pennsylvania Forest, *Allegheny College* 2014-2015
- Assessing Reactivity of Nanoiron through a Colorimetric Assay, SPME-GCMS, and Thiobarbituric Acid Reactive Substances, *Virginia Tech* Summer 2014
- Insect Taxonomy Key and Classroom Study Guide, *Allegheny College* Spring 2014
- Soil-warming Effects on Leaf Litter Chemistry and Decomposition at the Harvard Forest, *Marine Biological Laboratory, Woods Hole, MA* Fall 2013
- Switchgrass: An Environmentally and Economical Viable Absorbent for Oil, Water, and Cutting Fluid, *Allegheny College* Fall 2012

PUBLICATIONS AND PRESENTATIONS

Jacobs, K., **Wind, L.**, Krometis, L-A., Hession, W.C. and Pruden, A. 2019. Fecal Indicator Bacteria and Antibiotic Resistance Genes in Storm Runoff from Dairy Manure and Compost-Amended Vegetable Plots. *J. Environ. Qual.* 48(4): 1038-1046. doi: 10.2134/jeq2018.12.0441

Fogler, K., Guron, G., **Wind, L.**, Hession, W.C., Krometis, L-A., Strawn, L., Pruden, A., and Ponder, M. 2019. Effect of Composting on the Antibiotic Resistome of Lettuce and Radishes Grown in Soils Receiving Manure-Based Amendments Derived from Antibiotic-Treated Cows. *Front. Sustain. Food Syst.* doi: 10.3389/fsufs.2019.00022

Bowden, R., Wurzbacher, S., Washko, S, **Wind, L.**, Rice, A., Coble, A.E., Baldauf, N., Johnson, B., Wang, J-J., Simpson, M., and Lajtha, K. 2019. Long-term Nitrogen Addition Decreases Organic Matter Decomposition and Increases Forest Soil Carbon. *Soil Sci. Soc. Am. J.* doi: 10.2136/sssaj2018.08.0293

Wind, L., Krometis, L.A., Hession, W.C., Chen, C., Du, P., Jacobs, K., Xia, K., and Pruden, A. **2018.** Fate of Pirlimycin and Antibiotic-Resistant Fecal Coliforms in Field Plots Amended with Dairy Manure or Compost during Vegetable Cultivation. *J. Environ. Qual.* 47:436–444. doi:10.2134/jeq2017.12.0491

- *Effect of dairy manure-derived amendments on the soil resistome at field-scale.* June 9-15, 2019. 5th International Symposium on the Environmental Dimension of Antibiotic Resistance. Hong Kong.
- *Parallels among Antibiotic Usage and Culturable Antibiotic Resistant Bacteria from Soils Amended with Dairy Manure or Compost.* May 17, 2019. Livestock and Poultry Environmental Learning Community Webinar on Reduction and fate of manure pathogens and antimicrobial resistance.
- *Tracking antibiotic resistance along the "Farm to Fork" agricultural production chain.* November 10-14, 2018. American Public Health Association Annual Meeting. San Diego, CA.
- *Parallels among culturable antibiotic-resistant fecal coliforms and resistance genes from soils amended with dairy manure or compost during vegetable cultivation.* June 7-11, 2018. American Society for Microbiology Annual Meeting. Atlanta, Georgia.
- *Environmental dissemination of antibiotic resistance in manure-amended agricultural fields.* August 13 17, 2017. 4th International Symposium on the Environmental Dimension of Antibiotic Resistance. Lansing, Michigan.
- *Persistence of culturable antibiotic resistant fecal coliforms from manure-amended vegetable.* May 22-25, 2017. American Ecological Engineering Society. Athens, GA.
- *Environmental dissemination of antibiotic resistance genes from vegetable production.* June 7-9, 2016. American Ecological Engineering Society. Knoxville, TN.
- *Assessing Reactivity of Nanoiron through a Colorimetric Assay, SPME-GCMS, and Thiobarbituric Acid Reactive Substances.* August 11, 2014. Allegheny Undergraduate Summer Research Symposium. Meadville, PA.

RELEVANT COURSEWORK

- Chemistry 1 & 2, Organic Chemistry 1 & 2, Multistep Organic Synthesis, Current Topics in Biochemistry, Environmental Chemistry
- Environmental Engineering Microbiology, Biology 1, Microbiology, World Environmental Problems and Policy, Wetland Hydrology/ Biogeochemistry, Wetland Biogeochemistry, Adv. Microbial Genetics, Analysis of Microbial Community Data
- Calculus 1 & 2, Multivariable Calculus, Differential Equations, Environmental Monitoring & Sampling, Design & Analysis of Ag. Experiments
- Physics 1, Statics, Dynamics
- Terrestrial and Aquatic Ecosystems, Environmental Research Methods, GIS Technical Class
- Environmental Health, Engineering Ethics
- Scientific Writing Seminar, Grant Writing Seminars, Communicating Science

HONORS AND AWARDS

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| • Interface of Global Change Fellowship Awardee | 2019-2020 |
| • Human Dimensions of Antimicrobial Resistance in Agriculture Workshop Participant | May 2019 |
| • Interface of Global Change Fellow at Virginia Tech | 2017-Present |
| • Class of 1939 Senior Research Grant | 2014-2015 |
| • Allegheny College Trustee Scholar | 2011-2015 |
| • Charles Coffin and Ann S. Frits '76 Dean's Discretionary Fund Research Grant | Summer 2013 |

PROFESSIONAL ACTIVITIES

Virginia Tech

- Sigma Xi Member

2019-Present

- Alpha Epsilon President 2018-2019
- Alpha Epsilon Member 2017-Present
- BSE Graduate Seminar Committee Chair 2017-Present
- BSE Graduate Student Organization Treasurer 2017- Present
- Gamma Sigma Delta Member 2016-Present
- Tau Beta Pi Member 2016-Present

Allegheny College

- Women's Nationally Ranked Division III Varsity Golf Team 2011-2015
 - Co-Captain 2014-2015
- WARC 90.3 DJ 2012-2015
- Student Athlete Advisory Committee Golf Rep. 2011-2015
- Allegheny Christian Outreach Chair 2012-2015
- Allegheny College's Emerging Leader Fellow January 2012

MENTOR AND TEACHING

- Lead PhD Mentor for the USDA REEU- Confluence of Water and Society Summer 2018 & 2019
 - Aided in the research of 8-10 REEU Students for 10 weeks
- Graduate Mentor for the Undergraduate Students in Krometis and Hession Labs 2015-Present
 - Advise and support students through their studies and research
 - Teach standard operating procedures
 - Aid in field work/ independent projects
 - Edit/ revise presentation and papers
- Teaching Assistant for BSE 3334: Nonpoint Source Pollution Spring 2017, 2018, 2019
- Teaching Assistant for BSE 4964: Water and Sanitation Spring 2019
- Teaching Assistant for BSE 2004: Intro to Biological Systems Engineering Fall 2018

HOBBIES AND INTERESTS

- Skiing, snowboarding, hiking, and golfing
- Cheering on the Hokies at numerous VT athletic events
- Kayaking on Estuaries along the East Coast
- Volunteering Locally with Blue Ridge Church