

# Schuyler D. Smith

Ph.D. Student - Bioinformatics and Computational Biology  
Department of Agriculture and Biosystems Engineering  
College of Engineering  
Iowa State University of Science and Technology

+1 (413) 212-9110  
[schuyler.d.smith@gmail.com](mailto:schuyler.d.smith@gmail.com)  
[Google Scholar](#)  
[github.com/schuyler-smith](https://github.com/schuyler-smith)  
4332 Elings Hall  
605 Bissell Rd  
Ames, IA 50011-10981

## Education

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<b>Ph.D.</b>	<b>Bioinformatics and Computational Biology</b>	pres.
	Iowa State University of Science and Technology, Ames, IA	
<b>M.S.</b>	<b>Quantitative Genetics and Plant Breeding</b>	2015
	Texas A&M University, College Station, TX	
<b>B.S.</b>	<b>Genetics</b>	2012
	Iowa State University of Science and Technology, Ames, IA	

## Experience

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<b>Iowa State University of Science and Technology</b>	2017 - pres.
Genomics and Environmental Research in Microbial Systems Lab, Ames, Iowa Graduate Research Assistant - Ph.D.	
<b>University of Wisconsin-Madison</b>	2015 - 2016
Potato Breeding and Genetics Laboratory, Madison, Wisconsin Graduate Research Assistant - Ph.D.	
<b>United States Department of Agriculture - ARS</b>	2014
Arid-Land Agricultural Research Center. Maricopa, Arizona Biological Science Technician (Internship)	
<b>Texas A&amp;M University</b>	2013 - 2015
Maize Breeding and Genetics Program, College Station, Texas Graduate Research Assistant - M.S.	
<b>Monsanto Company</b>	2012
Huxley Research Station. Huxley, Iowa Maize Plant Breeding Intern	
<b>DuPont Pioneer</b>	2011
Willmar Research Station. Willmar, Minnesota Maize Product Trait Development Intern - 6 month	
<b>United States Department of Agriculture - ARS</b>	2010 - 2011
Soybean Genomics Laboratory - Graham Lab. Ames, Iowa Undergraduate Research Assistant	

## Publications

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- Schuyler D. Smith**, P Colgan, F Yang, EL Rieke, ML Soupir, TB Moorman, HK Allen, A Howe. *Investigating the dispersal of antibiotic resistance associated genes from manure application to soil and drainage waters in simulated agricultural farmland systems*. PLOS One. journal.pone.0222470 September, 2019.
- Schuyler D. Smith** *phylosmith: an R-package for reproducible and efficient microbiome analysis with phyloseq-objects*. Journal of Open Source Software. 10.21105/joss.01442 June, 2019.
- J Choi, EL Rieke, TB Moorman, ML Soupir, HK Allen, **SD Smith**, A Howe. *Practical implications of erythromycin resistance gene diversity on surveillance and monitoring of resistance*. FEMS microbiology ecology. 10.1093/femsec/fiy006 January, 2018.
- Schuyler D. Smith**, E Heffner, SC Murray. *Molecular analysis of genetic diversity in a Texas maize breeding program*. Maydica. cabdirect.org/abstract/201 2015.

## Posters

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- Smith, S.D.** *phylosmith: an R-package for reproducible and efficient microbiome analysis with phyloseq-objects*. Presented at the 27th ISMB/18th ECCB. 2019, July 21-25. Basel, Switzerland.
- Smith, S.D.**, Villanueva, P.E., Fukami, T., Howe, A. *Co-Occurrence Networks Reveal Key OTUs in Flower Nectar Microbiomes Across Dispersal Treatments*. Presented at the 17th ISME. 2018, August 12-17. Leipzig, Germany & the NSF Research Traineeship (NRT) Annual Meeting. 2018, September 27-28. Arlington, Virginia.
- Smith, S.D.**, Howe, A. *Examining Antibiotic Resistance Gene (ARG) horizontal transfer and introduction through farmland soil microbiomes as a result of modern farming practices*. Presented at the 3rd Annual Front Rang Computational & Systems Biology Symposium: Microbiome. 2017, June 12-13. Fort Collins, Colorado.
- Smith, S.D.**, Endelman, J.B. *Genotyping by Sequencing for Autotetraploid Species*. Presented at the 5th International Conference on Quantitative Genetics. 2016, June 12-17. Madison, Wisconsin. & the 11th Annual National Association of Plant Breeders Meeting. 2016, August 15-18. Raleigh, North Carolina.

## Software

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phylosmith: an R-package for reproducible and efficient microbiome analysis with phyloseq-objects.

## Awards, Fellowships, Honors, & Recognitions

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Iowa State University of Science and Technology

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| • Selected P3 representative for 2018 NSF-NRT Annual Meeting | 2018         |
| • College of Engineering Interdepartmental Research Fellow   | 2017 - pres. |
| • NSF-NRT Predictive Plant Phenomics Fellow                  | 2017 - 2018  |
| • Academic Recognition Award                                 | 2008 - 2012  |

Texas A&M University

- Willie May Harris Fellow

2013 - 2014

## Certifications

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Data Carpentry - Course Instructor

2017

## Workshops Taught

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- Introduction to Data Analysis for Biology Graduate Students. 2017 & 2018  
Iowa State University, Ames, IA
- EDAMAME: *Explorations in Data Analyses for Metagenomic Advances in Microbial Ecology*. 2017 & 2018
- BCB Data Analysis Language Workshops  
Introduction to Unix 2017 & 2018  
Introduction to Python 2017

## Applicable Skills

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|----------|-----------------------------------|-------------|-----------|
| • R      | • Shell (BASH)                    | • Markdown  | • Linux   |
| • C++    | • html                            | • RMarkdown | • Windows |
| • Python | • L <sup>A</sup> T <sub>E</sub> X | • Git       | • MacOS   |

## Graduate Coursework Completed

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M.S. Plant Breeding and Quantitative Genetics:

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|-----------------------------|--------------------------|-------------------------|
| • Quantitative Genetics     | • Plant Breeding II      | Plant Breeding          |
| • Statistics in Research I  | • Experimental Design    | • Host-Plant Resistance |
| • Statistics in Research II | • Molecular and          |                         |
| • Plant Breeding I          | Quantitative Genetics in |                         |

Ph.D. Bioinformatics and Computational Biology:

- |                              |                           |                           |
|------------------------------|---------------------------|---------------------------|
| • Bioinformatic Algorithms   | • Fundamentals of         | Plant Breeding            |
| • Statistical Bioinformatics | Predictive Plant          | • Advanced Plant Breeding |
| • Bioinformatic Systems      | Phenomics                 | • Selection Theory        |
| • Genomic Sciences           | • Plant Genetics          | • Tools for Reproducible  |
| • Linear Mixed Models        | • Biometric Procedures in | Research                  |