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
Google Scholar
github.com/schuyler-smith
4332 Elings Hall
605 Bissell Rd
Ames, IA 50011-1098l

Education

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

Experience

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

Publications

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

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

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

Awards, Fellowships, Honors, & Recognitions

Iowa State University of Science and Technology

- 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

Data Carpentry - Course Instructor 2017

Workshops Taught

- Data Carpentry: Ecology Workshop R/Python 2019
  Merck & Co., Inc. Upper Gwynedd, PA
- Introduction to Data Analysis for Biology Graduate Students. 2017 & 2018
  Iowa State University, Ames, IA
- EDAMAME: *Explorations in Data Analyses for Metagenomic* 2017 & 2018
  Advances in Microbial Ecology.
- BCB Data Analysis Language Workshops
  Introduction to Unix 2017 & 2018
  Introduction to Python 2017

Applicable Skills

- R
- C++
- Python
- Shell (BASH)
- html
- LaTeX
- Markdown
- RMarkdown
- Git
- Linux
- Windows
- MacOS

Graduate Coursework Completed

M.S. Plant Breeding and Quantitative Genetics:
- Quantitative Genetics
- Statistics in Research I
- Statistics in Research II
- Plant Breeding I
- Plant Breeding II
- Experimental Design
- Molecular and Quantitative Genetics in Plant Breeding
- Host-Plant Resistance

Ph.D. Bioinformatics and Computational Biology:
- Bioinformatic Algorithms
- Statistical Bioinformatics
- Bioinformatic Systems
- Genomic Sciences
- Linear Mixed Models
- Fundamentals of Predictive Plant Phenomics
- Plant Genetics
- Biometric Procedures in Plant Breeding
- Advanced Plant Breeding
- Selection Theory
- Tools for Reproducible Research