Dean Sanders  
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Github: [sandman2127.github.io](https://sandman2127.github.io)

LinkedIn: [Dean’s LinkedIn Profile](https://www.linkedin.com/in/dean-sanders-phd-81b087136/)

ResearchGate: [Dean’s Research Gate Profile](https://www.researchgate.net/profile/Dean-Sanders)

**Education: University of Wisconsin-Madison** Madison, WI

## Ph.D. Genetics Fall 2013 - Fall 2018

## **University of Wisconsin-Madison** Madison, WI

M.S. Bacteriology Fall 2011 - Spring 2013

## **University of Wisconsin-Oshkosh** Oshkosh, WI

B.S. Microbiology Fall 2008 - Spring 2011

**Skills:** **Computational experience:**

* **Designed** bioinformatic pipelines for:
  + Structural Variant Analysis
  + Genotype By Sequencing
  + *de novo* genome Assembly
  + ChIP-Seq and Cut & Run analysis
* **Python, Julia and R** for program design and plotting
  + Pandas, Numpy, Multiprocessing, and Cython
  + dplyr, ggplot2
  + Jupyter notebook (Python 3 and R)
* **4 years experience** with distributed & cloud computing
  + AWS
  + Slurm
  + SGE
  + Condor
* **7 years experience** with software dev & reproducibility practices:
  + Versioning control (git)
  + Containerized environments (singularity,docker,conda)
* **10 years experience** in unix command line & file systems
  + Awk and GNU Parallel for scripting, data preprocessing and pipeline automation
  + Regex

**Analytical techniques:** Personal experience with ESI-MS/MS orbi-trap mass spectrometry and HPLC, sample prep and MS/MS data analysis

**General molecular biology:** Site directed mutagenesis, plasmid Isolation, molecular cloning, PCR, Sanger sequencing

**Microscopy:** PerformedEpifluorescence and Confocal Microscopy

**Experience: *Data Scientist II at the University of Wisconsin Bioinformatics Resource Center*** with Dr. Derek Pavelec and Dr. Mark Berres, University of Wisconsin, Madison. December 2018 - Present.

* Independent project leader on all assigned work
* Project Experience:
  + *de novo* genome assembly
  + Structural and SNP variant analysis
  + ChIP-Seq & Cut & Run analysis
  + Genotype by sequencing
  + GWAS and QTL analysis

***Graduate research assistant investigating histone lysine to methionine mutations and loss of DNA methylation during plant development and stress in Arabidopsis thaliana*** with Dr. Xuehua Zhong, University of Wisconsin, Madison. December 2013 - November 2018.

* Bioinformatic analysis of mRNA, ChIP, SNP and Bisulfite sequencing data
* Mass spectrometry sample preparation, injection and customized MS/MS data analysis
* General molecular cloning, transgenic plant production

***Graduate research assistant examining bacterial biofilm disruption and production of antimicrobial secondary metabolites by the social amoeba Dictyostelium*** with Dr. Marcin Filutowicz and Dr. Kalin Vetsigian. University of Wisconsin, September 2011- May 2013.

* Epifluorescence and confocal microscopy
* C-18 solid phase extraction, HPLC and LC/MS-TOF

**Communication: Mentoring experience:**

* Personally mentored two graduate and four undergraduate students (4/6 now pursuing higher education)

**Teaching assistantship:**

* 3 semesters TA experience (>20 hours lecture time)

**Python study group leader:**

* Member of combee python study group since Fall 2016, leader in Fall 2017

**Scientific meeting presentations:**

* 6 conference presentations, 9 public outreach in the Wisconsin Institute for Discovery

**Selected Publications:**

Islam A, **Sanders D**, Mishra A, Joshi V (2021) Genetic Diversity and Population Structure Analysis of the USDA Olive Germplasm Using Genotyping-By-Sequencing (GBS) Genes 12, 1-15

Jiang J, Lui J, **Sanders D**, Wang B, Zhong X (2021) UVR8 interacts with de novo DNA methyltransferase and suppresses DNA methylation in Arabidopsis. *Nature Plants*. 7, 184–197

**Sanders D**, Fieweger R, Lu L, Qian S, Dowell J, Denu JM, Zhong X (2017) Histone lysine-to-methionine mutations reduce histone methylation and cause developmental pleiotropy. *Plant Physiology*.173, 2243-2252.

**Patent:** Marcin Filutowicz, Katarzyna Dorota Borys, **Dean Sanders** (2014). Dictyostelid amoeba and biocontrol uses thereof. US20140056850 A1. Amoebagone, LLC