

Cassandra Wattenburger

SOIL AND PLANT HEALTH · MICROBIOMES · DATA SCIENCE

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Skills

Data Science	R, Python, MySQL, Git/GitHub, Markdown, Jupyter Notebooks, data manipulation & visualization
Statistics	descriptive, linear & mixed models, permutation, multivariate analysis, cluster analysis, -omics data
Lab and Field	experimental design, field & greenhouse experiments, high-throughput sequencing library prep, qPCR

Work Experience

RESEARCH

Graduate Research Assistant (Ph.D.)

Ithaca, NY

CORNELL UNIVERSITY | ADVISOR DR. DANIEL BUCKLEY

Jan. 2018 - present

- Researched the role of bacterial population dynamics in soil carbon cycling in natural and agricultural systems
- Developed an algorithm and permutational statistical approach to estimate bacterial taxon growth and death from amplicon sequence data using internal standards
- Used cluster analysis to identify overarching characteristics of bacterial growth and death in soils
- Prepared sample libraries for high throughput sequencing, designed and troubleshoot sequencing primers

Graduate Research Assistant (M.S.)

Ames, IA

IOWA STATE UNIVERSITY | ADVISORS DR. LARRY HALVERSON & DR. KIRSTEN HOFMOCKEL

Sept. 2015 - Dec. 2017

- Researched the impact of agricultural practices on maize root-associated microbial communities with a focus on nitrogen use efficiency and nitrate production
- Designed and conducted greenhouse and field-based experiments
- Analyzed prokaryotic and fungal amplicon sequence data
- Conducted qPCR of prokaryotic ammonia-oxidation genes

Research Intern

Richland, WA

PACIFIC NORTHWEST NATIONAL LABORATORY | MENTOR DR. VANESSA BAILEY

Summers 2010 - 2014

- Conducted research related to the role of microbial communities in soil carbon cycling
- Responsibilities included culturing, cloning, DNA and protein extractions, qPCR, GCMS operation

DATA SCIENCE

Data Leader

Ithaca, NY

VACCINATION CONVERSATIONS WITH SCIENTISTS | DATA LEADERSHIP | CORNELL UNIVERSITY

Mar. 2022 - present

- Created reproducible analysis workflow in R Markdown and GitHub
- Processed, analyzed, and visualized phone-banking data to derive insights regarding COVID vaccine rates, common vaccination concerns, and phone-banking efficacy in upstate NY
- Communicated findings to broader leadership by creating reports and presenting at meetings

Server Administrator (Linux)

Ithaca, NY

BUCKLEY LAB | CORNELL UNIVERSITY

Jan. 2022 - present

- Created step-by-step server on-boarding instructions and made accessible via GitHub
- Created new user accounts and managed access to files and data stored on server
- Wrote general-use scripts in Bash, Python, and Jupyter Notebooks for common analysis needs

GitHub Repository Manager

Ithaca, NY

BUCKLEY LAB | CORNELL UNIVERSITY

Jan. 2018 - present

- Responsible for organizing and making accessible Buckley lab protocols and scripts
- Wrote and updated standard operating protocols in Markdown using version control

COMMUNICATION & LEADERSHIP

IDP Fellow

INTERGROUP DIALOGUE PROJECT | CORNELL UNIVERSITY

Ithaca, NY
Aug. 2021 - present

- Formal training in communication techniques
- Organized and facilitated workshops to teach Cornell students, post-docs, and staff communication skills
- Taught the LARA method, strategic and generative questioning, and social identity recognition

President & Treasurer

SOIL AND CROPS SCIENCES GRADUATE STUDENT ASSOCIATION | CORNELL UNIVERSITY

Ithaca, NY
Aug. 2019 - 2022

- Created and managed budgets as Treasurer, lead association activities as President
- Planned and hosted virtual/in-person Soil and Crops Sciences graduate student recruitment events
- Organized invited speaker visit to departmental seminar series

Advisory Board Member

CAREERS BEYOND ACADEMIA | CORNELL UNIVERSITY

Ithaca, NY
Aug. 2020 - 2021

- Guided Careers Beyond Academia programming
- Designed and presented webinars for professional development, including professionalism and data visualization
- Organized and hosted career panels highlighting careers outside of academia

Education

Cornell University, Ph.D. (in progress)

SOIL SCIENCE, MINORS IN GENOMICS AND MICROBIOLOGY

Ithaca, NY
Jan. 2018 - Aug. 2023

Iowa State University, M.S.

MICROBIOLOGY

Ames, IA
Sept 2015 - Dec 2017

Western Washington University, B.S.

CELLULAR AND MOLECULAR BIOLOGY, MINOR IN CHEMISTRY, HONORS PROGRAM

Bellingham, WA
Sept 2010 - June 2014

Major Awards

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| 2021 | AFRI Pre-Doctoral Fellowship , USDA NIFA, \$120,000 | <i>USA</i> |
| 2016 | NSF Graduate Research Fellowship , Ecology, NSF GRFP, \$138,000 | <i>USA</i> |

Relevant Training

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| 2022 | Intro. to Bayesian Statistical Methods , Cornell Statistical Consulting Unit workshop | <i>Cornell U.</i> |
| 2022 | Missing Data , Cornell Statistical Consulting Unit workshop | <i>Cornell U.</i> |
| 2021 | Exploratory Factor Analysis , Cornell Statistical Consulting Unit workshop | <i>Cornell U.</i> |
| 2021 | Carpentries Instructor , certification to teach programming workshops | <i>The Carpentries</i> |
| 2021 | Statistical Learning , audit, 10 week course, supervised and unsupervised methods | <i>edX Stanford</i> |
| 2020 | Collaborative and Reproducible Data Science in R , 2 credit graduate-level course | <i>Cornell U.</i> |
| 2020 | Linear Models: Regression and ANOVA , Cornell Statistical Consulting Unit workshop | <i>Cornell U.</i> |
| 2020 | Repeated Measures , Cornell Statistical Consulting Unit workshop | <i>Cornell U.</i> |
| 2020 | Intermediate Statistical Analysis Using R , Cornell Statistical Consulting Unit workshop | <i>Cornell U.</i> |
| 2018 | Principle Components Analysis , Cornell Statistical Consulting Unit workshop | <i>Cornell U.</i> |
| 2017 | Data Wrasslin' in R , R tidyverse and tidy-data principles workshop | <i>Iowa State U.</i> |
| 2017 | Data Visualization , R and ggplot2 basics workshop | <i>ESA</i> |
| 2016 | Statistical Design and the Analysis of Experiments , 4 credit course | <i>Iowa State U.</i> |
| 2015 | Statistical Methods for Research Workers , 4 credit course | <i>Iowa State U.</i> |