

Cassandra Wattenburger

SOIL & PLANT · MICROBIOME · DATA SCIENCE

706 Bradfield Hall, Cornell University, Ithaca NY, 14853, USA

✉ cjwattenburger@gmail.com | 🏠 cjwattenburger.rbind.io | 📷 [cwatt](https://www.instagram.com/cwatt)

Skills

- Research** hypothesis generation, experimental design, field & greenhouse experiments, high-throughput sequencing
- Statistics** hypothesis testing, linear & mixed models, multivariate analysis, permutation, metagenomics data
- Data Science** R, Python, SQL, reproducible workflows, data wrangling & vis., algorithm dev., unsupervised clustering

Work Experience

RESEARCH

Graduate Research Assistant (Ph.D.)

Ithaca, NY

CORNELL UNIVERSITY | ADVISOR DR. DANIEL BUCKLEY

Jan. 2018 - present

- Researched the role of soil bacterial population dynamics in the carbon cycling of agricultural and natural soil systems
- Developed a sequence library preparation method to measure changes in bacterial species abundances in soil
- Created an algorithm to estimate bacterial species growth and death from time series data
- Used unsupervised clustering methods to group bacterial species based on their growth and death traits
- Four non-thesis collaborative research projects within and outside of Cornell University

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 and their function, with a focus on nitrogen-use and nitrification
- Designed and conducted greenhouse and field-based plant experiments, analyzed microbiome sequence data
- Initiated and lead collaboration with scientists at the Donald Danforth Plant Science Center

Research Intern

Richland, WA

PACIFIC NORTHWEST NATIONAL LABORATORY | SUPERVISOR DR. VANESSA BAILEY

Summers 2010 - 2014

- Conducted research in multiple microbial ecology and soil carbon cycling projects
- Responsibilities included culturing, cloning, DNA and protein extractions from culture and soil, qPCR, GCMS operation

DATA SCIENCE

Data Leader

Ithaca, NY

VACCINATION CONVERSATIONS WITH SCIENTISTS | DATA LEADERSHIP | CORNELL UNIVERSITY

Mar. 2022 - present

- Student-led organization using phone-banking to reach rural citizens and discuss COVID vaccine concerns
- Processed, analyzed, and visualized phone-banking data to derive insights regarding COVID vaccination rates and vaccination concerns in rural areas
- Created reproducible analysis workflow in R Markdown and GitHub
- Communicated findings to broader leadership by creating data reports and visualizations

Server Administrator (Linux)

Ithaca, NY

BUCKLEY LAB | CORNELL UNIVERSITY

Jan. 2022 - present

- Responsible for managing server user accounts and file permissions
- Wrote general-use scripts in Bash, Python, and Jupyter Notebooks for common data analysis needs
- Created step-by-step server on-boarding instructions and made accessible via GitHub

GitHub Repository Manager

Ithaca, NY

BUCKLEY LAB | CORNELL UNIVERSITY

Jan. 2018 - present

- Responsible for updating, making accessible, and the version-control of Buckley lab protocols
- Created organized spreadsheets of lab sequencing and barcoding primer sequences
- Wrote detailed instructions for sequence library sample submission to Cornell BRC

COMMUNICATION & LEADERSHIP

IDP Fellow

INTERGROUP DIALOGUE PROJECT | CORNELL UNIVERSITY

Ithaca, NY
Aug. 2021 - present

- Trained in communication techniques by Cornell Intergroup Dialogue Project
- Organized and facilitated workshop to teach Cornell students, post-docs, and staff communication skills
- Taught skills such as LARA and strategic and generative questioning

President & Treasurer

SOIL AND CROPS SCIENCES GRADUATE STUDENT ASSOCIATION | CORNELL UNIVERSITY

Ithaca, NY
Aug. 2019 - 2022

- Lead meetings and group events as President (2021-2022), created and managed budgets as Treasurer (2019-2021)
- Organized and hosted virtual/in-person Soil and Crops Sciences graduate student recruitment events

Advisory Board Member

CAREERS BEYOND ACADEMIA | CORNELL UNIVERSITY

Ithaca, NY
Aug. 2020 - 2021

- Helped guide Careers Beyond Academia programming
- Designed and presented webinars on professional development with other board members, topics: professionalism and data visualization
- Organized and hosted two career panels highlighting non-academic career paths for scientists

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

- 2021 **AFRI Pre-Doctoral Fellowship**, USDA NIFA, \$120,000 *USA*
- 2016 **NSF Graduate Research Fellowship**, Ecology, NSF GRFP, \$138,000 *USA*

Relevant Training

- 2022 **Penalized Regression with Ridge and LASSO**, Cornell Statistical Consulting Unit workshop *Cornell U.*
- 2022 **Intro. to Bayesian Statistical Methods**, Cornell Statistical Consulting Unit workshop *Cornell U.*
- 2022 **Missing Data**, Cornell Statistical Consulting Unit workshop *Cornell U.*
- 2021 **Exploratory Factor Analysis**, Cornell Statistical Consulting Unit workshop *Cornell U.*
- 2021 **Carpentries Instructor**, certification to teach programming workshops *The Carpentries*
- 2021 **Statistical Learning**, audit, 10 week course, supervised and unsupervised methods *edX Stanford*
- 2020 **Collaborative and Reproducible Data Science in R**, 2 credit graduate-level course *Cornell U.*
- 2020 **Repeated Measures**, Cornell Statistical Consulting Unit workshop *Cornell U.*
- 2018 **Principle Components Analysis**, Cornell Statistical Consulting Unit workshop *Cornell U.*
- 2016 **Statistical Design and the Analysis of Experiments**, 4 credit course *Iowa State U.*
- 2015 **Statistical Methods for Research Workers**, 4 credit course *Iowa State U.*