

Cassandra Wattenburger

MICROBIAL ECOLOGY · SOIL AND PLANT HEALTH · BIOINFORMATICS
706 Bradfield Hall, Cornell University, Ithaca NY, 14853, USA

☎ (509) 391-0841 | ✉ cjwattenburger@gmail.com | 🏠 cjwattenburger.rbind.io | 📧 [cwatt](https://www.linkedin.com/in/cwatt)

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

Research Experience

Graduate Research Assistant (Ph.D.)

CORNELL UNIVERSITY | ADVISOR DR. DANIEL BUCKLEY

Ithaca, NY

Jan. 2018 - present

- Dissertation topic: Measuring in situ population dynamics to understand microbial life history strategies relevant to carbon cycling

Graduate Research Assistant (M.S.)

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

Ames, IA

Sept. 2015 - Dec. 2017

- Thesis topic: Understanding the role of bacterial and fungal root-associated communities in agricultural management for nitrogen use efficiency

Student Undergraduate Learning Internship Intern

PACIFIC NORTHWEST NATIONAL LABORATORY | MENTOR DR. VANESSA BAILEY

Richland, WA

Summers 2011 - 2014

- Project 1: Fungal and bacterial community contributions to soil respiration in arid agricultural soils
- Project 2: Method development for extracting DNA from the soil community within single soil aggregates
- Project 3: Effect of gradual warming on cellulose-decomposing soil community structure and exometabolite production

Young Women in Science Intern

PACIFIC NORTHWEST NATIONAL LABORATORY | MENTOR DR. VANESSA BAILEY

Richland, WA

Summers 2010

- Project: Culture condition optimization for cellobiose-degrading soil bacteria isolates

Grants & Awards

2021 **AFRI Pre-Doctoral Fellowship**, USDA NIFA, \$120,000

USA

2019 **SNIPS Small Grant Award**, Cornell University, Co-PI with Kyle Martin, \$8,511

Ithaca, NY

2016 **NSF GRFP**, Ecology, National Science Foundation Fellowship, \$138,000

USA

2016 **Brown Graduate Fellowship**, Iowa State University, \$10,000

Ames, IA

2015 **Diane-Brandt Scholarship**, Iowa State University, \$5,000

Ames, IA

2015 **CALS+Presidential Fellowship**, Iowa State University, \$25,000

Ames, IA

2013 **Hodgson Family Scholarship**, Western Washington University, \$1,000

Bellingham, WA

2010 **President's Scholarship**, Western Washington University, \$4,000

Bellingham, WA

Publications

Foxx AJ, Franco Meléndez KP, Hariharan J, Kozik AJ, **Wattenburger CJ**, Godoy-Vitorino F, Rivers AR. Advancing Equity and Inclusion in Microbiome Research and Training. [mSystems 0:e01151-21. \(2021\)](#)

Karig DE, Mayers CG, **Wattenburger CJ**, Southon J. Contamination of Radiocarbon Analyses of Plant Samples by Fungal Hyphae. [Radiocarbon 1–8. \(2020\)](#)

Wattenburger CJ, Gutknecht J, Zhang Q, Brutnell T, Hofmockel KS, Halverson, LJ, 2020. The rhizosphere and cropping system, but not arbuscular mycorrhizae, affect ammonia oxidizing archaea and bacteria abundances in two agricultural soils. [Applied Soil Ecology 151, 103540 \(2020\).](#)

Wattenburger CJ, Halverson LJ, Hofmockel KS. Agricultural Management Affects Root-Associated Microbiome Recruitment Over Maize Development. Phytobiomes Journal 3, 260–272 (2019).

Presentations

TALKS

Bacterial growth and death dynamics during litter decomposition indicate shifts in life history strategy

NEMPET22

Blue Mountain Lake, NY

June 2022

Land use and resource amendment impact in situ bacterial growth responses in soils

ECOLOGICAL SOCIETY OF AMERICA

Virtual

Aug. 2021

Predicting microbial life history traits from their growth dynamics in soil

SOIL AND CROP SCIENCES SEMINAR SERIES | CORNELL UNIVERSITY

Ithaca, NY

Sept. 2020

The root-associated microbiome and agricultural nitrogen use efficiency

M.S. EXIT SEMINAR | IOWA STATE UNIVERSITY

Ames, IA

Nov. 2017

Spatio-temporal dynamics of root-associated prokaryotic communities in two contrasting agroecosystems

INTERDEPARTMENTAL MICROBIOLOGY PROGRAM RETREAT | IOWA STATE UNIVERSITY

Ames, IA

Oct. 2017

Soil Microorganisms, Climate Change, and Soil Quality

HONORS THESIS PRESENTATION | WESTERN WASHINGTON UNIVERSITY

Bellingham, WA

March 2014

Studying individual soil aggregates as discrete habitats for microbial communities

STUDENT UNDERGRADUATE LEARNING INTERNSHIP SYMPOSIUM | PACIFIC NORTHWEST NATIONAL LABORATORY

Richland, WA

Aug. 2014

POSTERS

Population dynamics of soil bacterial communities during litter decomposition

ISME18

Lausanne, Switzerland

Aug. 2022

Comparing in-situ, individual bacterial community growth rates in cropped and successional soils using a 16S rRNA internal standard

DOE GENOME SCIENCES PROGRAM MEETING

Virtual

Feb. 2021

Arbuscular mycorrhizae alter soil inorganic and plant nitrogen but have little effect on ammonia oxidizing community abundance in two agricultural soils

ECOLOGICAL SOCIETY OF AMERICA CONFERENCE

Portland, OR

Aug. 2017

In contrasting cropping systems, root-associated prokaryotic and fungal communities exhibit distinct shifts at different maize developmental stages

MULTIOMICS FOR MICROBIOMES EMSL INTEGRATION CONFERENCE

Pasco, WA

Aug. 2017

Revisiting fungal-to-bacterial activity ratios in soils ten years later

STUDENT UNDERGRADUATE LEARNING INTERNSHIP SYMPOSIUM | PACIFIC NORTHWEST NATIONAL LABORATORY

Richland, WA

Aug. 2011

NON-SCIENTIFIC

Data Visualization Toolkit

CAREERS BEYOND ACADEMIA | CORNELL UNIVERSITY

Virtual

March 2020

Professionalism in Graduate School

CAREERS BEYOND ACADEMIA | CORNELL UNIVERSITY

Virtual

July 2020

Teaching & Mentoring

Carpentries Instructor

THE CARPENTRIES

- Certified instructor for Software and Data Carpentries workshops

Ithaca, NY

April 2021

Moderator

INTRODUCTION TO R WORKSHOP | WOMEN IN SOIL ECOLOGY

- Assisted workshop organizers and answered attendee questions

Virtual

Feb. 2021

Mentor

IOWA STATE UNIVERSITY AND CORNELL UNIVERSITY

- Interviewed, hired, and trained six undergraduate students in basic lab techniques and/or bioinformatics skills
- Overseeing honors-thesis research project for Cornell biology undergraduate
- Provided career advice post-graduation and served as reference on job applications

Various

2017 - present

Undergraduate Teaching Assistant

BIOL 205 | WESTERN WASHINGTON UNIVERSITY

- Cell and Molecular Biology Lab
- Guided student learning and answered questions during labs
- Designed and taught short lecture on polymerase chain reaction

Bellingham, WA

Winter 2014

Leadership

Data Leader

VACCINATION CONVERSATIONS WITH SCIENTISTS | DATA LEADERSHIP | CORNELL UNIVERSITY

- Created reproducible analysis workflow in R Markdown and GitHub
- Processed and prepared data collected by phone-banking software to derive insights regarding COVID vaccine rates, common vaccination concerns, and phone-banking efficacy, visualized findings
- Collaborated with other data leaders to identify analysis priorities and data limitations
- Communicated findings to broader leadership and organization members

Ithaca, NY

Mar. 2022 - present

President & Treasurer

SOIL AND CROPS SCIENCES GRADUATE STUDENT ASSOCIATION | CORNELL UNIVERSITY

- Created and managed budgets as Treasurer, lead association activities as President
- Coordinated external speaker visit to Soil and Crop Sciences section seminar series
- Planned and hosted 2020 and 2021 Soil and Crops Sciences graduate student recruitment and tour events, virtually and in-person

Ithaca, NY

Aug. 2019 - 2022

Advisory Board Member

CAREERS BEYOND ACADEMIA | CORNELL UNIVERSITY

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

Ithaca, NY

Aug. 2020 - 2021

President & Treasurer

MICROBIOLOGY GRADUATE STUDENT ORGANIZATION | IOWA STATE UNIVERSITY

- Created and managed budget as Treasurer, lead monthly meetings as President
- Organized and volunteered in science outreach events for Iowan students
- Invited and hosted Interdepartmental Microbiology program seminar speakers

Ames, IA

Aug. 2015 - 2017

Vice-President & Treasurer

ASSOCIATION OF WOMEN IN SCIENCE | WESTERN WASHINGTON UNIVERSITY

- Created and managed organization budget and finances
- Assisted president with meeting and event planning
- Started and raised money for small scholarship to be offered to women at Western Washington University

Bellingham, WA

2013, 2014

Service

Server Administrator (Linux)

BUCKLEY LAB | CORNELL UNIVERSITY

- 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 Notebook for common needs

Ithaca, NY

Jan. 2022 - present

Data Visualization and Science Art Panelist

COMSciCON-NY 2021

- Volunteered as expert panelist to discuss questions about effective ways to engage with audiences using data visualization and science art

Virtual

May 2021

Careers in Data Visualization Panel Organizer

CAREERS BEYOND ACADEMIA | CORNELL UNIVERSITY

- Organized and hosted zoom panel interviewing scientists in data visualization careers

Ithaca, NY

April 2021

Non-academic Careers Alumni Panel Organizer

BESS GSA | CORNELL UNIVERSITY

- Biogeochemistry, Environmental Science, and Sustainability Graduate Student Organization
- Organized and hosted zoom panel of three Cornell alumni in non-academic careers

Ithaca, NY

April 2020

Peer Review

VARIOUS JOURNALS

- Peer reviewed six manuscripts
- Journals: Soil Biology and Biochemistry, Microbial Ecology, SOIL

Various

Newsletter Editor

CAREERS BEYOND ACADEMIA | CORNELL UNIVERSITY

- Published monthly newsletter distributed to over 400 people using MailChimp
- Interviewed Cornell students and staff for spotlight pieces
- Wrote content

Ithaca, NY

Aug. 2018 - Aug. 2019

GitHub Repository Manager

BUCKLEY LAB | CORNELL UNIVERSITY

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

Ithaca, NY

Jan. 2018 - present

Curriculum Committee Member

INTERDEPARTMENTAL MICROBIOLOGY PROGRAM | IOWA STATE UNIVERSITY

- Conducted research and gave feedback to faculty to improve graduate program curriculum

Ames, IA

2015

Outreach & Sci. Comm.

Organizer & Volunteer

USA SCIENCE FESTIVAL

- Created and organized activities for a microbiome-themed educational booth
- Educated children and adults about environmental microbiology and microscopy

Washington DC, USA

March 2018

Organizer & Volunteer

WHO'S IN YOUR FOOD? | IOWA STATE UNIVERSITY

- Gave presentation and designed interactive workshop with fermented food products for local elementary school students

Ames, IA

Feb. 2017

EcoDay Science Fair Judge

NEVADA ELEMENTARY SCHOOL

- Judged and provided feedback on science fair projects at Nevada Elementary School

Nevada, IA

May 2015

Organizer & Volunteer

EDWARDS ELEMENTARY SCIENCE NIGHT

- Created hands-on activities to teach children about bacteria
- Lead the "build-a-bacteria" and microscopy stations

Ames, IA

2015, 2016

Soils Session Leader

WHITEROCK BIOBLITZ | THE WHITEROCK CONSERVANCY

- Created and lead hands-on activities introducing concepts of soil health and ecology to general public

Coon Rapids, IA

2015, 2016

"Soil Breathes"

MATERIALS: SOIL AND CLAY

- [Link to image of art piece](#)
- Collaboration with Bonita Robins and Cecelia Hanford
- Art piece of noses and mouth casts made of soil collected from campus grounds depicting soil respiration
- Displayed in the Western Gallery at Western Washington University

Bellingham, WA

March 2014

"Seeing through the Ice"

INVITED SPEAKER | WHATCOM MUSEUM

- Short talk to the general public explaining the science of climate change using art of glaciers

Bellingham, WA

Feb 2014

Science Club Instructor

BOYS AND GIRLS CLUB

- Lead afternoon activities to engage children in STEM concepts
- Robotics and microbiology focused

Bellingham, WA

Summer 2014

Diversity, Equity, & Inclusion

IDP Fellow

INTERGROUP DIALOGUE PROJECT | CORNELL UNIVERSITY

Ithaca, NY

Aug. 2021 - present

- Organized and facilitated workshops to teach Cornell students, post-docs, and staff listening and communication skills
- Taught communication across difference, strategic and generative questioning, and social identity recognition

Volunteer

DIVERSITY PREVIEW WEEKEND | CORNELL UNIVERSITY

Ithaca, NY

Sept. 2020

- Provided feedback and individual mentoring on graduate school application materials
- Served on panels to answer questions about applying for research fellowships

Volunteer

EXPANDING YOUR HORIZONS | CORNELL UNIVERSITY

Ithaca, NY

2018, 2019

- Escorted young participants to activities around campus
- Participated in science workshop and outreach events with attendees

Organizer & Volunteer

SCIENCE BOUND | IOWA STATE UNIVERSITY

Ames, IA

2016, 2017

- Organized and lead demonstrations educating students about leaf-associated microbes and general microbiology
- Included activities such as leaf-press culturing, live pond-water microscopy station, fermented food trivia, antibiotic resistance dodge ball, etc.

Volunteer & Panelist

MICROBIOLOGY CASE STUDY WORKSHOP | IOWA STATE UNIVERSITY

Ames, IA

Aug. 2016

- Taught high school students from underprivileged backgrounds microbiology lab techniques, such as aseptic technique and pipetting
- Participated on panel to answer questions about higher education and majoring in STEM

Training

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	Linear Models: Regression and ANOVA , Cornell Statistical Consulting Unit workshop	Cornell U.
2020	Repeated Measures , Cornell Statistical Consulting Unit workshop	Cornell U.
2020	Intermediate Statistical Analysis Using R , Cornell Statistical Consulting Unit workshop	Cornell U.
2018	Principle Components Analysis , Cornell Statistical Consulting Unit workshop	Cornell U.
2017	Data Wrasslin' in R , R tidyverse and tidy-data principles workshop	Iowa State U.
2017	Data Visualization , R and ggplot2 basics workshop	ESA
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.

Blog Contributions

Write better grants

BLOGGING BEYOND ACADEMIA

Ithaca, NY

Aug. 2019

Explaining science to kids builds vital career skills

BLOGGING BEYOND ACADEMIA

Ithaca, NY

Oct. 2018