

Cassandra Wattenburger

MICROBIAL ECOLOGY · SOIL AND PLANT HEALTH · BIOINFORMATICS
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Education

Cornell University, Ph.D. (in progress)

SOIL SCIENCE, MINORS IN GENOMICS AND MICROBIOLOGY

Ithaca, NY

Jan. 2018 - present

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: Using in situ growth dynamics to delineate and 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 soil community within single aggregates of soil
- 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

Publications

Foxx AJ, Franco Meléndez KP, Hariharan J, Kozik AJ, **Wattenburger, C.J.**, 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

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

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

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

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

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

Teaching & Mentoring

Mentor

IOWA STATE UNIVERSITY AND CORNELL UNIVERSITY

Various

2017 - present

- Interviewed, hired, and trained five undergraduate students in basic lab techniques and computational skills
- Oversaw honors-thesis research project for Cornell biology undergraduate
- Provided career advice post-graduation and served as reference on job applications

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

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

Advisory Board Member

CAREERS BEYOND ACADEMIA | CORNELL UNIVERSITY

- Provided input for Careers Beyond Academia program planning
- Planned and organized events, panels, and webinars for Cornell community aimed at professional development

Ithaca, NY

Jan 2019 - present

2019-2021

President Treasurer *Ithaca, NY* SOIL AND CROP SCIENCES GRADUATE STUDENT ASSOCIATION | CORNELL UNIVERSITY

2019-2021

- Organized association events and graduate student recruitment events
- Created and managed organization budget and finances
- Coordinated invited speaker visit to campus for departmental seminar series

President & Treasurer

MICROBIOLOGY GRADUATE STUDENT ORGANIZATION | IOWA STATE UNIVERSITY

- Created and managed organization budget and finances
- Lead monthly meetings and planned meeting agendas
- Lead committee to update constitution to improve carry-over of responsibilities
- Invited and hosted external speakers for invited seminar

Ames, IA

2015, 2016

Vice-President & Treasurer

ASSOCIATION OF WOMEN IN SCIENCE | WESTERN WASHINGTON UNIVERSITY

- Created and managed organization budget and finances
- Assisted president with meetings and organizing planned events
- Started and raised money for small scholarship to be offered to women at Western Washington University

Bellingham, WA

2013, 2014

Service

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 Reviewer

VARIOUS JOURNALS

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

Various

Recruitment Planner

SOIL AND CROP SCIENCES SECTION | CORNELL UNIVERSITY

- Lead virtual tour of Ithaca and Cornell's campus
- Organized online social for prospective and current students

Virtual

Feb 2021

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

Ithaca, NY

Aug. 2018 - Aug. 2019

Github Respository Manager

BUCKLEY LAB | CORNELL UNIVERSITY

- Managed Buckley lab github repository
- Updated standard operating protocols

Ames, IA

2017 - 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
- Instructed children and visitors 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

- 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 and impacts of climate change showcasing art themed around melting 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

Volunteer

DIVERSITY PREVIEW WEEKEND | CORNELL UNIVERSITY

- Provided feedback and individual mentoring on graduate school application materials
- Attended socials

Ithaca, NY

Sept. 2020

Volunteer

EXPANDING YOUR HORIZONS | CORNELL UNIVERSITY

Ithaca, NY

2018, 2019

- Escorted two EYH attendees on Cornell's campus for a day
- 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 microbial communities
- Organized and volunteered in microbiology themed workshops
- Included activities such as a live pond-water microscopy station, fermented food trivia, and antibiotic resistance dodge ball

Volunteer & Panelist

MICROBIOLOGY CASE STUDY WORKSHOP | IOWA STATE UNIVERSITY

Ames, IA

Aug. 2016

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

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

Soils have no panda bears

FOOD AND AGRICULTURAL ORGANIZATION

Ames, IA

Sept. 2015

Training

2021	Statistical Learning , ten week course, supervised and unsupervised methods	<i>edX Stanford</i>
2020	Collaborative and Reproducible Data Science in R , semester-long course	<i>Cornell University</i>
2020	Linear Models: Regression and ANOVA , two-day workshop, Cornell Statistical Consulting Unit	<i>Cornell University</i>
2020	Intermediate Statistical Analysis Using R , one-day workshop, Cornell Statistical Consulting Unit	<i>Cornell University</i>
2018	Principle Components Analysis , one-day workshop, Cornell Statistical Consulting Unit	<i>Cornell University</i>
2017	Data Wrasslin' in R , two-day workshop, tidyverse and tidy-data principles	<i>Iowa State U.</i>
2017	Data Visualization , one-day workshop, ggplot2	<i>ESA</i>