

JOSEPH E. WEAVER

Currently

PhD Candidate in Civil Engineering, North Carolina State University

Education and Employment

North Carolina State University PhD, Civil Engineering. 2013 - 2019 (expected)
Minor in Biotechnology.

North Carolina State University MS, Environmental Engineering 2011 - 2013

Sonalysts, Inc Programmer/Analyst 2002 - 2011

Cornell University BS, Electrical Engineering 1997 - 2002

Awards and Fellowships

GAANN Fellow, Microbial Biotechnology Training Program. (US 2014-2017
Department of Education Graduate Assistance in Areas of National Need Award #
P200A140020)

3rd place poster, *What's Driving Microbial Community Assembly in Full-Scale Wastewater Treatment?* NC-AWWA-WEA Annual Conference, Raleigh, NC 2017

1st place poster, *Effect of Variable Shear on the Formation of Aerobic Granules in an Eccentric Couette Micro-reactor.* CCEE WREE Annual Symposium, Raleigh, NC 2014

2nd place poster, *Anaerobic biodegradability of plastics in laboratory-scale landfill reactors.* Global Waste Management Symposium, Phoenix, AZ 2012

Publications

A list containing abstracts and links to fulltext is [also available online](#).

Weaver, JE and Wang, L and de los Reyes III, FL and Barlaz MA “*Systems and Methods for Studying Microbial Processes and Communities in Landfills*” in *Understanding Terrestrial Microbial Communities* Hurst, CJ ed. Springer ISBN:978-3-030-10777-2 [\[bib\]](#) 2019

Weaver, JE and Willaims, JC and Ducoste JJ and de los Reyes III, FL “*Measuring the Shape and Size of Activated Sludge Particles Immobilized in Agar with an Open Source Software Pipeline*” *Journal of Visualized Experiments* v143, e58963. doi:[10.3791/58963](#) [\[bib\]](#) 2019

Weaver, JE and Hong, H and Ducoste JJ and de los Reyes III, FL “*Controlling aerobic biological floc size using Couette-Taylor bioreactors*” *Water Research* v147, pp 177-183. doi:[10.1016/j.watres.2018.09.060](#) [\[bib\]](#) 2018

Weaver, JE and Ducoste JJ and de los Reyes III, FL “*Fluid shear variation potentially plays a role in aerobic granular sludge formation*” *Proceedings of the Water Environment Federation, WEFTEC 2016*, v2016 i11 pp 5737-5744. doi:[10.2175/193864716819706734](#) [\[bib\]](#) 2016

de los Reyes III, FL and Weaver, JE and Wang, L “*A methodological framework for linking bioreactor function to microbial communities and environmental conditions.*” *Current Opinion in Biotechnology* v33, pp 112-118. doi:[10.1016/j.copbio.2015.02.002](#) [\[bib\]](#) 2015

Weaver, JE, “*Effect of Inoculum Source on the Rate and Extent of Anaerobic Biodegradation*” Under the direction of Barlaz, MA and de los Reyes III, FL. MS Thesis, North Carolina State University, Raleigh, NC. [\[bib\]](#) 2013

Presentations

Inducing aerobic granular sludge formation through unevenly distributed hydrodynamic shear rates NC AWWA-WEA, Raleigh, NC. 2016

Fluid shear variation potentially plays a role in aerobic granular sludge formation. WEFTEC, New Orleans, LA. 2016

Microbial Ecology of Aerobic Wastewater Treatment: Community assembly during full scale startup and dynamics of bench scale granulation. NCSU MBTP Symposium, Raleigh, NC. 2015

Effect of Inoculum source on the rate and extent of anaerobic biodegradation
AWMA National Conference, Raleigh, NC.

2015

Development of a protocol to test the anaerobic biodegradability of plastics.
(Department nominated poster presenter) NCSU Graduate Student Symposium,
Raleigh, NC.

2013

Teaching

Teaching assistant

CE 481 - Senior Design Project

Spring 2019

CE 774 - Environmental Biotechnology

Spring 2019

CE 484 - Water Supply and Wastewater Systems

Fall 2019

CE 497/596 - Global WASH

Spring 2018

CE 484 - Water Supply and Wastewater Systems.

Fall 2017

CE 573 - Biological Principles of Environmental Engineering.

Fall 2014

Course Guest lectures

BIT 495 - Metagenomics. Guest lectures on ordination
and data visualization.

Spring 2015 - Fall 2018

CE 378 - Environmental chemistry and microbiology. Facilitated
lab on identifying problem organisms in wastewater via microscopy.

Falls 2014-2017

Internal training

Laziness, Levers, and Literature: How to search and manage the literature. NCSU
CCEE Department Seminar.

2014

Mentoring

Research Internship Summer Experience (RISE) Program.

Summer 2016 - 2018

Responsible for training and mentoring undergraduate researchers while they
performed their own summer research culminating in poster presentation.*

NCSU Spring Undergraduate Research *Thermal Acclimation of Mesophilic Inocula for Thermophilic Biochemical Methane Potential Tests* Mentored undergraduate in writing mini-proposal, designing experiment, and communicating results in university-wide poster session. 2013

Multiple undergraduate research assistants. 2011 thru 2018

Formed and coordinated prelim study group for graduate student cohort. 2017

Community

Peer Review

Four articles reviewed for *Water Science & Technology*, *Waste Management*, and *Journal of Environmental Engineering*.

Outreach

Boy Scouts of America engineering day 2013 - 2016

Girl Scouts of America engineering day 2017 - 2018

Service

Chair, program committee. NCSU CCEE WREE Graduate Research Symposium. 2015

Professional Organizations

- American Society for Microbiology (ASM)
- Water Environment Federation (WEF)
- North Carolina American Water Works Association - Water Environment Association (NC AWWA-WEA)

Grantwriting Contribution Experience

de los Reyes III, Francis L. and Ducoste, Joel J. *Using Microbial Ecology Theory to Understand Microbial Community Dynamics and Improve Function of Anaerobic Bioreactors*. NSF. **(Awarded)** 2017

de los Reyes III, Francis L. *Understanding substrate-community interactions to develop resilient anaerobic digestion of food waste*. EREF. **(Awarded)** 2017

de los Reyes III, Francis L. and Ducoste, Joel J. *WERF: Microbial ecology theory as a framework for understanding and improving anaerobic co-digestion*. NSF. 2016

Professional Development

Microbial Biotechnololgy Training Program, US Department of Education Graduate

Assistance in Areas of National Need

BIT Professional Development Seminar. 2016

BIT Capstone Seminar. 2015

BIT Research Ethics Seminar. 2015

Fundamentals in Teaching (FIT) and Teaching and Communication Certificate

Introduction to teaching. 2017

Responding to student writing. 2017

Teaching Portfolio. 2017

Avoiding Death By Powerpoint. 2017

How to Engage with Diverse learning styles. 2017

Managing conflict in the classroom. 2017

Teaching Assistant Orientation Symposium. 2017

Other

Broadening the impacts of your research workshop. 2018

Best Practices in Software Citation seminar. 2018

Grant Writing and Broader Impact Workshop 2018

Moodle Essentials, DELTA workshop. 2017

AEESP Strategies, tools, and tips for teaching in environmental engineering and sciences. 2017

Title IX Training Certificate. 2017

American Association for the Advancement of Science Individual Development Planning (2016 - Present)

Developing Arduino Projects. 2017

Makerspace orientation. 2016

AEESP Case Studies in project based learning. 2015

COMSOL multiphysics and chemical engineering workshop. 2014

Writing research introductions in the sciences. 2013

Bioinformatics Databases and Tools: The Basics. 2012

Finding information while you sleep 2011

Managing Your Research Using the Libraries 2011