JOSEPH E. WEAVER

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North Carolina State University
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2501 Stinson Dr.
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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 Univeristy BS, Electrical Engineering *1997 - 2002*

Awards and Fellowships

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

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 Biotechnlogy 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 orgranisms 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. Responsible for training and mentoring undergraduate researchers while they performed their own summer research culuminating in poster presentation.* `Summer 2016 - 2018`

NCSU Spring Undergraduate Research *Thermal Acclimation of Mesosphilic Inocula for Thermophilic Biochemical Methane Potential Tests* Mentored undegraduate 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 Managment*, 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 interactiosn 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*