

## Jacob R. Price, Ph.D.

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CONTACT INFORMATION	<div>██████████, ██████████</div> <div>JacobRPricePhD@gmail.com <a href="http://jacobrprice.github.io/">http://jacobrprice.github.io/</a></div>
EDUCATION	<p><b>Drexel University</b>, Philadelphia, PA Ph.D., Environmental Engineering, 2018</p> <ul style="list-style-type: none"><li>• Thesis Topic: <i>Linking Complex Nutrient Kinetics and Ecological Processes within a Photosynthetic Mixed Microbial Community</i></li><li>• Advisor: Christopher M. Sales, Ph.D</li></ul> <p><b>Temple University</b>, Philadelphia, PA M.S., Civil &amp; Environmental Engineering, 2013</p> <ul style="list-style-type: none"><li>• Thesis Topic: <i>The effects of urbanization on stream channel morphology in southeastern Pennsylvania</i></li><li>• Advisor: Robert J. Ryan, Ph.D, P.E.</li></ul> <p>Graduate Certificate in Stormwater Management, 2013</p> <p><b>The Pennsylvania State University</b>, University Park, PA B.S., Mathematics, 2007</p> <p>Minor, Statistics, 2007</p>
RESEARCH EXPERIENCE	<p><b>Post-Doctoral Researcher</b> 2023 to 2025 Department of Civil, Architectural, and Environmental Engineering Drexel University Supervisor: Christopher M. Sales, Ph.D.</p> <ul style="list-style-type: none"><li>• Reinforced Concrete Repair by an Evolving Visualized Internal Vascular Ecosystem (RC-REVIVE)</li></ul> <p><b>Post-Doctoral Researcher</b> 2020 to 2023 Microbiology Group, Stroud Water Research Center Supervisor: Jinjun Kan, Ph.D.</p> <ul style="list-style-type: none"><li>• Evaluating how conventional, conservation, and organic framing management practices enhance soil health and improve water quality</li></ul> <p><b>Post-Doctoral Researcher</b> 2018 to 2020 Department of Soil Science, University of Wisconsin - Madison Supervisors: Thea Whitman, Ph.D, Amy Willis, Ph.D., &amp; Karl Broman, Ph.D.</p> <ul style="list-style-type: none"><li>• Addressing misclassification in the microbiome: A data-scientific approach to propagating uncertainty in microbial community composition</li></ul> <p><b>Post-Doctoral Researcher</b> 2018 The Sustainable Water Resource Engineering Laboratory Department of Civil, Architectural, and Environmental Engineering Drexel University Supervisors: Franco Montalto, Ph.D, P.E.</p> <ul style="list-style-type: none"><li>• Evaluation of rooftop water quality, and the development of conceptual treatment protocols for the Jacob K. Javits Convention Center Green Roof Extension</li></ul> <p><b>Doctoral Research Assistant</b> 2013 to 2018 Department of Civil, Architectural, and Environmental Engineering Drexel University Supervisor: Christopher M. Sales, Ph.D</p>

**Masters Research Assistant** 2012 to 2013  
Department of Civil and Environmental Engineering  
Temple University  
Supervisor: Robert J. Ryan, Ph.D, P.E.

<b>Technical Advisor</b>	2012 to 2013
Center for Natural Resource Development and Protection, Department of Civil and Environmental Engineering New Jersey Institute of Technology Supervisor: Michel C. Boufadel, Ph.D, P.E.	

**Research Assistant** 2010 to 2012  
 Center for Natural Resource Development and Protection,  
 Department of Civil and Environmental Engineering  
 Temple University  
 Supervisor: Michel C. Boufadel, Ph.D, P.E.

## HONORS & AWARDS

Travel Awards

- International Society for Microbial Ecology, Montreal, Canada 2016

Student Awards — Drexel University	
• Claudio Elia Memorial Fellowship	2015 to 2016
• Graduate Assistance in Areas of National Need (GAANN)	2014 to 2015
Grand Challenges Fellowship	
• The Koerner Family Award in Civil, Architectural, and Environmental Engineering	2014 to 2015

Student Awards — Temple University

- Scientists as Teachers; Teachers as Scientists Graduate Fellowship 2012 to 2013  
National Science Foundation Award Number 0841377

REFEREED  
JOURNAL  
PUBLICATIONS

1. **Price, J. R.**, Alvaro, M., & C. M. Sales. "Alkalinity gradients shape hyphal growth patterns of filamentous fungi." (IN PREPERATION)
2. **Price, J. R.**, Oviedo-Vargas, D., Peipoch, M., Daniels, M., & J. Kan. "Reduction in nitrification during the early transition from conventional to organic farming practices." (2023, IN REVIEW).
3. He, J., Owusu-Asumeng, E., Zidar, K., Stolper, J., Attri, S., **Price, J. R.**, Partridge, D., Montalto, F., & C. M. Sales. "Impacts of a herring gull colony on runoff water quality from an urban green roof." *Sci Total Environ.* doi:10.1016/j.scitotenv.2024.174430 (2024).
4. Bier, R.L., Daniels, M., Oviedo-Vargas, D., Peipoch, M., **Price, J.R.**, Omondi, O., Smith, A., & J. Kan. "Agricultural soil microbiomes differentiate in soil profiles with fertility source, tillage, and cover crops." *Agriculture, Ecosystems & Environment.* doi:10.1016/j.agee.2024.109002 (2024).
5. Minerovic, A., Potapova, M. G., Sales, C. M., **Price, J. R.**, & Enache, M. D. "18S-V9 DNA metabarcoding detects the effect of water-quality impairment on stream biofilm eukaryotic assemblages." *Ecol Indic.* doi:10.1016/j.ecolind.2020.106225 (2020).
6. **Price, J. R.**, Ledford, S. H., Ryan, M. O., Toran, L. & Sales, C. M. "Wastewater treatment plant effluent introduces recoverable shifts in microbial community composition in receiving streams." *Sci Total Environ* 613-614, 1104-1116, doi:10.1016/j.scitotenv.2017.09.162 (2018).

7. Sniffen, K. D., **Price, J. R.**, Sales, C. M. & Olson, M. S. "Influence of Scale on Biomass Growth and Nutrient Removal in an Algal-Bacterial Leachate Treatment System." *Environ Sci Technol* 51, 13344-13352, doi:10.1021/acs.est.7b03975 (2017).
8. **Price, J. R.**, Keshani Langroodi, S., Lan, Y., Becker, J.M., Shieh, W.K., Rosen, G.L., & Sales, C.M. "Untangling the microbial ecosystem and kinetics in a nitrogen removing photosynthetic high density bioreactor." *Environ. Sci.: Water Res. Technol.* 2, 705-716, doi:10.1039/c6ew00078a (2016).

• **Emerging Investigators Series**

9. **Price, J. R.**, Shieh, W. K. & Sales, C. M. "A Novel Bioreactor for High Density Cultivation of Diverse Microbial Communities." *J Vis Exp* e53443, doi:10.3791/53443 (2015).

BOOK CHAPTERS

1. Woloszynek, S., Zhao, Z., Ditzler, G., **Price, J.R.**, Reichenberger, E., Lan, Y., Chen, J., Earl, J., Keshani Langroodi, S., Ehrlich, G., & Rosen, G.L. "Analysis Methods for Shotgun Metagenomics" in *Computational Biology: Theoretical and Applied Aspects of Systems Biology* Eds F. Alves Barbosa da Silva, N. Carels, & F. Paes Silva Junior. Springer International Publishing. doi:10.1007/978-3-319-74974-7\_5 (2018).

SOFTWARE

1. **Price, J. R.** Woloszynek, S., Rosen, G. L. & Sales, C. M. "theseus - An R package for the analysis and visualization of microbial community data." *bioRxiv*, doi:10.1101/295675 (2018).

TECHNICAL NOTES

1. **Price, J. R.**, Thompson, T. J., & Parish, J. "Automated Parsing of a LabSolutions Batch Results File (ASCII Output) When Using a Spreadsheet or Statistical Package to Summarize Data." Technical Note. Shimadzu Scientific Instruments. doi: 10.13140/RG.2.1.2746.3447. (2015).

PRESENTATIONS

Invited Presentations

1. **Price, J.R.**, Willis, A.D., and T.L. Whitman. 2020. "Propagation of uncertainty improves the quality of microbiome data analysis". Biological Discovery from Big Data (BD<sup>2</sup>) Seminar Series. Drexel University. Philadelphia, PA. (**Canceled: COVID-19**).

Oral Presentations

1. **J.R. Price.** 2022. Check your stats: statistical considerations for microbiome data. 2022 AEESP Research & Education Conference. St. Louis, MO.
2. **Price, J.R.**, Willis, A.D., and T.L. Whitman. 2020. "Propagation of uncertainty improves the quality of microbiome data analysis". ACS Fall Meeting. San Francisco, CA.
3. **Price, J.R.**, Willis, A.D., and T.L. Whitman. 2020. "Propagation of uncertainty improves the quality of microbiome data analysis". ACS National Meeting. Philadelphia, PA. (**Meeting Cancelled: COVID-19**).
4. He. J.\*, Owusu-Asumeng, E., **Price, J.R.**, Zidar, C., Stolper, J., Lempitsky, I., Montalto, F., and C.M. Sales. 2020. "Urban green roofs as new habitats for birds...and bacteria: A yearlong water quality assessment of stormwater runoff the Javits Center Green Roof". ACS National Meeting. Philadelphia, PA. (**Meeting Cancelled: COVID-19**).

5. **J.R. Price.** 2019. Statistical Considerations for 'omic data analysis. 2019 AEESP Research & Education Conference. Tempe, AZ.
6. **Price, J.R.,** and C.M. Sales. 2019. Predation and parasitism induces community stability and performance within EBPR reactors. ACS National Meeting. Orlando, FL.
7. **Price, J.R.** and C.M. Sales. 2018. Examining nutrient uptake and transformation within photosynthetic microbial communities using a high density bioreactor. 255th American Chemical Society National Meeting. New Orleans, La.
8. Bradley, T.\*, **Price, J.R.,** and C.M. Sales. 2018. Comparing MiSeq and PacBio SMRT sequencing of fecal samples from various animal sources potentially contributing to microbial contamination of the Delaware River Watershed. Delaware Watershed Research Conference. Philadelphia, PA.
9. Minerovic, A.\*, Potapova, M., **Price, J.R.,** and C.M. Sales. 2018. Molecular and morphological characterization of microbial eukaryote diversity and community structure for stream biomonitoring in New Jersey, USA. 2018 Phycological Society of America/International Society of Protistologists Annual Meeting. Vancouver, Canada.
10. Minerovic, A.\*, Potapova, M., **Price, J.R.,** and C.M. Sales. 2018. Molecular and morphological characterization of diatom diversity and community structure for stream biomonitoring in New Jersey, USA. 2018 International Diatom Symposium. Berlin, Germany.
11. **Price, J.R.,** Ledford, S.H., Ryan, M.O., Toran, L., and C.M. Sales. 2017. The impact of wastewater treatment plant effluent on the composition of microbial communities within receiving streams. Delaware Watershed Research Conference 2017. Philadelphia, PA.
12. Sales, C.M.\*, **Price, J.R.,** and S. Keshani Langroodi. 2017. Tools from molecular ecology provide an augmentative approach to understanding engineered and natural systems. Philadelphia Symposium on Cross-Disciplinary Analytical Approaches. Philadelphia, PA.
13. Ledford, S.H.\*, **Price, J.R.,** Ryan, M., Perez, L. B., Sales, C.M., and L. Toran. 2016. Using multi-parameter biogeological approach to track the impact of treated sewage discharge on urban streams. 2016 Annual Meeting of the Geological Society of America. Denver, CO.
14. **Price, J.R.** and C.M. Sales. 2015. Microalgae: Harnessing Diverse Metabolisms for Environmental Remediation and Waste Stream Treatment. 2015 Annual Meeting of the Phycological Society of America. Philadelphia, PA.

#### Poster Presentations

1. **J.R. Price** & J. Kan. 2023. Complex Variations in Fecal Indicator Bacteria Counts in Headwaters Are Driven by a Combination of Seasonal and Catchment Forces. 13th National Monitoring Conference of the North American Lake Management Society. Virginia Beach, VA.
2. **Price, J.R.,** Willis, A.D., and T.L. Whitman. 2020. "Quantifying and propagating uncertainty in assigning reads to OTUs". ASM Microbe Online.
3. **Price, J.R.,** Willis, A.D., and T.L. Whitman. 2020. "Quantifying and propagating uncertainty in assigning reads to OTUs". ASM Microbe. Chicago, IL. (Meeting Cancelled: COVID-19).

4. **Price, J.R.**, Willis, A.D., and T.L. Whitman. 2020. "Accounting for uncertainty in the read-to-OTU classification problem improves the quality of microbiome analysis". University of Wisconsin - Madison Data Science Research Bazaar. Madison, WI.
5. **J.R. Price** & C.M. Sales. 2018. "Quantifying the influence of nutrient loading on a photosynthetic mixed community". International Society of Microbial Ecology - 17. Leipzig, Germany.
6. **Price, J.R.**, Ledford, S.H.\*, Ryan, M.O., Toran, L., and C.M. Sales. 2017. Wastewater treatment plant effluent introduces recoverable shifts in microbial community composition in urban streams. 2017 Fall meeting of the American Geophysical Union. New Orleans, LA.
7. **Price, J.R.** and C.M. Sales. 2017. Linking ecological aspects to photobioreactor operation and performance. 2017 Annual Meeting of The American Society for Microbiology. New Orleans, LA.
8. **Price, J.R.** and C.M. Sales. 2016. Resolving the relationships between photobioreactor influent, microbial diversity and abundance, and reactor performance within a high density bioreactor. 2016 Meeting of The International Society for Microbial Ecology. Montreal, Canada.
9. Navin, D.V.\*, **Price, J.R.**, and C.M. Sales. 2016. The influence of fluid shear on settling of algal biomass within a high density bioreactor. Hess Undergraduate Scholars Research. Philadelphia, PA.
10. **Price, J.R.**, Shieh, W.K., and C.M. Sales. 2015. A Novel Photobioreactor for Studying Nitrogen Utilization and Transformation by a Mixed Community of Algae and Bacteria Grown at High Cell Densities. Annual Meeting of the Association of Environmental Engineering & Science Professors. New Haven, CT.
11. **Price, J.R.**, Shieh, W.K., and C.M. Sales. 2015. Consumption and Conversion of Nitrogen Species by a Mixed Photosynthetic Community within a High Density Bioreactor. Drexel University Research Day. Philadelphia, PA.
12. **Price, J.R.**, Shieh, W.K., and C.M. Sales. 2015. Nitrogen Removal Dynamics by a Photosynthetic Microbial Community Under High Cell Densities. Annual Meeting of the American Waste Water Association – Pennsylvania Section. Hershey, PA.
13. **Price, J.R.**, and M.C. Boufadel. 2012. The kidney roles of the Delaware River shorelines. Schuylkill Watershed Congress. Pottstown, PA.
14. **Price, J.R.**, Smith, T., and M.C. Boufadel. 2011. The kidney roles of the Delaware River shorelines: Experimental Design. Temple University College of Engineering Research Day and Poster Competition. Philadelphia, PA.

CONFERENCES &  
WORKSHOPS  
FACILITATED

1. Johnston, J., Kantor, R., Lawson, C., Ling, F., Pinto, A., **Price, J.**, & R. Ziels. 2023. Quantitatively integrating meta'omics approaches into environmental engineering and science research. Association for Environmental Engineering and Science Professors Research & Education Conference. Northeastern University, Boston, MA.
2. Anderson, C., Johnston, J., Lawson, C., Ling, F., Pinto, A., **Price, J.**, & R. Ziels. 2022. Leveraging Microbiome Research in Environmental Engineering and Science. Association for Environmental Engineering and Science Professors Research & Education Conference. Washington University, St. Louis, MO.

3. 2020. Data Science Research Bazaar: What's the Data Science in Your Science? University of Wisconsin - Madison. Madison, WI.
4. Anderson, C., Dai, Z., Lawson, C., Pinto, A., **Price, J.**, Sevillano, M., Srinivansan, V., & R. Ziels. 2019. Meta-omics in Environmental Engineering Research: Theory, Statistics, and Data Interpretation. Association for Environmental Engineering and Science Professors Research & Education Conference. Arizona State University, Tempe, AZ.

TEACHING EXPERIENCE	Teaching Assistant - Drexel University	
	• Engineering Process Lab I & II	2014 to 2017
	• Introduction to Infrastructure Engineering	2014
	• Groundwater Remediation	2014
	• Hydraulics	2013 to 2014
	• Hydrology	2013
	Teaching Assistant - Temple University	
	• Introduction to Engineering	2012
	• Probability, Statistics, and the Stochastic Method	2011
	• Mechanics of Fluids	2011
	Graduate Fellow, Scientists as Teachers – Teachers as Scientists	
	• Temple University and W.B. Saul Agricultural High School	2012 to 2013
MENTORING EXPERIENCE	<b>Undergraduate Students</b>	
	Drexel Students Tackling Advanced Research (STAR) Scholars	
	• Sudipti Attri (BS. CHEME, exp. 2021, Drexel University)	2017
	• Shannon Belfield (BS ENVE exp. 2021, Drexel University)	2017
	• Marina D'Sousa (BS ENVE exp. 2020, Drexel University)	2016 to 2017
	Hess Undergraduate Research Scholarship Program	
	• Daniel Navin (BS ME 2017, Drexel University)	2016
	Freshman Design Project	
	• Marina D'Sousa (BS ENVE exp. 2020, Drexel University)	2016
	• Fatima Hassan (BS ENVE exp. 2020, Drexel University)	2016
	Co-op & Volunteer Program	
	• Jonas Becker (BS BIO, 2016, Hochschule Bremen, Germany)	2015 to 2016
	• Thomas Thompson (BS/MS ENVE 2016, Drexel University)	2015
	• Aspen Walker (BS/MS ENVE 2015, The University of Pennsylvania)	2014 to 2015
	<b>High School Students</b>	
	Franklin Institute STEM Scholars	
	• Bafode Keita	2016
	• Hasan Talouli	2016
	• Semir Ibrahim	2015
	• Kayin Bankole	2014
UNIVERSITY SERVICE	• Graduate Student Tenure Committee (Chair)	2018
	Drexel University	
PROFESSIONAL ACTIVITIES	Service Positions	
	• Research Bazaar Planning Committee	2019 to 2021
	• American Society for Microbiology Young Ambassador	2018 to 2020

- Journal Referee for:  
Environmental Science & Technology, The ISME Journal, Scientific Reports, Water Research
- Drexel University Point of Contact 2017 to 2018  
Northeast Graduate Student Water Symposium
- ReadCube Ambassador Program 2015 to 2018
- Advising Panelist and Task Force Member 2014 to 2015  
Watershed Action Through Engineered Response (W.A.T.E.R.)  
W.B. Saul High School of Agricultural Sciences

#### Ad hoc Outreach Presentations

- Sales, C.M., **Price, J.R.**, Hamilton, K., Rackes, A., & Perez, L. Environmental Engineering Workshop. Franklin Institute STEM Scholars. Franklin Institute, Philadelphia, PA. (2016).
- **J.R. Price.** Potential Uses of Algae in Wastewater Treatment. Gwynedd-Mercy Academy. Ambler, PA. (2015).
- **J.R. Price.** Investigation of Algal Communities. Walter Biddle Saul Agricultural High School. Philadelphia, PA. (2013).

#### Associations and Memberships

- American Association for the Advancement of Science (AAAS)
- American Chemical Society (ACS)
- Association of Environmental Engineering and Science Professionals (AEESP)
- American Geophysical Union (AGU)
- American Society for Microbiology (ASM)
- American Water Resources Association (AWRA)
- American Water Works Association (AWWA)
- International Society for Microbial Ecology (ISME)

OTHER EXPERIENCE	Data Analyst	2009 to 2010
	Arkema Incorporated, Philadelphia, PA	
	Actuarial (Intern followed by) Technician	2006 to 2009
	Penn Mutual Life Insurance Company, Horsham, PA	