

Associate Professor
Department of Civil & Environmental Engineering
Center for the Management, Utilization
& Protection of Water Resources
Tennessee Tech University
Box 5033, Cookeville, TN 38505
Phone: (931) 372-3446
Email: tdatta@tntech.edu

Tania Datta, Ph.D.

EDUCATION

- University of Utah, Salt Lake City, Utah, USA** Dec 2006 – May 2010
Degree: Doctorate of Philosophy
Major: Civil and Environmental Engineering
Dissertation: *Evaluation of feasibility, sustenance and microbial ecology of enhanced biological phosphorus removal in aerated-anoxic activated sludge systems.*
- University of Utah, Salt Lake City, Utah, USA** Aug 2004 – Dec 2006
Degree: Masters of Engineering
Major: Civil and Environmental Engineering
- R.V College of Engineering, Bangalore, India** Oct 1998 – Apr 2002
Degree: Bachelor of Engineering
Major: Chemical Engineering
-

RESEARCH EXPERTISE

- Biological Wastewater Treatment Process and Design
 - Applied Environmental Microbiology
 - Water Quality/Watershed Management
 - Bioenergy Production through Anaerobic Processes
 - Low-Cost Technologies for Water and Sanitation in Developing Countries
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EMPLOYMENT HISTORY

- Associate Professor** Aug 2019 – Present
Department of Civil & Environmental Engineering
Center for the Management, Utilization & Protection
of Water Resources Tennessee Tech University, Cookeville, Tennessee
- Assistant Professor** Jan 2013 – July 2019
Department of Civil & Environmental Engineering
Center for the Management, Utilization & Protection
of Water Resources; Tennessee Tech University, Cookeville, Tennessee

Project Engineer – Wastewater Processes Jul 2009 – Nov 2012
CH2M HILL, Salt Lake City, Utah

Graduate Research Assistant – Environmental Microbiology May 2006 – June 2009
University of Utah, Salt Lake City, Utah

Graduate Research Assistant – Soil/Sediment Remediation Jan 2005 – Apr 2006
University of Utah, Salt Lake City, Utah

Process Engineer – Oil and Gas Aug 2002 – Jul 2004
J Ray McDermott International, Jebel Ali, UAE

TEACHING EXPERIENCE

Tennessee Tech University, Department of Civil and Environmental Engineering, *Instructor*

- CEE 1020: Connections to Civil and Environmental Engineering
- CEE 3413: Introduction to Environmental Engineering
- HON 4013: Engineering and Social Justice
- CEE 4430/5430: Water and Wastewater Treatment Design
- CEE 4490: Experiential Learning in Water Resources and Environmental Engineering
- CEE 4990/6900: Applied Microbiology for Environmental Engineers
- CEE 6720: Environmental Engineering Unit Operations-Wastewater Treatment
- CEE 6780: Environmental Engineering Laboratory
- CEE 6900 Special Topics: Stormwater Management: Design and Applications
- CEE 6910: Graduate Seminar

Tennessee Tech University, 2013 Governor’s School for Emerging Technologies, *Instructor*

- LIST 1093: Introduction to Emerging Technologies BIO/NANO

University of Utah, *Graduate Teaching Assistant*

- Engineering Statistics and Economics
- Environmental Engineering I
- Environmental Engineering II

REFEREED JOURNAL PUBLICATIONS

1. Kaiser, R. A., Polk, J. S., **Datta, T.**, Parekh, R. R., & Agga, G. E. (2022). Occurrence of Antibiotic Resistant Bacteria in Urban Karst Groundwater Systems. *Water*, 14(6), 960.
2. Ohemeng-Ntiamoah, J., **Datta, T.** (2021). Biomethane potential test reveals microbial adaptation and increased methane yield during anaerobic co-digestion. *Bioresources Technology Report*, 15.
3. Chujo, M., Li, J., **Datta, T.**, Amano, Y., & Machida, M. (2021). A Competitive Growth Model for the Simulation of Cyanobacterial Blooms Under Eutrophic Conditions. *Environmental Engineering Science*, 38(1), 15-23.

4. Ohemeng-Ntiamoah, J., **Datta, T.** (2019). Perspectives on variabilities in biomethane potential test parameters and outcomes: A review of studies published between 2007 and 2018. *Science of The Total Environment*, 664, 1052-1062.
5. Omori, K., **Datta, T.**, Amano, Y., Machida, M. (2019). Effects of different types of extracellular polysaccharides isolated from cyanobacterial blooms on the colony formation of unicellular *Microcystis aeruginosa*. *Environmental Science and Pollution Research*, 26 (4), 3741-3750.
6. Esfahani, R. A., **Datta, T.** (2018). Nitrate removal from water using zero valent aluminum. *Water and Environment Journal*, <https://onlinelibrary.wiley.com/doi/abs/10.1111/wej.12438>.
7. Ohemeng-Ntiamoah, J., **Datta, T.** (2018). Evaluating analytical methods for the characterization of lipids, proteins and carbohydrates in organic substrates for anaerobic co-digestion. *Bioresource Technology*, 247, 697-704.
8. Mikawa, M., **Datta, T.**, Amano, Y., & Machida, M. (2017). Dominant Characteristics Between *Microcystis aeruginosa* and *Cyclotella* Sp. Accompanying Dilution Process in Eutrophic Lake. *Water, Air, & Soil Pollution*, 228(5), 174.
9. Abegaz, B. W., **Datta, T.**, Mahajan, S. M. (2017). Sensor technology for the energy-water nexus: A Review. *Applied Energy*. 210(15), 451-466.
10. Sato, M., Omori, K., **Datta, T.**, Amano, Y., and Machida, M. (2017). Influence of Extracellular Polysaccharides and Calcium Ion on Colony Formation of Unicellular *Microcystis aeruginosa*. *Environmental Engineering Science*. 34(3), 149 – 157.
11. Kim, E. S., **Datta, T.**, Kim, J. B., Lee, G., and Choi, J. (2016). Biological Fixed Film. *Water Environment Research*, 88(10), 1021-1050.
12. Daigger, G. T., **Datta, T.**, Stensel, H. D., Whitlock, D. D., & Mackey, J. K. (2014). Evaluating the Role of Point Source Discharges Informs Statewide Nutrient Control Policy in Utah. *Water Environment Research*, 86(6), 559-572.
13. S. M. Kotay, **T. Datta**, J. Choi and R. Goel (2011). “Biocontrol of biomass bulking caused by *Haliscomenobacter hydrossis* using newly isolated lytic bacteriophages.” *Water Research*, 45 (2): 694-704.
14. **T. Datta**, L. Racz, S. M. Kotay and R. Goel (2011). “Seasonal variations of nitrifying community in trickling filter-solids contact (TF/SC) activated sludge systems.” *Bioresource Technology*, 102 (3): 2272 -2279.
15. L. Racz, **T. Datta** and R. Goel (2010). “Organic carbon effect on nitrifying bacteria in a mixed culture.” *Water Science and Technology*, 61 (11): 2951-2956.

16. L. Racz, **T. Datta** and R. Goel (2010). “Effect of organic carbon on ammonia oxidizing bacteria in a mixed culture.” *Bioresource Technology*, 101 (16): 6454-6460.
 17. **T. Datta** and R. Goel (2010). “Evidence and Long Term Feasibility of Enhanced Biological Phosphorus Removal in Oxidation Ditch type of Aerated-anoxic Activated Sludge Systems.” *ASCE Journal of Environmental Engineering*, 136 (11): 1237 - 1247.
 18. **T. Datta**, Y. Liu and R. Goel (2009). “Evaluation of simultaneous nutrient removal and sludge reduction in using laboratory scale sequencing batch reactors.” *Chemosphere*, 76, 697-705.
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BOOK CHAPTERS AND MANUALS

1. R. Reardon, **T. Datta**, C. Stacklin. (2014). “The Next Generation of Resource Recovery Technologies.” In: Water Environment Federation Special Publication – Moving Towards Resource Recovery Facilities.
 2. **Co-author** (2013). The Energy Roadmap: A Water and Wastewater Utility Guide to More Sustainable Energy Management. A Roadmap to Energy Neutrality at Wastewater Utilities. Water Environment Federation (WEF), Alexandria, VA.
 3. M. Burbano, **T. Datta**, K. Bell, H. Liu and C. Lancaster. (2013). “Chapter 15: Laboratory Analyses of Wastewater Characterization.” In: *Water Environment Federation Manual of Practice No. 29 - Biological Nutrient Removal (BNR) Operation in Wastewater Treatment Plants*. WEF, Alexandria, VA.
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MAJOR REPORTS

1. TN H₂O – Tennessee’s Roadmap to Securing the Future of Our Water Resources (2018). https://www.tn.gov/content/dam/tn/environment/documents/TN_H2O_REPORT.pdf.
 2. C. Bittner, **T. Datta**, J. DenBleyker, J. Gardberg, L. Guenzel, J. Ostermiller and A. Williams (2014). “A Great Salt Lake Water Quality Strategy.” Utah Department of Environmental Quality/Division of Water Quality. https://deq.utah.gov/legacy/destinations/g/great-salt-lake/strategy/docs/2014/09Sep/Overview_GSL_WQ_Strategy.pdf
 3. D. Whitlock, J. Sandino, **T. Datta**, B. Johnson and L. Lei (2010). Evaluation of Processes to Reduce Activated Sludge Solids Generation and Disposal. Water Environment Research Foundation (WERF) Project 05CTS3.
 4. Utah Statewide Nutrient Removal Cost Impact Study. Utah Department of Environmental Quality/Division of Water Quality. <https://deq.utah.gov/legacy/pollutants/n/nutrients/studies/publicly-owned-treatment-works-removal-impact.htm>
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CONFERENCE PROCEEDINGS

1. Ohemeng-Ntiamoah J. and **Datta T.** (2021). “Can Microbial Acclimation Work to Avert Inhibition During FOG Co-Digestion?”. Presented at 2021 Water Environment Federation Residuals and Biosolids Conference: A Virtual Event. May 11-13, 2021.
2. Ohemeng-Ntiamoah J. and **Datta T.** (2019). “Anaerobic Co-digestion of Wastewater Residuals with Food waste and FOG: Effects on Digester Performance and Microbial Community Structure”. Presented at Water Environment Federation Technical Exhibition and Conference (WEFTEC); Chicago, IL; September 24, 2019.
3. McClellan, G.E., and **Datta, T.** (2019). “Elucidating the microbial community and process stability of oxidation ditches optimized for biological nutrient removal.” Water Environment Federation Technical Exhibit and Conference (WEFTEC); Chicago, IL; Sept. 21-25, 2019.
4. Ohemeng-Ntiamoah J. and **Datta T.** (2019). “Exploring Renewable Energy Recovery for Sustainable Wastewater Treatment”. Presented at 28th Tennessee Water Resources Symposium; Burns, TN; April 12, 2019.
5. Kalyanapu, A., **Datta, T.**, Dodson, D., Bynum, K. and Harrington, B. (2015). “A Collaborative Effort towards Real-time Water Quality Equipment Demonstration at Falling Water River, Tennessee”. Tennessee American Water Resources Association, Montgomery Bell State Park, TN, April 2015.
6. McClellan, G.E., and **Datta, T.** (2015). “An Approach towards Linking Diversity of Polyphosphate Accumulation Organisms to Improved Functional Stability of the Enhanced Biological Phosphorus Removal Process.” Tennessee American Water Resources Association, Montgomery Bell State Park, TN, April 2015.
7. Garcia, T.P., **Datta, T.**, and Pili, A.S. (2015). An Evaluation of Current Waste Disposal Practices and Possible Pathways to Pollution Prevention in the Philippines Printing Industry. The 2015 Asian Symposium on Printing Technology in Tokyo, Japan.
8. R. Reardon, **T. Datta**, C. Stacklin (2014). “Advancing Resource Recovery from Wastewater - The Next Generation of Technologies”, IWA Conference on Global Challenges: Sustainable Wastewater Treatment and Resource Recovery, October 26th – 30th, 2014, Kathmandu, Nepal.
9. **T. Datta**, T. Williams and R. Alexander (2012). “Biosolids Composting – What’s it Worth?” WEF Residuals and Biosolids Conference, 2012, Raleigh, NC.
10. D. Whitlock, **T. Datta**, Z. Erdal and G. T. Daigger (2011). “Sustainable Wastewater Management: Energy and Nutrient Resource Recovery”, WEF Energy and Water Conference, 2011, Chicago, IL.
11. G. T. Daigger, H. D. Stensel, J.K. Mackey and **T. Datta** (2010). “Striking a Balance: Evaluating the Role of Point Sources Informs Statewide Nutrient Control Policy, WEFTEC, 2010, New Orleans, LA.

12. J.K. Mackey, **T. Datta**, D. Whitlock and P. Krauth (2010). “Protocol Development for Utah’s State-wide Nutrient Cost Impact Study”, WEFTEC, 2010, New Orleans, LA.
 13. S. M. Kotay, **T. Datta** and R. Goel (2009). “Microbial Ecology of Viruses in an EBPR Activated Sludge Process Performing Phosphorus Release Under Aerated-Anaerobic Condition”, 109th General Meeting of American Society of Microbiology, Philadelphia, PA.
 14. S. Tahir, **T. Datta**, J. Harris, and R. Goel (2009). “Setting up TMDL for Jordan River - Role of Sediment Oxygen Demand and Nutrient Flux”, WEF TMDL, 2009, Minneapolis, MN.
 15. **T. Datta** and R. Goel (2007). “Evidence of Non - *Candidatus* A. phosphatis population participating in Enhanced Biological Phosphorus Removal in Carrousel Activated Sludge Process”, WEFTEC 2007, San Diego, CA.
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CONFERENCE PRESENTATIONS

1. Arms, M; **Datta, T.**, Kalyanapu, A. (2021). “Watershed-wide Stormwater Management Issues in an Underserved Community of Tennessee through Community-University Partnership.” 2022 World Environmental & Water Resources Congress, June 5-8, Atlanta, Georgia.
2. Arms, M; **Datta, T.**, Kalyanapu, A. (2021). “Investigating Stormwater Issues in a Rural TN Watershed through a Community-University Partnership Program.” 2022 AEESP Research and Education Conference, June 28-30, St. Louis, MI.
3. Kaiser, R., **Datta, T.**, Parekh, R., Agga, G., Polk, J. (2021). “Antibiotic Resistant Bacteria in Urban Karst Groundwater Systems in Bowling Green, Kentucky.” 2021 Tennessee Water Resources Symposium. April 14-16, 2021, Virtual.
4. Dhanvada, V., Kalyanapu, A., **Datta, T.**, Adkins, J. (2021). “Development of a GIS-based watershed vulnerability assessment tool for the Loosahatchie watershed in Tennessee.” 2021 Tennessee Water Resources Symposium. April 14-16, 2021, Virtual.
5. Arms, M., Harris, H.T., Wright, T., Kalyanapu, A., **Datta, T.** (2021). “Watershed-wide Stormwater Management in an Underserved Community of Tennessee through Community-University Partnership.” 2021 Tennessee Water Resources Symposium. April 14-16, 2021, Virtual.
6. Ohemeng-Ntiamoah J., and **Datta, T.** (2019). “Microbial Acclimation Induces Resilience for Averting Inhibition in Anaerobic Co-Digestion Systems”. Poster Presented at American Society of Microbiology (ASM); June 15, 2019; San Francisco, CA.
7. McClellan, G.E., and **Datta, T.** (2019). “Structure and function of microbial communities responsible for nutrient removal in an optimized wastewater treatment process.” Poster presented at American Society for Microbiology (ASM) Microbe. June 20-24, 2019. San Francisco, CA.

8. McClellan, G.E., and **Datta, T.** (2019). "Microbial community structure and stability during optimization of a full-scale biological nutrient removal process." Poster presented at Association of Environmental Engineering and Science Professors (AEESP). May 14-16, 2019. Arizona State University, Tempe, AZ.
9. Wigner, R., Kirkpatrick, D., Wright, T., and **Datta, T.** (2019). "Potential Contributions of Atmospheric Deposition to Nitrates and Ammonia in Tennessee's Highway Stormwater Runoff." Association of Environmental Engineering & Science Professors (AEESP). May 14-16, 2019; Arizona State University, Tempe, AZ.
10. Guy-Baker, C., **Datta, T.**, Kalyanapu, A. (2018). "Toward Development of a Systematic Framework and Watershed Quality Index Tool for Karst Watershed Management." 27th Tennessee Water Resources Symposium. April 11-13th, 2018. Montgomery Bell State Park, TN.
11. Allen, S., Guy-Baker, C., **Datta, T.**, Kalyanapu, A. (2018). "Developing a Web-based Geodatabase for Data Sharing and Collaboration within the Falling Water River Watershed." 27th Tennessee Water Resources Symposium. April 11-13th, 2018. Montgomery Bell State Park, TN.
12. Allen, S., Guy-Baker, C., **Datta, T.**, Kalyanapu, A. (2018). "Web-Based Geodatabase for the Characterization and Management of a Karst Watershed." American Water Resources Association Spring Specialty Conference – GIS and Water Resources. April 22-25, 2018. Orlando, FL.
13. McClellan, G. E., **Datta, T.** (2017). "A Look into the Microbial Community of a Wastewater Treatment Facility Undergoing Optimization for Nutrient Removal." American Society for Microbiology (ASM) KY/TN Conference, Tennessee Technological University, Cookeville, TN, November 10th - 11th, 2017.
14. Guy-Baker, C., **Datta, T.**, Kalyanapu, A. (2017). "Toward Development of a Systematic Framework and Decision-Making Tool for Sustainable Watershed Management with Karst Geology." Poster presented at Association of Environmental Engineering and Science Professors (AEESP) Conference, University of Michigan, June 20th – 22nd, 2017.
15. Ohemeng-Ntiamoah J., and **Datta T.** (2017). "Effects of Lipids, Proteins and Carbohydrates on Biomethane Potential of Organic Substrates." Poster presented at Association of Environmental Engineering and Science Professors (AEESP) Conference, University of Michigan, June 20th – 22nd, 2017.
16. Moffet, M., Wigner, R., Davis, A., Wright, T., **Datta, T.** (2017). "Does Atmospheric Deposition of Nitrates Play a Role in Increasing Nitrogen Pollution from Highway Stormwater Runoff?" Poster presented at Association of Environmental Engineering and Science Professors (AEESP) Conference, University of Michigan, June 20th – 22nd, 2017.

17. McClellan, G.E., **Datta, T.**, and Stewart, R. (2015). “Can a More Diverse Polyphosphate Accumulating Organisms Community Improve Functional Stability of the Enhanced Biological Phosphorus Removal Process?” Poster presented at Association of Environmental Engineering and Science Professors (AEESP) Conference, Yale University, New Haven, CT, June 13th – 16th, 2015.
18. Ohemeng-Ntiamoah J., Moffet M. and **Datta T.** (2015). “Linking Complex Organic Feedstock Characteristics To Microbial Metabolic Activities In Anaerobic Co-digesters.” Poster presented at Association of Environmental Engineering and Science Professors (AEESP) Conference, Yale University, CT, June 13th – 16th, 2015.
19. **T. Datta** (2013). “Sidestream Treatment Alternatives for Nutrient Removal and Recovery at Wastewater Treatment Facilities”, 23rd Tennessee Water Resources Symposium, TN AWRA, November 4th – 6th, 2013, Montgomery Bell Park.
20. **T. Datta**, K. Neubauer and J. Sauer (2011). “The future of global water and sanitation challenges from a socio-economic perspective.” International Water Association 2nd Development Congress and Exhibition, November 2011, Kuala Lumpur, Malaysia.
21. **T. Datta**, S. Tahir and R. Goel (2008). “Polyphosphate accumulating organisms and nitrifying population ecology in an activated sludge process aimed to achieve nutrient removal and sludge reduction simultaneously”, WEFTEC, 2008, Chicago, IL.
22. **T. Datta** and R. Goel (2007). “PAOs other than *Candidatus Accumulibacter Phosphatis* participating in Enhanced Biological Phosphorus Removal”, AEESP Conference 2007, Virginia Tech.
23. Y. Liu, **T. Datta** and R. Goel. (2007). “Sludge minimization coupled with biological nitrogen and phosphorus removal- a step towards sustainable wastewater treatment.” AEESP Conference 2007, Virginia Tech.
24. **T. Datta**, H. Xu, A. Hong, and D. Hayes (2006). “Chemical Treatment of DDT in Organic and Aqueous Phases and Biological Incubation.” The 16th Annual AEHS Meeting & West Coast Conference on Soils, Sediments, and Water, March 2006, San Diego, CA.

GRADUATE STUDENTS

Doctoral Students

1. Rachel Kaiser
 Expected Graduation Date: Dec 2022
 Dissertation: Elucidating Antibiotic Resistant Bacteria in Urban Karst Groundwater Systems
2. Grace McClellan
 Graduation Date: May 2020
 Dissertation: Microbial Community Structural and Functional Response to Optimization of a Water Resource Recovery Facility for Biological Nutrient Removal

Current Employer: Tennessee Tech University Water Center

3. Juliet Ohemeng-Ntiamoah
Graduation Date: May 2020
Dissertation: Anaerobic Co-digestion of Waste Activated Sludge with Food Waste and Fats, Oils and Grease: Effects on Digester Performance, Microbial Community Structure and Activity
Current Employer: Jacobs

Masters Students

1. Caroline Hitchcock
Expected Graduation Date: May 2025
Thesis: Quantifying Microplastics from Tennessee's Wastewater Treatment Plants into Receiving Streams.
2. Maci Arms
Expected Graduation Date: May 2023
Thesis: Evaluating Flood Hazards in the Doe Creek Watershed through a Community-University Partnership
3. Brady England
Expected Graduation Date: May 2023
Thesis: Quantifying Disparities in Public Potable Water and Wastewater Systems Using a Disparity Index
4. Joseph Brockwell
Graduation Date: Dec 2020
Thesis: Performance Evaluation of Existing Highway Vegetated Swales in Tennessee for Stormwater Runoff Reduction
Current Employer: USDA NRCS
5. Tyler Wright
Graduation Date: Dec 2020
Thesis: Impacts of Biomethane Potential Test Variability on Specific Methane Yield
Current Employer: Strand
6. Alisa Danielle Kirkpatrick
Graduation Date: Dec 2019
Thesis: Nutrients in Highway Stormwater Runoff in Tennessee: Their Characterization and Correlation with Land Use and Meteorological Factors
Current Employer: Hazen and Sawyer
7. Ryan Wigner
Graduation Date: Dec 2018
Thesis: Potential Contributions of Atmospheric Deposition to Nitrates and Ammonia in Tennessee's Highway Stormwater Runoff

Current Employer: US Army Corps of Engineers, Water Resources Section, Nashville District

8. Christine Guy-Backer
Graduation Date: May 2018
Thesis: Developing a TOPOSWAT Model and Water Quality Index for the Karst Dominant Falling Water River Watershed
Current Employer: Civil and Environmental Consultants, Inc.
9. Samantha Allen
Graduation Date: Dec 2018
Thesis: Developing a Web-enabled Geodatabase for the Falling Water River Watershed
Current Employer: Tennessee Tech University, Environmental Science PhD Program
10. Melissa Moffet
Graduation Date: December 2017
Thesis: Preliminary Characterizations of Highway Stormwater Runoff from Various Sites in Tennessee
Current Employer: Self-employed
11. Amirshalar Esfahani
Graduation Date: May 2015
Thesis: Experimental Investigation of Nitrate Removal using Zero Valent Aluminum Particles
Current Employer: PhD student at University of Central Florida

FUNDED RESEARCH

Role	Project Title	Agency	Amount	Duration
PI	Design of the Wastewater Treatment System Improvements and Preparation of Operations and Maintenance Manual for the Recapture Lodge in Bluff, Utah.	CH2M HILL	\$8,355	Mar 2013 - July 2013
PI	Understanding the Effects of Anaerobically Co-digesting Animal Manure and Food Waste with Wastewater Solids on Process Microbiology.	Tennessee Tech Faculty Research Grant	\$5,000	July 2013 - Jun 2014

Role	Project Title	Agency	Amount	Duration
PI	Linking Diversity of Polyphosphate Accumulating Organisms to Improved Stability of the Enhanced Biological Phosphorus Removal Process.	Tennessee Tech Faculty Research Grant	\$10,000	July 2014 - Jun 2015
PI	An Investigation of Simultaneous Biological Nitrogen and Phosphorus Removal at Full-Scale Wastewater Treatment Facilities.	Tennessee Tech Faculty Research Grant	\$10,000	July 2015 - Jun 2016
PI	Building Partnerships and Compiling Data to Assess the Falling Water River Watershed.	Tennessee Department of Environment and Conservation, via Upper Cumberland Development District	\$15,000	Dec 2015 - Nov 2016
PI	Falling Water River Watershed Monitoring.	Tennessee Department of Environment and Conservation	\$46,307	Aug 2016 - Dec 2016
PI	Instream Monitoring to Assess the Impact of Town Creek from the Optimized Discharge of Nitrogen and Phosphorus from Livingston Wastewater Treatment Plan	Town of Livingston	\$6,617	Aug 2016 - July 2017
PI	Tracking the Sources of Nitrogen Pollutants in TDOT MS4 Stormwater Discharges.	Tennessee Department of Transportation, via ENSAFE	\$290,000	Sep 2016 - Dec 2019

Role	Project Title	Agency	Amount	Duration
PI	Toward Developing a Watershed Plan for the Falling Water River Watershed.	Tennessee Department of Environment and Conservation via Upper Cumberland Development District	\$22,101	Mar 2017 - Aug 2018
PI	Performance Evaluation of Existing Vegetated Swales for Stormwater Runoff Reduction from Tennessee Department of Transportation Highways	Tennessee Department of Transportation, via ENSAFE	\$271,011	Jan 2018 - Feb 2020
Co-PI	Proof-of-Concept GIS-based Vegetated Swale Algorithm for TDOT Highways (GV-SwATH)	Tennessee Department of Transportation, via ENSAFE	\$185,193	Jan 2018 - Feb 2020
PI	U.S.-Iraq Higher Education Partnerships Program – Solids Waste Management Improvement in Iraq.	IREX	\$5,500	Jun 2018 - Nov 2018
PI	Stream Survey for Proposed New Discharge for Water Authority of Dickson County.	Water Authority of Dickson County	\$70,981	July 2018 - Aug 2019
PI	Elucidating Diversity and Function of Microbial Communities Involved in Simultaneous Biological Nitrogen and Phosphorus Removal Processes at City of Cookeville's Wastewater Treatment Plant.	City of Cookeville Water Quality	\$9,940	Jun 2019 - Mar 2020
Co-PI	Development of GIS-Based Watershed Vulnerability Assessment (GAVA) Tool for HUC-12 Level Watershed in Tennessee.	USDA NRCS	\$118,213	Jul 2019 - Aug 2021

Role	Project Title	Agency	Amount	Duration
PI	Planning for Watershed-wide Stormwater Management in an Underserved Community of Tennessee through University-Community Partnership	Tennessee Department of Environment and Conservation via Upper Cumberland Development District	\$68,757	Sep 2019 – Mar 2021
Co-PI	Development of a low-cost real-time water quality monitoring network for rural watersheds	United States Geological Survey	\$20,000	Mar 2020 - Dec 2021
PI	Compilation & Analysis of Long-term Nitrogen and Phosphorous Monitoring Data in TN	Tennessee Department of Environment and Conservation	\$40,000	Aug 2020 - Dec 2022
PI	Assessing the Water Quality of the Shatt Al-Arab River in Basra Governorate and Developing Potential Mitigation Measures Through Student Driven Research	IREX	\$26,805	Feb 2021 – Aug 2023
PI	Developing a Watershed Plan for the Falling Water River Watershed	TDEC	\$28,042	Aug 2022 – July 2023
PI	Quantifying Microplastics from Tennessee’s Wastewater Treatment Plants into Receiving Streams.	USGS 104(b)	\$26,175	Jan 2023 – Dec 2023

DEPARTMENT, COLLEGE AND UNIVERSITY SERVICES

Department Service

- **Research and Graduate Affairs Committee Member**, Department of Civil and Environmental Engineering, Tennessee Tech University.
- **Facilities Committee Member**, Department of Civil and Environmental Engineering, Tennessee Tech University.

- **Laboratory Safety and Facilities Coordinator**, Department of Civil and Environmental Engineering, Tennessee Tech University.
- **Faculty Advisor**, Engineers Without Borders, Tennessee Tech University Chapter.
- **Faculty Advisor**, All Ladies in Civil Engineering (ALICE)
- **Faculty Co-Advisor**, Water Professionals, a Water Environment Federation, American Water Works Association and American Water Resources Association Student Chapter, Tennessee Tech University.

Center of Excellence Service

- **Water Security and Sustainability Focus Area Lead**, Center for the Management, Utilization and Protection of Water Resources

College of Engineering Service

- **Grand Challenge Scholar Program, Steering Committee**, College of Engineering, Tennessee Tech University
- **College of Engineering Research Advisory Committee Member**, College of Engineering, Tennessee Tech University
- **Diversity Committee**, College of Engineering, Tennessee Tech University
- **Outstanding Staff Award Selection Committee Member**, College of Engineering, Tennessee Tech University
- **Engineering, Computing, and Technology Spectrum Award Selection Committee Member**, College of Engineering, Tennessee Tech University
- **Ad-Hoc Review Committee Member**, Carnegie Funds in Support of PhD Program for the College of Engineering, Tennessee Tech University

University Service

- **University Research Advisory Committee**, Tennessee Tech University
- **University Safety Committee Member**, Tennessee Tech University
- **University Stormwater Management Committee**, Tennessee Tech University
- **CISE Grant Program Committee Member**, Tennessee Tech University.
- **Membership Committee Chair**, Tennessee Tech University Sigma Xi Chapter.

PROFESSIONAL SOCIETY MEMBERSHIPS, LEADERSHIP AND SERVICES

- Member: Water Environment Federation (WEF)
- Member: International Water Association (IWA)

- Member: Association of Environmental Engineering and Science Professors (AEESP)
- Member: Engineers Without Borders (EWB)
- Member: American Society of Engineering Education (ASEE)
- Member: Sigma Xi Research Honor Society
- Member: American Society of Microbiology (ASM)

Leadership and Service Positions

- Best Management Practice Working Group Chair, Tennessee Nutrient Reduction Strategy
- Technical Working Group, TN H2O: Tennessee's Roadmap to Securing the Future of Our Water Resources
- Task Force Chair: WEF Water Reuse Task Force, Municipal Water Resource Recovery Design Committee, 2016 - 2018
- Ad-Hoc Vice Chair: WEF Residuals and Biosolids Committee, 2012 - 2016
- Task Force Vice Chair: WEF Volunteer of the Future Focus Group, 2013 - 2015
- Committee Co-Chair: WEF Students and Young Professional Outreach Committee, 2011-2013
- Member: Water Environment Association of Utah Conference Committee, 2010-2012
- Member: Water Environment Association of Utah Young Professionals Committee, 2007-2012
- Executive Committee Member: Utah State Section of AWRA, 2010 - 2011
- Committee Member: Water for People, Intermountain Section, 2009-2012
- Founding President: WEF/AWRA Student Chapter at the University of Utah, 2007-2008
- President: Graduate Student Advisory Committee, University of Utah, 2007-2009

PROFESSIONAL REGISTRATIONS

Fundamentals of Engineering (FE/EIT) Examination, 2007, State of Utah.

SCHOLARLY SERVICES

- **Journal Reviewer:**
 - AEESP Environmental Engineering and Science Journal
 - ASCE Journal of Environmental Engineering
 - Bioresource Technology
 - Chemosphere
 - Environmental Science and Technology
 - International Journal of Molecular Sciences

- International Journal of Environmental Protection
 - Water Research
 - Water Science and Technology
 - Science of the Total Environment
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HONORS AND AWARDS

- **2020 Award for Excellence in Creative Inquiry Mentoring**, Tennessee Tech University
 - **2017 Distinguished Service Learning Award**. Home Instead Senior Care, Tennessee Tech University
 - **2015 USAID STRIDE Visiting Professor** to Technological University of the Philippines
 - **2014 Outstanding Reviewer**: ASCE Journal of Environmental Engineering
 - **Outstanding Young Professional, 2009**: Awarded by the Water Environmental Association of Utah
 - **1st Place in WEFTEC Poster Session, 2008**: Awarded by the Water Environmental Federation
 - **Robert Okey Scholarship, 2007**: Awarded by the Water Environmental Association of Utah
 - **College of Engineering Scholarship Recipient, 2007 & 2008**: Awarded by the Department of Civil and Environmental Engineering, University of Utah
-