Justin M. Hutchison

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RESEARCH EMPHASES

Environmental Biocatalysis, Biomolecular Design, and Sustainable Technology Design

Research interests include biocatalytic upcycling of biobased feedstocks to replace fossil fuel-intensive processes; using novel proteomic approaches to accelerate discovery of contaminant-degrading enzymes; optimizing research pathways for development of sustainable technologies; expanding biocatalytic technology in water and wastewater applications; bridging mechanistic enzymatic information to bacterial treatment processes; and developing hybrid enzymatic treatment processes.

APPOINTMENTS

2024-Current:	Associate Professor, Department of Civil, Environmental, and Architectural Engineering, University of Kansas
2024-Current:	Affiliate Associate Professor, Bioengineering Program, University of Kansas
2022-2024:	Ernest C. Pogge Chair's Council Assistant Professor, Department of Civil, Environmental, and Architectural Engineering, University of Kansas
2019-2024:	Affiliate Assistant Professor, Bioengineering Program, University of Kansas
2019-2024:	Affiliate Assistant Professor, Division of Infectious Disease, University of Kansas Medical Center
2018-2022:	Assistant Professor, Department of Civil, Environmental, and Architectural Engineering, University of Kansas

EDUCATION

Ph.D.	*University of Illinois at Urbana-Champaign*, Urbana, Illinois
2018	Environmental Engineering in Civil Engineering
GPA 4.0	Dissertation: *Advancing Biocatalytic Technologies for Degradation of of Micropollutants in Drinking Water Treatment*
M.S.	*University of Illinois at Urbana-Champaign*, Urbana, Illinois
2012	Environmental Engineering in Civil Engineering
GPA 4.0	Thesis: *Perchlorate reduction using Azospira oryzae in synthetic vesicles*
B.S.	*Augustana College*, Rock Island, IL
2006	Biochemistry, Biology and Pre-Medicine
GPA 3.89	Minors: Spanish and Chemistry

HONORS, FELLOWSHIPS, AND SCHOLARSHIPS

2026-2027	University of Kansas Senior Administrative Fellow
2024-2025	School of Engineering Recognition for Outstanding Contribution Award
2024-2025	The University of Kansas Miller Professional Development Award
2023-2024	The University of Kansas Miller Faculty Scholar Award
2023-2028	***National Science Foundation CAREER Award***
2021-2022	National Science Foundation Game Changer Academies Fellow
2017-2018	Richard S. and Mary E. Engelbrecht Fellowship
2016-2017	AWWA Larson Aquatic Research Support Scholarship
2014-2017	ARCS Foundation Scholar

2014-2015	Mavis Future Faculty Fellowship – Mentor, University of Illinois
2013-2015	University of Illinois Clean Energy Education Fellowship
2013-2014	Mavis Future Faculty Fellowship, University of Illinois
2012-2017	***National Science Foundation Graduate Student Fellowship***
2010-2011	Kuehn Fellowship, University of Illinois
2003-2005	Center for Vocational Reflection Fellow, Augustana College
2003-2005	Anderson Research Fellowship, Augustana College
2002-2003	William A. Freistat Fellowship, Augustana College
2002-2006	Presidential Scholarship, Augustana College
2002-2006	Thomas A. Dooley Memorial Scholarship
2002-2003	Bill Moon Scholarship, NATSO Foundation

PROFESSIONAL EXPERIENCE

2024-Current	Associate Professor, Department of Civil, Environmental, and Architectural Engineering, University of Kansas
2022-2024	Ernest C. Pogge Chair's Council Assistant Professor, Department of Civil, Environmental, and Architectural Engineering, University of Kansas
2019-Current	Environmental Engineering Consultant Clients: WaterOne, Lenexa, KS, Miami County Rural Water District
2019-2024	Adjunct Assistant Professor, University of Kansas Medical Center, Kansas City, KS
2018-2022	Assistant Professor, University of Kansas, Lawrence, KS
2017-2018	Intern, Carollo Engineers, Walnut Creek, CA
2010-2018	Graduate Research Assistant, University of Illinois, Urbana, IL
2010-2012	Federal Contractor, United States Army Corps of Engineers Construction Engineering Research Laboratory, Champaign, IL
2008-2010	Quality Assurance Technician, Olds Products Company, Pleasant Prairie, WI
2007-2008	Language Instructor in Gwangju, South Korea
2006-2007	Research Assistant, Augustana College, Rock Island, IL
2002-2006	Augustana College, Rock Island, IL • Faculty Assistant in History, Political Science and Philosophy Department • Chemistry Department Storeroom Technician and Organic Chemistry Proctor • Biology Department Anatomy Lab Proctor and Tutor for Cell Biology, Anatomy, Genetics, and Developmental Biology • Freistat Center for Studies in World Peace Student Administrator
1999-2006	Maintenance and Exhibitor Coordinator, Iowa 80 Truckstop, Walcott, IA

RESEARCH

Peer-Reviewed Journal Articles in Review (*corresponding author)

1. Madbhavi, R., Okeukwu-Ogbonnaya, A., Sreejith, A., Dhanapala, P., Pahwa, A., Amariucai, G., Abdul Aziz, H.M., **Hutchison, J.M.**, Sharda, V., Natarajan, B. CISCS: A socio-technical co-simulator for critical infrastructure interdependencies and community resilience. *IEEE Transactions on Systems, MAN, and Cybernetics: Systems.* Under Review.
2. Madbhavi, R., Okeukwu-Ogbonnaya, A., Sreejith, A., Dhanapala, P., Rumana, S., Monavarian, A., Gautam, P., Pahwa, A., Amariucai, G., Sutley, E.J., **Hutchison, J.M.**, Peltier, E., Sharda, V., Natarajan, B. ECLARC: Enhanced Multi-Infrastructure and Community Model for CLARC Dataset. *IEEE Transactions on Systems, MAN, and Cybernetics: Systems.* Under Review.
3. Okeukwu-Ogbonnaya, A., Amariucai, G., Natarajan, B., Dhanapala, P., Sreejith, A., Madbhavi, R., Enderami, A., Sutley, E.J., Russin, E., **Hutchison, J.M.**, Peltier, E., Abdul Aziz, H.M, Unnithan, N. HABiT: A Hetero-functional Agent-Based Infrastructure Toolkit for Modeling Community Resilience. *Reliability Engineering.* Under Review.

4. Ponge, C.J., Peters, A.L., Barlows, K.M., Sheehan, N.P., Corbin, D.R., Peltier, E., **Hutchison, J.M.,** Shiflett, M.B. Adsorption of eight PFAS on calcium-exchanged beta zeolites. *Microporous and Mesoporous Materials.* Under Review.
5. Chacha, W., Tran, H.T., Kahdka, A., **Hutchison, J.M.*** Influence of soil properties on the extraction of active contaminant-degrading enzymes. *Journal of Hazardous Materials.* Under Review.
6. Russin, E., Lofland, B., Dahal, K., Kastens, J., Peltier, E., **Hutchison, J.M.*** Synthesizing drinking water distribution networks using readily available data. *Water Research.* In Preparation.

Peer-Reviewed Journal Articles (*corresponding author)

1. Khalifah, S., Booker, L., Wilson, M.K., Johnson, S.D., **Hutchison, J.M.**, Foltz, M.E.* Soil greenhouse gas dynamics under biosolid amendments based on laboratory, field, and modeling approaches. *Frontiers in Environmental Sciences*. 13. July 2025.
2. Sheehan, N.P., Ponge, C.J., Pankratz, A., **Hutchison, J.M.,** Shiflett, M.B., Timalsina, D., Wang, M.Z., Peltier, E.* Interference of PFAS sorption on zeolites from natural water characteristics. *Chemosphere.* 378. June 2025.
3. Sarker, S.K., Dapkus, R.T., Byrne, D.M., Fryar, A.E.*, **Hutchison, J.M.** Quantifying temporal dynamics of *E. coli* concentration and quantitative microbial risk assessment of pathogen in a Karst basin. *Water.* 17(5). March 2025.
4. Ponge, C.J., Sheehan, N.P., Corbin, D., Peltier, E., **Hutchison, J.M.,** Shiflett, M.B.* Adsorption of seven PFAS on Beta zeolite. *Industrial & Engineering Chemistry Research*.64(7). February 2025.
5. Mayer, B.K.*, **Hutchison, J.M.,** McLamore, E.S., Torres, M., Venkiteshwaran, K. Phosphate-binding proteins and peptides: From molecular mechanisms to potential applications. *Current Opinion in Biotechnology.* 90. December 2024.
6. Ponge, C.J., Sheehan, N.P. Corbin, D., Peltier, E., **Hutchison, J.M.,** Shiflett, M.B.* Zeolites for sorption of PFAS from water. *Industrial & Engineering Chemistry Research*. 63(27). June 2024.
7. Hussein, F.B., Cannon, A.H., **Hutchison, J.M.,** Gorman, C.B., Yingling, Y.G., Mayer, B.K.* Phosphate-binding protein-loaded iron oxide particles: Adsorption performance for phosphorus removal and recovery from water. *Environmental Science: Water Research & Technology*. 10. March 2024.
8. Echchelh, A., **Hutchison, J.M.,** Randtke, S., Peltier, E.* Treated water from oil and gas extraction as an unconventional water resource for agriculture in the Anadarko Basin. *Science of the Total Environment*. 912. February 2024.
9. **Hutchison J.M.,*** Hussein, F., Mayer, B. Evaluating sustainable development pathways for protein- and peptide-based bioadsorbents for phosphorus recovery from wastewater. *Environmental Science & Technology*. 57. October 2023.
10. Bowes, D.A., Darling, A., Driver, E., Kaya, D., Maal-Bared, R., Adhikari, S., Aggarwal, S., Bivins, A., Bohrerova, Z., Duvallet, C., Elinimeiry, R.A., **Hutchison, J.M.**, Kapoor, V., Keenum, I., Ling, F., Sills, D., Tiwari, A., Vikesland, P., Ziels, R., Mansfeldt, C. Structured ethical review for wastewater-based testing in support of public health. *Environmental Science & Technology.* 57. August 2023.
11. Mansfeldt, C., Maal-Bared, R., Kaya, D., Bowes, D., Keenum, I. Sills, D., Aggarwal, S., Tiwari, A., **Hutchison, J.M.** Unveiling the targeted opportunities and universal challenges of wastewater-based surveillance for public health. *ES&T Water.* 3. June 2023.
12. Chacha, W.E., Tran, H.T., Scarlett, W.R., **Hutchison, J.M.*** Extraction of active, contaminant degrading enzymes from soil. *Applied Soil Ecology.* 187. 2023.
13. Tran, H.T., Nguyen, M.K., Hoang, H.G., **Hutchison, J.M.**, Vu C.T. Composting and green technologies for remediation of phthalate (PAE)-contaminated soil: Current status and future perspectives. *Chemosphere*. 307. November 2022
14. Sharma, V.K., **Hutchison, J.M.,*** Allgeier, A.M.* Redox Biocatalysis: Quantitative comparisons of nicotinamide cofactor regeneration methods. *ChemSusChem*. October 2022.
15. **Hutchison, J.M.,*** Li, Z., Chang, C.N., Hiripitiyage, Y., Wittman, M., Sturm, B.S.M. Improving correlation of wastewater SARS-CoV-2 gene copy numbers with COVID-19 public health cases using readily available biomarkers. *FEMS Microbes*. April 2022
16. Tetteh, J., Pham, A., Peltier, E., **Hutchison, J.M.,** Barati, Ghahfarokhi R. Predicting the electrokinetic properties on an outcrop and reservoir composite carbonate surfaces in modified salinity brines using extended surface complexation models. *Fuel*. 309:122078-. February 2022

17. **Hutchison, J.M.,** Mayer, B., Vega, M., Chacha, W.E., Zilles, J. Making Waves: Biocatalysis and Biosorption: Opportunities and challenges associated with a new protein-based toolbox for water and wastewater treatment. *Water Research X.*; 12:100112-. August 2021
18. **Hutchison, J.M.,*** Zhang, Y., Waller, S. Non-tuberculous mycobacteria infection: Source and treatment. *Current Pulmonology Reports* (Invited Review). 2019
19. **Hutchison, J.M.**, and Zilles, J.L. Biocatalytic removal of perchlorate and nitrate in ion-exchange waste brine. *Environmental Science: Water Research and Technology.* 4(8). pp. 1181-1189. July 2018.
20. Mobilia, K.C., **Hutchison, J.M.**, and Zilles, J.L. Characterizing isozymes of chlorite dismutase for water treatment. *Frontiers in Microbiology.* 8 (2423). November 2017.
21. **Hutchison, J.M.**, Guest, J.S., and Zilles, J.L. Evaluating the development of biocatalytic technology for the targeted removal of perchlorate from drinking water. *Environmental Science and Technology*. 51 (12). pp. 7178-7186. May 2017.
22. **Hutchison, J.M.**, and Zilles, J.L. Biocatalytic perchlorate reduction: kinetics and effects of groundwater characteristics. *Environmental Science: Water Research and Technology.* 1(6). pp. 913-921. September 2015.
23. **Hutchison, J.M.**, Poust, S.K., Kumar, M. Cropek, D.M., MacAllister, I.E., Arnett, C.M., and Zilles, J.L. Perchlorate reduction using free and encapsulated *Azospira oryzae* enzymes. *Environmental Science and Technology*. 47 (17). pp. 9934-9941. August 2013.

Peer-Reviewed Conference Proceedings in Review (*corresponding author)

Peer-Reviewed Conference Proceedings

1. Gideon, H., Burns, J., Lofland, B., Peltier, E., **Hutchison, J.M.*** Performance of a synthetically generated water distribution system against the real-world analogue. ASCE Environmental and and Water Resources Institute Congress. April 2026.
2. Ponge, C.J., Peters, A., Sheehan, N. Corbin, D., Peltier, E., **Hutchison, J.M.,** Shiflett, M.B.* Adsorption of PFAS with calcium exchanged beta zeolites.American Institute of Chemical Engineering (AIChE) Annual Meeting. Boston, MA. November 2025.
3. Chacha, W.E., **Hutchison, J.M.*** Proteomic insights into perchlorate reduction: *Azospira oryzae* enzymes as a model for monitoring contaminant attenuation in soil. Association of Environmental Engineering and Science Professors Conference. Durham, NC. May 2025.
4. **Hutchison, J.M.,***Peltier, E., Russing, E., Lofland, B. Synthesizing drinking water distribution networks from readily available data. Association of Environmental Engineering and Science Professors Conference. Durham, NC. May 2025.
5. Sheehan, N., Pankratz, A., **Hutchison, J.M.,** Peltier, E. Zeolite-based applications for PFAS adsorption and monitoring. Association of Environmental Engineering and Science Professors Conference. Durham, NC. May 2025.
6. Sheehan, N., Ponge, C.J., Pankratz, A., Hutchison, J.M., Shiftlett, M.B., Peltier, E. Zeolite-based adsorption and monitoring of PFAS compounds in natural water conditions. Amercian Chemical Society Conference. San Diego, CA. March 2025.
7. Ponge, C.J., Sheehan, N. Corbin, D., **Hutchison, J.M.,** Peltier, E., Shiflett, M.B.* Adsorption of PFAS using ion exchanged BEA zeolite. American Institute of Chemical Engineering (AIChE) Annual Meeting. San Diego, CA. Octoboer 2024.
8. **Hutchison, J.M.,*** Russin, E., Selukka Nagarajan, A., Peltier, E. Defining equity and resilience for drinking water distribution systems. ASCE Environmental and and Water Resources Institute Congress, Milwaukee, WI. June 2024.
9. Tetteh, J.T., Barati Ghahfarokhi, R., Thompson, S., Pham, A., **Hutchison, J.M.**, Peltier, E. Investigating the feasibility of reusing "lower salinity" produced water for waterflooding of carbonate reservoirs containing hypersaline in-situ brine: A study using field samples. SPE Internation Conference on Oilfield Chemistry. The Woodlands, TX. June, 2023.
10. Schaich, L. and **Hutchison, J.M.*** Monte Carlo modeling approach for anaerobic digestion and biogas utilization. WEF Residuals and Biosolids Conference Proceedings, Columbus, OH. May, 2022. CDM Smith Best Paper Award.
11. **Hutchison, J.M.*,** Sturm, B.S.M., Li, Z., Wittman, M., Romero, A., Depew, A., Flynn, T., Stiles, T., Sars-CoV-2 wastewater measurements normalized using biomarkers. WEFTEC Conference Proceedings, Chicago, IL.

October, 2021.

12. **Hutchison, J.M.*,** Peltier, E. Environmental Engineering core curriculum transformation: A skill-based approach. ASEE Midwest Conference Proceedings. Online. November, 2021
13. **Hutchison, J.M.**,* Burge, A., and Hutchison, K.M. Graduate students help to create a discovery-based and cooperative learning experience about clean energy for high school students. In Proceedings of the 2014 ASEE Annual Conference, Indianapolis, IN. June, 2014.
14. Trotter, P. J., **Hutchison, J. M.**, Logsdon, M, and Schmitt, H. Retrograde signaling in glutamate dehydrogenase mutants of yeast. *Faseb Journal,* 21(5), A663. April, 2007.

Datasets and Code

1. Hutchison, J.M., Lofland, B. Road2H2O. Github, V1. https://zenodo.org/records/19768284
2. Peltier, E., Echchelh, A., **Hutchison, J.M.**, Randtke, S. Assessing the potential of produced water as an unconventional water resource for agriculture in the Andarko Basin. Mendeley Data, V1. doi:10.17632/zgktc578f4.1
3. **Hutchison, J.M.***, Improving correlation of wastewater SARS-CoV-2 gene copy numbers with COVID-19 public health cases using readily available biomarkers, Mendeley Data, V1, doi: 10.17632/bfn2hg3dzz.1. 2022
4. **Hutchison, J.M.***, Making Waves: Biocatalysis and Biosorption: Opportunities and challenges associated with a new protein-based toolbox for water and wastewater treatment, GitHub, https://github.com/jhutchku/2021_03_MakingWaves.git. 2021
5. **Hutchison, J.M.***, Making Waves: Biocatalysis and Biosorption: Opportunities and challenges associated with a new protein-based toolbox for water and wastewater treatment, Mendeley Data, V1, doi: 10.17632/wt4mm84xv2.1 2021.

Reports

1. Randtke, S.J. and **Hutchison, J.M.** Water Quality Study for the City of Edgerton, Johnson County Water District 7, and Rural Water District No. 2, Miami County. 2022

Awarded Proposals (total as PI: $2,338,151; total as coPI: $28,031,507 since 2020)

1. Quantifying the response of cyanobacteria to the presence of anthropogenic per- and polyfluorinated alkyl substances (PFAS). **PI Hutchison, J.M.** $32,679.40 funded by the University of Kansas General Research Fund.
2. Developing an early warning system for algal blooms, disruptive metals, and sediment monitoring via in-lake buoys for Kasnas Lakes. PI Harris, T., **Hutchison, J.M.,** Roundy, J., Cornish, C. $875,000 funded by the Kansas Water Office.
3. EPSCoR Research Fellow: NSF: PEACE: Proteomic-Environemntal Applications for Contaminant Eradication. **PI Hutchison, J.M.**, $286,131 funded by the National Science Foundation.
4. Rapid and economical system for preparation of PFAS samples to lower the method detection limit. PI Wang, M.Z., **Hutchison, J.M.,** Stobaugh, J. $306,000 funded by the National Institutes of Health.
5. BIOSAFE: Quantifying bioaccumulation of PFAS in photosynthetic organisms for safe reservoir management. **PI: Hutchison, J.M.** January 2025. $620,001 funded by the United States Geological Survey
6. Zeolite-based drinking water treatment: Rapid small scale column test demonstration. **PI: Hutchison, J.M.** May 2024. $8,076 funded by the University of Kansas General Research Fund.
7. CAREER: Thermal proteome profiling applications for *in-situ* bioreporting of contaminant degradation in soil. **PI: Hutchison, J.M.** January 2023. $560,398 funded by the National Science Foundation
8. Adaptive and Resilient Infrastructure drive by Social Equity (ARISE). PI: Sutley, E.J., Sturm, B., **Hutchison, J.M.**, Krause R., Reed D. June 2022. $653,871 funded by the National Science Foundation (subaward of $20,000,000 awarded to the Kansas NSF EPSCoR Office).
9. Adaptive and Resilient Infrastructure drive by Social Equity (ARISE). PI: Sturm, B., Sutley, E.J., **Hutchison, J.M.**, Krause R., Reed D. June 2022. $2,000,000 funded by the Kansas Board of Regents.
10. Research Project - Screening phage-host receptor interactions using thermal proteome profiling. **PI: Hutchison, J.M.** October 2021. $636,300 funded as part of the Phase 2 CoBRE Chemical Biology of Infectious Disease Submission to the National Institutes of Health (total award $17.37 M).
11. Advanced manufacturing of renewable and recyclable polymers. PI: Subramaniam, B., Allgeier, A., Dawsey, T., Ginther, D., Ierapetritou, M., Lobo, R., Scurto, A., **Hutchison, J.M.** October 2021. $4,000,000 funded by the National Science Foundation.

12. Novel 3D printed zeolite passive samplers enabling fast and reliable measurements of PFAS in complex environmental matrices. PI: Shiflett, M.B., **Hutchison J.M.**, Peltier, E., Laird, B.B., Corbin, D.R. October 2021. $380,638 funded by the Army Corps of Engineers.
13. SARS-CoV-2 wastewater monitoring. PI: Sturm, B., **Hutchison, J.M.** July 2021. $177,000 funded by the Kansas Department of Health and Environment.
14. Evaluating the sustainability of brine exchange used for enhanced oil recovery. **PI: Hutchison, J.M.** June 2021. $9,496 funded by the University of Kansas General Research Fund.
15. Centers of Excellence Program. **PI: Hutchison, J.M.,** Sturm, B. May 2021. $74,285 funded by Ceres Nanosciences.
16. Wastewater COVID-19 Sampling and Analysis in Rural Kansas. PI: Sturm, B., **Hutchison, J.M.** October 2020. $80,000 funded by the Kansas Department of Health and Environment.
17. SARS-CoV-2 wastewater monitoring as an indicator for community prevalence of COVID-19. PI: Sturm, B., **Hutchison, J.M.** October 2020. $28,980 funded by the City of Olathe.
18. Wastewater COVID-19 sampling and analysis in Metro KC. PI: Sturm, B., **Hutchison, J.M.** October 2020. $30,000 funded by the Kansas Department of Health and Environment.
19. SARS-CoV-2 wastewater monitoring as an indicator for community prevalence of COVID-19. PI: Sturm, B., **Hutchison, J.M.** August 2020. $24,840 funded by Johnson County Wastewater.
20. SARS-CoV-2 wastewater monitoring as an indicator for community prevalence of COVID-19. PI: Sturm, B., **Hutchison, J.M.** July 2020. $19,320 funded by the City of Lawrence.
21. SARS-CoV-2 wastewater monitoring as an indicator for community prevalence of Covid-19. PI: Sturm, B., **Hutchison, J.M.** June 2020. $20,000 funded by the Kansas Department of Health and Environment.
22. Pilot Project - Phage-protein based removal of pathogenic non-tuberculous *Mycobacterium* from drinking water. **PI: Hutchison, J.M.** May 2020. $88,260 funded by the National Institutes of Health Phase 1 CoBRE Chemical Biology of Infectious Disease.
23. Experimental and modeling investigation of fluid-fluid and rock-fluid compatibility between Arbuckle and Lansing Kansas City formations with the purpose of produced water-exchange between the two formations to reduce both fresh water usage and water disposal problems. PI: Barati, R., **Hutchison, J.M.**, Peltier, E. March 2020. $40,000 funded by the Kansas Water Resources Research Institute.
24. Electro-biocatalytic reduction of the environmental pollutant perchlorate. **PI: Hutchison, J.M.** June 2020. $20,000 funded by the University of Kansas New Faculty General Research Fund.
25. Course transformation grant to update and transform the Environmental Engineering core graduate courses. **PI: Hutchison, J.M.**, Peltier, E. September 2019. $2,525 funded by the University of Kansas Center for Teaching Excellence.
26. Microbiome and high-throughput enzyme screening for biodegradation potential of per- and polyfluorinated alkyl substance. PI: Sturm, B., **Hutchison, J.M.** July 2019. $49,729 funded by the Kansas NSF EPSCoR.

Pending Proposals

1. E-RISE: Advancing Resilience in Kansas (ARK): Building AI-Assisted Microbial Solutions for Water and Soil Systems. PI Derby, M.M., Tosoni, M., Miller-Kugesherz, J.A., Gu, S., Hutchison, J.M. (KU PI), $7,999,542. Under review at the National Science Foundation.

Awards Prior to the University of Kansas:

1. Novel biomimetic materials for water purification: Perchlorate treatment – INTERN Supplement*****, PI: Zilles, J.L., Werth, C.J. June 2017. $45,151 funded by the National Science Foundation. I was the sole author of this supplemental support.
2. Advancing biocatalytic technology for the treatment of emerging contaminants in drinking water*****, PI: Zilles, J.L., Guest, J.S. June 2017. $334,236 funded by the National Science Foundation.
3. Novel biomimetic materials for water purification: Perchlorate treatment – REU Supplement*****, PI: Zilles, J.L., Werth, C.J. June 2015. $6,000 funded by the National Science Foundation.
4. Developing clean energy education modules for schools and community colleges. **PI: Hutchison, J.M.** May 2014. $20,000 funded by the University of Illinois Office of Public Engagement.
5. Environmental engineering and science laboratory innovation request. April 2014. $124,000 funded by the University of Illinois Civil and Environmental Engineering.

6. Environmental engineering and science laboratory innovation request. September 2013. $135,500 funded by the University of Illinois Civil and Environmental Engineering
7. Novel biomimetic materials for water purification: Perchlorate treatment, PI: Zilles, J.L., Werth, C.J. August 2013. $334,461 funded by the National Science Foundation.
8. Development of a Spore Display System for Enzyme-Based Perchlorate Removal, PI: Zilles, J.L. February 2013. National Science Foundation EAGER proposal withdrawn for consideration of full proposal funding.

** The University of Illinois at Urbana-Champaign does not allow graduate students to be listed as investigators; however, I contributed substantially to the idea development and writing of the proposals listed. I was the sole author of the NSF INTERN award.*

Invited Presentations

1. **Hutchison, J.M.** Influence of soil properties on the extraction of active contaminant-degrading enzymes. The 23rd World Congress of Soil Science. Nanjing, China, June 12th, 2026.
2. **Hutchison, J.M.** Synthesizing drinking water distribution networks using readily available data. ASCE Infrastructure Resilience Division. San Antonio, TX. March 20th, 2026.
3. **Hutchison, J.M.** PFAS detection and management in the environment. Kansas Water Resources Institute PFAS Symposium. Manhattan, KS. July 2nd, 2025.
4. **Hutchison, J.M.** Environmental Biocatalytics – Protein-based applications in Environmental Engineering. KU Mini-Summit on Biocatalysis. Lawrence, KS. June 4th, 2025.
5. **Hutchison, J.M.** Advancing biological solutions to protect Kansas' drinking water. Kansas Department of Health and Environment. Topeka, KS. April 28th, 2025.
6. **Hutchison, J.M.** The iterative design of proteins for Environmental Engineering applications. University of Kansas Bioengineering Seminar.Lawrence, KS. April 14th, 2025.
7. **Hutchison, J.M.** Quantitative methods for water treatment technologies. University of Kansas Quantitative Methods Seminar. Lawrence, KS. February 3rd, 2025.
8. **Hutchison, J.M.** Protein-based applications in Environmental Engineering: Probes to treatment. Center for Environmental Policy – Regional Water Planning Workshop. Lawrence, KS. January 17th, 2025.
9. **Hutchison, J.M.** Denitrifying biofilter configurations and applications for drinking water treatment. Pratt City Commission. Pratt, KS, August 19th, 2024.
10. **Hutchison, J.M.** Nitrate removal technologies. Kansas Department of Health and Environment. Lawrence, KS, August 1st, 2024.
11. **Hutchison, J.M.** SARS-CoV-2 Wastewater measurements normalized using biomarkers. BioNexus, Kansas City, Kansas, April 26th, 2024.
12. **Hutchison, J.M.** Using sustainability tools to prioritize research development pathways for emerging technologies: Biocatalysis and bioadsorbent case studies. American Chemical Society Spring Conference. New Orleans, LA, March 20th, 2024.
13. **Hutchison, J.M.** Lithium: Prevalence and implications for Kansas' drinking water supplies. KU Environmental Engineering Conference. Lawrence, KS, April 17th, 2024.
14. **Hutchison, J.M.** Protein-based applications in Environmental Engineering: Probes to treatment. University of Nebraska-Lincoln Environmental Engineering Seminar, Lincoln, NE. February 2nd, 2024.
15. **Hutchison, J.M.** Environmental Biocatalytics: Sustainable protein applications in environmental engineering system. University of Kansas 30th Anniversary Center for Environmentally Beneficial Catalysis, Lawrence, KS. September 12th, 2023.
16. **Hutchison, J.M.** Biofilter configurations and applications for drinking water treatment. University of Kansas 73rd Annual Environmental Engineering Conference, Lawrence, KS. April 19th, 2023.
17. **Hutchison, J.M.** Protein-based applications in Environmental Engineering: Probes to treatment. Notre Dame University Environmental Engineering Seminar, Notre Dame, IN. April 3rd, 2023.
18. **Hutchison, J.M.** Protein-based applications in Environmental Engineering: Probes to treatment. Clarkson University Environmental Engineering Seminar, Potsdam, NY. March 24th, 2023.
19. **Hutchison, J.M.** Protein-based applications for water treatment and *in-situ* bioreporting in soils. University of Kansas Bioengineering Seminar, Lawrence, KS. October 31st, 2022.

20. **Hutchison, J.M.** Induced thermal stability of phage protein GP6 via interactions with *Mycobacterium smegmatis*. University of Kansas Chemical Biology Symposium, Lawrence, KS. October 22nd, 2022.
21. **Hutchison, J.M.** Protein-based applications for water treatment and in-situ bioreporting in soils. Arizona State University Seminar, Tempe, AZ. September 20th, 2022.
22. **Hutchison, J.M.** Deploying SARS-CoV-2 wastewater monitoring in Kansas: A case study and adoption of high-throughput, automated sample processing. LabRoots Webinar. Approximately 300 attendees. June 7th, 2022.
23. **Hutchison, J.M.** Protein-based applications in Environmental Engineering: Probes to treatment. Oklahoma State University Environmental Engineering Seminar, Stillwater, OK. March 3rd, 2022.
24. **Hutchison, J.M.** Advancing biocatalytic technologies for degradation of micropollutants in drinking water. Marquette University Seminar, Milwaukee, WI. September 9th, 2020.
25. **Hutchison, J.M.** Advancing biocatalytic technologies for degradation of micropollutants in drinking water. University of Kansas Bioengineering Seminar, Lawrence, KS. December 9th, 2019.
26. **Hutchison, J.M.** and Sturm, B. Microplastics and Biofiltration. Lenexa, KS. October 15th, 2019.
27. **Hutchison, J.M.** Expanding research opportunities between the University of Kansas and West Virginia University. West Virginia University, Morgantown, WV, April 25, 2019.
28. **Hutchison, J.M.** Environmental and Water Resources Engineering. Adjutant General Conference, Lawrence, KS, May 22nd 2019.
29. **Hutchison, J.M.** Municipal drinking water treatment research. Kansas Department of Health and Environment, Topeka, KS, May 6th, 2019.
30. **Hutchison, J.M.** Advancing biocatalytic technologies for degradation of micropollutants in drinking water. University of Kansas – Chemical and Petroleum Engineering, Lawrence, KS, March 19th, 2019.
31. **Hutchison, J.M.** Advancing biocatalytic technologies degradation of micropollutants in drinking water. Chemical and Biomolecular Engineering, Clarkson University, Potsdam, NY, Spring 2018.
32. **Hutchison, J.M.** Advancing biocatalytic technologies for treatment of perchlorate in drinking water. Civil, Architectural, and Environmental Engineering, University of Kansas, Lawrence, KS, Fall 2017.
33. **Hutchison, J.M.** Biocatalytic technology for degradation of micropollutants in drinking water. Civil and Environmental Engineering, University of Washington, Seattle, WA, Spring 2017.
34. **Hutchison, J.M.**, Guest, J.S., and Zilles, J.L. Design of a biocatalytic treatment system for perchlorate. ARCS Scholar Luncheon, Chicago, IL, Fall 2016.
35. **Hutchison, J.M.** and Zilles, J.L. Biocatalytic treatment of perchlorate in groundwater. ARCS Scholar Luncheon, Chicago, IL, Fall 2015.
36. **Hutchison, J.M.** Environmental Engineering at the University of Illinois. Parkland Science Club. Parkland College, Champaign, IL, Spring 2015.
37. **Hutchison, J.M.** and Zilles, J.L. Perchlorate remediation using biomimetic catalysts in vesicles. ARCS Scholar Luncheon, Chicago, IL, Fall 2014.
38. **Hutchison, J.M.** and Zilles, J.L. Biological enzymes for perchlorate treatment in drinking water. Bio-Interest Group Seminar, Mechanical Science and Engineering, University of Illinois, Urbana, IL, Spring 2014.

Conference and Seminar Presentations

1. Pandeya, L., **Hutchison, J.M.,** Quantifying the bioaccumulation and fate of PFAS in cyanobacterial blooms: Implications for reservoir management and drinking water protection. Emerging Contaminants Symposium. Kansas State University. Manhattan, KS. September 2026.
2. Igielski, C., Lofland, B., **Hutchison, J.M.,** Peltier, E. Simulation comparison of a real-world rural water distribution system against a synthetically generated model. KsAWWA Joint Conference. Wichita, KS. September 2026.
3. Pandeya, L., **Hutchison, J.M.** Quantifying bioaccumulation of PFAS in photosynthetic organisms for safe reservoir management. KsAWWA Joint Conference. Wichita, KS. September 2026.
4. Peltier, E., **Hutchison, J.M.** Validating water quality predictions in a synthetically generated drinking water distribution system. NHERI. Berkeley, CA. May 2026.
5. Gideon, H., Burns, J., Lofland, B., Peltier, E., **Hutchison, J.M.** Water system performance of a synthetically generated water distribution system against a real-world analogue. ASCE EWRI. Mobile, AL. April 2026.
6. Sheehan, N., Ponge, C.J., Pankratz, A., **Hutchison, J.M.,** Peltier, E. Zeolite applications to PFAS monitoring and treatment in water. Kansas Governor's Water Conference. Manhattan, KS. November 2025.

7. **Hutchison, J.M.*** Biological drinking water treatment: An introduction to the NEW MOP80. The Kansas American Waterworks Association and the Kansas Water Environment Association Joint Conference. Topeka, KS. August 2025.
8. Chacha, W.E., **Hutchison, J.M.*** Proteomic insights into perchlorate reduction: *Azospira oryzae* enzymes as a model for monitoring contaminant attenuation in soil. Association of Environmental Engineering and Science Professors Conference. Durham, NC. May 2025.
9. **Hutchison, J.M.,*** Peltier, E., Russin, E., Lofland, B. Synthesizing drinking water distribution networks from readily available data. Association of Environmental Engineering and Science Professors Conference. Durham, NC. May 2025.
10. Sheehan, N., Pankratz, A., **Hutchison, J.M.,** Peltier, E. Zeolite-based applications for PFAS adsorption and monitoring. Association of Environmental Engineering and Science Professors Conference. Durham, NC. May 2025.
11. Lofland, B., Russin, E., Peltier, E., **Hutchison, J.M.** Synthesizing drinking water distribution networks from readily available data. ARISE Annual Symposium. Garden City, KS. April 2025.
12. Sheehan, N., Ponge, C.J., Pankratz, A., Hutchison, J.M., Shiftlett, M.B., Peltier, E. Zeolite-based adsorption and monitoring of PFAS compounds in natural water conditions. American Chemical Society Conference. San Diego, CA. March 2025.
13. Russin, E., Peltier, E., **Hutchison, J.M.** Synthesizing drinking water distribution networks based on readily available data. NHERI Computational Symposium. Los Angeles, CA. February 2025.
14. Peltier, E., Sheehan, N., Seuam, S., **Hutchison, J.M.** 3D printed passive samplers for PFAS detection in natural waters. 2024 Governor's Conference on the Future of Water in Kansas. Manhattan, KS. Fall 2024.
15. Russin, E., Lofland, B., Peltier, E., **Hutchison, J.M.** Synthesizing drinking water distribution systems based on readily available data. 2024 Governor's Water Conference on the Future of Water in Kansas. Manhattan, KS. Fall 2024.
16. Russin, E., Lofland, B., Peltier, E., **Hutchison, J.M.** Synthesizing drinking water distribution systems based on readily available data. KWEA/KsAWWA Joint Conference. Wichita, KS. Fall 2024.
17. Ponge, C.J., Sheehan, N., Corbin, D., Peltier, E., **Hutchison, J.M.,** Shiflett, M.S. Adsorption of PFAS using ion exchanged beta zeolite. American Institute of Chemical Engineers Annual Meeting. San Diego, CA. Fall 2024.
18. **Hutchison, J.M.,** Russin, E., Selukka Nagarajan, A., Peltier, E. Defining equity and resilience for drinking water distribution systems. American Society of Civil Engineers – Environmental and Water Resources Institute. Milwaukee, WI. Summer 2024.
19. Seuam, S., Sheehan, N., Ponge, C.J., Peltier, E., **Hutchison, J.M.** Novel PFAS sorbing material testing with rapid small-scale column and 3D printed monolith pucks. 2024 Undergraduate STEM Poster Symposium. Lawrence, KS. Summer 2024.
20. Ponge, C., Sheehan, N., Corbin, D.R., Peltier, E., **Hutchison, J.M.**, Shiflett, M.B. Adsorption of PFAS using Zeolite. National PFAS Conference. Ann Arbor, MI. Summer 2024.
21. Russin, E., Lofland, B., Peltier, E., **Hutchison, J.M.** Synthesizing drinking water distribution systems based on readily available data. MOAWWA/MWEA Joint Conference. Lake of the Ozarks, MO. Spring 2024.
22. Russin, E., Lofland, B., Peltier, E., **Hutchison, J.M.** Synthesizing drinking water distribution systems based on readily available data. 74th Annual KU Environmental Engineering Conference. Lawrence, KS. Spring 2024.
23. Russin, E., Lofland, B., Peltier, E., **Hutchison, J.M.** Defining equity and resilience in drinking water distribution systems. ARISE Research Symposium. Manhattan, KS. Spring 2024.
24. Pankratz, A., Sheehan, N., **Hutchison, J.M.,** Ponge, C., Peltier, E., Corbin, D.R., Shiflett, M.B. PFAS removal from aqueous systems using zeolite sorbents. 74th Annual KU Environmental Engineering Conference. Lawrence, KS. Spring 2024.
25. Sheehan, N., Ponge, C.J., **Hutchison, J.M.,** Shiflett, M.S., Peltier, E. Low-level PFAS monitoring from natural aqueous systems using zeolite sorbents. American Chemical Society Spring Conference. New Orleans, LA. Spring 2024.
26. Sarker, S.K., Fryar, A.E., Byrne, D.M., Dapkus, R.T., **Hutchison, J.M.** Modeling health risks of pathogens in Karst Basins: Implications of data uncertainty and detection limits. Geological Society of America Annual Meeting. Pittsburgh, PA. Fall 2023.

27. Mang, N.Z.L., **Hutchison, J.M.** Enzymatic depolymerization of biopolymers. American Chemical Society Conference, San Diego, CA. Fall 2023.
28. **Hutchison, J.M.** Biofilter configurations and applications for drinking water treatment. 103rd Annual Water and Wastewater Operators School – Kansas Department of Health and Environment, Lawrence, KS. Summer 2023.
29. Sheehan, N., Ponge, C.J., Peltier, E., **Hutchison, J.M.**, Corbin D.R., Shiflett M. Passive low-level PFAS monitoring and removal from aqueous systems using zeolite sorbents. National Environmental Health Association, New Orleans, LA. Summer 2023.
30. Tran, H.T., **Hutchison, J.M.** Evaluating the removal of pathogens of emerging concern in an anoxic-oxic biofilter treatment configuration. Association of Environmental Engineering and Science Professor Conference, Boston, MA. Summer 2023.
31. Mang, N.Z.L., **Hutchison, J.M.** Biocatalytic depolymerization of biopolymers. Association of Environmental Engineering and Science Professor Conference, Boston, MA. Summer 2023.
32. **Hutchison, J.M.**, Sheehan, N., Ponge, C.J., Peltier, E., Corbin, D.R., Shiflett, M. PFAS removal from aqueous systems using zeolite sorbents. Association of Environmental Engineering and Science Professor Conference, Boston, MA. Summer 2023.
33. Chacha, W.E., Tran, H.T., **Hutchison, J.M.** Utilizing thermal proteome profiling (TPP) to detect contaminant degrading enzymes in microorganisms. Association of Environmental Engineering and Science Professor Conference, Boston, MA. Summer 2023.
34. **Hutchison, J.M.**, Hiripitiyage, Y., Sturm, B.S.M. SARS-CoV-2 wastewater monitoring in Kansas: Correlation with clinical data and variant tracking. Internal Medicine Research Day. University of Kansas Medical Center. Fall 2022.
35. Nagarajan, S.N., **Hutchison, J.M.**, Peltier E. Boron removal from produced water by electrocoagulation. American Chemical Society, Chicago, IL. Fall 2022.
36. Peltier, E., Echchelh, A., **Hutchison, J.M.**, Barati, R. Produced water reuse and recovery in Kansas: Assessing our options. Kansas Governor's Water Conference. Manhattan, KS. Fall 2022.
37. **Hutchison, J.M.**, Randtke, S.J. Manganese management and the impact of manganese solids on residual disinfectant. Combined Kansas AWWA and Kansas WEA Conference. Topeka, KS. Fall 2022.
38. Pham, A., Peltier, E., **Hutchison, J.M.**, Barati, R. Geochemical and economical evaluation of brine as a means of produced water management. Association of Environmental Engineering and Science Professors Conference, St. Louis, MO. Summer 2022.
39. Nagarajan, S.N., **Hutchison, J.M.**, Peltier E. Boron removal from produced water by electrocoagulation. Association of Environmental Engineering and Sciences Professors Conference, St. Louis, MO. Summer 2022.
40. Chacha W., Scarlett, W., **Hutchison J.M.** Extracting active perchlorate-reducing enzymes from soils as a measure of bioremediation potential. Association of Environmental Engineering and Sciences Professors Conference, St. Louis, MO. Summer 2022.
41. Koirala, A., **Hutchison, J.M.** Protein-based bioadsorption of *Mycobacterium smegmatis*. Association of Environmental Engineering and Science Professors Conference, St. Louis, MO. Summer 2022.
42. Peltier, E., Pham, A., **Hutchison, J.M.** Assessing reuse options for high-salinity oil and gas wastewater. American Society of Civil Engineers, Environmental & Water Resources Institute Conference. Atlanta, GA. Summer 2022.
43. **Hutchison, J.M.,** Hiriptiyage, Y., Sturm, B.S.M. Tracking SARS-CoV-2 variants through municipal wastewater. University of Kansas Center for Genomics Symposium. Lawrence, KS. Summer 2022.
44. Koirala, A. and **Hutchison, J.M.** Protein-based bioadsorption of *Mycobacterium smegmatis.* Missouri American Waterworks Association Conference. Branson, MO. Spring 2022.
45. Schaich, L. and **Hutchison, J.M.** Monte Carlo modeling approach for anaerobic digestion and biogas utilization. WEF Residuals and Biosolids Conference, Columbus, OH, Spring 2022.
46. **Hutchison, J.M.** Sars-CoV-2 wastewater measurements normalized using biomarkers. WEFTEC, Chicago, IL. Fall 2021.
47. **Hutchison, J.M.** Research Experience for Teachers – Bioremediation to promote safe drinking water. Lawrence, KS. Summer 2021.

48. **Hutchison, J.M.,** Peltier E. Environmental Engineering core curriculum transformation: A skill-based approach. American Society of Engineering Educators. Fall 2021.
49. **Hutchison, J.M.**, Chacha, W.E. Extracting active enzymes from soil as a measure of bioremediation potential. Kansas American Water Works Association, Topeka, KS. Fall 2021.
50. Chacha, W.E., Scarlett, W.R., **Hutchison, J.M.** Extracting active perchlorate-reducing enzymes from soils as a measure of bioremediation potential. American Chemical Society, Atlanta, GA. Fall 2021.
51. **Hutchison, J.M.,** Li. Z., Sturm, B.S.M. Normalization of wastewater Sars-CoV-2 gene copy numbers using readily available biomarkers to improve correlations with case data. American Chemical Society, Atlanta, GA. Fall 2021.
52. Pham, A., Tetteh, J.T., Peltier, E., **Hutchison, J.M.,** Ghahfarokhi, R.B. Geochemical evaluation of brine exchange between Kansas Arbuckle and Lansing-Kansas City formations as a means of produced water management. American Chemical Society, Atlanta, GA. Fall 2021.
53. Tetteh, J.T., Pham, A. Peltier, E., **Hutchison, J.M.,** Ghahfarokhi, R.B. Extended surface complexation model for predicting the electrostatic adsorption and zeta potential on an actual reservoir limestone surface to characterize limestone wettability. American Chemical Society, Atlanta, GA. Fall 2021.
54. Peltier, E., Veisi, M., Echchelh, A., Donovan, J., Randtke S.J., Whittemore, D.O., **Hutchison, J.M.** Relating produced water composition to optimal treatment processes. American Chemical Society, Spring 2021.
55. Echchelh, A., Peltier, E., **Hutchison, J.M.,** Randtke, S.J. Rethinking oil and gas produced water management to tackle water stress in the Great Plains. Environmental & Water Resources Institute (EWRI ASCE). Spring 2021.
56. Peltier, E., **Hutchison, J.M.,** Appier, C., Lin, L., Khajouei, G., Tinner, S., Randtke, S.J., Shafer-Peltier, K. Sustainability of produced water pretreatment used to address desalination challenges. Environmental & Water Resources Institute (EWRI ASCE). Spring 2021.
57. Peltier, E., Tinner, S., **Hutchison, J.M.**, Lin, L.-S., Idler, R., Randtke, S., & Peltier, K. Challenges and technologies for produced water desalination (Cancelled COVID19). Environmental & Water Resources Institute Conference, Milwaukee, WI. Summer 2020.
58. Peltier, E., Veisi, M., Donovan, J., Randtke, S., & **Hutchison, J.M.** Relating produced water geochemistry and reuse options (Cancelled COVID19). American Chemical Society, Philadelphia, PA. Spring 2020.
59. Chacha, W., & **Hutchison, J.M.** Enzyme extraction from soil for thermal proteome profiling applications. Microbiomes of Aquatic, Plant, and Soil (MAPS) Systems across Kansas Conference, Lawrence, KS. Spring 2020.
60. Volmer, A., Kamalanathan, I., Brown, J., **Hutchison, J.**, Guest, J., & Zilles, J. Prioritizing pathways for financially viable enzyme-based perchlorate removal from drinking waters. Borchardt Conference, Lansing, MI. February 25th, 2020.
61. Biocatalysis columns to advance treatment of emerging contaminants. Kalamanathan, I., **Hutchison, J.M.,** and Zilles, J.L. Association of Environmental Engineering and Science Professors. Spring 2019.
62. Advancing biocatalytic applications in drinking water: Column treatment of the disinfection byproduct chlorite. **Hutchison, J.M.,** Kamalanathan, I., Werth, C.J., and Zilles, J.L. American Chemical Society (ACS), New Orleans, LA, Spring 2018.
63. Biocatalysis with chlorite dismutase attached to resin beads. Kamalanathan, I., **Hutchison, J.M.,** and Zilles, J.L. Association of Environmental Engineering and Science Professors (AEESP) Distinguished Lecturer Conference, West Lafayette, IN, Spring 2018.
64. Identifying technology development goals for competitive biocatalytic degradation of micropollutants. **Hutchison, J.M.**, Guest, J.S., and Zilles, J.L. Association of Environmental Engineering and Science Professors (AEESP), Ann Arbor, MI, Summer 2017.
65. Enabling reuse of ion exchange brines through biocatalytic reduction of regulated anions. **Hutchison, J.M.** and Zilles, J.L. Association of Environmental Engineering and Science Professors (AEESP), Ann Arbor, MI, Summer 2017.
66. Technology development pathways for biocatalytic removal of micropollutants in drinking water. **Hutchison, J.M.**, Guest, J.S., and Zilles, J.L. American Water Works Association (AWWA) Annual Conference and Exhibition (ACE), Philadelphia, PA, Summer 2017.

67. Hybrid drinking water treatment: Enabling reuse of ion exchange brines through biocatalytic reduction of regulated anions. **Hutchison, J.M.** and Zilles, J.L. Environmental Engineering and Science Seminar, University of Illinois, Urbana, IL, Spring 2017.
68. Biocatalytic treatment of spent ion exchange brine. **Hutchison, J.M.** and Zilles, J.L. American Chemical Society (ACS), San Diego, CA, Spring 2016.
69. Design of a biocatalytic treatment system for perchlorate. **Hutchison, J.M.**, Guest, J.S., and Zilles, J.L. Illinois Water Environment Association (IWEA), University of Illinois, Urbana, IL, Spring 2016.
70. Design of a biocatalytic treatment system for the endocrine disrupter perchlorate. **Hutchison, J.M.**, Guest, J.S., and Zilles, J.L. Environmental Engineering and Science Seminar, University of Illinois, Urbana, IL, Spring 2016.
71. Development of biocatalysts for water treatment: perchlorate model system. **Hutchison, J.M.** and Zilles, J.L. Association of Environmental Engineering and Science Professors (AEESP), Yale University, New Haven, CT, Summer 2015.
72. Biocatalytic removal of chlorine oxyanions: Identifying a robust chlorite dismutase. Mobilia, K.C., **Hutchison, J.M.**, and Zilles, J.L. Association of Environmental Engineering and Science Professors (AEESP), Yale University, New Haven, CT, Summer 2015.
73. Mining biological diversity to optimize chlorite dismutase for water treatment. Mobilia, K.C., **Hutchison, J.M.**, and Zilles, J.L. American Society of Microbiology (ASM), New Orleans, LA, Summer 2015.
74. Biocatalytic treatment of perchlorate in groundwater. **Hutchison, J.M.** and Zilles, J.L. American Society of Microbiology (ASM), New Orleans, LA, Summer 2015.
75. Biocatalytic perchlorate treatment of drinking water. **Hutchison, J.M.** and Zilles, J.L. Environmental Engineering and Science Symposium, University of Illinois, Urbana, IL, Spring 2015.
76. High school ELL/SPED students present claims and evidence to AP Environmental Science Students about clean energy. Hutchison, K.M, Burge, A., Smith, B., and **Hutchison, J.M.** National Science Teachers Association (NSTA), Chicago, IL, Spring 2015.
77. Biomimetic catalysts for perchlorate reduction in drinking water. **Hutchison, J.M.** and Zilles, J.L. Emerging Contaminants (EMCON), Iowa City, IA, Summer 2014.
78. Mining biological diversity to optimize chlorite dismutase for large-scale water treatment. Mobilia, K.C., **Hutchison, J.M.**, and Zilles, J.L. Emerging Contaminants (EMCON), Iowa City, IA, Summer 2014.
79. Graduate students help to create a discovery-based and cooperative learning experience about clean energy for high school students. **Hutchison, J.M.**, Burge, A., and Hutchison, K.M. American Society for Engineering Education (ASEE), Indianapolis, IN, Summer 2014.
80. Biological enzymes for perchlorate treatment. **Hutchison, J.M.** and Zilles, J.L. Environmental Engineering and Science Program Seminar, University of Illinois, Urbana, IL, Spring 2014.
81. Hybrid nanoreactors composed of biomimetic vesicles and biological enzymes for perchlorate treatment. **Hutchison, J.M.**, Poust, S.K., Kumar, M. Cropek, D.M., MacAllister, I.E., Arnett, C.M., and Zilles, J.L. American Chemical Society (ACS), Indianapolis, IN, Fall 2013.
82. Perchlorate reduction using *Azospira oryzae* enzymes in vesicles. **Hutchison, J.M.**, Poust, S.K., Kumar, M. Cropek, D.M., MacAllister, I.E., Arnett, C.M., and Zilles, J.L. Association of Environmental Engineering and Science Professors (AEESP), Colorado School of Mines, Golden, Colorado, Summer 2013.
83. Functionalizing synthetic cells with perchlorate-reducing biomolecules. **Hutchison, J.M.**, Poust, S.K., Kumar, M. Cropek, D.M., MacAllister, I.E., Arnett, C.M., and Zilles, J.L. Environmental Engineering and Science Program Seminar, University of Illinois, Urbana, IL, Fall 2012.
84. Perchlorate removal using biological components in synthetic vesicles. **Hutchison, J.M.**, Poust, S.K., Bozek, E., Kumar, M., MacAllister, I.E., Arnett, C., and Zilles, J.L. Environmental Engineering and Science Symposium, University of Illinois, Urbana, IL, Spring 2012.
85. Perchlorate removal using biological components in synthetic vesicles. **Hutchison, J.M.**, Poust, S.K., Bozek, E., Kumar, M., MacAllister, I.E., Arnett, C., and Zilles, J.L. Environmental Engineering and Science Symposium, University of Illinois, Urbana, IL, Spring 2011.
86. Retrograde signaling in glutamate dehydrogenase mutants of yeast. Trotter, P.J., **Hutchison, J.M.**, Logsdon, M., and Schmitt, H. The American Society for Biochemistry and Molecular Biology (ASBMB), San Francisco, CA. Spring 2006.

Presentation Awards

1. 2017, 2016, 2014, 2013 – University of Illinois Racheff Travel Award
2. February 2016 – First Place, Illinois Water Environment Association.
3. May 2015 – Student Award, American Society of Microbiology.
4. April 2012 – Most Innovative Research Award, University of Illinois Environmental Engineering and Science Symposium.

Training

Institute in Drinking Water Treatment at the University of Massachusetts. August 2019.
Fundamentals of Proteomics Workshop at the University of Arkansas Medical Sciences. May 2022.

TEACHING AND MENTORING

Courses Taught (mean evaluation score: 4.76/5.00)

Graduate Teaching Experience

Course: Life Cycle Assessment, CE 850
University of Kansas, Fall 2022, Fall 2024, Fall 2026
Instructor of Record

Course: Biological Principles of Environmental Engineering, CE 773
University of Kansas, Fall 2018, Spring 2020, Spring 2021, Spring 2022, Spring 2023, Spring 2024, Spring 2025
Instructor of Record

Course: Physical Principles of Environmental Engineering, CE 772
University of Kansas, Spring 2019, Fall 2019, Fall 2020, Fall 2021, Fall 2023
Instructor of Record

Course: Laboratory Principles of Environmental Engineering, CE 771
University of Kansas, Fall 2020, Fall 2021
Instructor of Record

Course: Concepts of Environmental Chemistry, CE 770
University of Kansas, Fall 2025
Instructor of Record

Course: Scientific Writing in CEE, CEE 548
University of Illinois, Fall 2014 (Instructor: Julie L. Zilles)
Contribution: Served as mock proposal reviewer

Course: Remediation Design, CEE 540
University of Illinois, Spring 2014 (Instructor: Charles J. Werth)
Contribution: Held office hours, wrote and graded homework assignments, designed and gave two weeks of lectures

Course: Biological Principles, CEE 444
University of Illinois, Spring 2012 and 2013 (Instructor: Julie L. Zilles)
Contribution: Held office hours, wrote select homework assignments, graded homework and examinations, lectured for one week of classes on molecular techniques

Undergraduate Teaching Experience

Course: Biological Principles of Environmental Engineering, CE 573
University of Kansas, Fall 2018, Spring 2020, Spring 2021, Spring 2022, Spring 2023, Spring 2024, Spring 2025
Instructor of Record

Course: Laboratory Principles of Environmental Engineering, CE 571
University of Kansas, Fall 2020, Fall 2021
Instructor of Record

Course: Concepts of Environmental Chemistry, CE 570
University of Kansas, Fall 2025
Instructor of Record

Course: Life Cycle Assessment, CE 550
University of Kansas, Fall 2022, Fall 2024, Fall 2026

Instructor of Record

Course: General Chemistry Lab
Augustana College, 2005 – 2007 (Instructors: Richard Narske, Pamela J. Trotter)
Contribution: Set up necessary chemicals and equipment for undergraduate general chemistry class, graded laboratory reports, maintained analytical equipment

Course: Biochemistry, Guest Lecturer
Augustana College, 2006 – 2007 (Instructor: Pamela J. Trotter)
Contribution: Led lectures on current molecular processes including the expanding role of miRNA and siRNA

Graduate Student Advising

Graduate Committees Served (Current)

Masters Research – 22 (6)
Doctoral Research – 20 (12)

Graduate Research Advisor (Degree, and Start/End Date)

1) Gabe Ryan (MS, Fall 2026)
2) Abby Peters (MS, Fall 2026)
3) Claire Igielski (MS, Spring 2026)
4) Lochan Pandeya (PhD, Fall 2025)
5) Kenneth Chinkwu Ugwuoke (PhD, Fall 2024)
6) Emma Russin (MS, Fall 2023 – Spring 2025)
7) Nathaniel Sheehan (coadvised, PhD, Fall 2022)
8) Kara Poje (MS, Fall 2024)
9) Ngun Za Luai Mang (MS, Summer 2022 – Spring 2024)
10) Laurel Schaich (MS, Fall 2020/Fall 2021)
11) Apekshya Koirala (MS, Spring 2021 – Spring 2023)
12) Anthony Pham (coadvised, MS, Fall 2020 – Spring 2022)
13) Wambura Emmanuel Chacha (MS, Fall 2019 – Spring 2021, PhD, Spring 2021 – Spring 2025)

Graduate Research Mentor (before position at the University of Kansas)

1) Indran Kamalanathan (Summer 2017 – Spring 2019)
2) Yihan Zhang (Summer 2017)
3) Kellen Mobilia (Fall 2013 – Spring 2015).
4) Nikhil Susarla Spring 2015 – Spring 2016.

Undergraduate Student Advising (Current)

Undergraduate Academic – 66 (16)
Undergraduate Research – 21 (4)

Undergraduate Research Mentor

Lillian Clark (Research Experience for Undergraduates, Summer 2026)
Hannah Gideon (Research Experience for Undergraduates, Summer 2025)
Joshua Burn (Research Experience for Undergraduates, Mechanical Engineering, Summer 2024 – Current)
Cypher Troutner (Chemical and Petroleum Engineering, 2025 – Current)
Crystal Reyes (Research Experience for Undergraduates, Summer 2024)
Sauad Seuam (Research Experience for Undergraduates, Summer 2024)
Katherine Brock (Haskell/KU Bridges, Fall 2024)
Abe Pankratz (Chemical and Petroleum Engineering, 2023 – 2025)
Benjamin Lofland (Aerospace Engineering, 2023 – Current)
Lydia Crist (Mechanical Engineering, 2023 – 2024)
Kara Poje (Chemical and Petroleum Engineering, 2023 – 2024)
Isaac Byers (Civil, Environmental, and Architectural Engineering, 2023 – 2024)
Carter Hassman (Chemical & Petroleum Engineering, 2023 – 2024)
Aabhash Khadka (Civil, Environmental, and Architectural Engineering, 2022 – 2024)
Faith Elliott (Chemical and Petroleum Engineering, 2022 – 2026)
Matilda Wentizen (Civil, Environmental, and Architectural Engineering, 2022 – 2025)

Molly Kalthoff (Civil, Environmental, and Architectural Engineering, 2022 – 2026)
Mukta Gotoor (Molecular Biosciences, 2020 – 2023)
William Scarlett (University of Kansas Emerging Scholar, Chemical & Petroleum Engineering, 2020 – 2022)
Trong Minh Vu (Civil, Environmental, and Architectural Engineering, 2019 – 2020)
Emanuel Manriquez (University of Kansas Emerging Scholar, Electrical Engineering and Computer Science 2019 – 2020)
Hannah Cavanaugh (Civil, Environmental, and Architectural Engineering, 2019)
Nick Gerasimchuk (Civil, Environmental, and Architectural Engineering, 2019)
Sydney Crandall (Civil, Environmental, and Architectural Engineering, 2019 – 2020)
Sydney Gard (Civil, Environmental, and Architectural Engineering, 2019 – 2020)

Undergraduate Research Mentor (before position at University of Kansas)
Jessica Steslow (Civil and Environmental Engineering, 2015-2016)
Jordan Cannon (Civil and Environmental Engineering, 2015-2016)
Natalie Pelekh (Civil and Environmental Engineering, 2015-2016)
Paula Limberg (Chemical Engineering, 2015-2016)
Brittany Webb (Community College Student, 2014-2016)
David Anderson (High School Student, 2014-2016)
John Kelsey (Civil and Environmental Engineering, 2012-2014)
Joseph Change (Civil and Environmental Engineering, 2012-2014)

Research Experience for Teachers (National Science Foudnation Funded)
Stacey Bailey (Shawnee Heights High School, NSF ECOWaTER, 2022)
Evelyn Greene (Shawnee Heights High School, NSF ECOWaTER, 2022)
Jean Halley (Lincoln College Preparatory Academy, NSF ECOWaTER, 2021)
Ayla Parham (Lincoln College Preparatory Academy, NSF ECOWaTER, 2021)
Cara Snyder (Topeka West High School, NSF ECOWaTER, 2021)

Teaching Workshop Attended/Taught

- University of Kansas Research Intensive Course Mini Grant Workshop, 2025
- High Structure Course Design to Promote Engineering Student Success, 2025
- PFAS Workshop, University of Nebraska-Lincoln, Lincoln, NE. 2024
- KU Water Scholars Exchange, Lawrence, KS. 2024
- Research-Intensive Course Grant Workshop, Lawrence, KS. 2024
- Gentelligence. University of Kansas, Lawrence, KS. 2023.
- Institute in Drinking Water Treatment, University of Massachusetts, Amherst, MA, 2019.
- Sustainability Education Workshops, AEESP, Ann Arbor, MI, 2017.
- Teaching and Research at Undergraduate Institutions, AEESP, New Haven, CT, 2015.
- Communicating Research, University of Illinois, 2014.
- Graduate Academy for College Teaching, University of Illinois, 2014.
- Read and Discuss Science Literature in Class, University of Illinois, 2013.
- Creating or Revising Your Syllabus, University of Illinois, 2013.
- Building Effective Student Teams, University of Illinois, 2013.
- Teaching Philosophy Basics, University of Illinois, 2013.
- Read and Discuss Science Articles, University of Illinois, 2013.

SERVICE

Outreach

1) School of Engineering, Civil, Environmental, and Architectural Engineering Summer Camp Coordinator, 2023-2024
2) School of Engineering, Civil, Environmental, and Architectural Engineering Summer Camp Participant, Organized tours of the local water treatment facility, 2022
3) Keynote speaker and judge of student competition at the Future City Greater Plains Regional Competition. January 18, 2020.

4) Peer Advisor: Served as advisor to five first-year Mavis Fellows. This fellowship is awarded to students pursuing a career in academia. Helped students navigate the requirements of the program. 2014 – 2015.
5) Peer Advisor: Served as an advisor in the Professional Development Program, Civil and Environmental Engineering. 2013 – 2018.

Journal Reviewer

- Environmental Engineering and Science 2024
- Climate Change 2024
- Atmosphere 2024
- Water Research, 2015-2024
- Environmental Science & Technology, 2022-2024
- ChemCatChem, 2022-2023
- iScience, 2022
- Journal of Water and Health, 2022-2023
- Cleaner Environmental Systems, 2022
- mSphere, 2022
- American Chemical Society Sustainability, 2021
- Environmental Science: Water Research and Technology, 2020-2024
- Environment International, 2019
- Environmental Science & Technology, 2016-Current
- Journal of Microbiology, Biotechnology, and Food Sciences, 2016
- American Society Engineering Educator Conference Proceeding Reviewer, 2015-Current

Grant/Proposal Reviewer

- National Science Foundation TIPS Directorate, PFI and SBIR Panels, 2024
- Environmental Protection Agency, Aquifer Recharge Panel, 2023
- National Science Foundation, Environmental Engineering Panel, 2021, 2023, 2024
- Environmental Research & Education Foundation, 2020, 2023
- National Science Foundation, Graduate Research Fellowship Program, 2019, 2020

Workshops

- Research-Intensive Course Grant Workshop, Lawrence, KS, August 6th, 2024
- 2023 Academy Autumn Summitt Environmental Engineering and Science in a Community Context, AAEES, Virtual, 2023.
- Evolving from “Best Practices” to “Best Partnerships”: the Ethics of Wastewater-Based Surveillance when Supporting Community Health, AEESP, Boston, MA, 2023.
- Community Engaged Research 101, AEESP, Boston, MA, 2023.
- National Science Foundation Game Changer Academies. 2022.
- Planning and Applying the Latest Practices in Computer Modeling, AWWA, Philadelphia, PA, 2017.
- Re-Thinking Wastewater Treatment at the Nexus of Energy, Climate Change, and Resource Recovery, AEESP, New Haven, CT, 2015.
- Integrating Sustainability into Environmental Engineering Curriculum, AEESP, New Haven, CT, 2015.
- Panel: Learning, Teaching, and Research in the Developing World, AEESP, New Haven, CT, 2015.
- Scientific Presentations, Mavis Scholars, University of Illinois, 2015.
- Writing Successful Grant Proposals, University of Illinois, 2013.
- College of Engineering Academic Career Series, University of Illinois, 2013.

State/National/International Committee Activities

- Association of Environmental Engineering and Science Professors. Academic Job Application Review (2023 – 2024).

- Association of Environmental Engineering and Science Professors. Community Engaged Research Taskforce, Co-chair. (2021 – 2024).
- Kansas American Water Works Association Recruitment Committee, Member. (2020 – Current)
- Kansas American Water Works Association Research Committee, Member and Secretary. (2019 – Current)
- IWA Design, Operation, and Maintenance of Drinking Water Treatment Plants Committee, Member. (2019 – Current)
- IWA Health Related Microbiology Committee, Member. (2019 – Current)
- IWA Modeling and Integrated Assessment Committee, Member. (2019 – Current)
- American Waterworks Association Biological Drinking Water Treatment Committee. (2018 – Current)
- American Society of Engineering Educators (ASEE) Treasurer (2013 – 2014) and member, University of Illinois, (2013 – 2018)

University Committee Activities

- Civil, Environmental, and Architectrual Engineering Assistant Professor Search Committee. (2023 – Current)
- Civil, Environmental and Architectural Engineering Higher Learning Commission (HLC) Mapping Committee. (2022 – Current)
- School of Engineering, Graduate Fellowship Seminar Series. (2023)
- Chemical & Petroleum Engineering Assistant Professor Search Committee. (2022 – 2023)
- Civil, Environmental, and Architectural Engineering Recruitment Committee, Chair. (2022 – Current)
- Institute for Bioengineering Research Center, Leadership Team (2021 – Current)
- School of Engineering Distinguished Lecture Series Committee, Member. (2021 – 2023)
- Associate Dean for Academic Affairs Search Committee (2020)
- Faculty Advisor for Association of Environment and Water (2020 – Current)
- Advisory Board Development Subcommittee (2020 – Current)
- School of Engineering Academic Standards Committee, Member. (2020 – 2023)
- Hiring Committee for the Associate Dean of Academic Affairs, Member. (April 2020 – May 2020) Civil, Environmental, and Architectural Engineering Graduate Studies Committee. (2019 – Current)
- Admissions Committee for Bioengineering, Member. (2019 – Current)
- Emerging Scholars Program, Undergraduate Student Mentor. (2019 – Current)
- Peer Mentor Group, Member. (2018 – 2019)
- The University of Kansas Environmental Engineering Conference Organizing Committee, Co-moderator of Water Supply and Treatment Session, Organizer. (2018 – Current)
- Cultural Awareness and Speaking Enhancement (CASE) Guest Evaluator Coordinator (2014 – 2015), Session Coordinator (2013 – 2014) and member, University of Illinois., (2012 – 2018)
- Developer and presenter of clean energy education materials for University of Illinois Engineering Open House, University of Illinois, (2012 – 2018)
- CEE Ph.D. Professional Development Program Mentor, University of Illinois, (2012 – 2018)
- 17th Environmental Engineering and Science Symposium Coordinator, University of Illinois, (2010 – 2011)
- University of Illinois Interlink Program Mentor, University of Illinois, (2011 – 2012)
- Crew Team Treasurer (2003 – 2006) and member, Augustana College, (2002 – 2006)
- International Relations Union Education Coordinator (2002 – 2003), Secretary and Treasurer (2003 – 2004), and Chair (2004 – 2006), Augustana College, (2002 – 2006)
- Omicron Delta Kappa Treasurer (2005 – 2006), Augustana College, (2005 – 2006)

Professional Membership

- American Chemical Society
- American Society of Civil Engineers
- Water Environment Federation
- International Water Association
- American Water Works Association

- American Society of Microbiology
- Association of Environmental Engineering and Science Professors
- American Society of Engineering Education

Honor Societies

- Aristeia Freshman Honors Society
- Beta Beta Beta Biological Honors Society
- Mortar Board
- Omicron Delta Kappa
- Phi Beta Kappa

Community Activities

- Cub Scout Pack 3462 Committee Chair, 2021 – Current; Lions Den Leader, 2021 – 2022; Derby Car Coordinator, 2020 – Current.
- American Chemical Society Science Coach. 2012 – 2025
- Relay for Life Chair – Sponsorship Committee, raised $20,200. Quad Cities, Iowa/Illinois. 2005.
- World Affairs Council of the Quad Cities Board Member, Quad Cities, Iowa/Illinois. 2004 – 2006.