# KATHRYN B. NEWHART

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## PROFESSIONAL EXPERIENCE

**Oregon State University**  June 2024 - Present
*Assistant Professor of Environmental Engineering*  *Corvallis,OR*

**United States Military Academy**  June 2021 - June 2024
*Assistant Professor of Environmental Engineering*  *West Point, NY*

**Metro Wastewater Reclamation District**  March 2020 - May 2021
*Technology & Innovation Engineer Associate*  *Denver, CO*

**Red Rocks Community College**  August 2020 - December 2020
*Water Quality Management Instructor*  *Lakewood, CO*

## AFFILIATED INSTITUTIONS

**Baylor University**  2023 - Present
*Graduate School, Department of Statistical Science*  *Waco, TX*

**Colorado School of Mines**  2020 - Present
*Department of Civil and Environmental Engineering*  *Golden, CO*

## EDUCATION

**Doctor of Philosophy**  2018 - 2020
*Civil and Environmental Engineering*  *Colorado School of Mines, Golden, CO*

· Dissertation: "Data-driven process control of municipal wastewater treatment"
· Advisors: Prof. Tzahi Cath and Prof. Amanda Hering (Baylor University)

**Master of Science**  2016 - 2018
*Civil and Environmental Engineering*  *Colorado School of Mines, Golden, CO*

**Bachelor of Science**  2013 - 2016
*Environmental Engineering*  *Colorado School of Mines, Golden, CO*

## RESEARCH

"Data-driven Fault Detection and Process Control for Potable Reuse with Reverse Osmosis," National Alliance for Water Innovation, Autonomous Water and Precision Separations. NAWI-2-2021. Awarded 2022. Total award $1,034,000. Principal Investigator at West Point.

"Crossing the Finish Line: Integration of Data-Driven Process Control for Maximization of Energy and Resource Efficiency in Advanced Water Resource Recovery Facilities," U.S. Department of Energy, Research and Development for Advanced Water Resource Recovery Systems. DE-FOA-0002336. Awarded 2021. Total award $2,400,000. Principal Investigator at West Point.

# PUBLICATIONS

1. Black, A., **Newhart, K.**, Linvill, C., Pytlar, A., Galaitsi, S., Fairfield;, C., Wait, M., Bennett, E., Butkus, M., "Examination of the water-energy nexus: linguistic analysis of energy terminology in the wastewater literature," *Environmental Challenges*, 2024, *in review.*

2. Grimm, T.R., Branch, A., Thompson, K.A., Salevon, A., Zhao, J., Johnson, D., Hering, A.S., **Newhart, K.B.**, "Long-term Statistical Process Monitoring of an Ultrafiltration Water Treatment Process," *ACS ES&T Engineering*, 2024, DOI: 10.1021/acsestengg.4c00042

3. **Newhart, K.B.**, Klanderman, M.C., Hering, A.S., Cath, T.Y., "A holistic evaluation of multivariate statistical process monitoring in a biological and membrane treatment system," *ACS ES&T Water*, 2023, DOI: 10.1021/acsestwater.3c00058

4. Martin, M., Goethals, P., **Newhart, K.**, Rhodes, E., Vogel, J., Stevenson, B., "Optimization of sewage sampling for wastewater-based epidemiology through stochastic modeling." *J. Eng. Appl. Sci*, 2023, 70, 11.

5. **Newhart, K.B.**, Pfluger, A.R., Butkus, M.A., "The Green Escape Room: Part 2 – Teaching Students Professional Engineering Ethics by Applying Environmental Engineering Principles and Deciphering Clues and Puzzles." Paper presented at *2022 ASEE Annual Conference & Exposition*, Minneapolis, MN, 2022.

6. **Newhart, K.B.**, Hering, A.S., Cath, T.Y., "Data science tools to enable decarbonized water and wastewater treatment systems." *Pathways to Water Sector Decarbonization, Carbon Capture and Utilization*, edited by Z. Jason Ren and Krishna Pagilla, IWA Publishing, 2022.

7. **Newhart, K.B.**, Goldman-Torres, J., Wisdom, B. Freedman, D., Hering, A.S., Cath, T.Y., "Real-time dose control of peracetic acid disinfection in municipal wastewater treatment," *ACS ES&T Water*, 2021, 1, 2, 328–338

8. **Newhart, K.B.**, Marks, C.A., Rauch-Williams, T., Cath, T.Y., Hering, A.S. "Hybrid statistical-machine learning ammonia forecasting in continuous activated sludge treatment for improved process control," *Journal of Water Process Engineering*, 2020, 37, 101389

9. Klanderman, M., **Newhart, K.B.**, Cath. T.Y., Hering, A.S., "Fault isolation for a complex decentralized wastewater treatment facility," *Journal of the Royal Statistical Society*, Series C., 2020, 69, 931-951.

10. **Newhart, K.B.**., Holloway, R.W., Hering, A.S., Cath, T.Y., "Data-driven performance analyses of wastewater treatment plants: A review," *Water Research*, 2019, 157, 498-513

11. Odom, G.J., **Newhart, K.B.**, Cath, T.Y., Hering, A.S., "Multi-state multivariate statistical process control," *Applied Stochastic Models in Business and Industry*, 2018, 34(6), 880-892

12. Bell, E.A., Poynor, T.E., **Newhart, K.B.**, Regnery, J., Coday, B.D., Cath, T.Y., "Produced water treatment using forward osmosis membranes: evaluation of extended-time performance and fouling," *Journal of Membrane Science*, 2017, 525, 77-88.

# WORKSHOPS

"Defining Pathways for Solving Environmental Challenges using Machine Learning" *AEESP Annual Conference*, 2023, Organizer

"A Convergence of WRF Machine Learning Based Controller Implementation and Research" *WEF/IWA Innovations in Process Engineering*, June 6, 2023, Facilitator and presenter

"Visualization, Analysis, and Modeling in R for the Water Professional" MoWaTER PRO: Data Science Workshop, 2021 & 2022, Organizer

"Machine Learning in the Water Industry" *WEF/IWA Innovations in Process Engineering*, June 8, 2021, Organizer

"Understanding and Embracing Machine Learning, Artificial Intelligence and Predictive Analytics," *AWWA/SWAN International Smart Water Symposium*, November 10, 2020, Facilitator and presenter

"Data Research Advances Water Industry," *NSF Mid-scale Research Infrastructure Workshop for Intelligent Water Systems*, August 25, 2020, Virtual, Facilitator and presenter