Kumpel Lab

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Type of Research Position:
- Graduate RA at PhD or MS/PhD level (Fall 2019)

Description of Research Project:
The Kumpel Research Group in the Environmental and Water Resources program at UMass Amherst uses interdisciplinary approaches to design and study engineered, environmental, and human systems that provide safe, reliable, and sustainable drinking water and sanitation.

Students will conduct research in one or more areas to contribute to the ongoing projects within the research group. Currently, we have projects on: 1) Developing and testing strategies for providing safe and reliable piped water around the world; 2) Building better tools for monitoring and operating water and sanitation systems; and 3) Modernizing aging decentralized sanitation infrastructure. We identify problems faced by water and sanitation utilities, industries, and citizens, and conduct research that addresses these problems from multiple angles. Current projects include understanding the effects of regular interruptions to drinking water distribution systems, including the effects on the fate and transport of waterborne pathogens and antimicrobial resistance, effects on water quantity received by consumers and on infrastructure systems. We also work on designing better water quality monitoring strategies for resource-limited settings and, in doing so, contribute to the World Health Organization Guidelines for Drinking Water Quality; and engage in improving tools for citizen scientists to better understand their drinking water quality.

- Interdisciplinary - We collaborate across different disciplines within Civil and Environmental Engineering, as well as with researchers in Public Health and Economics. We use a variety of approaches and value creativity.

- Diversity welcoming/friendly research group: We believe diversity of backgrounds, experiences, and ideas is necessary for creating new knowledge and conducting sound scientific research. Given our engagement with diverse communities and in international settings, an ability to communicate in multiple languages is highly desired.

- International research opportunities: Much of our research is conduct in collaboration with communities and utilities internationally. We conduct research in collaboration with the World Health Organization and UNICEF, and have projects in in Kenya, India, Mexico, and the United Kingdom.

Desired Qualifications and/or Background
Students should be passionate and resilient problem-solvers with a background in a STEM field. We have opportunities in the lab, interacting with communities and utilities, and working with data and modeling; we welcome all abilities and strengths. We seek to build a diverse group of students who work together to solve real-world challenges.