

**CEVE Project:** Elucidating environmental microbes with antibiotic resistance in water systems

**Faculty Advisor:** Lauren Stadler ([lauren.stadler@rice.edu](mailto:lauren.stadler@rice.edu))

**Prerequisites:** Preferably a rising junior or senior; molecular biology lab experience is a plus!

**Project Description:**

Emerging antimicrobial resistance in infectious diseases is a global crisis that is responsible for an estimated 23,000 deaths a year and \$20 B in excess direct healthcare costs in the United States. A major challenge to combating antimicrobial resistance is that antimicrobial resistance genes can be shared among bacteria through horizontal gene transfer. Wastewater is a major environmental reservoir of antibiotic resistance genes. In wastewater environments, we lack a fundamental understanding of “who is doing what” – this research is focusing on understanding which microbes harbor antibiotic resistance genes, and who are they sharing those genes with.

We are looking for a motivated student who is interested in gaining laboratory experience and working on issues relevant to water sustainability and health. The undergraduate researcher will be involved in the development of a protocol for linking antibiotic resistance genes with their host microorganisms. The protocol will be used to understand the host range of different antibiotic resistance genes, and how treatment conditions and chemical stressors impact the host range of antibiotic resistance genes. It is expected that the summer will be spent performing some literature review, learning molecular biology techniques, learning how to do DNA extractions, polymerase chain reaction (PCR), and gel electrophoresis. The student will be paired with another undergraduate researcher, and work with a graduate student mentor. We are looking for someone who is interested in working 20-40 hours per week and will be compensated at \$10/hr.

If you are interested in applying, please email Dr. Stadler ([lauren.stadler@rice.edu](mailto:lauren.stadler@rice.edu)) and include your resume.