

# Development and Implementation of a Water Quality Testing Module across the Curriculum: Science, Liberal Arts, and Art/Design Majors

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With the build out of multi-use science labs, we had the opportunity to develop a Water Quality lab unit for a new audience. We intentionally targeted the first-year core curriculum for BFA design students and developed a modular lesson plan that is scalable in terms of depth of knowledge and range of technique and is simple, relevant, and flexible enough for students with expansive interests. To date we have offered this lab module to approximately 600 students per year, spanning the first-year Parsons School of Design Sustainable Systems course, a Eugene Lang College of Liberal Arts upper-level science Water Quality Lab course, and a New School university-wide required course Liquid Cities. The Water Quality module is designed to teach the epistemology of science using bacterial coliform detection systems and highlights civic relevance by explaining how this protocol has been implemented by government agencies and citizen scientists to monitor human influences on public water systems. The module uses a simple chromogenic assay (~\$1/student) to aid students in the understanding of a central pedagogical theme: both genetics and environment determine metabolic phenotype. Additionally, students gain knowledge of sterile technique. Through the lens of sustainability as a form of social justice, we are able to explore: water as a limited resource; disease communicability; and the role of infrastructure design in mitigating downstream effects of climate change. We are also able to scale this module for different courses by incorporating additional selective tests with fluorometric media and confirmatory biochemical reactions.

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