



September 10, 2020

The Ecological Landscape Design Lab within the Plant and Soil Science Department at the University of Vermont has an open position for a qualified MS student to conduct applied research on vegetation and soil media for stormwater bioretention systems. The start date would coincide with the beginning of the Spring 2021 academic semester, in January 2021. Below please find more information about the project.

Monitoring and evaluation of soils and vegetation for improved green stormwater infrastructure

Stormwater runoff is a major concern for water bodies in the United States, including Lake Champlain in Vermont. Bioretention systems are a form of green stormwater infrastructure that use soil and vegetation to store and filter stormwater runoff, with the aim of improving watershed hydrology and water quality. Some designs for soil media have recently been questioned due to risk of inadvertent release of pollutants (particularly phosphorus and nitrogen) from the media. When we reduce nutrient content in the soil media, there are additional challenges for selecting vegetation that can grow in bioretention systems. Our research team will be conducting **a two-year monitoring study to analyze different types of bioretention soil media in terms of ability to remove sediment, nutrients, and heavy metals from stormwater runoff, while supporting plant health**. Using constructed mesocosms of bioretention planters, we will systematically test the efficacy of the different soil and vegetation types by running simulated stormwater through the systems and comparing influent to effluent. The master's student will be involved in conducting a literature review of pertinent past research, management of the bioretention planters and monitoring equipment, collection and analysis of data, contextualizing the research in one or more publications for peer review, and collaborating in development of recommendations for bioretention design modifications.

Minimum requirements:

- A bachelor's degree in water chemistry, civil and environmental engineering, hydrology, soil science, horticulture, environmental science, or a closely related field
- Previous lab experience in a related field (lab coursework may be acceptable, depending on level of training)
- The ability to participate in field projects in variable weather conditions (installation and upkeep, data collection, etc.)
- Previous experience related to the above project

Interested students should begin by:

1- sending their resume and a cover letter by email to stephanie.hurley@uvm.edu

2- including "MS Recruitment" in the subject line

3- stating their interest in this subject matter and previous experience.

Ultimately, students will also need to apply to the UVM Graduate College: https://www.uvm.edu/graduate/prospective_student_resources and fulfill recruitment requirements of the university and the Plant & Soil Science Master's Program: <https://www.uvm.edu/cals/pss/masters-program>.

The Ecological Landscape Design lab group is committed to supporting underrepresented students and promoting diversity, equity, and inclusivity as we learn together.

Please feel free to contact me with additional questions about this opportunity.

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