The University of Vermont

PhD or MS Graduate Research Assistantship starting Fall 2021: Agricultural Hydrology, Nutrient Transport, and Treatment Technologies

Drs. Joshua Faulkner and Eric Roy at the University of Vermont have an open position for a qualified and motivated MS or PhD student to conduct research on innovative nutrient (phosphorus) removal technologies and edge-of-field nutrient transport and hydrology. The start date would coincide with the beginning of the Fall 2021 academic semester, but could possibly begin in Summer 2021 if desired. The student will have the option of pursuing their degree in Civil and Environmental Engineering, Plant and Soil Science, or Natural Resources.

Project Overview: Agricultural phosphorus contributions to water quality degradation are a significant concern within the Lake Champlain Basin of Vermont and elsewhere. As part of a larger watershed-scale assessment of agricultural conservation practices for addressing phosphorus loss, this project will evaluate multiple conservation practices at the field-scale. In addition to in-field practices, this study will specifically evaluate the 'stacking' of multiple innovative phosphorus removal technologies at the edge-of-field. Surface and subsurface water and nutrient runoff will be monitored, and combined performance of conservation practices in series will be determined. Bench-scale laboratory investigations may be utilized to better elucidate biogeochemistry and phosphorus removal mechanisms.

Responsibilities: Duties will include collection of water and soil samples at agricultural field sites, operation and maintenance of monitoring instrumentation, data analyses, and preparation of peer-reviewed manuscripts highlighting findings. Because nutrient transport is likely during a variety of conditions (e.g., large rainfall events, mid-winter warm periods, spring thaw), fieldwork will occur throughout all four seasons.

Minimum requirements:

- A bachelor's degree in water chemistry, agricultural engineering, civil and environmental engineering, hydrology, soil science, environmental science, or a closely related field
- Excellent written and oral communication skills
- The ability to participate in field projects in variable weather conditions (instrumentation installation and upkeep, data collection, etc.)
- Previous experience related to the above project

To apply: The assistantship includes tuition waiver, health insurance, and stipend. Interested students may apply by sending their resume and a cover letter stating their interest and any previous experience to both Dr. Joshua Faulkner (Joshua.faulkner@uvm.edu) and Dr. Eric Roy (Eric.Roy.1@uvm.edu).

More information:
Dr. Eric Roy's Nutrient Cycling & Ecological Design Lab: https://nced.weebly.com/
Dr. Joshua Faulkner's profile page: https://www.uvm.edu/cals/pss/profiles/research-assistant-professor-joshua-faulkner