New Haven Promise Scholars Program Intern Description
Raymond Aquatic Biogeochemistry Lab

Overview:

The undergraduate will work closely with a team of scientists examining the evolution of dissolved organic matter within the Connecticut River watershed during storm events as part of a NSF-funded MacroSystems Biology study. The project already has a number of long-term continuous water quality monitoring sondes deployed at 9 sites in Vermont and 11 sites in Connecticut. The student will work in conjunction with a doctoral student on sampling the Connecticut sites, 10 of which are nested within the Farmington River watershed and one of which is located on the mainstem of the Connecticut River. Most sites are located at U.S. Geological Survey (USGS) stream gages, and our team is collaborating with the USGS by helping to post our water quality data to their National Water Information System database on their website. Sampling occurs during both baseflow and storm conditions for a suite of analytes (including dissolved organic carbon, nutrients, and contaminants) with filtering occurring on site using peristaltic pumps. The intern will also help conduct lab analyses on samples for dissolved organic matter quantity and quality, as well as for nutrient and iron concentrations. This experience will provide training on different lab instruments and field water sampling protocols, as well as expose the student to various recommended statistical tests that can be used in data trend analyses. The student will have the opportunity to choose a research project within the larger study using these skills learned and to participate in weekly meetings with professors, post-docs, PhD students, and master's students involved with the project. The intern will also present on his/her research at the end of the summer during one of these weekly MacroSystems meetings.

Roles will include:

-Grab sampling water from sites during baseflow and after storm events for dissolved organic matter, total nitrogen, total phosphorus, total dissolved nitrogen, total dissolved phosphorus, metals, and total suspended solids

-Helping set up ISCO refrigerated autosamplers for sampling storm events, along with collecting bottles after storms

-Helping to maintain and calibrate in-situ water probes that measure a suite of water quality parameters, including temperature, pH, specific conductivity, dissolved oxygen, turbidity, and fluorescent dissolved organic matter

-Assisting in the performance of lab water quality analyses to examine the quality and quantity of dissolved organic matter on the Aqualog Benchtop Fluorometer and the Shimadzu TOC analyzer, along with total nitrogen, total phosphorus, total dissolved nitrogen, and total dissolved

phosphorus on the flow analyzer, and any other variable of the student's interest on instruments available in our lab in the Environmental Science Center and in the Yale Analytical and Stable Isotope Center

-Independent research on a topic of choosing within the realm of the project; options include analysis of particulate organic carbon, Chl-*a*, among several others

-Other assigned tasks, as needed

Preference will be given to candidates with the following:

- An interest in environmental science, chemistry, biology, geology, environmental policy/management, or other related studies

- Strong attention to detail

- A desire to work both in the lab (analyzing water samples for a variety of parameters) and in the field (collecting water samples)

- Good communication skills

- Ability to work well both independently and in a team setting

- Knowledge of Microsoft Excel

Engagement Length:

-The internship will be for a period of 8-10 consecutive weeks

-The student will work Monday through Friday, up to 37.5 hours/week, from June 5-August 11, 2020 (start and end dates are flexible)