

Three MSc studentships available beginning summer 2017

We are seeking three motivated and self-directed MSc students to work on a multi-disciplinary project examining the effects of agricultural land use intensity on stream ecology and function in the Aspen Parkland and Grassland ecoregions of Alberta. Students will be based in the laboratories of [Dr. Rolf Vinebrooke](#) and [Dr. Suzanne Tank](#), in the [Department of Biological Sciences](#) at the University of Alberta. These studentships are part of a larger project being led by scientists at Alberta Agriculture and Forestry. Successful candidates for these positions can expect to work in close association with numerous government and academic scientists, be part of a large project that involves multiple collaborators, and undertake research that will contribute to policy decisions at the provincial level. Significant field support from Alberta Agriculture and Forestry will be provided.



Individual MSc projects are as follows:

(1) Determining biological nutrient thresholds using bioassessment procedures (led by Dr. Rolf Vinebrooke)

Working with data and samples from a series of low-, medium-, and high-nutrient streams, the student will assess changes in algal biomass and community composition to determine where increasing nutrient levels cause significant changes in algal community composition. This information will be used to understand biological shifts and thresholds under changing nutrient conditions.

(2) Assessing stream functional thresholds using stream metabolism (led by Dr. Suzanne Tank)

Work for this project will occur in a subset of the low-, medium-, and high-nutrient streams described above. Across this gradient, measurements of stream metabolism (gross primary production and respiration) will be used to assess the presence of nutrient thresholds that cause rapid shifts in stream metabolism relative to the low nutrient state. Measures of organic matter decomposition, and organic carbon composition will also be used to enhance these analyses.

(3) Assessing stream functional thresholds via nutrient attenuation studies (led by Dr. Suzanne Tank)

Using the low-, medium-, and high-nutrient streams from *Project 2*, nutrient retention (the ability of streams to retain added nutrients) will be measured via short-term experimental nutrient additions. Thresholds in stream nutrient retention capabilities will be assessed across the nutrient gradient, and compared to similar thresholds in the biological response from *Project 1*.

Interested candidates should email a CV and unofficial transcript to either of Drs. Vinebrooke (rolf@ualberta.ca) or Tank (suzanne.tank@ualberta.ca), with a short description of their interest. Ideally, students will begin field work during the summer of 2017, in advance of official enrollment in their graduate program in September 2017.

Information about our graduate program, including admissions requirements, can be found [here](#).