HART Undergraduate Summer Research Assistantship

Below is a list of possible sponsors for the Bill & Ria Hart Undergraduate Summer Research Assistantship. You may apply to more than one sponsor.

**Department of Integrative Biology**

More information regarding each sponsor’s research and contact information can be found on the [Department of Integrative Biology](#) website.

**Dr. Joe Ackerman**

Environmental stressors of aquatic ecosystems including eutrophication, sedimentation, and climate change can impact biodiversity and ecosystem processes. Our lab examines links between the physical environment and the ecology of aquatic organisms (algae, plants, mussels) and ecosystems (rivers, lakes). Student assistant opportunities exist to support projects investigating: (1) threats to/recovery of endangered mussel species in Southern Ontario; (2) nutrient/resource flux between the benthic plants and/or invertebrates and the water column, and (3) the effect of turbulence on the zooplankton feeding/interactions. Student assistants will engage in both field and lab work throughout the summer with the opportunity to continue as an honours research project in the F17–W18 semester.

**Dr. Moira Ferguson**

We are investigating the processes underlying the early stages of ecological diversification, by focusing on natural populations of Arctic charr in Icelandic lake systems. Through measuring the phenotypic targets and the ecological causes of natural selection, we hope to better understand the mechanisms by which selection contributes to the creation and maintenance of polymorphisms within these populations. We are also trying to understand the genetic basis of adaptive diversification through next generation sequencing techniques. The successful candidate will work in our lab over the summer months and have the opportunity to collect phenotypic data and perform DNA analysis for a subcomponent of the larger project.

**Dr. Jinzhong Fu**

My research uses DNA data and phylogenetic analysis as primary tools to investigate evolutionary questions. Most of my recent work involves speciation, hybridization and high-elevation adaptation of amphibian and reptile species.

**Dr. Todd Gillis**

My students and I use a comparative approach to examine the ability of the vertebrate heart to respond to environmental stressors. Projects in the lab integrate molecular and cellular approaches with studies of isolated tissues and live animals to gain insight into the basic mechanisms underpinning physiological capabilities. Working with a graduate student this individual will be involved in a project focused on
hagfish and how they can maintain cardiac function during 36 hours of anoxia exposure. For project background please see (Gillis et al. 2015; PMID:26486366).

Dr. Patricia Wright

We are interested in understanding the diversity of strategies that amphibious fish use to cope with life out of water. We study the mangrove rivulus (Kryptolebias marmoratus) that survive up to 84 days in air. The aim of this laboratory project is to link plasticity in physiological traits with performance on land to understand the characteristics that are most important in tolerance to prolonged air exposure. This project could be the start of a F17 – W18 semester research project (IBIO*4500 or 4521/2).