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.

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

Sally Adamowiz, IB/BIO
My students and I aim to understand the evolution and maintenance of biodiversity across varying spatial and time scales, with a focus on aquatic invertebrates. Focal study systems include arctic freshwater habitats, ancient lakes, and Canadian marine waters. We employ a variety of molecular methods, including phylogenetics and DNA barcoding, to investigate geographic patterns in the distribution of biodiversity, rates of diversification across the Tree of Life, and biological and environmental correlates of rates of molecular evolution.

Jim Ballantyne, IB
My research focuses on the role of hydroxyurea in disease resistance in animals. We have discovered that hydroxyurea occurs at high levels in elasmobranchs (sharks and their relatives) and moderate levels in some invertebrates and other vertebrates. Hydroxyurea is a known antiviral, antibiotic, antifungal and antineoplastic compound used clinically to treat a range of human diseases. It was not previously known to occur in animals. Our work is to map out the occurrence of this compound in diverse animal groups (biodiversity) and establish its role and regulation as a natural anticancer compound (cancer research).

Moira Ferguson, IB
Natural selection in Icelandic Arctic charr
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. The successful candidate will work alongside a member of our lab in Iceland over the summer months and have the opportunity to collect fish and analyze data for a subcomponent of the larger project. Airfare and living costs in Iceland will be provided.

Beren Robinson, IB
Dr. Beren Robinson is looking for a student interested in studying the evolutionary ecology of lake fishes composed of different ecomorphs. The student's work would focus on one or more of: larval ecology, reproductive biology, predation risk physiology or habitat use while at the same time assisting in the field on other aquatic ecological work. Extensive time will be spent in
the field under all weather conditions and experience snorkeling and/or with small powerboats is an asset. This project is ideal for supporting an honours research project over subsequent fall and winter terms.

**Pat Wright, IB**

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 is ideal for supporting an honours research project over the F16 – W17 semester.