BIOL4318 – Adaptations to Extreme Environments

Fall 2020

Animals occupy nearly every habitat on Earth, and not all of their environments or lifestyles are what we, as humans, would consider hospitable, or even tolerable. Some animals can survive without liquid water, some can survive freezing solid, some withstand extreme pressure, or can ingest 3x their body mass in hot blood, and even a few species can survive in the vacuum of space.

Our goal for this course is to address a singular question: What adaptations allow animals to survive under conditions that would be lethal to us? By comparing and contrasting the different ways animals overcome stressors in their biotic and abiotic environment we will both broaden and deepen our understanding of how animals work.



In this course, we will use communication technologies to work as a team to learn about a variety of adaptations that have allowed animals to occupy some of the most physiologically challenging environments on the planet. Independently and through teamwork, you will apply your knowledge of animal anatomy and physiology learned in this and prior courses to interpret ad critique current literature, synthesize information from multiple (sometimes conflicting) sources, collaborate with global experts, and construct new hypotheses. By sharing what you learn with the group, you will develop critical skills in oral and written communication to effectively deliver information to other scientists and the public at large.

Instructor: **Dr. Heath MacMillan**: HeathMacMillan@cunet.carleton.ca

Textbooks: No textbook is formally required for this course. Electronic resources will be accessed through the MacOdrum Library.

Prerequisite: BIOL 3305 (Human and Comparative Physiology).