**CSB325H1F - ENDOCRINE PHYSIOLOGY**

24L, 9T

**Lecturer:**

Prof. D. Lovejoy [david.lovejoy@utoronto.ca](mailto:david.lovejoy@utoronto.ca)

**Course Administrator:**

Peggy Salmon RW 424E416-978-8608      [peggy.salmon@utoronto.ca](mailto:peggy.salmon@utoronto.ca)

**Prerequisite:**BIO 270H1, BIO 271H1

**Recommended preparation:**EEB 266H1, 267H1

**Course Overview**

Within organisms, hormones are the essential transmitters of information among organs, tissues and cells. They possess a number of different structures, and together, they regulate the morphology, energy and behavioural interactions among animals. Genetic variation among hormones and their receptors can lead to modification of morphologies, niche adaptation, growth, energy and sex determination. Many animals and plants have modified these basic molecular structures to protect their survival.

This course will focus on the major hormonal families, their structures and their receptor mechanisms in vertebrates with respect to osmoregulation, energy metabolism, growth, stress and reproduction. Because virtually all human hormones were initially discovered in animals, a comparative approach will be taken to understand why some animals have special physiological abilities and how these studies led to understanding human endocrinology. In addition, we will also examine why many species of animals and plants have modified structures (called hormone mimics) over the course of their evolution, to protect themselves from predators.

**Student Experience**

This course will provide students with an understanding of: A) what is a hormone and how does its structure vary? B) what is a hormone receptor, and why are receptors so important to hormone action? C) what is the role of hormones in the physiology of animals? D) why do genetic changes in hormone structures and their receptors lead to major changes in animal physiology, behaviour and morphology? E) what are hormone mimics and why is human industrial activity so detrimental to animal and human health and ecosystems in general?

**Evaluation:**

This course incorporates a combination of lectures (2 hours per week) and three Problem-based learning (PBL) tutorial sessions (3 hours per session; and additional outside of class discussion) where students will work together to develop a key question in endocrinology and provide a solution to the problem using existing scientific literature and interpersonal discussion.

As a result of this program, students will learn how to search and evaluate scientific literature, and integrate this information with both class lectures and in discussions with their group members.

Midterm Examination: 30%

Tutorial Sessions: 20%

Final Exam: 50%