**CSB 426H1F – PHYSIOLOGY OF STRESS AND REPRODUCTION**

12L, 24S

**Lecturer:**

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**Prerequisite:**Minimum grade of 73% in CSB325H1

**Course Overview**:

This course is focused on the integration of stress and reproductive physiology in vertebrates and humans. There are two essential components in the evolution of all species on the planet. One component is survival, the other is reproduction. Organisms must live long enough despite numerous stressful events in order to reproduce. Stress can be defined as any event whether real or perceived that impacts homeostasis and therefore organism health and welfare. However, an animal only has enough energy to protect itself, or to reproduce. Thus all animals need to regulate their energetic and physiological needs to both protect themselves and to reproduce. In the attempt to achieve this, vertebrates including humans have developed a complex set of physiologies and behaviours during their lifetime to achieve both survival and reproduction.

**Course Focus**

This course will introduce students to the history of the study of stress and reproduction and the scientific philosophy associated with our understanding of how animals and humans adapt to changing environmental stressors in order to achieve reproductive activity. The course will then focus on the neurobiology, endocrinology, behaviour and social aspects of species and how they are integrated. Questions such as aggression, dominance, sexual and intersex behaviours will be examined using both the environmental stressors and physiological and behavioural plasticity aspects of these species. How such elements impact animals with respect to catastrophic geological and meterological events, migration and loss of territory will be examined with respect to physiological, epigenetic and genetic changes over short-term and long-term stressors. In addition, human interaction associated with animals in captivity such as zoos and intense agricultural rearing practices will be explore. Finally, the current issues associated with human society and the role on stress and reproduction will be discussed.

**Student Experience**

Students will gain an integrated understanding of how organismal and cellular stress affects the process of reproduction.  The focus will be primarily on chordates and will examine genetic, cellular, organismal, behavioural, and social levels of interaction. This course is tailored to the students’ own interests with respect to changing social and environmental concerns. Given a strong basis in the neurobiology and endocrinology of stress and reproduction, students will use this information to interpret the existing scientific literature with modern issues.This is an interactive course, where it is expected that students will provide interaction with the professor via a series of question and answer type situations. However, this format allows students to introduce their own ideas and interpretation of the material and literature. In the past, students have raised such questions regarding the validity of zoos, the evolution of aging, sex reversal and stress, and the role of the internet.

**Evaluation**

Students will be evaluated by a) the lecture content and discussions on a midterm and final examination, b) a Problem-Based Learning tutorial session where the group will research a key question in stress and reproduction using scientific literature, lectures and discussions and c) class performance and presentation skills on their tutorial project.