Module Objectives

We will examine some current topics in behavioural neuroendocrinology, discussing hormonal and neurochemical processes that interact with one another and with behaviour. Much of our discussion will address the dynamics of stress and adaptation, considering impacts on emotion and the capacity to learn.

Required Readings


Other Recommended Readings


**Schedule**

**March 16:** Denys deCatanzaro will present a broad overview of hormonal and neurochemical systems that interact closely with behaviour. This will include discussion of the hypothalamic-pituitary-adrenal (HPA) and hypothalamic-pituitary-gonadal (HPG) axes; dopaminergic, noradrenergic, and serotonergic systems in the brain; and chemical dynamics in the brainstem, hypothalamus, and limbic system.

**March 23:** There will be two main topics, each given approximately half of the class. Each discussion will be led by a student (or D. deCatanzaro if necessary).

1) **Cortisol**  
We will focus on its roles in stress and the modulation of learning and memory in both healthy and pathological conditions.

2) **Dopamine**  
We will focus on its roles in reward mechanisms and how its dynamics can be altered by stress in interaction with HPA activity.

**March 30:** Again there will be two topics, each involving half of the class time. The first will be led by a student, and the second by D. deCatanzaro.

1) **Serotonin**  
Our focus will be on interactions with the HPA axis and how this influences affective behaviour.

2) **Estradiol**  
We will examine the potential role of the HPG in memory. We will also discuss data indicating that estradiol can pass between individuals and act as a "pheromone".