Hormones and Behaviour (NESC and PSYO 3170)

Department of Psychology and Neuroscience

Fall 2026 edition (with Simon Gadbois)

General statements:

1. Dalhousie University is located in Mi'kma'ki, the ancestral and unceded territory of the **Mi'kmaq**. We are all Treaty people.
2. Dalhousie University also acknowledges the histories, contributions, and legacies of **African Nova Scotians**, who have been here for over 400 years.
3. Simon Gadbois acknowledges the histories, contributions, and legacies of **Acadians**, who have been here since 1604 and who were deported en masse from 1755 to 1763.
4. All students are required to **comply with health and safety requirements** on campus, and should be considerate of others' health concerns. Non-compliance may be reported under the Code of Student Conduct.
5. Dalhousie is a **scent-free** working space.
6. Please note that, as far as Simon Gadbois is concerned, this class is a **safe space**. We can all contribute to a tolerant and discrimination-free atmosphere (for race, ethnicity, gender, sexual preference, language, religion, age, disability, etc.).

General course information:

- **Instructor**: Simon Gadbois: sgadbois@dal.ca
  - Please call me by my first name, "Simon" (pronounced the French way, i.e., silent n), no "Dr.", "Prof", etc., needed.
- **Office hours for Simon Gadbois:** Monday, 4:00 pm to 5:00 pm and Wednesday, 1:00 to 2:00 in LSC 3326
  - Office hours include midterm viewing except the week before the finals when I will be focussing on answering questions pertaining to the upcoming exams.
- **Teaching assistant:** Laura Elliott: laura.elliott@dal.ca
- **Office hours for Laura Elliott:** ***online only***, Thursday, 1:00 pm to 2:00 pm, and Friday, 1:00 pm to 2:00 pm
- **Emails:** When sending an email to Simon Gadbois or Laura Elliott, please ***add "3170" to the subject line***.
- **Lectures:** Monday and Wednesday, 11:30 to 13:00; LSC 238.
- **Laboratories:** N/A
- **Tutorials:** N/A
- **Course delivery** / **modality:** ***In-person only***
  - Lectures are not recorded but ***students are allowed to audio-record the lectures***.
  - Attendance is required and expected.
  - Note-taking by students is expected.
- **Course Description**: This course examines how chemical signals of the neural, endocrine, and immune systems interact to influence the brain and behaviour and how neurotransmitters, cytokines, and hormones control neural and behavioural development, sexual, aggressive, and maternal behaviour. Hormone receptors in the brain, reproduction, puberty, brain sex differences, and stress are also examined.
  - FORMAT: IN-PERSON Lectures

- LECTURE HOURS PER WEEK: 3
- **Course Prerequisites**: NESC 2470.03/PSYO 2470.03 or PHYL 2041.03
  - CROSS-LISTED: PSYO and NESC 3170.03
- **Course Exclusion:**: PSYO and NESC 2170.03
- **Animal Behaviour Certificate**: This course can be used towards the Animal Behaviour Certificate or ANBH

Overview

General: You will learn about the effects of hormones on behaviour, on how behaviour can influence the endocrine system, and about the different methods of investigation in behavioural endocrinology and psychoendocrinology. The following topics in behavioural endocrinology and psychoendocrinology can be covered (some may be omitted):

1. Methods in the study of behavioural endocrinology and psychoendocrinology
2. Endocrine anatomy and neuroendocrinological bases of behaviour
3. Sex differences in endocrinology and behaviour
4. Reproductive behaviour (male and female)
5. Parental behaviour (maternal and paternal behaviour)
6. Social (affiliative and agonistic) behaviour
7. Metabolism and homeostasis
8. Stress, anxiety, and mood disorders
9. Cognition (learning and memory)
10. Biological rhythms
11. Endocrine disruptors: Toxicology

> ***Warning and disclaimer****: This course will tackle issues such as sexuality, sex and gender, reproduction, polygamy, evolution, aggression, experimental research with animals. Information on those topics will be based on scientific data. Students are welcome to discuss and debate these and other topics in class.*

Learning Objectives

At the end of this course, you will be able to:

- Understand, explain and apply fundamental principles of behavioural endocrinology to practical problems in behaviour (sexual, social, affiliative, etc.), and real world applied areas.
- Understand and explain the advanced principles of neuroendocrinology and endocrine anatomy.
- Understand and explain the role of the behavioural sciences and neurosciences the regulation and modulation of hormones.
- Understand and explain the role of (neuro)endocrinology in the regulation and modulation of behaviour.
- Understand and explain the different applications of behavioural endocrinology to applied research with animals and humans.
- Synthesise and integrate the methodologies and perspectives of behavioural endocrinology.

Course materials

The following textbook is **strongly suggested**. Second hand hard copies are likely available for sale online. Note that ebook versions may be cheaper:

> *Nelson, R.J. & Kriegsfeld, L.J. (2023). An Introduction to Behavioral Endocrinology, 6th Edition. Oxford University Press.*

Online access (via Bookstore purchase): PSYO or NESC

Other material: Scientific papers on specific topics may be suggested at any time during the term.

The course is on Brightspace where the lecture notes (in PDF – or html for long scrolling and easy font size control if requested) are posted.

Note that:

- Lecture notes are typically posted once a week, before class, but updates can be uploaded after class as well.
- Lecture notes are organised by theme, i.e., the sections are more like chapters, and not organised by lecture (this is because some years the course is offered in the 60-minute slot, and other years, in the 90-minute slot).
- You should be annotating (at minimum) the lecture notes provided (outline), **and** taking your own notes to supplement the material presented. I do not use “slide decks” as if they were a teleprompter. This means that missing lecture material translates into missing crucial information for an exam.
- For copyright reasons, some material may not be showing on the uploaded slides.

Course Assessments

Assessment	% of final grade	Date	Location, time, duration
Midterm	20%	October 21st	Regular time and space, 90 minutes
Final (**cumulative**)	35%	TBD by the Registrar’s Office	TBD by the Registrar’s Office, **3 hours**
Proposal outline	10%	October 14th	Online submission, Word (docx) files only
Recorded 3-minute presentation/poster	35%	December 2nd	Online Brightspace submission
	100%		

Midterm and final exam:

The format of the exams (the midterm and the final) is based on an hybrid model of **true/false and multiple choice questions**.

Material is fully *cumulative* for the final exam.

Note that you will be tested on:

- Material from the provided lecture notes.
- Material presented in class not fully developed in the lecture notes: Your **personal notes** will matter.
- IMPORTANT: My shared lecture notes are only an **outline**. Your **own notes** will be crucial to succeed in this course.

Course requirements:

In order to pass this course you need to:

- Obtain a final grade of 50% or more (minimum D)
- Write the midterm and the final exam. Please refer to the course policy on missed tests/exams in the section below.
- Any missed exams that are not resolved according to course policy will result in an INC final grade for the course. An INC (incomplete) that is not addressed within a month of the end of a class will result in an F for the course.
- Note: Academic Calendar regulation 16.1 “In order to complete a course satisfactorily, a student must fulfil all the requirements as set down in the course outline [Syllabus].”

Other course requirements

Attendance will be taken intermittently, and randomly. A good attendance record (over 80%) may be used, at my discretion, to upgrade a student to the next letter grade ***if within 1% of the next letter grade***. For example, you get 79% but participated to 90% of the lectures, you may get bumped-up to an A-.

Conversion of numerical grades to final letter grades follows the Dalhousie common grade scale

F	D	C-	C	C+	B-	B	B+	A-	A	A+
<50	50–54	55–59	60–64	65–69	70–72	73–76	77–79	80–84	85–89	90–100

Course policies on missed or late academic requirements:

Missed lectures: Although there is no direct penalty for missing lectures, it is particularly important that you realise you will be accountable for material covered during the lectures.

Missed tests/exams:

- **No need for a SDA** (student declaration of absence) in this class.

- Since SDA's are not valid for Final Exams, and finals cannot be missed like midterms, if you miss the final, only students with a valid and documented excuse will have the following option (following consultation with the Assistant Dean of Student Affairs): You write an **essay question exam**.
- There are **no make-ups** for a missed midterm in this course: **The value of the missed midterm is added to the final exam**. In other words, your final will weigh more (value of the final + the value of the missed midterm).
- If you miss the midterm, your final will be worth 100% of your grade.
- For long-term or chronic absences please speak with either:
  - An advisor at Accessibility and Accommodations (Student Accessibility Centre) if you have accommodations.
  - The Assistant Dean of Student Affairs (at the Faculty of Science): scieasst@dal.ca (Patricia Laws).
- Remember that **the final exam is fully cumulative**, and therefore will be covering the material of the full term.

Cancelled midterms:

If a midterm is cancelled due to weather or other force majeure events, the new date and time for the midterm will be the next regularly scheduled class, unless an alternative date is announced on Brightspace.

Late submissions of term projects:

Days missed include week-end days and holidays.

- "Time due" missed deadline (on the day): –5% (e.g., lab is due at 10 am, you submit it at 11 am the same day)
- Day 1 missed: –10% (the lab is submitted the day after it is due)
- Day 2 missed: –25%
- Day 3 missed: –50%
- Day 4 missed: 0%

Course Policies related to Academic Integrity

- Please see the Dalhousie regulations
- Make sure you understand the concept of "self-plagiarism": You are not allowed to recycle papers or other projects submitted in other courses, even partially.

Course Content:

This is a topic-based course. The list below is based on the chapters of Nelson & Kriegsfeld (2023), **6th edition**, Section 14 is an added possible topic (not in the book).

Important note: To avoid repetition with other classes, some sections may be brief. Topics in *italics* are unlikely to be covered. Topics in **bold** will definitely be covered.

1. **The study of behavioural endocrinology**
2. **The endocrine system**

3. Sex differences in behaviour: Determination and differentiation
4. Sex differences in behaviour: Animal and human models
5. Male reproductive behaviour
6. Female reproductive behaviour
7. **Parental behaviour**
8. **Social behaviour**
9. *Homeostasis and behaviour*
10. *Biological rhythms*
11. **Stress**
12. Learning and memory
13. **Affective disorders**
14. Endocrine disruption

Student supports and university statements, policies, and guidelines

https://dalu.sharepoint.com/sites/learn-teach/SitePages/syllabus-appendix.aspx