Faculty of Science Course Syllabus
Department of Psychology and Neuroscience

Advanced Animal Behaviour (NESC & PSYO 3162)
Winter 2025 edition

- Dalhousie University is located in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq. We are all Treaty people.
- Dalhousie University also acknowledges the histories, contributions, and legacies of African Nova Scotians, who have been here for over 400 years.
- Dr. Gadbois acknowledges the histories, contributions, and legacies of Acadians, who have been here since 1604 and deported en masse from 1755 to 1763.
- 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.
- Please note that, as far as Dr. 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.).
- Dalhousie is a scent-free working space.

Instructor:	Simon Gadbois (sgadbois@dal.ca) Pease call me by my first name, "Simon" (pronounced the French way, i.e., silent n, or "sea-moh"), no "Dr.", "Prof", etc., needed.
Office hours for Gadbois:	Monday, 3:00 to 4:00 and Tuesday 4:00 to 5:00 in LSC 3326 Office hours include midterm viewing except the week before the final when I will be focussing on answering questions pertaining to the upcoming exam.
Teaching assistant:	Laura Elliott (laura.elliott@dal.ca)
Office hours for Elliott:	Tuesdays from 4pm - 5pm and Fridays from 10am – 11am. Online and on-location: LSC 4231
Emails:	When sending an email to Simon Gadbois or Laura Elliott, please add "3162" to the subject line.
Lectures:	Monday, Wednesday & Friday, 11:30 to 12:30; Dunn 135.
Laboratories:	N/A
Tutorials:	N/A
Course delivery	In-person only; not recorded; students are allowed to audio record the lectures.
Course Description	This course focuses on advanced theories and applications of animal behaviour, with a focus on proximate, integrative and applied questions. It offers a more in-depth analysis of topics covered in NESC/PSYO 2160.03 and explores trends

	and issues in contemporary ethology, animal psychology and behavioural ecology. FORMATS: Lecture LECTURE HOURS PER WEEK: 3
Course Prerequisites	PSYO/NESC 2000 or NESC 2007 or BIOL 3062.03 or BIOL 3630.03, and PSYO/NESC 2160.03CROSS-LISTED: PSYO and NESC 3162.03
Course Exclusion:	N/A
Animal Behaviour Certificate	This course is one of the Animal Behaviour Certificate available courses: https://www.dal.ca/faculty/science/psychology_neuroscience/programs/certificate-programs/animal_behaviour.html

Overview

General: This course will focus on advanced theories and applications of animal behaviour, with a focus on *proximate, integrative* and *applied* questions. It will offer a more in-depth analysis of topics covered in NESC/PSYO 2160 and will explore trends and issues in contemporary animal psychology and behavioural biology (ethology, sociobiology/behavioural ecology).

Specific: The approach will emphasize proximate issues in animal social behaviour with a special attention to the neurophysiological, endocrinological, social, affective, conative and cognitive underpinnings of communication and social behaviour. Reference to applied animal learning, conservation and behaviour, human-animal interactions and conflicts, welfare and other contemporary issues in animal behaviour will be made.

Learning Objectives

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

- Understand, explain and apply fundamental principles of behavioural biology and comparative psychology to practical problems in conservation, medical, and other real world applied areas.
- Understand and explain the advanced principles of animal communication and zoosemiotics, including inter-specific associations and interactions.
- Understand and explain the role of the behavioural sciences and neurosciences (e.g., neuroecology) in conservation.
- Understand and explain the different applications of the behavioural sciences and neurosciences to applied research in animal behaviour, including in the context of the R&D (research and development) model of applied animal research (the focus will be on non-profit applications, e.g., health, environment, and conservation).
- Synthesise and integrate the methodologies and perspectives of behavioural biology (ethology and behavioural ecology) and comparative (or animal) psychology. For example: Using principles of conditioning in wildlife management or captive breeding of endangered species.

Course Materials

The following textbook is suggested for students wanting a textbook (this is not mandatory, it is **not** at the bookstore). Second hand hard copies are likely available for sale online. Note that ebook versions are cheaper:

Bradbury, J.W. and Vehrencamp, S.L. (2011). *Principles of Animal Communication*, 2nd Edition. Oxford University Press (formerly a publication of Sinauer).

Others that are partially relevant would be:

Dugatkin, Lee Alan (2020). Principles of Animal Behavior. 4th Edition. New York: Norton.

Hogan, J. A. (2017). *The Study of Behavior: Organization, Methods, and Principles*. Cambridge University Press.

- 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 (PDF) and grades will be 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 the lecture notes provided (outline), or taking your own to supplement the material presented. Dr. Gadbois does not use "slide decks" as if they were a teleprompter. This means that missing lecture material translates into missing crucial information for an exam. You should be annotating the outline provided, or taking your own notes to supplement the material presented. For copyright reasons, some material will not be showing on the uploaded slides.
  - A note taker is required to assist one of your peers. If you are interested, please contact the Student Accessibility Centre, notetaking@dal.ca

Course Assessments

Assessment	**% of final grade**	**Date**	**Location, time, duration**
Midterm	20	February 28	Regular time/space, 50 mins
Final (cumulative)	35	TBD	TBD, TBD, **3 hours**
Proposal outline	10	February 14	In-class (hard copy)
Recorded 3-min presentation/poster	35	April 7	Online Brightspace submission
	100		

Midterm(s) and final exam:

The format of the exams (the midterm and the final) is based on the **short answers and essay questions** model.

Material is fully *cumulative* for the final exam.

Note that you will be tested on:

- Material from available lecture notes.
- Material presented in class not fully developed in the lecture notes: Your personal notes will matter.
- Remember: Lecture notes are only an outline. Your own notes will be important here as well.

Course requirements:

In order to pass this course you need to:

- Obtain a final grade of 50% or more (minimum D)
- Write the midterms and the final exam*. Please refer to the course policy on missed tests/exams in the section below.
- Submit both the outline of the proposal and the proposal.
- Note: 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.

* Academic Calendar regulation 16.1 "In order to complete a course satisfactorily, a student must fulfill all the requirements as set down in the course outline [Syllabus]."

Other course requirements

Although not a course requirement per se, attendance may be taken intermittently, and randomly.

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 realize 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: Your final exam adds the value of the missed midterm. In other words, your final will weigh more (value of the final + the value of the missed midterm).
- If you miss the midterm, you may need a special permission from the Assistance Dean of Student Affairs (see above), and your final, if the absence is justified and approved, will be worth 100% of your grade.
- For long-term or chronic absences please speak with either:
    - An advisor at the Student Advising and Access Services if you have accommodations.

- The Assistant Dean of Student Affairs (at the Faculty of Science): Patricia Laws, scieasst@dal.ca.
- 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 announced on Brightspace, otherwise, by default, the exam is re-scheduled to the next planned (regular) class.

Late submissions of term projects:

Day 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: Last page of this document. A plagiarism detection system will be used in this course (for the content of the poster). ***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 that uses, among others, themes presented in Dugatkin (2020; chapters not covered in 2160), and Bradbury & Vehrencamp (2011). Note that other topics are covered that are not included in these books (e.g., imprinting). Beyond §10: Extra topics covered in rotation depending on years but most likely not this Winter 2025.

SECTIONS	THEME(S)	SOURCE(S)
§1	**General introduction**: Behaviour systems, rule-based systems, integrating the proximate and the ultimate questions.	Lecture notes, Hogan, some B&V
§2	**Social systems and social behaviour**: General concepts and systems in vertebrate social behaviour.	Lecture notes, Dugatkin 10, 15 and B&V
§3	**Communication and social networks:** Use of graph theory to understand social behaviour.	Chapter 15 in B&V
§4	**Play** in vertebrates.	Chapter 16 in Dugatkin
§5	**Individual differences and "personality" (temperament)** in vertebrates.	Chapter 17 in Dugatkin
§6	**Animal communication:** Cognition, cognitivism and post-cognitivism. Theories of information; Zoosemiotics: Information, signals, and meaning	Lecture notes and chapter 1 in B&V

§7	**Pheromones** (social odours), olfactics and olfaction in field conditions; From pheromones to olfaction in the social context; how animals use olfaction to hunt, communicate, find each other, influence each other.	Chapter 6 in B&V
§8	**Animal sounds, bioacoustics, sound in field conditions:** From sound production, to sound perception. How sound can be used to study animals, to locate them, to understand communication between them.	Chapters 2 & 3 in B&V
§9	**Brain size, organization and structure,** and intelligence, social complexity, etc. Brain development rate and pattern: Does it matter? Precocial vs altricial mammals and birds.	Lecture notes
§10	**Imprinting:** Development, attachment, learning and "instinct". From "nature-nurture" to neuroscience at the rescue…	Lectures notes and some Hogan

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SECTIONS	THEME(S)	SOURCE(S)
§11	Short range sensory modalities: Haptics (touch), hydrodynamic reception, electroreception. From the lateral line in fish, to the BTO (bill tip organ) in birds, most vertebrates use touch in some fundamental way to communicate and navigate the world.	Chapter 7 in B&V
§12	Decisions and information. The cognitive and other mental processes involved in communication.	Chapter 8 in B&V
§13	Signal evolution: The evolution of the communication systems in animals.	Chapter 10 in B&V
§14	Conflicts and conflict resolution.	Chapter 11 in B&V
§15	Social integration.	Chapter 13 in B&V
§16	Environmental signals Information used from the environment by animals.	Chapter 14 in B&V
§17	Generalities on "conservation behaviour" or conservation ethology, the importance of behaviour and ethological methods and behavioural ecotoxicology.	Lecture notes only
§18	Other ethological considerations in conservation ethology: Habitat selection, foraging, anti-predator behaviour, bioacoustics, individuality and personality, demographic factors, other considerations.	Lecture notes only

University Policies and Statements

This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate

Academic Integrity

At Dalhousie University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect (The Center for Academic Integrity, Duke University, 1999). As a student, you are required to demonstrate these values in all of the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity.

Information: https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility

The Advising and Access Services Centre is Dalhousie's centre of expertise for student accessibility and accommodation. The advising team works with students who request accommodation as a result of a disability, religious obligation, or any barrier related to any other characteristic protected under Human Rights legislation (Canada and Nova Scotia).

Information: https://www.dal.ca/campus_life/academic-support/accessibility.html

Student Code of Conduct

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner—perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution.

Code: https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

Diversity and Inclusion – Culture of Respect

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness

Statement: http://www.dal.ca/cultureofrespect.html

Recognition of Mi'kmaq Territory

Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel and support. Visit or e-mail the Indigenous Student Centre (1321 Edward St) (elders@dal.ca).

Information: https://www.dal.ca/campus_life/communities/indigenous.html

Important Dates in the Academic Year (including add/drop dates)

https://www.dal.ca/academics/important_dates.html

University Grading Practices

https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html