

Psychology & Neuroscience Honours Seminars (2023/24)

Fall 2023

PSYO 4080: Topics in Social & Personality Psychology

Instructor:	Dr. Chris Moore (chris.moore@dal.ca)
Day & Time:	Thursdays, 8:35am to 10:25am
Room:	McCain Arts & Social Science Building, Room 2190

The theme of this course is “How to be social.” We will explore four different ‘modes’ of social relations. These four modes are separable but interconnected. *Interpersonal relations* involve psychological mechanisms that allow individuals to interact, communicate, and collaborate. *Group relations* distinguish ingroups and outgroups and involve psychological mechanisms that support ingroup cohesion and outgroup competition. *Hierarchical relations* organize individuals according to dominance hierarchies. Psychological mechanisms governing dominance and subordination serve to maintain and sometimes challenge such hierarchies. *Reproductive relations* involve psychological mechanisms that organize interactions around various behaviours that enable reproduction. Each of these modes will be explored from four different perspectives: evolution, development, mature human functioning, and society & culture. Students will be expected to read assigned work and develop their own ideas in relation to these (or other related) topics. Classes will include a combination of instructor and student presentations and students will be expected to contribute actively to class discussion. Assessment will be based on student presentations and a final paper.

PSYO 4090: Development of Social Behaviour

Instructor:	Dr. Sophie Jacques (sophie.jacques@dal.ca)
Day & Time:	Tuesdays, 8:35am to 10:25am
Room:	Life Sciences Centre, Room C210

This seminar will focus on topics related to the development of self-control. We will cover theory, research paradigms and findings, as well as explore potential causes and consequences of self-control. Additional specific topics will focus on students’ backgrounds and interests (e.g., adolescence and risk-taking, addictions, clinical disorders, neuroscience, etc.). There will be required weekly readings, and seminars will take the form of student-led discussions and exchanges. Evaluations will be based on presentations, participation, and short written assignments based on the required readings.

PSYO 4120: Topics in Clinical Psychology

Instructor:	Dr. Penny Corkum (penny.corkum@dal.ca)
Day & Time:	Thursdays, 3:35pm to 5:25pm
Room:	Life Sciences Centre, Room C212

Each year, this seminar course focuses on a selected topic in clinical psychology. This year's focus is neurodevelopmental disorders. We will explore a range of topics on neurodevelopmental disorders (e.g., ADHD, Autism Spectrum Disorder, Learning Disorders), incorporating connections to fields including clinical psychology, school psychology, and neuroscience. There will be required weekly readings, and seminars will take the form of student-led presentations, discussions, and exchanges.

PSYO/NESC 4160: Topics in Behavioural Biology

Instructor:	Dr. Simon Gadbois (simon.gadbois@dal.ca)
Day & Time:	Thursdays, 11:35am to 1:25pm
Room:	Henry Hicks Building, Room 217

The seminar will focus on topics and research in fundamental and applied animal behaviour relating mostly to (but not exclusively) new trends in:

- Sensory processing (sensory ecology, animal psychophysics)
- Communication and social behaviour (including social network theory, zoosemiotics)
- Social brain theory
- Cognitive ecology, ethology and animal psychology
- Anthrozoology (e.g., issues and controversies with pet-assisted therapy, assistance animals, human-wildlife conflicts, etc.)

The course integrates both comparative (animal) psychology perspectives and ethological perspectives. See also: <https://simon.gadbois.org/teaching/4160and6160.html>

NESC 4185: Synaptic Function and Plasticity

Instructor:	Dr. Stefan Krueger (stefan.krueger@dal.ca)
Day & Time:	Wednesdays, 9:05am to 11:25am
Room:	CHEB Building, Room C266

This seminar focuses on recent research in cellular neurophysiology. Topics include molecular and cellular mechanisms of synaptic transmission, synaptic plasticity, neuronal excitability, dendritic integration of synaptic input, function of neuronal circuits and advances in experimental methods in the field. During class, students will present research publications and discuss arising learning issues. The evaluation will be based on presentations, participation, and

a final exam. Pre-requisites: Cellular Neuroscience (NESC 2570) or Human Neurophysiology (PHYL 2041).

PSYO 4227: Neurobiological Basis of Psychopathology

Instructor:	Dr. Sean Barrett (sean.barrett@dal.ca)
Day & Time:	Wednesdays, 2:35pm to 5:25pm
Room:	Life Sciences Centre, Room P5208

The aim of this class is to familiarize students with the biological foundations of the etiology, maintenance, and treatment of various forms of psychopathology. Lectures will primarily focus on fundamental topics (e.g. evolution theory, genetics, neurobiology) as they relate to psychopathology, while student presentations and class discussion will primarily focus on applications that are relevant to the field of clinical psychology.

PSYO/NESC 4740: Topics in the Neurobiology of Learning and Memory

Instructor:	Dr. Richard Brown (richard.brown@dal.ca)
Day & Time:	Tuesdays, 4:05pm to 5:55pm
Room:	Life Sciences Centre, Room C212

This seminar will examine current research in the neurobiology of learning and memory through presentations and discussions of journal articles. Each class will (usually) consist of one review paper and two research papers. Everyone will read the review paper and two students per class will present the research papers on each topic and direct the class in the discussion.

Presentations and class participation will be graded. Students will write an essay, which will be a critical enquiry into one of the topics covered in the class or another topic approved by the professor and end with a short research proposal. The essay should be based primarily on articles from recent journals such as Learning and Memory, Neurobiology of Learning and Memory, Behavioral Neuroscience, Trends in Neuroscience, Nature Neuroscience, Cell, Neuron, etc. This year we will focus on the theories of Donald O Hebb as presented in his book The Organization of Behavior (1949/2002) and how they are used in research on the neurobiology of learning and memory today.

Winter 2024

NESC 4007: Contemporary Issues in Neuroscience

Instructor:	Dr. Tamara Franklin (tamara.franklin@dal.ca)
Day & Time:	Mondays, 9:35am to 11:25am
Room:	Life Sciences Centre, Room C216

This seminar will focus on the neuroscience of emotions and how this is investigated using rodent models. We will explore primary research articles that use rodents to improve our understanding of basic emotions like fear and anger, love and empathy. We will also discuss neuroscience tools and techniques used to investigate these topics (e.g., rodent behavioural testing, pharmacological manipulations, engineered rodent models, and various methods for assessing and manipulating neural activity). There will be required weekly readings and evaluation will be based on student presentations and participation.

NESC 4008: Topics in Neuroscience

Instructor:	Dr. Lucia Caceres (lucia.caceres@dal.ca)
Day & Time:	Wednesdays*, 12:35pm to 2:25pm
Room:	Life Sciences Centre, Room C206*

*Day and room updated June 28, 2023

This seminar course examines the primary scientific literature on topics related to neuronal circuitry specific to physiological and behavior functions. The course will encompass the development, cellular, molecular, and pharmacology basis of the nervous system. The function of astrocytes in regulating behavior will be explored. The seminar includes topics in (but not exclusively):

- Circadian rhythms, sleep, and memory
- Energy homeostasis and eating disorders
- Fear and Anxiety
- Neurodegenerative disorders

The course will be organized in lecture format, with student-led presentations of primary articles. Evaluation will be based on presentation(s), discussions, and participation.

NESC 4070: Chemical Neurobiology

Instructors:	Dr. Kazue Semba (k.semba@dal.ca) & Dr. Angelo Iulianella (angelo.iulianella@dal.ca)
Day & Time:	Thursdays, 2:35pm to 4:25pm
Room:	Tupper Building, Room L10

Requirements: Introductory neuroanatomy, neuropharmacology and/or neurophysiology will be helpful. The goal of this course is to acquaint the student with modern concepts and methodologies concerning neurotransmitters and neuromodulators. Topics include classical neurotransmitters (amino acids, monoamines, and acetylcholine), neuropeptides (for example, orexins), and related current topics. The course will be organized in lecture format, with student

presentations of primary articles. Evaluation will be based on presentation(s) (35%), take-home assignments (30%), and a term paper (35%).

PSYO 4091: Social Determinants of Health & Child Development

Instructor:	Dr. Alissa Pencer (alissa.pencer@dal.ca)
Day & Time:	Mondays, 12:35pm to 2:25pm
Room:	Life Sciences Centre, Room P4208

This course focuses on the impacts of social determinants of health on child and adolescent development. Different social determinants of health are explored in relation to development (e.g., income, food insecurity, social safety network, social exclusion, education/literacy, childhood trauma, access to health services, sexual orientation, gender, disability, culture, racism, etc.). There will be required weekly readings, and seminars will take the form of student-led presentations, discussions, and exchanges.

Note that PSYO 2090 is a prerequisite for this course.

PSYO 4092: Topics in Developmental Psychology

Instructor:	Dr. Hélène Deacon (helene.deacon@dal.ca)
Day & Time:	Wednesdays, 12:35pm to 2:25pm
Room:	Life Sciences Centre, Room P4208

Each year, this seminar course focuses on a selected topic in developmental psychology. This year, we will examine reading development. We will cover a series of topics affecting reading development beginning in preschool through to adulthood. Some areas of focus will be home and school influences, as well as individual differences in language and cognitive skills. In covering these areas, we will also examine both problems that can arise within reading development and effective instruction to overcome these.

PSYO/NESC 4130: Topics in Cognition

Instructor:	Dr. Gail Eskes (gail.eskes@dal.ca)
Day & Time:	Tuesdays, 2:35pm to 4:25pm
Room:	Life Sciences Centre, Room P4208

This seminar will examine current research and issues in the study of Cognitive Enhancement (CE), defined broadly. We will focus on methods, mechanisms, and evidence for CE derived using an array of approaches, such as with video gaming, domain process training, non-invasive brain stimulation and meditation. Students will read and critically analyze a range of topics, drawing from the primary literature as well as reviews and book chapters assigned each week by the instructor, and meet weekly to hear instructor or student presentations and to discuss

themes. The overall aim is to understand the current state of the evidence, to identify what new research is needed for the field to advance, and to appreciate issues related to the application of current knowledge to society needs. Evaluation will be based on student presentations, discussions and participation, and written assignments.

PSYO 4440: Topics in Infant Development

Instructor:	Dr. Drew Weatherhead (drew.weatherhead@dal.ca)
Day & Time:	Thursdays, 12:35pm to 2:25pm
Room:	Life Sciences Centre, Room C210

This seminar course focuses on a selected topic in infant development. This year, we will examine the development of social cognition. We will examine how infants and young children begin to categorize the social world around them, and how this influences their behaviour and learning. We will look at such social properties as language, accent, race, and sex/gender as well as more subtle social cues such as previous behaviour and minimal groups. This class will include weekly readings and short response papers, and the course will be predominantly student-led presentations and discussion. Evaluations will be based on the short response papers, presentations, and participation.

NESC 4670: Behavioural Neuro(epi)genetics and Genomics

Instructor:	Dr. Ian Weaver (ian.weaver@dal.ca)
Day & Time:	Thursdays, 9:35am to 11:25am
Room:	Life Sciences Centre, Room C216

This senior seminar course examines the primary scientific literature on the use of (epi)genetic techniques to study the molecular and cellular bases of behaviour. Transgenic-technology is discussed combined with recent advances in next-generation biological techniques (e.g., DNA/RNA methylome sequencing, optogenetics) and genome editing (e.g., CRISPR/Cas9) tools for investigation of neural circuits underlying brain function.

FORMAT COMMENTS: This seminar emphasizes student presentations, summary writing and group discussion. During most classes, students will present and discuss primary scientific literature.