

Neuroscience 4070.03 (2021/2022)
Chemical Neurobiology

Instructor: Dr. Kazue Semba and Dr. Angelo Iulianella
Email: K.Semba@Dal.Ca, Angelo.Iulianella@Dal.Ca
Time: Thursday, 14:35 – 16:25 (Winter)
Room: Dentistry 4114

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%).

Psychology 4090.03 (2021/2022)
Development of Social Behaviour

Instructor: Dr. Sophie Jacques
Email: Sophie.Jacques@Dal.Ca
Time: Thursday, 14:35 – 16:25 (Winter)
Room: LSC 4212

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.

Psychology 4091.03 (2021/2022)
Social Determinants of Health and Child Development

Instructor: Dr. Alissa Pencer
Email: Alissa.Pencer@Dal.Ca
Time: Tuesday, 9:35 – 11:25 (Fall)
Room: LSC 5208

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.

Psychology 4092.03 (2021/2022)
Development Psychology Topics

Instructor: Dr. Hélène Deacon
Email: Helene.Deacon@Dal.Ca
Time: Monday, 12:35 – 14:25 (Winter)
Room: LSC 4208

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.

Psychology 4120.03 (2021/2022)
Topics in Clinical Psychology
Contemporary Issues in Human Sexuality

Instructor: Dr. Natalie Rosen
Email: Natalie.Rosen@Dal.Ca
Time: Wednesday, 12:35 – 14:25 (Winter)
Room: LSC 4212

This course deals with contemporary issues in human sexuality from a psychological perspective. Theory, research, and clinical issues will be covered with an emphasis on critically evaluating the empirical literature. In this seminar, we won't cover the breadth of topics in sexuality, rather, we will examine some key issues in-depth that are current and thought-provoking. The topics have been chosen to stimulate your thinking and encourage discussion about sexuality and research. The course will include a combination of lecture, in-class discussion and activities, and student-led presentations.

Psychology/Neuroscience 4130.03 (2021/2022)
Topics in Cognition

Instructor: Dr. Gail Eskes
Email: Gail.Eskes@Dal.Ca
Time: Wednesday, 15:35 – 17:25 (Winter)
Room: LSC C214

Requirements: Enrollment in the Dalhousie Psychology & Neuroscience Honours Program or Instructor's permission.

Description: The seminar will examine current research 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, process training, non-invasive brain stimulation and pharmaceutical enhancement. Students will read and critically analyze a range of topics (final list to be identified based on class preferences), drawing from the primary literature as well as reviews and book

chapters assigned each week by the instructor, and meet weekly to hear 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, with a focus on application of current knowledge to society needs. Evaluation will be based on student presentations, discussions and participation, and written assignments.

Psychology/Neuroscience 4140.03/6240 (2021/2022)
Topics in Animal Learning

Instructor: Dr. Simon Gadbois
Email: Simon.Gadbois@Dal.Ca
Time: Wednesday, 15:35 – 17:25 (Fall)
Room: LSC 5208

It is strongly recommended to have "Learning" (PSYO/NESC 2140) or an equivalent course for this seminar. Alternatively, being comfortable with the content of textbooks such as the ones from Bouton, Domjan, Lieberman, Mazur, Schwartz et al., etc., is highly recommended. If the students need to brush-up on Learning Theory, I recommend the textbooks by Bouton or Domjan.

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

- The neurobiology of learning.
- The ecology and ethology of learning.
- The role of classical conditioning in the conditioning of the endocrine system (behavioural endocrinology) and immune system (psychoneuroimmunology).
- Learning and motivation (the neuroethological theories, e.g., Berridge, Panksepp, etc.).
- Cognitive theories of learning.
- Applied areas of animal learning using traditional and new models.
- Advanced topics in animal learning: e.g., latent and incidental learning, blocking and overshadowing, latent inhibition, sign and goal tracking, secondary reinforcers, etc.

The course integrates both comparative (animal) psychology perspectives (conditioning principles) and biological perspectives (from ethology, neuroethology, behavioural ecology, cognitive ecology, neuroecology, etc).

See also: <https://simon.gadbois.org/teaching/4140and6240.html>

Psychology/Neuroscience 4160.03/6160 (2021/2022)
Topics in Behavioural Biology

Instructor: Dr. Simon Gadbois
Email: Simon.Gadbois@Dal.Ca
Time: Monday, 15:35 – 17:25 (Winter)
Room: LSC 5257

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>

Neuroscience 4185.03 (2021/2022)
Synaptic Function and Plasticity

Instructors: Dr. Stefan Krueger
Email: Stefan.Krueger@Dal.Ca
Time: Thursday, 14:35 – 16:55 (Fall)
Room: Tupper 14B02

This seminar focuses on recent research in cellular neurophysiology. Topics include mechanisms of synaptic transmission and plasticity, excitability, dendritic integration, 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 (65%), participation (10%), and a final exam (25%). Pre-requisites: Cellular neuroscience (NESC 2570) is helpful.

Psychology 4196.03 (2021/2022)
Quantitative Intros & Meta Analyses

Instructor: Dr. John Christie
Email: John.Christie@Dal.Ca
Time: Monday, 14:35 – 16:25
Room: LSC C212

Introduction to the quantitative introduction, meta analyses and, preeminently, meta analytic thinking primarily through exercises tailored to student interests, when possible.

Psychology 4227.03 (2021/2022)
Neurological Basis of Psychopathology

Instructor: Dr. Sean Barrett
Email: Sean.Barrett@Dal.Ca
Time: Tuesday, 14:35 – 17:25 (Winter)
Room: LSC 4208

Course Overview

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 related to psychopathology, while student presentations and class discussion will primarily focus on applications that relevant to the field of clinical psychology.

EVALUATION COMPONENTS

Presentations (60%): Each student will make two in-class presentations. One presentation topic will focus on how a biological process contributes to mental health functioning, while the second presentation will focus on the biological basis of an intervention that alters psychological functioning.

Assigned Readings and Discussion Topics (20%): Students are required to complete at least two of the suggested readings each week, and to submit one suggested 'discussion topic' to Brightspace each week before the start of class.

Class Participation (20%): Discussions will take place each class and all students are expected to contribute. Participation grades can also be earned through online discussion of the course material.

Psychology 4440.03 (2021/2022)
Topics in Infant Development

Instructor: Dr. Drew Weatherhead
Email: Drew.Weatherhead@Dal.Ca
Time: Friday, 9:35 – 11:25 (Winter)
Room: LSC 4212

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.

Neuroscience 4670.03 (2021/2022)
Neuro (epi)genetics & Genomic

Instructor: Dr. Lucia Caceres
Email: Lucia.Caceres@Dal.CA
Time: Tuesday, 9:35 – 11:25 (Winter)
Room: LSC 4212

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.

Psychology/Neuroscience 4740.03 (2021/2022)
Topics in the Neurobiology of Learning and Memory

Instructor: Dr. Richard Brown
Email: rebrown@dal.ca
Time: Tuesday, 14:35 – 16:25 (Fall)
Room: LSC 4212

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.