Advanced Methods in Neurobiology Syllabus

Department of Psychology & Neuroscience

NESC/PSYO3370 Fall 2025

Dalhousie University operates in the unceded territories of the Mi'kmaw, Wolastoqey, and Peskotomuhkati Peoples. These sovereign nations hold inherent rights as the original peoples of these lands, and we each carry collective obligations under the Peace and Friendship Treaties. Section 35 of the Constitution Act, 1982, recognizes and affirms Aboriginal and Treaty rights in Canada.

We recognize that African Nova Scotians are a distinct people whose histories, legacies, and contributions have enriched the part of Mi'kma'ki known as Nova Scotia for over 400 years.

Course Instructor(s)

Name	Email	Office Hours
Dr. Kevin Duffy	kevin.duffy@dal.ca	Monday, 10-12, Psychology 2338
Mohammad Askari	mh783776@dal.ca	Contact for meeting

Course Description

I will provide direct, in class, training with a multitude of neurobiology techniques within an experimental setting. The objective of this class is to (1) enhance your understanding of how neurobiological research is performed, (2) provide knowledge of a collection of commonly used (but advanced) neuroscience methods, (3) and to encourage your critical thinking ability within a research setting. These are all important components for the proper conduction of neurobiological research. These objectives and others will be achieved by having you perform lab-related exercises, analyze and interpret your own data, and provide written assessments of the novel data you collect as a result of research projects that you help to design.

Course Prerequisites

PSYO 2000 or NESC2007; NESC2470/PSYO2470; and NESC2570/PSYO2570.

Course Exclusions

None

Student Resources

See 'Student Resources' document posted on our Brightspace Website for FoS student resources.

Course Structure

Course Delivery

All classes will be synchronous (in-person) and therefore will not be recorded or streamed.

Lectures

All lab sessions will be delivered in-person within the Psychology Building room P5269.

Section 02 – Tuesday 2:35 – 5:25

Section 01 – Wednesday 2:35 – 5:25

Laboratories

Same as Lectures.

Tutorials

There are no tutorials scheduled for this class.

Course Materials

Reading materials will consist of published research papers that will act as a foundation for your studies. To get started, some of these papers will be given to you in class, and from these you will search independently for additional publications the process of preparing your research report and presentation. Much of the reading material in this class will be researched by you during the process of each study. For tests, information will be provided in class as well as from reading materials provided.

Learning Objectives

In this class, you will contribute to the design and completion of a research project over the course of the class. Only after we agree on a suitable project can we determine what specific techniques will be covered. In this class you will be trained to perform a collection of neurobiological techniques, and use appropriate quantification tools associated with the methods deemed appropriate for our project. In addition, you will gain experience designing an experiment with appropriate controls – a critical part of any well-designed research study. Once your studies in this class are completed, you will develop your work into a written research report, and will gain valuable experience presenting your work in poster format.

Assessment

Assignments

Component	Weight (% of final grade)	Date
Short Proposal	10%	Oct. 6 (02) & Oct. 7 (02)
Test #1	15%	Oct. 13 (02) & Oct. 14 (01)
Test #2	15%	Dec. 1 (02) & Dec. 2 (01)
Research Report	20%	Oct. 20 (02) & Oct. 21 (01)
Poster Presentation	20%	Dec. 8 (02); Dec. 9 (01)
Research Poster	20%	Dec. 14 (01 & 02)

Final exam

- There is no final exam for this lab class.

Other course requirements

None

Conversion of numerical grades to final letter grades follows the Dalhousie Grade Scale

A+ (90-100)	B+ (77-79)	C+ (65-69)	D (50-54)
A (85-89)	B (73-76)	C (60-64)	F (0-49)
A- (80-84)	B- (70-72)	C- (55-59)	

Course Policies on Missed or Late Academic Requirements

Deadlines for this course are very important to meet, therefore every effort should be made to adhere to our due dates. Please notify the instructor in the event of a late submission. Late submissions will be subject to Dalhousie's guidelines on missed or late academic requirements.

Course Policies related to Academic Integrity

All submitted assignments are to be done individually, and are expected to be produced independent of AI and large language models.

Course Content

A document detailing our course schedule and lab topics is posted to our Brightspace course site.

University Policies, Statements, & Supports

Syllabus Appendix: Student Supports & University Statements, Policies, and Guidelines