

Advanced Methods in Neurobiology Syllabus

Department of Psychology & Neuroscience NESC/PSYO3370 Fall 2023

Dalhousie University acknowledges that we are in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq People and pays respect to the Indigenous knowledges held by the Mi'kmaq People, and to the wisdom of their Elders past and present. The Mi'kmaq People signed Peace and Friendship Treaties with the Crown, and section 35 of the Constitution Act, 1982 recognizes and affirms Aboriginal and Treaty rights. 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.

Course Instructor(s)

Name	Email	Office Hours
Dr. Kevin Duffy	kevin.duffy@dal.ca	Monday, 10-12, Psychology 2338
Mark Henneberry	jhenneberry@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 14:35 – 17:25](#)

[Section 01 – Wednesday 11:35 – 14:26](#)

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 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.

Assessment

Assignments

Component	Weight (% of final grade)	Date
Written Proposal	15%	Sept. 26 (02); Sept. 27 (01)
Research Report	25%	Oct. 24 (02); Oct. 25 (01)
Poster Discussion	20%	Nov. 28 (02); Nov. 29 (01)
Poster Document	25%	Dec. 8 (02 & 01)

Tests/quizzes

In Class Quiz #1	7.5%	Oct. 17 (02) & Oct. 18 (01)
In Class Quiz #2	7.5%	Nov. 21 (02) & Oct. 22 (01)

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 software.

Learning Objectives

In this class, together we will design and complete 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 as well as 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 also present your work in poster format.

Course Content

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

University Policies and Statements

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 at 1321 Edward St or elders@dal.ca. Additional information regarding the Indigenous Student Centre can be found at: https://www.dal.ca/campus_life/communities/indigenous.html

Internationalization

At Dalhousie, 'thinking and acting globally' enhances the quality and impact of education, supporting learning that is "interdisciplinary, cross-cultural, global in reach, and orientated toward solving problems that extend across national borders." Additional internationalization information can be found at: <https://www.dal.ca/about-dal/internationalization.html>

Academic Integrity

At Dalhousie University, we are guided in all our work by the values of academic integrity: honesty, trust, fairness, responsibility, and respect. As a student, you are required to demonstrate these values in all 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. Additional academic integrity information can be found at: https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility

The Student Accessibility Centre is Dalhousie's centre of expertise for matters related to student accessibility and accommodation. If there are aspects of the design, instruction, and/or experiences within this course (online or in-person) that result in barriers to your inclusion, please contact the Student Accessibility Centre (https://www.dal.ca/campus_life/academic-support/accessibility.html) for all courses offered by Dalhousie with the exception of Truro. For courses offered by the Faculty of Agriculture, please contact the Student Success Centre in Truro (<https://www.dal.ca/about-dal/agricultural-campus/student-success-centre.html>)

Conduct in the Classroom – Culture of Respect

Substantial and constructive dialogue on challenging issues is an important part of academic inquiry and exchange. It requires willingness to listen and tolerance of opposing points of view. Consideration of individual differences and alternative viewpoints is required of all class members, towards each other, towards instructors, and towards guest speakers. While expressions of differing perspectives are welcome and encouraged, the words and language used should remain within acceptable bounds of civility and respect.

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 (Strategic Priority 5.2). Additional diversity and inclusion information can be found at: <http://www.dal.ca/cultureofrespect.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. The full Code of

Student Conduct can be found at:

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

Fair Dealing Policy

The Dalhousie University Fair Dealing Policy provides guidance for the limited use of copyright protected material without the risk of infringement and without having to seek the permission of copyright owners. It is intended to provide a balance between the rights of creators and the rights of users at Dalhousie. Additional information regarding the Fair Dealing Policy can be found at:

https://www.dal.ca/dept/university_secretariat/policies/academic/fair-dealing-policy-.html

Originality Checking Software

The course instructor may use Dalhousie's approved originality checking software and Google to check the originality of any work submitted for credit, in accordance with the Student Submission of Assignments and Use of Originality Checking Software Policy. Students are free, without penalty of grade, to choose an alternative method of attesting to the authenticity of their work and must inform the instructor no later than the last day to add/drop classes of their intent to choose an alternate method. Additional information regarding Originality Checking Software can be found at:

https://www.dal.ca/dept/university_secretariat/policies/academic/student-submission-of-assignments-and-use-of-originality-checking-software-policy-.html

Student Use of Course Materials

Course materials are designed for use as part of this course at Dalhousie University and are the property of the instructor unless otherwise stated. Third party copyrighted materials (such as books, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law. Copying this course material for distribution (e.g. uploading to a commercial third-party website) may lead to a violation of Copyright law.