Research Methods in Sensation and Perception Syllabus

Department of Psychology and Neuroscience

NESC / PSYO 3051 Winter 2025

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 Instructors

Name	Email	Office Hours
Dr. Nathan Crowder	nathan.crowder@dal.ca	online, by appointment
Nicole Michaud	nicolemichaud@dal.ca	online, by appointment

Course Description

[From Calendar] A hands-on course that explores sensory perception with an emphasis on data collection, analysis, and interpretation. Several methodologies are used across the different senses to study perception and its neural underpinnings.

Course Prerequisites

[From Calendar] PSYO 2000.03 or NESC 2007.03, NESC/PSYO 2470.03 or PSYO 2770.03, and NESC/PSYO 2150.03.

Learning Outcomes

- Quantitatively define a visual stimulus and describe how the retinal image is formed.
- Perform basic data analyses on the responses from sensory neurons.
- Develop techniques and strategies to explore perceptual phenomena qualitatively and quantitatively.
- Write lab reports that organize, analyze, and appraise experimental data collected during lab(s).

Student Resources

Office hours: Office hours will occur online via Microsoft Teams.

Course Structure

Course Delivery

Lectures (LSC-PSYCHOLOGY P5208): *In-person*. Mon., Wed., and Fri. 2:35-3:25pm

> Some background material may be delivered *asynchronously* (via Panopto on Brightspace).

Laboratory (LSC-PSYCHOLOGY P5257): *Blended*. Mon. 3:35-4:25pm is booked for common laboratory time, but most data collection will occur outside of class time. Physical laboratory equipment will be accessible in P5257.

Notes on blended course delivery:

- Online Content will be delivered via Brightspace.
- Minimum technology: this course requires internet access, sufficient hardware to navigate Brightspace (e.g. view lecture PDFs and Panopto videos, download files), and to engage in Microsoft Teams consultations during 'office hours'.
- The instructor and TA are to be contacted by email only.
- All due dates, meetings, etc. are scheduled on Halifax Time (GMT-3).
- If students connect to online resources from outside Canada, they are responsible for ensuring awareness and compliance with any applicable laws in the country from which they are connecting.

Course Materials

Many of the topics covered in this course are built on the foundation of material covered by NESC/PSYO 2150, so the textbook for that course (E. Bruce Goldstein, Sensation and Perception, 8-11th editions. Thomson/Wadsworth) serves as a suggested reference.

The visual illusions used for some of the lab exercises are hosted by Professor Michael Bach of Freiburg University [https://michaelbach.de/ot/index.html].

Brightspace site: This site will be used for making announcements regarding class meetings and assessment components, posting lecture slides, lab assignments, grades, etc. **You are expected to check Brightspace regularly for new content, announcements, and potential schedule changes.** If you have difficulties accessing or using Brightspace, please contact the folks at UCIS/WebCT for help.

Lecture Notes: Lecture notes are the students' responsibility. PDF files of PowerPoint slides covering the background material for labs/assignments will be posted on the Brightspace site. However, these slides are not complete and will need to be supplemented by notetaking.

Assessments / Course Content

Topic	Component	Weight (% of final grade)*	Due Date (by 11:59pm)
1. Optics and the retinal image	Retinal image worksheet	8%	Jan. 15, 2025
2. Introduction to data collection and analysis	Acuity partial lab report	15%	Jan. 29, 2025
3. Classic psychophysical methods	Stereo vision lab report	21%	Feb. 24, 2025
	Two-point threshold worksheet	8%	Mar. 5, 2025
4. Perception is context-dependent + Population analysis	Contrast Adaptation lab report	21%	Mar. 24, 2025
5. Neural underpinnings of perception	RF mapping worksheet	12%	Mar. 31, 2025
	Excel-based neural analysis	15%	Apr. 7, 2025

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

1. Missed Assessment Policy

Missing an assessment is unacceptable for any reason other than contagious illness, or emergency. If you are unable to complete an assignment/lab etc. by the deadline, you must inform Dr. Crowder by email, and submit a STUDENT DECLARATION OF ABSENCE (SDA) using Brightspace only (do not email SDAs or drop SDAs off in person).

- The Student Declaration of Absence form may only be used a maximum of **2 times** throughout the term and may only cover **3 consecutive days of absence**.
- Students who are ill for an extended period and thus miss multiple requirements will be referred to Patricia Laws, Assistant Dean (Student Affairs).

IMPORTANT: *All assessment components must be completed.* Submitting an SDA only changes the due date. Missed assessment components receive a grade of zero.

2. Late Assignment Policy

Assignments that are not turned in on time will be penalized. Lab reports, worksheets, excel assignments, etc. will be fined 5% for every day they are overdue. If you cannot turn in an assignment on time due to illness, you must provide documentation (see Missed Assessment Policy above).

3. Assignment Completion Norms

Students are to complete all work (worksheets, assignments, reports, etc.) alone, and will be expected to follow the Student Code of Conduct and Academic Integrity policies. Some laboratory data collection will require students to work in partners, in this case the *data itself is shared* among the partners, but *all analysis, interpretation, and writing must be performed by students individually*. Plagiarism detection software may be applied to written assessment components.

4. Distributing Course Materials

Students will have access to electronic course content throughout this term. However, under no circumstances is such content to be shared, posted online, or distributed in any other way. Personal copies of recordings must be destroyed at the end of term. Furthermore, students do not have permission to revise, modify, share, post on-line, or redistribute in any manner - electronic or otherwise - any of the course materials.

5. E-mail Etiquette

Students often don't appreciate how many emails their professors and TAs receive in a single day, most of which require a response. This year all consultations outside of class will be scheduled by email and take place via Microsoft Teams. The TA or I will endeavour to provide a helpful response to your email within *three working days* of receipt. You can facilitate this by making sure that you:

- Read the syllabus and Brightspace page to determine whether the information you require is already available

- o We will not respond to emails that ask about information contained in the course syllabus or on Brightspace - not even to tell you that the email will not be answered
- o Email should not be an alternative to taking the initiative and making the time to look for the information you require
- Enter the course number in the subject line: 3051
- Write in full, grammatically correct sentences
- Proof-read your email message to be sure that it is clear and provides all pertinent information
- Do not write to request an exception to the syllabus
  - o All students are subject to all the rules as outlined in this course syllabus and no exceptions will be made to any class policies under any circumstances
- Include your FULL name and Dal student ID

6. Health and Safety Statement

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.

7. Online Transition Plan

There is a small chance that the university may require online instruction for some/all classes due to public health related restrictions during the term. For the duration of online instruction, all assessment components will be replaced with equally weighted fortnightly online worksheets. The weight of a valid missed assessment (see Missed Assessment Policy above) will be equally distributed among the other assessments.

8. Course completion requirement

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

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/about/leadership-governance/academic-integrity/faculty-resources/ouriginal-plagiarism-detection.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.

Faculty of Science

Student Resources and Support

University Policies and Programs

Important Dates in the Academic Year (including add/drop dates):
http://www.dal.ca/academics/important_dates.html

Classroom Recording Protocol:
https://www.dal.ca/dept/university_secretariat/policies/academic/classroom-recording-protocol.html

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

Grade Appeal Process: https://www.dal.ca/campus_life/academic-support/grades-and-student-records/appealing-a-grade.html

Sexualized Violence Policy: https://www.dal.ca/dept/university_secretariat/policies/health-and-safety/sexualized-violence-policy.html

Scent-Free Program: https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html

Learning and Support Resources

General Academic Support – Advising (Halifax): https://www.dal.ca/campus_life/academic-support/advising.html

General Academic Support – Advising (Truro): https://www.dal.ca/about-dal/agricultural-campus/ssc/academic-support/advising.html

Student Health & Wellness Centre: https://www.dal.ca/campus_life/health-and-wellness.html

On Track (helps you transition into university, and supports you through your first year at Dalhousie and beyond): https://www.dal.ca/campus_life/academic-support/On-track.html

Indigenous Student Centre: https://www.dal.ca/campus_life/communities/indigenous.html

Indigenous Connection: https://www.dal.ca/about-dal/indigenous-connection.html

Elders-in-Residence (The Elders in Residence program provides students with access to First Nations elders for guidance, counsel, and support. Visit the office in the Indigenous Student Centre or contact the program at elders@dal.ca or 902-494-6803: https://cdn.dal.ca/content/dam/dalhousie/pdf/academics/UG/indigenous-studies/Elder-Protocol-July2018.pdf

Black Student Advising Centre: https://www.dal.ca/campus_life/communities/black-student-advising.html

International Centre: https://www.dal.ca/campus_life/international-centre.html

LGBTQ2SIA+ Collaborative: https://www.dal.ca/dept/vpei/edia/education/community-specific-spaces/LGBTQ2SIA-collaborative.html

Dalhousie Libraries: http://libraries.dal.ca/

Copyright Office: https://libraries.dal.ca/services/copyright-office.html

Dalhousie Student Advocacy Services: https://www.dsu.ca/dsas?rq=student%20advocacy

Dalhousie Ombudsperson: https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html

Human Rights and Equity Services: https://www.dal.ca/dept/hres.html

Writing Centre: https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html

Study Skills/Tutoring: http://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html

Faculty of Science Advising Support: https://www.dal.ca/faculty/science/current-students/undergrad-students/degree-planning.html

Safety

Biosafety: http://www.dal.ca/dept/safety/programs-services/biosafety.html

Chemical Safety: https://www.dal.ca/dept/safety/programs-services/chemical-safety.html

Radiation Safety: http://www.dal.ca/dept/safety/programs-services/radiation-safety.html

Laser Safety: https://www.dal.ca/dept/safety/programs-services/radiation-safety/laser-safety.html