DALHOUSIE UNIVERSITY

Faculty of Science Course Syllabus Department of Psychology & Neuroscience PSYO/NESC 3131

Research Methods in Attention

Fall 2026

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Office Hours:	M 10:00-11:30	room 2519 or MS Teams
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Office Hours:	appointment	MS Teams
Lectures:	LSC P5208	MW 11:35-12:25
Labs:	LSC P5208	W 12:35-13:55

Course Description

Most closely associated with our ability to focus on some things to the exclusion of others (selection), attention is an umbrella term that also covers the concepts of alertness, arousal, preparation, and control. Neglected by mainstream Psychology for the first half of the 20th century, this gateway to awareness has since returned to centre stage. In this laboratory course we will explore the methods, findings, and theories that underpin our understanding of attention. Team research projects will emphasize and reinforce class discussions on behavioural and neuroscientific methods that have been used to isolate and reveal the components of attention.

Course Prerequisites

PSYO 2000.03 or NESC 2007.03, PSYO 2501.03, and PSYO 2130.03/NESC 2130.03 or PSYO 2150.03/NESC 2150.03

Course Objectives/Learning Outcomes

There are several kinds of knowledge that I hope students will acquire in this class. Broadly speaking, we can distinguish "knowing that" from "knowing how". Needless to say, I expect students to learn facts (knowledge that) about attention and about research (methods, findings, theories) on attention. Attending to lecture material in class, engaging with the material, and taking good notes are important. Coming to class is a pre-requisite that contributes to your grade. So, too, is engaging with the readings. Lectures will be in depth looks at the readings and will often assume they have been read. But let's not neglect the importance of "knowing how"—particularly in a lab class! How does a scientist interested in attention learn about it by reading the literature? When our questions are not answered there, how do we design experiments that will help answer them? How do we conduct such experiments, analyze and interpret the data they generate? How do we move on to the next questions? How do we report on our experiments to other interested scientists (lab reports, oral presentation, posters)? How do we transmit what we have learned from reading the literature? How do we adopt best practices—especially those sensitive to visible and invisible barriers to scientific progress? To help you learn these skills, and to evaluate your learning, you will be required to complete a team-based research project. For this project, you and your team will be exposed to nearly the entirety of

the research process for one study. You will preregister your study, collect data, present your findings both orally and as a poster, and write a manuscript. At each stage, we will engage in open, transparent, critical, and supportive reflection.

Textbook
There is no textbook for this course. Readings will be assigned but many will just be a launching point for reading and investigation on your own.

Course Assessment

In-Class Component	
Quizzes	***68% (2 * 34%)***
Participation	***32%***
Lab Component	
Preregistration Template	***15%***
Intro/Methods	***25%***
Peer Review	***20%***
Final Report	***40%***
Dissemination Component	
In-Class Presentation(s)	***40%***
Poster	***40%***
KT	***20%***
Final Grade:	
Highest Achieved Component	**37%**
Middle Achieved Component	**33%**
Lowest Achieved Component	**30%**

Course Assessment Descriptions

In-Class Components:
Quizzes:
The two quizzes will will be completed during class time as per the schedule. There will be no makeup quizzes.

Participation:
Participation will be graded on a variety of components so as to afford participatory merit in various capacities. Students can choose to participate by contributing to discussion during lectures, workshops, or following student presentations. Students can also participate by making discussion posts on Teams. Participation merit can also be earned by engaging online in Teams And, of course, attendance does count toward participation. Online posts should be brought to your instructor's attention.

Lab Components:

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Preregistration Template:
Preregistrations will be completed using a template generated by modifying the default one from the Center for Open Science and based on your team project. Templates are designed to encourage transparency in research practices, organize a plan of action, and to facilitate the conceptualization of clear research questions. These can be completed individually or as a research team. If completed as a team just make one submission and put all of your names on it.

Intro/Methods:
An introduction and methods of your team project will be submitted for evaluation and peer review. Introductions will be written individually, however Method sections can, and should, be shared across team members. The understanding of the methods must be done as a group. Furthermore, since most projects are closely related to published literature, the structure and content of your Method sections can rely heavily on the original studies. Late submissions will not benefit from peer-review.

Peer Review:
You will be responsible for providing peer review feedback once on an Intro/Methods submission, and optionally on a Final Report. Identifying information will be redacted from all documents. Feedback will be structured by a peer review template employed by leading cognitive psychology journals. You will be evaluated on the quality of the feedback you provide. Feedback provided to you by your peers has no bearing on the grade you receive for your submission. This will need to be concise and a maximum of one page single space is permitted. The optional second feedback can be used to boost your grade if you wish and will not count against you. It has a maximum of 3 points awarded.

Final Report:
You will complete a final report based on your team research project. The report will consist of an Introduction and Method section, which will have already been subject to instructor and peer review. In addition, the report will include Results and a Discussion section. The Results can, and should, be completed as a team, or individually but needs to be collaborated on for understanding. If you have no data analysis experience, fear not! There will be analysis workshops upon completion of data collection. Discussion sections will be written individually. The report will also contain the standard full lab report sections including Title, Abstract, and References.

Dissemination Components:
In-Class Presentation:
Presentations will be held in class, in the style of a conference symposium. In one class session, each member of a research team will present an original research paper (no review papers allowed) related to their research project. It must be one that is cited in the students introduction and methods assignment. Time limits of presentations and other details will be adjusted depending on number of registered students after the first couple of weeks of class. Fewer students will allow for slightly longer presentations.

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Poster:
Digital posters will be created as a team, and presented during the poster symposium at the end of term. Posters will be evaluated based on the clarity and succinctness of the poster itself (team grade) and of the interactive presentations (individual grade) during the symposium.

KT:
Previously this was done on X in order to show knowledge dissemination and translation; but given issues that have arisen with social media networks you may submit how you wish. You can notify your instructor of an X, Bluesky, or Threads thread, or post somewhere else on the internet. Or, you can simply submit the content of the KT (Knowledge Translation) in the body of an email. It will be under 1200 *characters* (between 900 and 1200 typical), so it must be concise. You will describe the take-home message for an attention-related original research paper not otherwise covered in class or your team project work. Think of it like describing this paper to an interested family member. It must be clear and in common language. Further, it should show a critical understanding of the work. If there's reason not to believe the authors' claims you should state that. If you think they did a great job then you should say why. A journal article looking at an applied question would be strongly preferred. The article must be approved by Dr. Christie, at which time you'll send him your handle if posting online. If using X, Threads, or some other online system that uses hashtags, you will be required to use the class hashtag in the post (#psyo313125w). These can be completed at any time during the term. It is strongly advised that, should you post the KT online, that you write it offline, refine it, and then copy it online. This is a good habit to have whenever you post anything online.

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale

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

Course Policies:

1. Numerical grades are converted to letter grades for your official transcripts (see conversion chart above).

2. Quizzes will be held during class time. Potential quiz questions will be posted prior to each quiz. Quiz questions will be selected on quiz day by way of a random lottery. There should be no question as to what needs to be studied for a test and preparation should be straightforward.

3. Quizzes will always be held during class time, not lab time. If a quiz class is cancelled due to weather (i.e., because the University is closed), the quiz will take place in the next class it can reasonably occur without disrupting labs. You can check the University webpage (www.dal.ca), or call the switchboard (902 494-2211) for up-to-date storm information. Also, you can sign up for text alerts to receive updates automatically (https://dalalert.dal.ca/). If a

regular class is cancelled due to weather, the course schedule will be updated as soon as possible.

4. Written assignments are due at 11:59 PM on the date indicated in the Course Schedule. Late assignments/submissions will be penalized marks at a rate of 10% x $2^{(n-1)}$, where n = number of days late. Only PDFs will be accepted for submissions. If you have to be contacted to send a file in another format and you submitted last minute then your submission will be marked late. Make sure that your name and what the submission is are in the title, e.g. JohnChristieIntroAndMethods.pdf

5. Please include "[PN3131]" at the beginning of the subject line for any email correspondence with your instructor or TA. Failure to do so could result in your email being spam filtered. Furthermore, please allow a minimum of 48 hours for a reply to any email correspondence. If more urgent (last minute) correspondence is needed, please use the Teams Discussion Board to crowdsource your support.

6. We will not be using SDAs. If you have a reason to miss a class notify your instructor via email and request to be excused in advance. If you have to miss many classes for some reason, again, notify your instructor in advance via email and they will try to work with you on your situation, if possible.

Accessibility:
Refer to the Student Accommodation Policy for information on how Dalhousie instructors and staff work collaboratively with students to create and sustain an accessible educational environment.

If there are aspects of this course, including but not limited to its design, teaching approaches, learning activities, and assessments, that result in barriers to your learning or do not align with your formal academic accommodations, reach out to me to collaboratively find a solution that meets your needs.

You are eligible for accommodations based on protected characteristics such as religion. If you have religious, cultural, or community-significant observances that conflict with course requirements, reach out to me to collaboratively find alternatives for completing the course requirements.

To begin the process of requesting a formal academic accommodation, contact the Student Accessibility Centre (or the Student Success Centre for Faculty of Agriculture courses).

Academic Integrity:
Dalhousie expects all students to be responsible learners, demonstrating the values of intellectual honesty, trust, fairness, and respect in your work. Key aspects of academic integrity include, but are not limited to: avoiding plagiarism, not engaging in cheating, submitting original work, and acknowledging sources of information and ideas when they are not your own. Refer to the Statement

DALHOUSIE UNIVERSITY

on Intellectual Honesty for definitions of various academic offences. Failure to meet Dalhousie's academic integrity standards will result in appropriate disciplinary and/or corrective measures.

Course Schedule (Dec. 2, and 7 will be updated depending on weather)

Sep. 9	Syllabus, Open Science + Data Collection 1	Open Science Collaboration (2015)	
Sep. 14	Orienting foundations	Posner (1980)	
Sep. 16	Networks of Attention + Data Collection 2	Fan et al. (2002)	
Sep. 21	Data Limits	Norman & Bowbrow (1975)	
Sep. 23	Attentional Capture + Data Collection 3	Folk, et al. (1992)	
Sep. 28	Priming and Attention	Neely (1976)	
Sep, 30	**Day of Truth and Reconciliateion**		
Oct. 5	Inhibition of Return	Klein (2000)	
Oct. 7	Presentation 1 + Data Analysis 1		Intro+Methods
Oct. 12	**Thanksgiving**		
Oct. 14	Presentation 2 + Data Analysis 2		
Oct. 19	**quiz 1**		
Oct. 21	Presentation 3 + Data Analysis 3	(Distribute papers for review)	pre-registration
Oct. 26	Negative Priming	Stadler & Hogan (1996	
Oct. 28	Search + Results 1	Treisman & Gelade (1980))	Peer Review 1
Nov. 2	Attention & Learning	Dodd & Wilson (2009	
Nov. 4	Expert Attention + Results 2	Green & Bavelier (2003)	
Fall Break			
Nov. 16	Neglect	Posner et al (1984)	
Nov. 18	poster workshop		
Nov. 23	Further topics in Attention		
Nov. 25	group work		
Nov. 30	**quiz 2**		
Dec. 2	f*lex day (in case we have a snow day things can slide forward to here)*		
Dec. 7	In class poster prep		
Dec. 8	**Not a class day**		Poster File Due
Dec. 9	Poster Symposium		
Dec. 10	Final Report Due (no class)		

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Course Papers

(You'll need to get copies of each, preferably through Dal network. If there's one you can't get then please post the difficulty in MS Teams.)

Amrhein, V., Greenland, S., & McShane, B. (2019). Scientists rise up against statistical significance. Nature, 567, 305-307. doi: 10.1038/d41586-019-00857-9

Briand, K. A. (1998). Feature integration and spatial attention: More evidence of a dissociation between endogenous and exogenous orienting. *Journal of Experimental Psychology: Human Perception and Performance, 24*(4), 1243-1256.

Collaboration, O. S. (2015). Estimating the reproducibility of psychological science. *Science*, *349*(6251), 943-951. doi: 10.1126/science.aac4716

Dodd, M. D., & Wilson, D. (2009). Training attention: Interactions between central cues and reflexive attention. *Visual Cognition*, *17*(5), 736-754.

Fan, J., McCandliss, B. D., Sommer, T., Raz, A., & Posner, M. I. (2002). Testing the efficiency and independence of attentional networks. *Journal of Cognitive Neuroscience*, *14*(3), 340-347. doi: 10.1162/089892902317361886

Folk, C. L., Remington, R. W., & Johnston, J. C. (1992). Involuntary covert orienting is contingent on attentional control settings. *Journal of Experimental Psychology: Human Perception and Performance*, *18*(4), 1030-1044.

Green, C. S., & Bavelier, D. (2003). Action video game modifies visual selective attention. *Nature*, *423*, 534-537.

Klein, R. M. (2000). Inhibition of return. *Trends in Cognitive Sciences*, *4*(4), 138-147.

Neely, J. H. (1976). Semantic priming and retrieval from lexical memory: Evidence for facilitatory and inhibitory processes. *Memory & Cognition*, *4*(5), 648-654.

Norman, D. A., & Bobrow, D. G. (1975). On data-limited and resource-limited processes. *Cognitive Psychology*, *7*, 44-64.

Posner, M. I. (1980). Orienting of attention. *Quarterly Journal of Experimental Psychology*, *32*, 3-25. doi: 10.1080/00335558008248231

Posner, M. I., Walker, J. A., Friedrich, F. J., & Rafal, R. D. (1984). Effects of parietal injury on covert orienting of attention. *The Journal of Neuroscience*, *4*(7), 1863-1874.

Stadler, M. A., & Hogan, M. E. (1996). Varieties of positive and negative priming. *Psychonomic Bulletin & Review*, *3*(1), 87-90.

Treisman, A. M., & Gelade, G. (1980). A feature-integration theory of attention. Cognitive Psychology, 12, 97-136.

Appendix

The standard syllabus appendix is available online.

https://dalu.sharepoint.com/sites/learn-teach/SitePages/syllabus-appendix.aspx