



PSY 379F Human Memory Laboratory Fall 2023

Instructor: Nick Hoang, M.A.

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About me: I am currently in my PhD.4 in Psychology, and I received my Bachelor from UofT double majoring in Neuroscience and Integrative Biology in 2008. I then worked for the Baycrest Hospital for 10 years as a lab manager for a world-renowned memory researcher, Dr. Morris Moscovitch, who we will learn about in this course. I am interested in studying the relationships between memory and amnesia, aging, and neuroimaging.

Teaching Assistant: Maxime Perron, email: maxime.perron@mail.utoronto.ca

Tentative Office Hours (1hr/week): Weeks 5,6,7,9,10

Please raise questions on course content or logistics through Quercus, or make an appointment:
<https://calendly.com/psy379-meeting-office-hours/>

Class: Mondays 6-9pm in Sidney Smith (SS) 560

Course Description

Welcome to PSY379F! We meet in-person every Monday evenings and we will be learning about how to conduct memory research! I am excited to share with you some of my knowledge and experiences in conducting memory research. I hope the selected topics covered in recognition memory research will motivate and help you to develop your own memory experiment! I have also designed this course to simulate all of the fun, engaging, and learning features from the writing workshops and brain hackathons that I have had the pleasure to attend. Therefore, for each of our lectures (better viewed as workshops!), we will work together to learn the course's four principle skillsets of how to *program*, *analyze*, *present* and *write*, with some skillsets covered more than others for certain weeks. Accordingly, I have structured your evaluations to reflect all four skillsets more or less equally and manageable; see Figure 1 below for a high level overview.

My goals are to help you develop your programming, analytical, writing and presentation skills; all of which are generalizable to the workforce and/or your advancement to professional/graduate studies.

FYI: No programming nor writing background is needed for the course as we are all here to learn by making mistakes and being inquisitive!



Weighted Distribution of Tasks to Develop Your Various Skill Sets

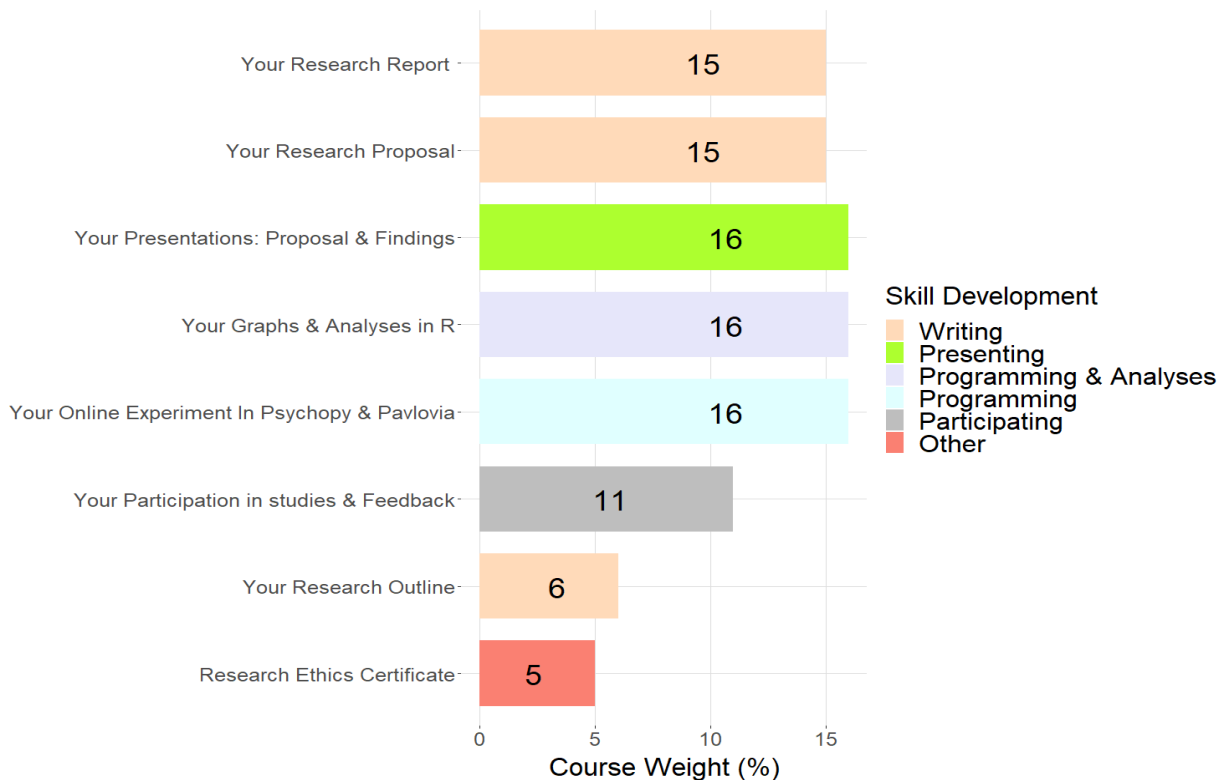


Figure 1 – A high-level overview of the percent course weight of a milestone task and your corresponding skill development.



Learning Objectives - By the end of the course, you will be able to:

1. Formulate a memory-based research question as part of your **Research Outline**.
2. **Write** an **Introduction** (research background) and **Methods** (research procedure with diagrams).
3. **Compose** your **Research Proposal** (Abstract, Intro, Methods, and References), which you will **present** to and get feedback from the class.
4. **Design and develop** your memory-based experiment by [learning to program in PsychoPy](#). Once finalized, upload your experiment and run it online via the Pavlovia server
> You will test and **collect data** from consenting students.
5. **Organize, visualize, and analyze** your datasets by [learning to program in R](#).
6. **Interpret, write, and present** your **Results** to the class.
7. **Synthesize an original Research Report** (Abstract, Intro, Methods, Results, Discussion, References, Appendices) on the topic of recognition memory.







Specific Mark Breakdown by Due Date



Assignment	Weight	(Sa)
Research Ethics certificate	5%	Sept. 23, 2023
Your Research Proposal:		
Outline	6%	Sept. 30, 2023
Introduction	5%	Oct. 7, 2023
Methods	5%	Oct. 21, 2023
Proposal	5%	Nov. 4, 2023
Presentation	8%	Group1: Oct. 2, 2023 Group2: Oct. 16, 2023
Give feedback to classmates	2%	Oct. 21, 2023
Your Memory Experiment:		
PsychoPy Stimuli files	2%	Oct. 7, 2023
PsychoPy Study Structure	2%	Oct. 21, 2023
PsychoPy Ready-to-Run file	8%	Oct. 28, 2023
Run it online via Pavlovia	4%	Nov. 4, 2023
Participate in others' studies	5%	By Nov. 13, 2023
Give feedback to others' studies	2%	Nov. 18, 2023
Your Data Analysis:		
R data management	4%	Nov. 18, 2023
R graphs and Analyses	12%	Nov. 25, 2023
Your Research Report:		
Results	5%	Dec. 5, 2023
Report	10%	Dec. 16, 2023
Presentation	8%	Group1: Nov. 27, 2023 Group2: Dec. 4, 2023
Give feedback to classmates	2%	Dec. 8, 2023

Late assignments will be **marked down 5%** of the assignment grade per day.

Course Overview

Week	Lecture Topics	How-to-Write	How-to-Program	Presentation (start of class)	Due (Saturday at midnight!!)
#1 Sept.11	Course Overview Research Ethics	Outline	PsychoPy: Overview and Install		
#2 Sept.18	Recognition Memory: Pattern Separation and Completion	Intro	PsychoPy: Stimulus Presentation		Ethics Certificate (5%) https://tcps2core.ca/welcome
#3 Sept.25	Recognition Memory: Recollection and Familiarity	Methods	PsychoPy: Response Collection		Outline (6%)
#4 Oct.2	Student Presentations of Research Proposal	Results	PsychoPy: Practice/Study/Test trials	Group1 (8%)	Intro (5%) Py Stimuli (2%)
 October 9th: THANKSGIVING !!					
#5 Oct.16	Student Presentations of Research Proposal	Discussion	PsychoPy Data Management	Group2 (8%)	Methods (5%) Py Study Structure (2%)
#6 Oct.23	ONLINE LECTURE Run online practice trials on each other	APA format	Pavlovia: Upload Study to Cloud		Py file of your study (8%)
#7 Nov.3 *Date Change *	Run in-class test trials on each other (5%)		R Analysis: Overview and Install		PROPOSAL (5%) Upload your Py file online to Pavlovia (4%)
 November 6 - 10: READING WEEK !! (Also Nov.6 is the last date to drop any of your F courses)					
#8 Nov.13	If Needed: Run in- class test trials on each other (5%)		R Data Organization: Merge & Subset Transform & Recode		R data organization of your results (4%)
#9 Nov.20			R Graphs & Analysis (ttest,ANOVAs,Correl ations)		R file of your graphs and analyses (12%)



#10 Nov.27	Student Presentations of Results & Interpretations			Group1 (8%)	
#11 Dec.4	Student Presentations of Results & Interpretations			Group2 (8%)	Results (5%) due Dec. 5 !!
Dec. 16 - RESEARCH REPORT DUE (10%)					

Required Readings (click the **reference to download pdf; also on Quercus)**

Pattern Separation

Stark, S. M., Stevenson, R., Wu, C., Rutledge, S., & Stark, C. E. (2015). Stability of age-related deficits in the mnemonic similarity task across task variations. *Behavioral Neuroscience*, 129(3), 257-268. doi: 10.1037/bne0000055

Yassa, M. A., Lacy, J. W., Stark, S. M., Albert, M. S., Gallagher, M., & Stark, C. E. (2011). Pattern separation deficits associated with increased hippocampal CA3 and dentate gyrus activity in nondemented older adults. *Hippocampus*, 21(9), 968-979. doi: 10.1002/hipo.20808

Pattern Completion

Vieweg, P., Stangl, M., Howard, L. R., & Wolbers, T. (2015). Changes in pattern completion - a key mechanism to explain age-related recognition memory deficits? *Cortex*, 64, 343-351. doi: 10.1016/j.cortex.2014.12.007

Wynn, J.S., Ryan, J.D., & Buchsbaum, B.R. (2020). Eye movements support behavioral pattern completion. *Proceedings of the National Academy of Sciences*, 117, 6246-6254. doi:10.3390/vision3020021

Recollection & Familiarity: TBA

Zoom details (for Week# 7 and/or office hours)

<https://utoronto.zoom.us/j/86537754031>

Meeting ID: 865 3775 4031

Passcode: Memory560

Pavlovia login

https://gitlab.pavlovia.org/users/sign_in

Username: PSY379

Password: @Memory560

Evaluation Details

Marking Rubrics: for all assignments, they will be posted at least one week before the due date.

Assignment Submission: With the exception of your PsychoPy files, which will be uploaded on the course's Pavlovia account (see above for login), all other assignment files (ie. All write-ups and presentations in pdfs) must be uploaded to Quercus before the deadline. All write-up assignments will use the Turnitin.com Review (see Course Policies).

Write-up Formatting: Please use 12-point font, double spacing, and 1 inch margins. Include a minimum of 5 references. All references should be listed using APA style.

Research Outline: 1 page;

Research Proposal: 8-9 pages (1 page for Abstract; 3 pages each for Intro and Methods; 1 page for References);

Research Report: 14-16 pages (Research Proposal + 3-4 pages for Results including Tables and Graphs + 3 pages for Discussion)

Presentations: First presentation on your research proposal and second presentation on your research findings. Each with 7 minutes for contents and 3 minutes for questions (10 min. total)

PsychoPy Stimuli: Gather enough stimuli (audio, visual, etc.) for your practice, study & test trials

PsychoPy Experimental Structure: Consent + Instructions + Practice + Study + Test + Debrief

R graphs: At least 2 different graphs (lineplots, barplots, boxplots, correlations, etc.) for your measures of interest

R analyses: Compute descriptive (ie. Marginal means) and inferential statistics (ANOVAs) for at least 1 dependent measure and 2 independent measures from your experiment.

Resources

PsychoPy

Download: <https://www.psychopy.org/download.html>

Help Forum: <https://discourse.psychopy.org/>

R

*Note: Install R first: <https://cloud.r-project.org/>

Then install R Studio: <https://posit.co/download/rstudio-desktop/>

[Data-wrangling-cheatsheet.pdf](#)

Course Policies

Note about prerequisites: It is your responsibility to ensure that **you have met all prerequisites** listed in the Psychology section of the A&S Calendar for this course. **If you lack any prerequisites you WILL BE REMOVED. No waivers will be granted.**

Plagiarism detection: Normally, students will be required to submit their course essays to the University's plagiarism detection tool for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the tool's reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of this tool are described on the Centre for Teaching Support & Innovation web site (<https://uoft.me/pdt-faq>). That said, please know that the use of the plagiarism detection tool is voluntary and alternatively, you are permitted to email me the files.

Use of Generative AI in Assignments: Generative Artificial Intelligence (AI), and specifically foundational models that can create writing, computer code, and /or images using minimal human prompting, are proliferating and becoming ubiquitous. This includes not only GPT-4 (and its siblings ChatGPT and Bing), but many writing assistants that are built on this or similar AI technologies. There are now hundreds of these systems that are readily available. **Students may choose to use Generative AI as they work through the PsychoPy and R assignments** in this course; however, they are **not permitted to use them for writing research papers**. Any use must be documented in an appendix of the final research report. The documentation should include what tool(s) were used, how they were used, and how the results from the AI were incorporated into the submitted work.

Quercus Information, including expectations for students to check: This course uses the University's learning management system, Quercus, to post information about the course. This includes posting readings and other materials required to complete class activities and course assignments, as well as sharing important announcements and updates. The site is dynamic and new information and resources will be posted regularly as we move through the term, so please make it a habit to log in to the site on a regular, even daily, basis. **SPECIAL NOTE ABOUT GRADES POSTED ONLINE:** Please also note that any grades posted are for your information only, so you can view and track your progress through the course. No grades are considered official, including any posted in Quercus at any point in the term, until they have been formally approved and posted on ROSI at the end of the course. Please contact me as soon as possible if you think there is an error in any grade posted on Quercus.

Online Communication: You must use your utoronto email address for all course-related communication, and please compose any email starting with the course code "PSY379" in the subject line. You are expected to check your utoronto email account and Quercus announcements regularly. Please do not use the build-in communication tool on Quercus, called "Inbox," for communication. Please ask any content-related or logistical questions on the Discussion boards; or by scheduling an individual appointment to meet with the instructor at the following website: <https://calendly.com/psy379-meeting-office-hours>

Lecture Slides & Recordings: Lecture slides and recordings will be posted for asynchronous viewing. Please consider the environment before printing your lecture slides. You might opt to take notes digitally instead of on print-outs or print double-sided.

Copyrighted course materials, including lecture recordings and notes: Course videos and materials belong to your instructor, the University, and/or other sources depending on the specific facts of each situation, and are protected by copyright. Do not download, copy, or share any course or student materials or videos without the explicit permission of the instructor. For questions about recording and use of videos in which you appear please contact your instructor.



Late enrollment: September 20, 2023 is the last day to enroll in F and Y courses. Please note there may be a 48-hour delay from the date of enrolment into a course before students gain access to Quercus. Students who enroll late are expected to make up any missed assignments and should not expect extensions on upcoming work.

Late assignments: See the table above for assignment due dates. Except in the case of a documented emergency (see above), late assignments will be **marked down 5%** of the assignment grade per day.

Missed term work: A student who misses an assignment deadline should let the instructor know as soon as possible, and no later than one week after returning to class. Normally this means within one week of the assignment deadline. However, the student's reason for absence may extend beyond one week, and so the student must come forward as soon as possible. If they are able to, the student should notify the instructor by email if the absence is extended in this way.

If the student does not come forward within one week, the instructor or the academic unit may consider a student request to extend the deadline or reweight other assessments but is under no obligation to do so. However, there may be exceptions to this in the case of accessibility or religious accommodations, or other documented reason (e.g., extended illness). The following are recognized forms of documentation:

- Absence Declaration via ACORN (updates from the University guidelines for 2023–24 will be posted mid-August)
- U of T Verification of Illness or Injury Form (VOI)
- College Registrar's letter
- Letter of Academic Accommodation from Accessibility Services

Re-marking: All requests for re-marking must be submitted *in writing* within two calendar weeks of the first day the marked assignment is available for student viewing. Only requests that include adequate written justification of an oversight in the original grading will be considered. Be as specific as possible. A legitimate request will result in the entire assignment be re-graded. Note that in agreeing to resubmit your work for remarking, you are agreeing to a re-evaluation of the entirety of your work; your grade may go up, go down, or stay the same. If there has been an error in our arithmetic, please let us know and we will immediately recalculate your grade (no written request necessary). *Negotiations for extra marks once final grades are in will not be tolerated. Arbitrary requests for grade increases will not be entertained (e.g., "I need to get into grad school, so could you please change my grade from a B+ to an A-?"). If I did this for one person, I would need to do it for everyone in the class. Please do not ask for special treatment – it is unfair to your classmates.*

Drop Deadline: November 6, 2023 is the last day to drop any F courses from academic record and GPA. After this deadline a mark is recorded for each course—whether the course work is completed or not (zero points are earned for incomplete work)—and calculated into the GPA.

Specific Medical Circumstances

If you become ill and it affects your ability to do your academic work, consult me right away. Normally, I will ask you for documentation in support of your specific medical circumstances. This documentation can be an Absence Declaration (via ACORN) or the University's Verification of Student Illness or Injury (VOI) form. The VOI indicates the impact and severity of the illness, while protecting your privacy about the details of the nature of the illness. You can submit a different form (like a letter from a doctor), as long as it is an original document, and it contains the same



information as the VOI. For more information on the VOI, please see <http://www.illnessverification.utoronto.ca>. For information on Absence Declaration Tool for A&S students, please see <https://www.artsci.utoronto.ca/absence>. If you get a concussion, break your hand, or suffer some other acute injury, you should register with Accessibility Services as soon as possible; therefore, the Letter of Academic Accommodation from Accessibility Services, as well as the College Registrar's letter are other recognized forms of supporting documentation student absences.

Students with Disabilities or Accommodation Requirements: Students with diverse learning styles and needs are welcome in this course. If you have a consideration that may require accommodations, please contact Accessibility Services: <https://www.studentlife.utoronto.ca/as>, 416-978-8060 or accessibility.services@utoronto.ca. If you have an acute or ongoing disability issue or accommodation need, you should register with Accessibility Services (AS) at the beginning of the academic year by visiting <https://studentlife.utoronto.ca/service/accessibility-services-registration-and-documentation-requirements/>. Without registration, you will not be able to verify your situation with your instructors, and instructors will not be advised about your accommodation needs. AS will assess your situation, develop an accommodation plan with you, and support you in requesting accommodation for your course work. Remember that the process of accommodation is private: AS will not share details of your needs or condition with any instructor, and your instructors will not reveal that you are registered with AS.

Religious Accommodations: As a student at the University of Toronto, you are part of a diverse community that welcomes and includes students and faculty from a wide range of backgrounds, cultural traditions, and spiritual beliefs. For my part, I will make every reasonable effort to avoid scheduling presentations, or other compulsory activities on religious holy days not captured by statutory holidays. Further to University Policy, if you anticipate being absent from class or missing a major course activity due to a religious observance, please let me know as early in the course as possible, and with sufficient notice (at least two to three weeks), so that we can work together to make alternate arrangements.

Accommodation for Personal Reasons: There may be times when you are unable to complete course work on time due to non-medical reasons. If you have concerns, speak to me. It is also a very good idea to speak with an advisor in your College Registrar's office; they can support you in requesting extensions or accommodations, and importantly, connect you with other resources on campus for help with your situation.

Equity, Diversity, and Inclusion: The University of Toronto is committed to equity, human rights and respect for diversity. All members of the learning environment in this course should strive to create an atmosphere of mutual respect where all members of our community can express themselves, engage with each other, and respect one another's differences. U of T does not condone discrimination or harassment against any persons or communities.

Additional Resources

Mental health and well-being: As a student, you may experience challenges that can interfere with learning, such as strained relationships, increased anxiety, substance use, feeling down, difficulty concentrating and/or lack of motivation, financial concerns, family worries and so forth. These factors may affect your academic performance and/or reduce your ability to participate fully in daily activities. All of us benefit from support and guidance during times of struggle; there is no shame in needing help or in asking for help. There are many helpful resources available through your college Registrar or through Student Life (studentlife.utoronto.ca and



studentlife.utoronto.ca/feeling-distressed). An important part of the University experience is learning how and when to ask for help. Please take the time to inform yourself of available resources and do not hesitate to seek assistance from your Teaching Assistant or from me to help learn what supports are available.

Academic Integrity: All students, faculty and staff are expected to follow the University’s guidelines and policies on academic integrity. For students, this means following the standards of academic honesty when writing assignments and collaborating with fellow students. Ensure that all work you submit represents your own honest efforts. Plagiarism—representing someone else’s work as your own or submitting work that you have previously submitted for marks in another class or program—is a serious offence that can result in sanctions. The following are *examples* of offences:

- Using someone else’s ideas or words in one’s own work without acknowledging in a citation that those ideas/words are not one’s own.
- Including false, misleading or concocted citations in one’s work.
- Obtaining unauthorized assistance on any assignment or to provide unauthorized assistance to another student.
- Using or possessing an unauthorized aid in any test or exam.
- Submitting work for credit in more than one course without permission of the instructor.
- Falsifying or altering any documentation required by the University (e.g., doctors’ notes).

Speak to me or your TA for advice on anything that you find unclear. To learn more about how to cite and use source material appropriately and for other writing support, see the U of T writing support website at writing.utoronto.ca. Consult the Code of Behaviour on Academic Matters for a complete outline of the University’s policy and expectations. For more information, please see <https://www.artsci.utoronto.ca/current/academicadvising-and-support/student-academic-integrity> and <http://academicintegrity.utoronto.ca>

Writing: The university provides its students with a number of resources to help them improve their writing, including one-on-one appointments with writing instructors, free workshops, and English Language Support. For more information on campus writing centres and activities, please visit <https://advice.writing.utoronto.ca/>

FAS grading guidelines (<http://www.writing.utoronto.ca/advice/general/grading-policy>):

Percentage	Letter Grade	Grade Point Value	Grade Definition	
90-100	A+	4.0	Excellent	Strong evidence of original thinking; good organization; capacity to analyze and synthesize; superior grasp of subject matter with sound critical evaluations; evidence of extensive knowledge base.
85-89	A	4.0		
80-84	A-	3.7		
77-79	B+	3.3	Good	Evidence of grasp of subject matter, some evidence of critical capacity and analytic ability; reasonable understanding of relevant issues; evidence of familiarity with literature
73-76	B	3.0		
70-72	B-	2.7		
67-69	C+	2.3	Adequate	Student who is profiting from the university experience; understanding of the subject matter and ability to develop solutions to simple problems in the material.
63-66	C	2.0		
60-62	C-	1.7		
57-59	D+	1.3	Marginal	Some evidence of familiarity with the subject matter and some evidence that critical and analytic skills have been developed.
53-56	D	1.0		
50-52	D-	0.7		
0-49	F	0.0	Inadequate	Little evidence of even superficial understanding of subject matter; weakness in critical and analytic skills; limited or irrelevant use of literature