

PSYD50H3 Current Topics in Memory and Cognition: Course Syllabus

University of Toronto Scarborough, Summer 2024

May 1 – August 31

Course Instructor

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Instructor Contact

I will try to respond within two business days. Please try to limit content related questions to office hours or lecture breaks. I request that students to use their UofT emails, as they are more secure and are governed by the University's codes of conduct. When contacting me, please include "PSYD50" somewhere in the subject line along with the topic of the email.

Course Delivery

PSYD50H3 is an in-person course. Lectures take place Wednesday from 3:00 PM – 5:00 PM in SW316. This course is delivered through live, in-person lectures. Lecture recordings should be used to supplement your studying and I cannot guarantee that classes will be recorded.

Course Description, Learning Outcome, and General Information

Prerequisites and Exclusions

This course requires one of the following from each of these four groups. (1) A content course: either PSYB55, or PSYB57; (2) a methods course: either PSYB04, or PSYB70; (3) a statistics course: either PSYB07, or STAB22, or STAB23; and (4) a 0.5 credit C-level PSY course.

Course Description

In this course, we investigate ongoing issues and concepts in the field of memory and cognition, drawing from fundamental and applied research, as well as problems that this field can speak

to. In this course, you will draw from the knowledge obtained during your degree and apply them to high-level questions that probe the nuances of memory and cognition. These questions relate to: how does memory truly work? How do we understand the workings of our own memory or internal cognition? How do we think about the world around us? How does our cognition interact with new emergent frontiers and technologies face by humanity? We will draw on various avenues of research, from computational modeling to neuroimaging, to discuss current topics in memory and cognition.

Learning Outcome

My goals for this course are threefold. First, as students, you should develop a critical understanding of the topics at hand and leave this course with an adept comprehension of memory and cognition. This basis helps you in not only future courses on similar subjects, but may strengthen your eligibility for future academic positions (e.g., volunteering in a laboratory environment, graduate or medical school applications, or other professional degrees). Second, you will learn important critical thinking skills, such as how to scrutinize and interpret research, and ask new and interesting questions. These skills are invaluable for you to navigate a world where science informs and contributes to almost all aspects of daily living. Third, you will be able to apply your understanding of memory and cognition in an everyday sense and understand how the strengths and limitations of these systems impact our daily experiences (e.g., memory recall in real life).

How to approach this course

Attend all lectures, ask questions, and participate in class discussion. While lecture recordings may be made available, this course is in-person and involves in-class participation.

Materials

A Note on Accuracy of Course Material

I will ensure material are accurate to the best of my ability. Like all humans, I am not infallible. If you notice a mistake anywhere in the course, please point it out and I will be sure to correct it.

Course website

PSYD50H3 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. To access the course website, go to the U of T Quercus log-in page at <https://q.utoronto.ca>. Once you have logged in to Quercus using your UTORid and password, you should see the link for PSYD50H3. All content will be posted through this Quercus page. This includes links to class recordings. Please note that any grades posted are for your information only, so you can view and track your progress through the course.

Required Software

Written assignments must utilize Microsoft Word. As a student, you have free access to Microsoft Office. See <https://onesearch.library.utoronto.ca/ic-faq-categories/microsoft-365-proplus>. I recommend PowerPoint for student presentations, which are also part of the Microsoft Office license.

Content Schedule

The course schedule is outlined in the table below. Please note that topics are subject to change depending on the pace that content is covered during lecture.

Week	Date	Lecture: Topic
1	May 8	L1: Neuroanatomical structures of memory and cognition
2	May 15	L2: Research techniques in memory and cognition
3	May 22	L3: Analytical techniques in memory and cognition
4	May 29	L4: The consolidation of memory in humans
5	June 5	L5: Perceiving the world around us
6	June 12	L6: Cognition in the real world and logical judgments
	June 19	<i>Reading week, no classes are held</i>
7	June 26	L7: Student presentations; creative and instrumental cognition
8	July 3	L8: Student presentations; visuocognitive illusions
9	July 10	L9: Student presentations; perplexing cognitive neuropsychology
10	July 17	L10: Student presentations; errors in memory
11	July 24	L11: Student presentations; memory and cognition in space
12	July 31	L12: Student presentations; memory and cognition of AIs versus humans

Attending lectures

During lecture, you are invited to ask questions by raising your hand and waiting until I acknowledge you. Please be respectful during lecture and tutorial. Do not interrupt without being acknowledged, do not converse with a neighbor, and avoid distractions (e.g., playing a game on your phone or computer) which may impact the focus of other students, and myself. The later half of the course is divided into minilectures that will be mostly student-lead. Please attend and be respectful to your fellow students during presentations.

Attending the final exam

Information will be made available on Quercus. Please follow instructions closely to ensure a smooth and efficient experience. You are required to bring your University of Toronto Student ID. The term test and final exam will be handwritten unless you have been granted an appropriate accessibility accommodation.

References for class readings

References are in order of appearance for each lecture. Readings are testable on the final exam.

1. Rolls, E.T., Deco, G., Huang, C-C., & Feng, J. (2022). The effective connectivity of the human hippocampal memory system. *Cerebral Cortex*, 32(17), 3706-3725.
<https://doi.org/10.1093/cercor/bhab442>.
2. Hanslmayr, S., Volberg, G., Wimber, M., Raabe, M., Greenlee, M.W., & Bäuml, K-H.T. (2011). The relationship between brain oscillations and BOLD signal during memory formation: A combined EEG-fMRI study. *Journal of Neuroscience*, 31(44), 15674-15680.
<https://doi.org/10.1523/JNEUROSCI.3140-11.2011>.
3. Greenland, S., Senn, S.J., Rothman, K.J., Carlin, J.B., Poole, C., Goodman, S.N., & Altman, D.G. (2016). Statistical tests, P values, confidence intervals, and power: A guide to misinterpretations. *European Journal of Epidemiology*, 31, 337-350.
<https://doi.org/10.1007/s10654-016-0149-3>.
4. Gillies, G., Park, H., Woo, J., Walther, D.B., Cant, J.S., & Fukuda, K. (2023). Tracing the emergence of the memorability benefit. *Cognition*, 238, 105489.
<https://doi.org/10.1016/j.cognition.2023.105489>.
5. Fujisaka, W., Tokita, M., & Kariya, K. (2015). Perception of material properties of wood based on vision, audition, and touch. *Vision Research*, 109(B), 185-200.
<https://doi.org/10.1016/j.visres.2014.11.020>.
6. Coffin, S.G., Eichhorst, W., Carrico, A.R., Inbar, Y., Newton, P., & Boven, L.V. (2024). Perceived naturalness predicts public support for sustainable protein technology. *Climate Change*, 177(29). <https://doi.org/10.1007/s10584-024-03679-5>.
7. Benedek, M., Jauk, M., Fink, A., Koschutnig, K., Reishofer, G., Ebner, F., & Neubauer, A.C. (2014). To create or to recall? Neural mechanisms underlying the generation of creative new ideas. *NeuroImage*, 88, 125-133. <https://doi.org/10.1016/j.neuroimage.2013.11.021>.
8. Liu, J., Li, J., Feng, L., Tian, J., & Lee, K. (2014). Seeing Jesus in toast: Neural and behavioral correlates of face pareidolia. *Cortex*, 53, 60-77.
<https://doi.org/10.1016/j.cortex.2014.01.013>.

9. Nuara, A., Nicolini, Y., D’Orio, P., Cardinale, F., Rizzolatti, G., Avanzini, P., ... De Marco, D. (2020). Catching the imposter in the brain: The case of Capgras delusion. *Cortex*, 1(31), 295-304. <https://doi.org/10.1016/j.cortex.2020.04.025>.
10. Murphy, G., Loftus, E., Levine, L.J., Grady, R.H., & Greene, C.M. (2023). Weak correlations among 13 episodic memory tasks related to the same public event. *Applied Cognitive Psychology*, 37(5), 1045-1058. <https://doi.org/10.1002/acp.4103>.
11. Yaden, D.B., Iwry, J., Slack, K.J., Eichstaedt, J.C., Zhao, Y., Vaillant, G.E., Newberg, A.B. (2016). The overview effect: Awe and self-transcendent experience in space flight. *Psychology of Consciousness: Theory, Research, and Practice*, 3(1), 1-11. <https://doi.org/10.1037/cns0000086>.
12. Zeman, A.A., Ritchie, B.J., Bracci, S., & Op de Beeck, H. (2020). Orthogonal representations of object shape and category in deep convoluted neural networks and human visual cortex. *Scientific Reports*, 10(2453). <https://doi.org/10.1038/s41598-020-59175-0>.

Evaluative Material

The purpose of this course is to facilitate your comprehension ability of memory and cognition. Evaluations are designed to reflect this objective.

Assessment	Weight	Due date(s)
Student topic paper	20%	Jun 7 (Phase I); Jul 5 (Phase II); Aug 2 (Phase III)
Topic outline and proposal	5%	Jun 1
Topic presentations	20%	One timeslot during Lectures 7 – 12
Questions for presenters	5%	After each presentation during Lectures 7 – 12
Answers for attendees	5%	The week following the student’s presentations
Participation	5%	During each lecture
Final exam	40%	TBA

Completing evaluative material

Students are required to complete all graded assessments (those listed in the above table) INDIVIDUALLY unless explicitly stated as part of a group. An academic offense includes, but is

not limited to, discussing answers to questions, discussing ways to complete questions, sharing answers, completing another student's work, or having another student complete your work, or using generative AI content. All non-graded assessments (practice questions, etc.) can be discussed with your peers.

Student topic paper: 20%

In this course, students will choose a topic in the field of memory and cognition that interests them, and, during the course, develop and expertise under the guidance of the instructor. As part of this process, students will write a topic paper that contains three submission phases.

Since no students' writing is perfect, the goal of these assignments is to evaluate the ability for students to improve their writing while engaging and thinking critically about memory and cognition. To this end, the evaluation of these assignments will be based on a student's ability to consider reviewer feedback and revise their work. The written assignment is divided into three phases. Each section of the paper will have an initial and revised component. This means that students who provide a comprehensive revision of their written assignment can receive 10/10 as the final grade, even if the writing is not considered "perfect", insofar that they have adequately demonstrated their ability to revise and improve. More information will come on the Assignment specific module on Quercus. Assignments will be submitted through Quercus, and checked using Ouriginal.

Topic outline and proposal: 5%

This outline will be a 250 word abstract which highlights the specific interest of the student in the field of memory and cognition. Note that topics need to be approved by the instructor *before* this document is submitted. Following the proposal, the student will also provide a general outline of the 15 minute "minilecture" on the topic. Students need to supplement their knowledge of this topic with a minimum of three academic references. Note that this is *not* a summary of those papers, but should be a lecture-based format on the topic of interest.

Topic presentation: 20%

Students will deliver a minilecture on their selected topic. The minilecture will take approximately 15 minutes and be delivered during class time between Lecture 7 to 12. These lectures are not summaries or overviews of the studies cited to supplement the topic, but are to be designed as a lecture-based format.

Participation: 5%

During class, open discussions will occur at which point students are invited to give feedback and discourse. At the instructor's discretion, engaging in discourse will award a 1% mark (for up to 5%) towards the final grade. Note that students are not discouraged in participating in discussion after receiving this mark, but rather this grade reflects a minimum of 5 meaningful discourse participations.

Questions to presenters: 5%

Students are encouraged to write questions about the topic of each minilecture and submit them to the presenter. Students must submit comments for at least ten of the presentations (0.5 marks each). These must be quality questions that probe the presenter's understanding of the material. If students submit more than 10, marks awarded to the top 10 of questions will count towards their final grade.

Answers to attendees: 5%

Presenters have one week to respond to questions to their fellow students. Presenters must provide proper answers and supportive evidence where required.

Final exam: 40%

The length of the final exam will be three hours. This exam will encompass information from the entire course, with the exception of minilectures delivered by students. The format will include multiple choice and short answer/essay formats. There will be an opportunity for group-based test-taking during the final exam.

Extensions, late penalties, and missed assessments

We all live busy lives and sometimes it is difficult to make deadlines even with fair notice. To aid you, all students get up to six free late days that can be used up at a self-assigned pace. You do not need to request these extensions. Merely submit your assignment a certain number of days late and include a comment on the submission that you are using up those number of late days. For example, the deadline for Phase I is June 7. If you submit on June 9, you have used up two of your six days and can have up to four late days to be used on additional submissions. If you submit Phase I on June 13, this uses all six late days and you have no free extensions on future submissions. These free extensions are not to be used for health-related events, accessibility-related reasons, or other emergencies. Please reach out to me to grant extensions for these more emergent situations. This extension does not apply for the minilecture presentation.

Submitting the written assignment late (or going beyond your free six days), without an approved extension, accrues a 10% penalty per day it is late. An assignment is deemed late the moment the clock strikes midnight and accumulates late days every midnight following. Please do not wait until the last minute to complete and submit your assignment. Be cognizant of increased Quercus traffic near midnight, and possible internet connectivity issues. After one week of non-approved lateness, the student will no longer be allowed to submit the assignment and it will receive a final grade of zero.

If a student misses the final exam or their minilecture presentation due to illness or any other valid reason, please reach out to the instructor as soon as possible. Students have one week from missing the date of the test or quiz to inform the instructor and submit an Absence Declaration on ACORN. Missed tests will be accommodated on a case-by-case basis and may involve make-up assessments, reweighing grades, or alternative assignments.

Requests for regrading

Students should expect fair evaluation and feedback from the instructor. Students are more than welcome to request a regrade if they believe their assigned grade is incorrect or does not

accurately reflect the submitted work insofar that they provide valid reasoning (i.e., a student cannot simply say “I feel I deserve a higher mark”, but must justify where they believe they were unfairly penalized). I, the Course Instructor, will do the regrade, and there is no guarantee the grade will increase, it is possible that the grade may decrease. This new grade becomes the assigned grade. Requests must come in within two weeks of the posted grade.

Bonus marks

Throughout the course, bonus material may be assigned as they are deemed necessary at the discretion of the Course Instructor. These do not count towards the main 100% of your final grade and are, instead, additional boosters to your final grade.

Quercus grades

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 ACORN 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.

Academic Integrity

About Academic Integrity

The University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters (<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences.

Potential offences in papers and assignments include using someone else's ideas or words without appropriate acknowledgement, submitting your own work in more than one course without the permission of the instructor, making up sources or facts, obtaining or providing unauthorized assistance on any assignment.

On tests and exams, cheating includes using or possessing unauthorized aids, looking at someone else's answers during an exam or test, misrepresenting your identity, or falsifying or altering any documentation required by the University.

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.

The University of Toronto is a richly diverse community and as such is committed to providing an environment free of any form of harassment, misconduct, or discrimination. In this course, I seek to foster a civil, respectful, and open-minded climate in which we can all work together to develop a better understanding of key questions and debates through meaningful dialogue. As such, I expect all involved with this course to refrain from actions or behaviours that intimidate, humiliate, or demean persons or groups or that undermine their security or self-esteem based on traits related to race, religion, ancestry, place of origin, colour, ethnic origin, citizenship, creed, sex, sexual orientation, gender identity, gender expression, age, marital status, family status, disability, receipt of public assistance or record of offences.

Accommodations

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the AccessAbility Services Office as soon as possible.

AccessAbility Services staff (located in Rm AA142, Arts and Administration Building) are available by appointment to assess specific needs, provide referrals and arrange appropriate

accommodations 416-287-7560 or email ability.uts@utoronto.ca. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

Use of Original

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>).

Important links

Definition of Academic Integrity: <https://www.academicintegrity.utoronto.ca/>

University of Toronto Code of Behaviour on Academic Matters:

<https://governingcouncil.utoronto.ca/secretariat/policies/code-behaviour-academic-matters-july-1-2019>

How to ensure academic integrity

Here are three easy ways to ensure you meet academic integrity

- 1.** Turn in original work. Do not copy/paste from any external source (including websites, encyclopedias). Do not use work you have submitted in other classes. Do not reword another source without citing it as the original author's intellectual property.
- 2.** Do not use unauthorized software, including generative AI, to formulate your work for you.
- 3.** All graded work, unless otherwise specified, should be completed independently. This includes assignments, quizzes, and assessments/tests/exams.

What counts as plagiarism

There are many forms of plagiarism. Many people assume plagiarism occurs when one directly copies another authors' work as their own. However, rewording another's work without proper credit is also a form of plagiarism. This is because you are essentially taking another person's ideas and making them your own. Self-plagiarism occurs when you reuse your own work without acknowledgement. Thus, all student submissions should be the student's own fresh and original work, not used in other courses. They should be the ideas of the student submitting them, and not from another student, person, or computer/AI generated idea.

Repercussions for violating Academic Integrity

Academic misconduct may receive one or both of the following, and/or other consequences:

1. An assigned grade of zero to any graded material in the course
2. Acceleration to the Department or other disciplinary action

Use of generative AI

Students may use artificial intelligence tools (e.g., ChatGPT) for creating an outline for an assignment, but the final submitted assignment must be original work produced by the individual student alone. Students may not use artificial intelligence tools for taking tests, writing research papers, creating computer code, or completing major course assignments. However, these tools may be useful when gathering information from across sources and assimilating it for understanding. Students may not use artificial intelligence tools for taking tests in this course.

Support for Students**Accessibility Services**

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the AccessAbility Services Office as soon as possible.

AccessAbility Services staff (located in Rm AA142, Arts and Administration Building) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations 416-287-7560 or email ability.utsc@utoronto.ca. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

Mental health

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. Everyone feels stressed now and then – it is a normal part of university life. Some days are better than others, and there is no wrong time to reach out. There are resources for every situation and every level of stress. There are many helpful resources available through UTSC Health and Wellness (<https://www.utsc.utoronto.ca/hwc/>). 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.

Writing support

Developing your writing ability is a critical skill to take advantage of during your undergraduate career. A strong writing ability is crucial to communicate ideas. I often recommend students to re-read their first university writing assignment and their final university writing assignment to gauge how much they improve. The university Center for Teaching and Learning offers writing assistance through the Writing Center (<https://www.utsc.utoronto.ca/ctl/writing-support>).

Other support

International students can find support at the International Student Centre (<https://www.utsc.utoronto.ca/utscinternational/>). The University provides support for students with children or who have family responsibilities (<https://familycare.utoronto.ca/>).

Academic Advising and Career Centre

The university has a support center for students to engage in learning strategies and develop a roadmap for undergraduate success (<https://www.utsc.utoronto.ca/aacc/>).

Lecture capture by instructor

If lecture recordings are provided, they are only for the exclusive use of enrolled students, for their personal learning. Lecture recordings are not to be shared in any way beyond enrolled students. Recording or photographing any aspect of a university course - lecture, tutorial, seminar, lab, studio, practice session, field trip etc. – without prior approval of all involved and with written approval from the instructor is not permitted.

Privacy/FIPPA statement

Personal information is collected pursuant to section 2(14) of the University of Toronto Act, 1971 and at all times it will be protected in accordance with the Freedom of Information and Protection of Privacy Act. Please note that this course requires presentations of one's work to the group. For more information, please refer to <http://www.utoronto.ca/privacy>.

Course materials, including lecture notes

Course materials are provided for the exclusive use of enrolled students. Do not share them with others. I do not want to discover that a student has put any of my materials into the public domain, has sold my materials, or has given my materials to a person or company that is using them to earn money. The University will support me in asserting and pursuing my rights, and my copyrights, in such matters.

Land acknowledgement

I wish to acknowledge this land on which the University of Toronto operates. For thousands of years, it has been the traditional land of the Huron-Wendat, the Seneca, and the Mississaugas of the Credit. Today, this meeting place is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to work on this land.