

PSY372H1 S

Human Memory

Winter 2024 Syllabus

Course Meetings

PSY372H1 S

Section	Day & Time	Delivery Mode & Location
LEC0201	Monday, 3:00 PM - 5:00 PM	In Person: CR 406
	Wednesday, 3:00 PM - 4:00 PM	In Person: CR 406

Refer to ACORN for the most up-to-date information about the location of the course meetings.

Course Contacts

Course Website: <https://q.utoronto.ca/courses/342602>

Instructor: Nelly Matorina

Email: nelly.matorina@mail.utoronto.ca

Office Hours and Location: By Appointment Only: <https://calendly.com/nelly-matorina/office-hours>

Additional Notes: Questions should be raised during lectures, on the Quercus Discussion Board (<https://q.utoronto.ca>), or during office hours. You are encouraged to both ask and answer questions on the Discussion Board. Please use email ONLY for emergencies (e.g., illness). Neither the instructor nor the TA will be able to respond to emails regarding course content or logistics. Please do not use the built-in Quercus communication tool called “Inbox”, as this is not monitored.

Teaching Assistant: Arya Rahbarnia

Email: arya.rahbarnia@mail.utoronto.ca

Office Hours and Location: By Appointment Only (Email)

Course Overview

Current theories and data on human memory: processes involved in encoding, storage, and retrieval.

Our memories are critical to our sense of self, our relationships, and our ability to solve problems. This course provides an in-depth and research-based overview of the history, methodology, theories, and debates in the study of human memory.

Course Learning Outcomes

1. Develop expertise in the scientific study of human memory by understanding both research findings and key theories
2. Gain insight into the main methodologies used by researchers in human memory
3. Develop skills in summarizing, evaluating, and critiquing scientific research
4. Apply your understanding of learning and memory to situations in everyday life

Prerequisites: PSY201H1/ ECO220Y1/ EEB225H1/ GGR270H1/ IRW220H1/ POL222H1/ SOC202H1/ STA220H1/ STA238H1/ STA248H1/ STA288H1/ PSY201H5/ STA215H5/ STA220H5/ PSYB07H3/ STAB22H3/ STAB23H3/ STAB57H3, PSY260H1/ PSYB38H3/ PSY270H1/ PSY270H5/ PSYB57H3/ COG250Y1

Corequisites: None

Exclusions: PSY372H5/PSYC53H3

Recommended Preparation: None

Credit Value: 0.5

Course Materials

Textbook (required):

Radvansky, G.A. Human Memory 4th Edition. Taylor & Francis: Routledge. ISBN 978-0-367-25291-5.

Assigned Articles (on course website under "Files"):

Lecture 2: Short-Term and Working Memory:

Conway, A. R., Cowan, N. & Bunting, M.F. (2001). The cocktail party phenomenon revisited: The importance of working memory capacity. *Psychonomic Bulletin & Review*, 8(2): 331-335.

Lecture 3: Episodic Memory Past and Future:

Paper Discussion 1: Karpicke, J. D., & Roediger, H. L. (2008). The critical importance of retrieval for learning. *Science*, 319(5865), 966-968.

Lecture 5: Failures of Memory and Autobiographical Memory:

Levine, B., Svoboda, E., Hay, J. F., Winocur, G., & Moscovitch, M. (2002). Aging and autobiographical memory: dissociating episodic from semantic retrieval. *Psychology and aging*, 17(4), 677.

Talarico, J. M., & Rubin, D. C. (2003). Confidence, not consistency, characterizes flashbulb memories. *Psychological science*, 14(5), 455-461.

Lecture 6: Amnesia and Memory Disorders:

Paper Discussion 2: Hassabis, D., Kumaran, D., Vann, S. D., & Maguire, E. A. (2007). Patients with hippocampal amnesia cannot imagine new experiences. *Proceedings of the National Academy of Sciences*, 104(5), 1726-1731.

Lecture 7: Critical Topics in Modern Memory Research:

Reconsolidation:

Brunet, A., Orr, S. P., Tremblay, J., Robertson, K., Nader, K., & Pitman, R. K. (2008). Effect of post-retrieval propranolol on psychophysiologic responding during subsequent script-driven traumatic imagery in post-traumatic stress disorder. *J Psychiatr Res*, 42(6), 503-506.

Nader, K., & Hardt, O. (2009). A single standard for memory: the case for reconsolidation. *Nat Rev Neurosci*, 10(3), 224-234.

Insights from single-cell recording:

Ekstrom, A. D., Kahana, M. J., Caplan, J. B., Fields, T. A., Isham, E. A., Newman, E. L., et al. (2003). Cellular networks underlying human spatial navigation. *Nature*, 425(6954), 184-188.

Quiroga, R. Q., Reddy, L., Kreiman, G., Koch, C., & Fried, I. (2005). Invariant visual representation by single neurons in the human brain. *Nature*, 435(7045), 1102-1107.

Episodic-like memory in animals:

Templer, V.L., & Hampton, R.R. (2013). Episodic memory in nonhuman animals. *Current Biology*, 23, R801-R806.

Eacott, M. J., & Norman, G. (2004). Integrated memory for object, place, and context in rats: a possible model of episodic-like memory? *J Neurosci*, 24(8), 1948-1953.

Lecture 8: Memory across the lifespan:

Effective scientific writing (optional, but a helpful resource): Gopen, G.D., & Swan, J.A. (1990). The science of scientific writing. *American Scientist*, 78(6), 550-558.

Marking Scheme

Assessment	Percent	Details	Due Date
Paper Discussion #1	5%	Please read "The Critical Importance of Retrieval for Learning" by Karpik & Roediger (2008) and write QALMRI responses based on the paper. This assignment will be marked for both quality of content and writing style. This is a formal writing assignment and you should use complete sentences. This assignment is designed to help you with your research proposal later on, so please take the time to complete it well.	2024-02-05

Assessment	Percent	Details	Due Date
Paper Discussion #2	5%	Please read "Patients with hippocampal amnesia cannot imagine new experiences" by Hassabis et al. (2006) and write QALMRI responses based on the paper. This assignment will be marked for both quality of content and writing style. This is a formal writing assignment and you should use complete sentences. This assignment is designed to help you with your research proposal later on, so please take the time to complete it well. Please integrate any feedback you received on your first paper discussion.	2024-03-11
Term Test 1	25%	Term tests will be held in the regular class location, at the regular time. There is no final exam during the Final Examination Period for this course. Although the emphasis will be on material covered during lectures, the tests may contain any material from the class lectures, textbook, or the assigned articles. As the lectures will always cover some information not contained in the texts (and vice versa), it is important that you both attend the lectures and do the readings. The tests are non-cumulative. That is, the questions are grounded in the material covered in the preceding three lectures. However, some questions will require integration of material covered across the course, so don't forget what you've learned!	2024-01-29
Term Test 2	25%		2024-03-04
Term Test 3	25%		2024-04-01

Assessment	Percent	Details	Due Date
Thought Paper	15%	The goal of the thought paper is to strengthen your skills in summarizing and evaluating empirical research. The paper will be based on the topic of autobiographical memory (see Lecture 5). The thought paper will include two components, a summary of a recent empirical article and a commentary or critique of the article.	2024-03-25

Grading Breakdown

Exams (75%): Term Test 1 (25%), Term Test 2 (25%), Term Test 3 (25%)

Written Work: Paper Discussion 1 (5%), Paper Discussion 2 (5%), Research Proposal (15%)

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

A+ Outstanding performance, exceeding even the A described below.

A Exceptional performance: 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.

B Good performance: evidence of grasp of subject matter; some evidence of critical capacity and analytic ability; reasonable understanding of relevant issues; evidence of familiarity with the literature.

C Intellectually adequate performance: student who is profiting from her or his university experience; understanding of the subject matter and ability to develop solutions to simple problems in the material.

D Minimally acceptable performance: some evidence of familiarity with subject matter and some evidence that critical and analytic skills have been developed.

F Inadequate performance: little evidence of even superficial understanding of the subject matter; weakness in critical and analytic skills; with limited or irrelevant use of literature.

Late Assessment Submissions Policy

Assignments must be submitted by their specified due date. Except in the case of an emergency, late assignments will be marked down 5% per day. Appropriate documentation is required in all emergency situations. Extensions will only be considered in rare circumstances.

Course Schedule

Week	Description	Readings
Week 1 Jan 8, 10	Lecture 1: <ul style="list-style-type: none"> • Course Overview • Overview of History of Memory Research • Neuroscience of Memory 	<ul style="list-style-type: none"> • Chapters 1-2; • QALMRI instructions
Week 2 Jan 15, 17	Lecture 2: <ul style="list-style-type: none"> • Methods in Memory Research • Sensory and Short-Term Memory • Working Memory 	<ul style="list-style-type: none"> • Chapters 3-5; • Conway et al., 2001
Week 3 Jan 22, 24	Lecture 3: <ul style="list-style-type: none"> • Episodic Memory: Past and Future 	<ul style="list-style-type: none"> • Chapter 7 • Karpicke & Roediger, 2008
Week 4 Jan 29	Term Test 1	
Week 5 Feb 5, 7	Lecture 4: <ul style="list-style-type: none"> • Nondeclarative Memory • Semantic Memory <p>Paper Discussion 1 (Karpicke & Roediger, 2008) due on February 5th at 11:59 PM ET</p>	<ul style="list-style-type: none"> • Chapters 6 and 9
Week 6 Feb 12, 14	Lecture 5: <ul style="list-style-type: none"> • Failures of Memory • Autobiographical Memory 	<ul style="list-style-type: none"> • Chapters 8, 12, 13 • Levine et al., 2002 • Talarico & Rubin, 2003
Week 7 Feb 19, 21	Reading week	
Week 8 Feb 26, 28	Lecture 6: <ul style="list-style-type: none"> • Amnesia and Memory Disorders <p>Thought Paper: Paper Approval (optional) due on</p>	<ul style="list-style-type: none"> • Chapter 10 • Hassabis et al., 2007

	February 26th at 11:59 PM ET	
Week 9 Mar 4	Term Test 2	
Week 10 Mar 11, 13	Lecture 7: <ul style="list-style-type: none"> • Critical Topics in Modern Memory Research Paper Discussion 2 (Hassabis et al., 2007) due on March 11th at 11:59 PM ET	<ul style="list-style-type: none"> • See “Required Readings”
Week 11 Mar 18, 20	Lecture 8: <ul style="list-style-type: none"> • Memory Across the Lifespan: Aging and development • Tips for effective scientific writing 	<ul style="list-style-type: none"> • Chapters 16-17 • Gopen & Swan, 1990 (optional)
Week 12 Mar 25, 27	Lecture 9: <ul style="list-style-type: none"> • Memory and the Law • Metamemory Thought paper due on March 25th at 11:59 PM ET	<ul style="list-style-type: none"> • Chapters 14-15
Week 13 Apr 1	Term Test 3	

Policies & Statements

Plagiarism Detection Tool

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>).

Academic Integrity

All suspected cases of academic dishonesty will be investigated following procedures outlined in the [Code of Behaviour on Academic Matters](https://governingcouncil.utoronto.ca/secretariat/policies/code-behaviour-academic-matters-july-1-2019) (<https://governingcouncil.utoronto.ca/secretariat/policies/code-behaviour-academic-matters-july-1-2019>). If you have questions or concerns about what constitutes appropriate academic

behaviour or appropriate research and citation methods, please reach out to me. Note that you are expected to seek out additional information on academic integrity from me or from other institutional resources. For example, 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 <http://www.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 [A&S Student Academic Integrity \(https://www.artsci.utoronto.ca/current/academic-advising-and-support/student-academic-integrity\)](https://www.artsci.utoronto.ca/current/academic-advising-and-support/student-academic-integrity) and the [University of Toronto Website on Academic Integrity \(https://www.academicintegrity.utoronto.ca\)](https://www.academicintegrity.utoronto.ca).

Students with Disabilities or Accommodation Requirements

Students with diverse learning styles and needs are welcome in this course. 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/department/accessibility-services/>. 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 cultural and religious traditions. For my part, I will make every reasonable effort to avoid scheduling tests, examinations, 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 (such as a test or in-class assignment) 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.

Late/Missed Assignments

Assignments must be submitted by their specified due date. Except in the case of an emergency, late assignments will be marked down 5% per day. Appropriate documentation is required in all emergency situations. Extensions will only be considered in rare circumstances.

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. If you cannot submit a VOI due to limits on terms of use, 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 (including

dates, academic impact, practitioner's signature, phone and registration number). 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.

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 or to an advisor in your College Registrar's office; they can help you to decide if you want to request an extension or other forms of academic consideration. They may be able to email your instructors directly to provide a College Registrar's letter of support and connect you with other helpful resources on campus.

Quercus Info (if using)

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. New information and resources will be posted regularly as we move through the term. To access the course website, go to the U of T Quercus log-in page at <https://q.utoronto.ca>. 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 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.

Attendance

This class is delivered in person. Please attend all of the lectures. Lectures are an important time to ask questions and contribute to discussions. Assessments will include materials from both the textbook and the lectures.

Assignment Submission Method

Please submit the Paper Discussions and the Thought Paper on Quercus by the due date.

Cell Phones and Laptop Usage

Technology can support student learning, but it can also become a distraction. Research indicates that multi-tasking during class time can have a negative impact on learning. Out of respect for your fellow students in this class, please refrain from using laptops or mobile phones for purposes unrelated to the class. Do not display any material on a laptop which may be distracting or offensive to your fellow students.

Re-marking Policy - Timeline and Protocol

All requests for a re-grade must be submitted **in writing** within 2 weeks of the first day the test or assignment is available for student viewing. Only requests that include adequate written

justification of an error in the original grading will be considered. A legitimate request will result in the entire test or assignment being re-graded. Your overall grade may be raised, lowered, or it may 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 considered. Arbitrary requests for grade increases will not be entertained.

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. 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 your College Registrar or through Student Life (<http://studentlife.utoronto.ca> and <http://www.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.

Course Materials, including lecture notes

Course materials are provided for the exclusive use of enrolled students. These materials should not be reposted, shared, put in the public domain, or otherwise distributed without the explicit permission of the instructor. These materials belong to your instructor, the University, and/or other sources depending on the specific facts of each situation and are protected by copyright. Students violating these policies will be subject to disciplinary actions under the Code of Student Conduct.

Recording Lectures (by Student)

You may record lectures, but please note that lectures are the intellectual property of the instructor. Course materials belong to your instructor, the University, and/or other sources depending on the specific facts of each situation. These materials are protected by copyright. Do not download, copy, or share any course or student materials or videos without the explicit instructor permission.

Harassment/Discrimination

The University of Toronto is a diverse community and 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 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.

Quercus Info

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. New information and resources will be posted regularly as we move through the term. To access the course website, go to the U of T Quercus log-in page at <https://q.utoronto.ca>. 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 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.

Missed Tests

Students should make every effort to attend tests. There will be no make-up tests. If a student is unable to attend class on the test day and has a legitimate excuse, the student's marking scheme will be reweighted according to the instructor's discretion. This will be based on the student's performance and the class averages for the remaining elements. Legitimate excuses include a documented family emergency or a documented severe illness making it impossible to take the test. Please contact me as soon as you are aware of the conflict and (ideally) before the day of the test to determine the best course of action. I must receive any documentation within one calendar week of the test. An unexcused missed test will receive a mark of zero.

Additional Content

Thought Paper:

The goal of the thought paper is to strengthen your skills in summarizing and evaluating empirical research. The paper will be based on the topic of autobiographical memory (see Lecture 5). The thought paper will include two components, a summary of a recent empirical article and a commentary or critique of the article. Your primary article should be a recent empirical article (i.e., not a review paper, chapter, or book) that was published in the last three years. The primary article must be from a journal that is indexed on PubMed. You should also cite a minimum of four additional articles to back up any claims you make in the commentary section.

The thought papers should include:

1. A **summary** of the primary article and how it relates to assigned topic. This should include a brief description of the article. In this section, you should focus on its rationale, goals, methods, results, and conclusions. Less than a page is recommended.
2. A **commentary or critique** of the article that expresses your critique of the paper. This section may involve: (i) relating the findings to other research articles (e.g., the results of the study were supported by another study or not), (ii) describing any features of the

study that were particularly unique or interesting and why, (iii) describing how the results may relate to different theories of memory we discussed in class, (iv) describing any limitations of the study, or (v) describing how the results may be applicable to a real-life situation. We also expect you to propose a **specific direction for future research**. Please go beyond simple future directions (e.g., run this experiment in a different population) without a clear rationale for why this would be theoretically interesting. I encourage you to think deeply about a possible future direction from the perspective of a memory scientist. Given the research that has already been conducted, what would be an exciting new study to run to help fill a theoretical gap?

The thought paper will be evaluated based on the appropriateness of your chosen articles, the logical organization of your ideas, the quality of your intellectual contribution, and the creativity and originality of the paper. Prior to the thought paper deadline, there will be a lecture which includes a discussion of effective scientific writing.

Formatting: Your paper should be approximately 1500 words (~6-8 pages; 8 pages max). Please use 12-point font, double spacing, and 1inch margins. Include a minimum of 5 references. All references should be listed using APA style (7th edition). Please name your file using the following convention: **PSY372_2024W_<lastname>_paper.pdf**, where <lastname> should be replaced with your last name.

Submission of thought papers: Material must be uploaded as a pdf (named as specified above) to Quercus by the due date. This will include review by the University's plagiarism detection tool for a review of textual similarity and detection of possible plagiarism. In doing submitting their work, students will allow their work 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 website (<https://uoft.me/pdt-faq>).

Lecture Slides: Lecture slides will be posted to Quercus in advance of the lecture (at the latest, the evening before).

Writing: As a student here at the University of Toronto, you are expected to write well. 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 <http://writing.utoronto.ca/>.