

PSY371H1S Higher Cognitive Processes

Thursdays 10 am – 1pm in SS1085

Course Delivery

This is an in-person course. Students are expected to attend lectures in-person whenever possible. Every attempt will be made to provide complete recordings of all lectures, however, recordings may not be available if there are technical difficulties with the recordings. You must attend in person to get the participation credit. Class discussions will not be recorded.

If external circumstances change (e.g. public health guidelines, instructor illness/quarantine, etc.), the course may need to move online for one or more lectures.

Contact Information

Course Instructor:

Dr. Christine Burton

email: christine.burton@utoronto.ca

Teaching Assistant:

Mishel Alexandrovsky: mishel.alexandrovsky@mail.utoronto.ca

Office hours : Sign-up for office hours required at
<https://calendly.com/christine-burton/office-hour-1>

Mishel will be available for consultations by appointment

All office hours will be individual 15-minute appointments during the following times :

Tuesdays 11 am – 12 pm online only

Thursdays 2 – 3 pm online or in person (SS4001)

Friday 9:30-10:30 am online only

Course Description

This course covers selected topics pertaining to higher cognitive processes including expertise, consciousness, creativity, and human and artificial intelligence.

My goal for this course is to familiarize you with the leading theories in human and artificial intelligence research, help you engage in critical thinking to evaluate research findings and make connections between research and real world experience. To achieve this, you will need to come to class prepared (e.g. do the assigned readings before class) and ready to apply the information in your readings to class material. Myself and your classmates are useful resources to help guide and challenge your thinking.

Prerequisites:

PSY201H1/ECO220Y1/EEB225H1/GGR270H1/POL222H1/SOC202H1/STA220H1/STA238H1/STA248H1/STA288H1/PSY201H5/STA215H5/STA220H5/PSYB07H3/STAB22H3/STAB23H3/STAB57H3, and
PSY270H1/PSY270H5/PSYB57H3/PSY370H1/COG250Y1

Learning Objectives

By the end of this course, you should be able to:

- Describe the major terms, concepts and theories in the literature
- Use psychological concepts from this course to explain human and computer intelligence and higher-order thinking
- Critically evaluate published research findings
- Apply what you have learned from assigned readings to critique and analyse real-world problems
- Describe your critiques and evaluations of research orally
- Clearly communicate your evaluation of the literature in writing

Reading Material

Required: There are 4 free sources required in this course:

1. We will be using a free online customized textbook from the NOBA project. You can access our textbook using our textbook link here: <http://noba.to/ehvqgsn8>
2. For our discussion of AI we will be using material from Elements of AI. This is a free online course designed to teach introductory AI to a lay audience. The material is free but you will need to sign up for an account to access the material here: <https://course.elementsofai.com/>
3. Additional required readings will be posted on Quercus.
4. Part of the written component will use ChatGPT. You will need to create a free account to use it. You can access it here: <https://chat.openai.com>.

Recommended: Additional recommended readings will be posted on Quercus. You will be able to pass the course by doing the required readings only, however, it is unlikely you will get an A in the course unless you also do the recommended readings.

Course Evaluation

The evaluation for this course consists of a written component, a test component, and a participation component.

	Assignment	Assignment due date	Percentage of final grade
Participation component	Pre-class reflections	Ongoing	4%
	In-class participation	Ongoing	10%
Test component	Term test (2 hours)	February 13 10:10 am – 12:10 pm	26%
	Exam (2 hours)	TBA: April 9 – 30 2 hours	26%
Written component	Reflection papers	Multiple due dates (see Quercus) Submissions deadlines are 11:59 pm	3 x 8% each = 24%
	Final ChatGPT critique paper	April 3 Submission deadline is 11:59 pm	10%

Assessment Details

Tests and exam (worth 52% of final course grade)

The test and exam will be designed to measure your knowledge and understanding of all reading material, lectures, and class discussion content. Because the focus of this course is on understanding, critical analysis and evaluation, there will not be any multiple-choice questions on the test or exam. The test and the exam will consist of a short answer section designed to measure your knowledge of major theories and ideas in aging research. The majority of this content will come from the assigned readings and lectures. A long answer section is intended to measure your ability to critically evaluate those theories and ideas. You will have ample time to develop and practice this skill during class discussions each week. The term test and the final exam are not cumulative.

Pre-class reflections (worth 4% of final course grade)

Each week we will discuss controversial theories in the literature. In order to facilitate this discussion, we will put a theory “on trial”. Before class each week, I will post a “debate statement” on Quercus related to that week’s lecture topic. Each week you will be assigned to either a “support” group or “against” group. You should submit a short response (via Quercus) that either supports or refutes the statement based on your assigned group. Your response should match your assigned group, regardless of your own opinions on the matter. This **pre-class reflection** should be no more than 1 paragraph long. You should submit one pre-class reflection paragraph for 8 classes this semester, which will be scored based on participation (8 weeks X 0.5% each =) 4%

In-class participation (worth 10% of final course grade)

During class we will devote some time to discussing the debate statement in small groups. You will have the opportunity to discuss with students who are making a similar argument as you and those who are taking the opposite side. After a small group discussion, we will discuss the issues as a class. Your participation score will be based on your weekly participation in the small-group discussions and the larger in-class discussions.

During our discussions, we will have many opportunities to explore challenging issues and increase our understandings of different perspectives. A positive learning environment relies upon creating an atmosphere where diverse perspectives can be expressed. Each student is encouraged to take an active part in class discussions and activities. Honest and respectful dialogue is expected. Disagreement and challenging of ideas in a supportive and sensitive manner is encouraged. Hostility and disrespectful behaviour is not acceptable. In the time we share together over this term, please honour the uniqueness of your fellow classmates and appreciate the opportunity we have to learn from each other. Please respect each others' opinions and refrain from personal attacks or demeaning comments of any kind. Just as we expect others to listen attentively to our own views, we must reciprocate and listen to others when they speak, most especially when we disagree with them. In this class, our emphasis will be on engaging in the mutual exploration of issues as presented in the course readings as scholars, rather than in defending points of view we have formed outside the classroom.

Reflection papers (worth 24% of final course grade)

After class you can use the information from the discussion (and information from the suggested readings) to submit a reflection paper about the debate statement. In this paper you will make an argument to either support or refute the debate statement. You may argue from any perspective (you are not limited to your assigned group).

The written component of this assignment will be supported by ChatGPT. Rather than writing your papers from scratch, you will submit a prompt to ChatGPT to do it for you. You can then use this as a first draft to critique and improve on

what was produced by AI. You will then submit your final copy to Quercus highlighting your own changes and contributions. If you do not want to use ChatGPT, please contact your instructor about an alternative assignment.

You are expected to complete 3 reflection papers this term. Each reflection paper is worth 8% for a total of 24% of the final grade.

Final ChatGPT critique paper (worth 10% of final course grade)

At the end of the semester, students will be expected to submit a paper evaluating ChatGPT. You should consider in which ways ChatGPT was beneficial and in which ways it was lacking. This paper should also consider the future uses of ChatGPT and similar technology, including any potential ethical concerns. **This paper should be written entirely by students without the use of ChatGPT.**

Detailed instructions for all assignments will be available on Quercus.

Course Outline

Date	Topic	Textbook readings*
January 9	Introduction and review of psychology as a science	NOBA: Introduction to Scientific Thinking
January 16	Intelligence	NOBA: Intelligence
January 23	Nature-nurture debate	
January 30	Working memory	NOBA: Learning and memory
February 6	Learning and expertise	
February 13	Midterm test	
February 20	Reading Week : NO CLASS	
February 27	Embodied cognition	
March 6	Consciousness and attention	NOBA: Higher Cognitive Abilities
March 13	Creativity	
March 20	Decision making	
March 27	Important issues in artificial intelligence	Elements of AI: Chapters 1 and 6
April 3	Developments in artificial intelligence	

*The textbook readings cover basic introductory material. Additional required readings are posted on Quercus.

IMPORTANT COURSE POLICIES **PLEASE READ**

Course Webpage

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.

Email

The main source of communication for the course will be email. Please include the course code (PSY313) in the subject line in all your emails about the course. **Please avoid sending me messages directly from Quercus/Canvas because I do not monitor it regularly.** These messages always end up in my “other” folder so I may not get to them quickly. I will respond to emails as soon as I can in the order I receive them. Please note that I don’t regularly respond to emails during evenings and on weekends.

Requests for Re-grading

All requests to re-grade tests or assignments must be made within 2 weeks of receiving your grade. **Please direct all requests for re-grading directly to the person who marked your work.** If you are dissatisfied after meeting with the TA you may submit your work to the instructor. Keep in mind that if you submit your work to be re-graded, your grade could go up or down. This policy applies to work submitted to the instructor or the TAs.

Missed Test Special Consideration Request Process

If you miss a test for reasons beyond your control (illness or accident), please contact me with documentation in support of your specific circumstances within one week of the missed test. 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 <https://www.registrar.utoronto.ca/policies-and-guidelines/verification-of-illness-or-injury/>. 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.

If your request is approved, you will have ONE opportunity to write a make-up test. If you miss the make-up test and can provide supporting documentation for your absence, the weight of the missed test will be added to your final exam.

Accommodations 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. Extensions for term work can be arranged on a case-by-case basis. 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.

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.

Penalties for Lateness

The penalty for lateness is 5% of the total per calendar day.

Students who seek to be granted more time to complete their term work beyond the due date without penalty, owing to circumstances beyond their control (e.g., illness, or an accident), must do so by submitting a request directly to the instructor for the period up to and including the last day of the final assessment period. All requests for extensions must include supporting documentation, which can include an ACORN absence declaration, a VOI form, or an email from a U of T student support office (e.g. College registrar, Accessibility Services, etc).

*Any term work that will be handed in **after** the final assessment period is subject to a petition for extension of term work. This petition should be filed with the student's College Registrar's Office.*

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>).

Students who wish to opt-out of using the University's plagiarism detection tool for the case study assignment must notify the instructor (via Quercus inbox message/email) no later than 5PM on September 20. Upon receipt of notification, the instructor will request that the student provide all rough work (including, but not limited to, call numbers and/or URLs for all cited sources) when submitting their case study assignment.

Academic Integrity and Plagiarism

Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously.

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).

Use of Generative AI

In this course, you may use generative artificial intelligence (AI) tools, including ChatGPT, Microsoft Copilot, and GitHub Copilot, as learning aids and to help complete assignments. You will not be permitted to use generative AI on the midterm test or final exam. While some generative AI tools are currently available for free in Canada, please be warned

that these tools have not been vetted by the University of Toronto and might not meet University guidelines or requirements for privacy, intellectual property, security, accessibility, and records retention. Generative AI may produce content which is incorrect or misleading, or inconsistent with the expectations of this course. These tools may even provide citations to sources that don't exist—and submitting work with false citations is an academic offense. These tools may be subject to service interruptions, software modifications, and pricing changes during the semester.

Generative AI is required to complete any aspect of this course. Students are encouraged to make use of technology, including generative artificial intelligence tools, to contribute to their understanding of course materials. Students may use artificial intelligence tools, including generative AI, in this course as learning aids or to help produce assignments. However, students are ultimately accountable for the work they submit. Students must submit, as an appendix with their assignments, any content produced by an artificial intelligence tool and the prompt used to generate the content. Any content produced by an artificial intelligence tool must be cited appropriately. Many organizations that publish standard citation formats are now providing information on citing generative AI (e.g., APA: <https://apastyle.apa.org/blog/how-to-cite-chatgpt>). Students may choose to use generative artificial intelligence tools as they work through the assignments in this course; this use must be documented in an appendix for each assignment. 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.

Course instructors reserve the right to ask students to explain their process for creating their assignments.

Privacy and Copyright Disclaimer

Notice of video recording and sharing (Download permissible; re-use prohibited)

This course, including your participation, will be recorded on video and will be available to students in the course for viewing remotely and after each session.

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. In this course, you are permitted to download session videos and materials for your own academic use, but you should not copy, share, or use them for any other purpose without the explicit permission of the instructor.

For questions about the recording and use of videos in which you appear, please contact your instructor.

Academic Resources

Departmental Guidance for Undergraduate Students in Psychology

The Department of Psychology recognizes that, as a student, you may experience disruptions to your learning that are out of your control, and that there may be circumstances when you need extra support. Accordingly, the department has provided a [helpful guide](https://www.psych.utoronto.ca/current-program-students/guidance-undergraduate-students-psychology) at <https://www.psych.utoronto.ca/current-program-students/guidance-undergraduate-students-psychology> to clarify your and your instructor's responsibilities when navigating these situations. This guide consolidates Arts & Science Policies for undergraduate students in one place for your convenience. As an instructor in the department, I will frequently consult with these recommendations when providing you with support, and I recommend that you also consult it to learn more about your rights and responsibilities before reaching out to me.

Accessibility Needs

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.

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 achieve this. For more information on campus writing centres and writing courses, please visit <http://www.writing.utoronto.ca/>.

English Language Learning

English Language Learning (ELL) supports all U of T undergraduates enrolled in the Faculty of Arts & Science whose first language is not English (multilingual students), as well as native speakers seeking to improve their English language skills. Our mini-courses and other activities are designed and taught by U of T professors, and they are free. For more information, please visit <https://www.artsci.utoronto.ca/current/academic-advising-and-support/english-language-learning>

Academic Success

The Centre for Learning Strategy support helps you identify and achieve your learning goals. You have a lot more going on in your life than just academic responsibilities, and they can help tailor your learning supports to fit you. You will find a number of courses, workshops, and one-on-one appointments to help improve many different skills related to academic achievement. <https://studentlife.utoronto.ca/departments/academic-success/>