

# PSY371H1F Higher Cognitive Processes

Tuesdays and Thursdays 10 am – 1pm in SS1086

## Course Delivery

This is an in-person course. Students are expected to attend lectures in-person whenever possible. Lectures will be recorded for later viewing, but you must attend in person to get the participation credits. 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. 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](mailto:christine.burton@utoronto.ca)

### Teaching Assistant:

**Maxime Perron:** [maxime.perron@mail.utoronto.ca](mailto:maxime.perron@mail.utoronto.ca)

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

Maxime will be available for consultations by appointment

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

Tuesdays 2:30 – 3:30 pm online only

Wednesdays 1:30 – 2:30 pm in-person or online

## 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.

Written component			Test component			Participation component		
Reflection papers	Multiple due dates	3 x 8% each = 24%	Term test (2 hours)	May 30	26%	Pre-class reflections	Ongoing	4%
Final ChatGPT critique paper	June 15	10%	Exam (2 hours)	TBA	26%	In-class participation	Ongoing	10%

## Participation component

**Pre-class reflections:** 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 **before class reflection** should be no more than 1 paragraph long. You should submit one pre-class reflection paragraph each week, which will be scored based on participation (8 weeks X 0.5% each =) 4%

**In-class participation:** 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.

### Written component

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:** 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.

### Test component

**Term tests:** 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.

### 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) before completing the first reflection paper and no later than 5PM on May 15 . 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.

## Course Webpage

The website associated with this course is accessible via <http://q.utoronto.ca>

**Note:** You don't need to create a new login for Canvas; it already knows who you are. You just need your UTORid and password. This is the same login that gets you onto the wireless network with your laptop, and the same one that you use to check your email. If you're confused about your UTORid or don't remember your password, go to: <https://www.utorid.utoronto.ca/>

## IMPORTANT COURSE POLICIES \*\*PLEASE READ\*\*

### Email

The main source of communication in the course will be email. **Please include the course number (PSY371) in the subject line in all your emails about the course. Avoid sending me messages directly from Quercus/Canvas.** These messages always end up in my "other" folder so I may not get to them quickly.

### Requests for Re-grading

Any requests to re-grade tests or experiment reports should be made in a timely fashion. Requests to re-grade term tests and papers must be made within 2 weeks of the return of the graded work. **Please direct all requests for re-grading directly to the TA 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

Students who are absent from academic participation for any reason (e.g., COVID, cold, flu and other illness or injury, family situation) and who require consideration for missed academic work should report their absence through the online absence declaration. The declaration is available on ACORN under the Profile and Settings menu. Students should also advise their instructor of their absence as soon as possible, and within 1 week of a missed test.

If an absence extends beyond 7 consecutive days, or if you have a non-medical personal situation preventing you from completing your academic work, you should connect with your College Registrar. They can provide advice and assistance reaching out to instructors on your behalf. 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 you missed your test/assignment deadline for a reason connected to your registered disability, please be advised that the department will accept documentation supplied by Accessibility Services.

**If your request is approved, you will have the opportunity to write a make-up test. There will be one make-up test scheduled for the course. If you miss the make-up test, you should report your absence through ACORN and the weight of the missed test will be redistributed to the final exam.**

Students who miss final examinations should file a petition for a deferred exam with their College Registrar's Office.

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.

### Supporting Documentation

The University is temporarily suspending the need for a doctor's note or medical certificate for any absence from academic participation. However, you are required to use the Absence Declaration tool on ACORN found in the Profile and Settings menu to formally declare an absence from academic participation. The tool is to be used if you require consideration for missed academic work based on the procedures specific to our campus/department.

For extensions of time beyond the examination period you must submit a petition through your College Registrar's office

## Penalties for Lateness

The penalty for lateness is 5% 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 exam period.

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

## Academic Resources

### Accessibility Needs

Students with diverse learning styles and needs are welcome in this course. If you have an ongoing disability issue or accommodation need, you should register with Accessibility Services (AS) ([accessibility.utoronto.ca](http://accessibility.utoronto.ca)) at the beginning of the academic year. 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 then assess your medical 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 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/>.

### Privacy and Copyright Disclaimer

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

Course videos and materials belong to your instructor, the University, and/or other source 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.

Lectures and course materials prepared by the instructor are considered by the University to be an instructor's intellectual property covered by the Copyright Act, RSC 1985, c C-42. Course materials such as PowerPoint slides and lecture recordings are made available to you for your own study purposes. These materials cannot be shared outside of the class or "published" in any way. Posting recordings or slides to other websites without the express permission of the instructor will constitute copyright infringement.

### Academic Integrity and Plagiarism

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, collaborating with fellow students, and writing tests and exams. Ensure that the work you submit for grading 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. 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 <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 <https://www.artsci.utoronto.ca/current/academicadvising-and-support/student-academicintegrity> and <http://academicintegrity.utoronto.ca>

...course outline continued on next page...

## Course Outline

Date	Topic	Textbook readings*
May 9	Introduction and review of psychology as a science	NOBA: Psychology as Science
May 11	Intelligence	NOBA: Intelligence
May 16	Nature-nurture debate	
May 18	Working memory	NOBA: Learning and memory
May 23	Learning and expertise	
May 25	<b>Term Test:</b> material from May 9 (Intro) to May 23 (Learnin	
May 30	Embodied cognition	
June 1	Language	NOBA: Higher Cognitive Abilities
June 6	Creativity	
June 8	Consciousness	
June 13	Important issues in artificial intelligence	Elements of AI: Chapters 1 and 6
June 15	Developments in artificial intelligence	
TBA	<b>Final exam:</b> material from May 25 (Embodied cognition) to June 15 (Artificial intelligence)	

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