

PSY493H1F – Cognitive Neuroscience

Fall 2024 | Tuesday 6 – 9 PM | Woodsworth College Residence, Room 35

Course website: <https://q.utoronto.ca/courses/357594>

Contact Information

Instructor: Yongzhen Xie (she/her) PhD candidate in cognitive neuroscience Department of Psychology, University of Toronto	yongzhen.xie@mail.utoronto.ca Office hours: Thursday 1 – 2 PM, Sidney Smith 4001
Teaching Assistant: Catalina Yang (she/her) PhD candidate in cognitive neuroscience Department of Psychology, University of Toronto	catalina.yang@mail.utoronto.ca

Course Description

This is a survey course in cognitive neuroscience. The course focuses on the neural substrates of mental processes including perception, attention, memory, language, cognitive control, emotion, and social cognition. By the end of the course, students will have a basic understanding of the neural processes that support human cognition, research methodology, as well as ongoing debates within the field.

Key Objectives:

1. Understanding and evaluating theories, concepts, and research on the neural bases of cognition from historical and current perspectives
2. Developing critical reading skills by interpreting, analyzing, and reflecting on research papers in the cognitive neuroscience field
3. Applying your knowledge to formulate novel research that can advance the understanding of cognitive neuroscience

Course Prerequisites

Prerequisites: PSY201H1/ ECO220Y1/ EEB225H1/ GGR270H1/ IRW220H1/ POL222H1/ SOC202H1/ STA220H1/ STA238H1/ STA248H1/ STA288H1/ ECO220Y5/ PSY201H5/ STA215H5/ STA220H5/ PSYB07H3/ STAB22H3/ STAB23H3/ STAB57H3, **and one of** PSY260H1/ PSYB38H3 **or** PSY270H1/ PSY270H5/ PSYB57H3/ COG250Y1 **or** PSY290H1/ PSY290H5/ PSYB64H3/ HMB200H1/ PSL300H1

Exclusion: PSY393H5/ PSYB55H3/ PSYC31H3

It is your responsibility to ensure that you have met all prerequisites listed in the Psychology section of the A&S Calendar for this course.

Reading Materials / Textbook

Research Articles (required): Primary research articles will be assigned weekly (see Course Schedule section). All articles will be made available on Quercus.

Textbook (suggested, not required): Banich, M. T., & Compton, R. J. (2023). *Cognitive Neuroscience* (5th ed.): Cambridge University Press.

Course Evaluation

Term Tests (50%)

There will be two term tests (each weighs **25%**). The tests will be closed book and non-cumulative. Test material will come primarily from lectures but will also include materials from the assigned readings. You are responsible for attending lectures and reading the assigned materials, as lectures will not cover all material contained in the readings (and vice versa). The tests will be in person and during our normal class time and place.

Research Proposal (34%)

You will propose an original study (8-10 pages, double-spaced) that addresses a specific issue in the field of cognitive neuroscience. *This issue should be based on one of the assigned research articles.* Detailed instructions on the proposal will be provided on Quercus. This assignment will be completed through four steps:

1. **Group Discussion (2%):** A proposal discussion session will be held in the class and give you the opportunity to share proposal ideas with your classmates in groups. The group discussion will help ensure that everyone starts their proposal on the right track. You will fill a survey after the discussion, which will be graded on completion.
2. **Full Draft (2%):** You will submit a draft of your proposal that covers all the components of this writing assignment. Your draft should be complete, demonstrating that you have put effort thinking about the research question, relevant literature, and methods. You will receive feedback on your draft from both the teaching team and your peers. ***The draft must be turned in by its deadline to participate in peer review.***
3. **Peer review (6%):** After draft submission, you will be assigned to review two drafts from your peers. You will focus on providing constructive feedback on your peers' proposals. A guideline on how to perform peer review will be provided on Quercus.
4. **Final Paper (24%):** You will submit your research proposal after refining it based on the feedback from the teaching team and your peers. ***Both the full draft and peer reviews must be completed to receive a mark for the final paper.***

Short Reflections (15%)

Throughout the term, you will write three reflections (each weigh **5%**) on the assigned primary research articles of your choice. The article choices provided for each reflection can be found in the Course Outline. Each reflection will be no more than 350 words, including a summary of a chosen article and a discussion on the study's strengths and weaknesses. A guideline on the reflections will be provided on Quercus. The reflections will help you develop critical reading and thinking skills and may provide ideas for your proposal.

Check-in Survey (1%)

You will complete a check-in survey during the term. The survey will allow you to communicate your feelings about the course, so I know if anything needs to be adjusted on the way. The survey will be graded on completion.

Communication

Most general questions related to course content, policies, or assessments should first be posted to the **Quercus Discussion Board**. You are encouraged to both ask and respond to questions on the weekly Discussion Board. The TA and I will be monitoring the board as well. More conceptual questions would be best saved for office hours.

I will hold weekly office hours (Thursday 1 – 2 PM at SS 4001). During office hours, we can talk about course materials, ideas for assignments, or questions about research/careers. If you have a schedule conflict with the office hours, please email me to request an appointment.

For any issues regarding verification of illness, accessibility concerns, or other concerns specific to the course structure, please email me directly. For questions about your grades, please first contact the TA via email. Please use your official utoronto email address and **include the course number (PSY493) in the subject heading** when sending an email. We will try our best to respond to all emails within 2 business days, but our responses may be delayed during especially busy times. Please make sure that the answer to your questions is not found in this syllabus or in the online resources before emailing.

Course Webpage/ Quercus

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>. Once you have logged in to Quercus using your UTORid and password, you should see the link or "card" for PSY493. You may need to scroll through other cards to find this. Click on the PSY493H1 F LEC5101 link to open our course area, view the latest announcements and access your course resources. There are Quercus help guides for students that you can access by clicking on the "?" icon in the left side column.

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.

You are responsible for announcements posted to Quercus, so please check this page regularly for updates.

Course Outline

***Week 1 lecture will be delivered asynchronously.** Lecture recordings will be made available on Quercus. The rest of lectures will be in person (Tuesday 6 – 9 PM at WO 35).

***Please note that for each of the three reflections (Reflections 1, 2, and 3), you only need to choose one of the two article options.** For example, if you wrote Reflection 1 on Jain et al. (2023), you do not need to write a reflection on Ariani et al. (2022).

Week	Date	Topic	Readings (*Required)	Due
1*	Sept 3	<ul style="list-style-type: none"> ○ Introduction ○ Neurophysiology 	Chapter 1	
2	Sept 10	<ul style="list-style-type: none"> ○ Neuroanatomy ○ Methods 	Chapter 3	
3	Sept 17	<ul style="list-style-type: none"> ○ Vision ○ Visual Processing 	Chapter 5 *Jain et al. (2023)	Reflection 1 on Jain et al. (2023) – Sept 17 @ 5:00 pm
4	Sept 24	<ul style="list-style-type: none"> ○ Hearing ○ Motor Control 	Chapter 4 *Ariani et al. (2022)	Reflection 1 on Ariani et al. (2022) – Sept 24 @ 5:00 pm
5	Oct 1	○ Term Test 1		
6	Oct 8	<ul style="list-style-type: none"> ○ Attention 	Chapter 10 *Gayet & Peelen (2022)	Reflection 2 on Gayet & Peelen (2022) – Oct 8 @ 5:00 pm Check-in Survey – Oct 11 @ 11:59 pm
7	Oct 15	<ul style="list-style-type: none"> ○ Memory ○ Proposal Discussion 	*Audrain et al. (2022)	Reflection 2 on Audrain et al. (2022) – Oct 15 @ 5:00 pm Group Discussion Survey – Oct 18 @ 11:59 pm
8	Oct 22	<ul style="list-style-type: none"> ○ Language 	Chapter 8 *Acunzo et al. (2022)	Reflection 3 on Acunzo et al. (2022) – Oct 22 @ 5:00 pm Proposal Draft – Oct 25 @ 11:59 pm
	Oct 29	○ Reading Week		
9	Nov 5	<ul style="list-style-type: none"> ○ Executive Function ○ Cognitive Control 	Chapter 11 *Crespo-García et al. (2022)	Reflection 3 on Crespo-García et al. (2022) – Nov 5 @ 5:45 pm Peer Review – Nov 8 @ 11:59 pm
10	Nov 12	<ul style="list-style-type: none"> ○ Emotion ○ Social Cognition 	Chapters 12 & 13	
11	Nov 19	<ul style="list-style-type: none"> ○ Brain Development and Plasticity ○ Neural Network Models 		Final Proposal – Nov 22 @ 11:59 pm
12	Nov 26	○ Term Test 2		

Course Policies

Use of Generative AI

The use of generative Artificial Intelligence (AI) tools to compose writing assignments (i.e., short reflections, proposal draft and final paper) is strictly prohibited in this course. These tools include, but are not limited to, ChatGPT, GitHub Copilot, and open-source models that you have trained and/or deployed yourself. You may not interact with, copy, paraphrase, or adapt any content from any generative AI for the purpose of completing assignments in this course. Use of generative AI will be considered use of an unauthorized aid, which is a form of academic misconduct under the Code of Behavior on Academic Matters. This course policy is designed to promote your learning and intellectual development and to ensure that our evaluations are a fair and accurate assessment of your learning.

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 (<https://www.studentlife.utoronto.ca/as>) as soon as possible.

Missed Tests

Missed or unexcused tests will be treated as zeros unless valid documentation is provided. Should term test 1 or term test 2 be missed with valid documentation as described in the Specific Medical Circumstances, a make-up test will be arranged. You have a max of one week from the date of missing the test to contact the course instructor and to submit documentation.

Late Assignments

Assignments will be penalized 10% for each day after the deadline, to a maximum of 4 days (40%) after which papers will no longer be accepted. Extensions will only be granted in exceptional circumstances (i.e. illness or family emergency) with valid documentation as described above. If you require an extension, email the course instructor as soon as possible when an exceptional circumstance has arisen. There will be a one-time, 15-minute leeway period on assignment submission. To use this one-time leeway, email the course instructor once your assignment has been submitted.

Assignment and Test Reviews

Students are welcome to review their assignments with the course TA. Please note that if you are not satisfied with the way your assignment/midterm exams were graded, you should first contact the course TA to discuss your concern. You can request a re-grade with specified justification but note that this will require an entire re-grade of the assignment/test and not only the parts where you think you were marked unfairly. As such, your grade could increase, decrease, or remain the same. If you want to request a regrade then you must contact the TA or myself no more than two weeks upon receiving that graded assessment.

Video Recording and Sharing

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. Do not download, copy, or share any course or student materials or videos without the explicit permission of the instructor. For questions about the recording and use of videos in which you appear, please contact your instructor.

Classroom Etiquette

Please treat each other in a respectful manner at all times. All students are expected to uphold the code of student conduct (<https://governingcouncil.utoronto.ca/secretariat/policies/code%20student-conduct-december-13-2019>). While you are in class you are expected to be mentally present: PLEASE turn off all non-instructional electronic devices and online distractions. Everyone is entitled to a positive learning environment and your non-learning activities are likely distracting both you and those around you. You are expected to attend classes and take responsibility for learning the material.

Mental Health and Well-being

As a student, you may experience challenges that can interfere with 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 (<https://www.artsci.utoronto.ca/current/academic-advising-and-support/college-registrars-offices>) or through Student Life (<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. You can call the mental health clinic at 416-978-8030 ext. 5 to book an appointment or visit <https://uoft.me/mentalhealthcare> to learn about the services available to you.

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.

Academic Resources

Access and 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.

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/>.

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. 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>).

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/academic-advising-and-support/student-academic-integrity> and <http://academicintegrity.utoronto.ca>

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>). If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your instructor or from other institutional resources (see <https://www.academicintegrity.utoronto.ca/smart-strategies/>).

Other Resources

Student Life Programs and Services (<http://www.studentlife.utoronto.ca/>)

Academic Success Services (<http://www.asc.utoronto.ca/>)

Counselling and Psychological Services (<http://www.caps.utoronto.ca/main.html>)