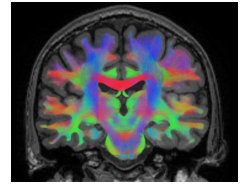


PSYB55: Introduction to Cognitive Neuroscience



University of Toronto, Scarborough, Summer 2021

Instructor: Prof. Adrian Nestor
Email: adrian.nestor@utoronto.ca
TAs/Emails: Eric Chang, ch.chang@mail.utoronto.ca
Tanner McNamara, tanner.mcnamara@mail.utoronto.ca

Office Hours: Please see “Announcements” on Quercus for this information.

Prior to contacting the instructor or the TA please read the **e-mail policy** (p. 3) and note that **we will not respond to Quercus messages!**

I. Your instructor



Dr. Nestor is an Associate Professor of Cognitive Neuroscience. He received his Ph.D. in Cognitive Science from Brown University and completed his postdoctoral training at Carnegie Mellon University. His research and teaching interests revolve around the neuroscience of visual cognition, computational modeling, neuroimaging methodology and neurotechnology.

II. Course description, pre-requisites and learning goals

The field of cognitive neuroscience is dedicated to exploring the biology of mental processes. With respect to content, the goal of this course is to provide you with a rigorous introduction to the field and the major domains in cognitive neuroscience (e.g., memory, language, cognitive control), with careful attention given to core theories, experimental designs, and the range of tools at our disposal. With respect to process, this course will introduce you how to conceptualize and concretize questions in cognitive neuroscience, how to deconstruct and answer short-answer questions, and how to approach a primary research article in the field of cognition. Taken together, this course is designed to provide you with the knowledge and fundamental skills necessary to further advance your understanding of the biological basis of cognition.

Prerequisites: PSYA01 and PSYA02

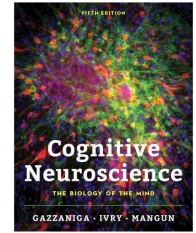
After successful completion of this course, you will have demonstrated an ability to:

1. Describe the complementary roles of cognitive psychology and neuroscience in promoting a more holistic understanding of how the mind works;
2. Describe the basic workings and utility of a range of neurocognitive tools and research designs, and apply the most appropriate tool(s)/design given the particular inquiry of interest;
3. Describe core theories in different domains in cognitive neuroscience, and evaluate evidence used to test these theories;
4. Analyze short-answer questions and create thoughtful, cogent written responses;
5. Describe the major elements of an empirical article and an approach for effectively consuming each, and apply this understanding to articles in cognitive neuroscience;
6. Integrate your learning in this course to better understand and articulate the integrative and hierarchical nature of cognitive processes (i.e., the role of attention's in creating new memories).

III. Course textbook

Gazzaniga, M., Ivry, R.B. & Mangun, G.R. (2018). Cognitive Neuroscience: The Biology of the Mind (5th edition). New York, NY: W.W. Norton & Co. (ISBN-13: 978-0-393-60317-0)

You should NOT use other editions of this book, as I have not compared this edition to other editions.



IV. Course webpage

Quercus will house important course-related announcements, materials, and exam marks. I expect that you will check it a few times per week to ensure that you don't miss any important updates.

V. Course requirements and grading

Midterm Examination I (27% of course grade)

Midterm Examination I will cover lecture and textbook materials from lectures 1-4 (see course schedule on the last page of this syllabus). Term tests dates and times are scheduled by the Office of the Registrar.

Midterm Examination II (33% of course grade)

Midterm Examination II will cover lecture and textbook materials from lectures 5-9 (see course schedule on the last page of this syllabus). Term tests dates and times are scheduled by the Office of the Registrar.

Final Examination (40% of course grade)

The Final Examination will cover lecture materials from lectures 1-13, textbook readings from the lectures AFTER Midterm 2, and one assigned journal article (to be announced later in the course). Final exam dates and times are scheduled by the Office of the Registrar.

Composition of all of the exams

All exams will be conducted in Quercus. Administrative details will be provided prior to the exams. Furthermore, all exams will consist of both multiple-choice (MC) questions and short-answer (SA) questions.

Each MC question will have five options and these questions may come in various formats, including (but not limited to) questions with diagrams and “all of the above” or “none of the above” options. MC questions will be drawn from both lecture and the textbook.

SA questions will consist of multi-part questions that are broken down to help you structure your thinking. Each question will require a several sentence response. SA questions will be drawn from lecture only. SA questions will be weighted based on relative difficulty, as opposed to how many things you need to say (i.e., we will not employ a system of five points requiring five “things” to say).

On the whole, there will be more of a focus from lecture (~2/3 of the points on the exam) than the textbook readings (~1/3 of the points on the exam). For superior performance, you will need to develop a clear understanding of both the lectures and the readings. Take note that rote memorization of lectures and the textbook will not ensure you a high mark; rather, I expect you to not only learn what things are, but also why they are relevant, and how/why they are used, etc.

To give you an opportunity to prepare for the examinations, practice questions will be made available for you for each course lecture. These sample questions are an invaluable resource for multiple reasons, including (1) acclimating you to my testing style and expectations, and (2) giving you an opportunity to apply what you've learned in a test-like structure. Please keep a look out for these on Quercus and please do connect with Prof. Nestor or your TA to discuss the answers after you've tried to work them out to receive feedback.

While exams will essentially be “open notes and open book,” you are absolutely NOT permitted to work with or obtain any pertinent information from any other person – a student in this course or anyone otherwise – during examinations!

VI. Course policies

Lecture slides

For your convenience, lecture slides and associated materials will be posted at the beginning of each week.

You should know that lecture slides are not a suitable substitute for watching and understanding the lecture. Lecture slides are not exhaustive and we will regularly cover important material that extends beyond them during lecture. You are responsible for this material with respect to testing.

Instructional materials are only for the purpose of learning in this course and must not be distributed or used for any other reason whatsoever.

Reading the textbook

The material covered in the textbook is meant to reinforce and complement what we discuss in lecture. At times, we may overlap more with the textbook than at other times. In the spirit of promoting fair and transparent expectations, we will target your conceptual understanding of the bold face terms and figures. It is reasonable to assume that this is particularly important for such terms and figures that were not covered in lecture.

E-mail policy

The email subject should include the course name and nature of the inquiry (e.g., “PSYB55: Question about the Dual Route theory”). Emails should be sent from your UofT email account. The start of your email should include your full name and student ID number so that we know who you are. An email should contain no more than one question and you should try to explain your current understanding of the concept in the email (which will be affirmed or corrected).

In most cases, e-mails will be answered within 48 hours of receipt (not including weekends).

If you are not used to writing emails in an academic context, I encourage you to review this online resource so that you adopt proper email etiquette now and in the future: <<https://tinyurl.com/kysxwtx>>

Office hours

You should consider visiting Prof. Nestor's office hours if you would like to (1) discuss course content, (2) if you have an issue with course performance or progress or (3) contest a question on a midterm. With respect to Point 3, contesting a question must occur within two weeks of releasing the exam marks or it will not be considered.

Syllabus changes

There may be minor changes to the syllabus during the term. You will be notified of these changes ASAP and no changes will be instituted that dramatically affect your ability to properly prepare for an examination (e.g., reading an extra chapter the week before the midterm).

Taking an examination

All examinations will be held online using Quercus, and the dates/times of these exams will be set by the Office of the Registrar.

Notice of video recording and sharing

This course will be recorded on video and will be available to students in the course for viewing remotely. 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 should not copy, share, or use session videos and materials for any other purpose without the explicit permission of the instructor.**

AccessAbility

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 AccessAbility Services as soon as possible.

AccessAbility Services staff (located in Rm SW302, Science Wing) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations [416-287-7560](tel: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.

Academic Integrity

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. The University of Toronto's Code of Behaviour on Academic Matters

(<http://www.governingcouncil.utoronto.ca/Assets/Governing+Council+Digital+Assets/Policies/PDF/ppjun011995.pdf>) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Potential offences include, but are not limited to:

In papers and assignments:

- 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:

- Receiving aid of any form from another person in the context of an examination
- Using or possessing unauthorized aids;
- Looking at someone else's answers during an exam or test;
- Misrepresenting your identity;
-

In academic work:

- Falsifying institutional documents or grades;
- Falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. If students have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, they are expected to seek out additional information on academic integrity from their instructors or from other institutional resources.

Note that you may see advertisements for services offering grammar help, essay editing and proof-reading. Be very careful. If these services take a draft of your work and significantly change the content and/or language, you may be committing an academic offence (unauthorized assistance) under the *Code of Behaviour on Academic Matters*.

It is much better and safer to take your draft to the Writing Centre as early as you can. They will give you guidance you can trust. Students for whom English is not their first language should go to the English Language Development Centre.

If you decide to use these services in spite of this caution, you must keep a draft of your work and any notes you made before you got help and be prepared to give it to your instructor on request.

VII. Psychology Department Missed Term Work Policy, SUMMER 2021

For missed term work (assignments and term tests) due to illness, emergency, or other mitigating circumstances, please follow the procedures outlined below.

Notes:

- The following reasons are not considered sufficient for missed term work: travel for leisure, weddings, personal commitments, work commitments, human error.
- Missed Final Exams are handled by the Registrar's Office and should be declared on eService: <http://www.utsc.utoronto.ca/registrar/missing-examination>
- Instructors cannot accept term work any later than five business days after the last day of class. Beyond this date, you would need to file a petition with the Registrar's Office: <https://www.utsc.utoronto.ca/registrar/term-work>

Accommodations for Illness or Emergency:

For missed work due to ILLNESS OR EMERGENCY, please complete the following **two-step** process:

1. Complete the **Request for Missed Term Work Accommodations Form** (<http://uoft.me/PSY-MTW>) and email it to Keely Hicks at keely.hicks@utoronto.ca,

and

2. **Declare your absence** on [ACORN](#) (Profile & Settings > Absence Declaration)

Deadline: You must complete the above steps **within 3 business days** of the missed work.

Note: For this semester, we do not require any additional supporting documentation (ex. medical notes) to support your missed term work accommodation request.

Accommodations for Academic Conflicts:

For missed term work due to an ACADEMIC CONFLICT (i.e. two midterms scheduled at the same time), please complete the following process:

1. Complete the **Request for Missed Term Work Accommodations Form** (<http://uoft.me/PSY-MTW>), choosing "Other" as your reason for missed work and explaining the conflict in the space provided.
2. Take screenshots of your course homepages that demonstrate the conflict.
3. Email the form and screenshots to Keely Hicks (keely.hicks@utoronto.ca).

Deadline: You should report the conflict to Keely Hicks (keely.hicks@utoronto.ca) **at least two weeks (10 business days) before the date of the activity**, or as soon as possible if it was not possible to identify the conflict earlier.

Note: Multiple assignments due on the same day are not considered conflicts. Accommodations may only be possible in the case of quizzes and tests that are both scheduled during the same discrete period. Back-to-back tests/quizzes are not considered conflicts.

Note: Students are responsible for keeping their course timetables conflict-free. Students who choose to register in two synchronous courses with overlapping lecture/tutorial/lab schedules may not necessarily be accommodated.

Accommodations for Religious Conflicts:

For missed term work due to a RELIGIOUS CONFLICT, please complete the following process:

1. Complete the **Request for Missed Term Work Accommodations Form** (<http://uoft.me/PSY-MTW>), choosing “Other” as your reason for missed work and noting “Religious conflict” in the space provided.
2. Email the form to Keely Hicks (keely.hicks@utoronto.ca).

Deadline: You should report the conflict to Keely Hicks (keely.hicks@utoronto.ca) **at least two weeks (10 business days) before the date of the activity**, or as soon as possible if it was not possible to identify the conflict earlier.

Accommodations for Time Zone Conflicts:

If you are physically in a different time zone and a quiz or midterm is scheduled outside of 7:00am to midnight in your local time, please complete the following process:

1. Complete the **Time Zone Conflict Form** (<https://uoft.me/PSY-TimeZone>), and
2. Email the form to Keely Hicks (keely.hicks@utoronto.ca)

Deadline: You should report the conflict to Keely Hicks (keely.hicks@utoronto.ca) **at least two weeks (10 business days) before the date of the activity**, or as soon as possible, if it was not possible to identify the conflict earlier.

Accommodations for Students Registered with AccessAbility Services:

For missed **TERM TESTS** due to ACCESSABILITY REASONS:

- **Contact your AccessAbility consultant** and have them email Keely (keely.hicks@utoronto.ca) detailing accommodations required.

For missed **ASSIGNMENTS** due to ACCESSABILITY REASONS:

- If your desired accommodation is **within the scope** of your Accommodation Letter (ex. your letter includes “extensions of up to 7 days” and you need 3 days):
 1. Complete the **Request for Missed Term Work Accommodations Form** (<http://uoft.me/PSY-MTW>).
 2. Email the form and your **Accommodation Letter** to Keely Hicks (keely.hicks@utoronto.ca).
- If your desired accommodation is **outside the scope** of your Accommodation Letter (ex. your letter includes “extensions of up to 7 days” but you need more time than that):
 1. **Contact your AccessAbility consultant** and have them email Keely Hicks (keely.hicks@utoronto.ca) detailing the accommodations required.

Accommodation Procedure:

Within approximately one to five business days, you will receive a response from your instructor detailing the accommodations to be made (if any). **You are responsible for checking your official U of T email and Quercus course announcements daily**, as accommodations may be time-critical.

For missed assignments, **do not wait for an instructor response to resume work on your assignment.**

Extension accommodations may be as short as one business day, depending on the nature of the illness/emergency. You should complete your assignment as soon as you are able and email it your instructor, noting that you have submitted your Missed Term Work Accommodations Request Form to Keely.

Note that ACORN will not allow you to declare **future absences**. For something like a scheduled surgery or an illness with a prolonged recovery period, if you would like to request accommodations in advance of the assignment deadline or midterm you should submit a Verification of Illness Form (<http://uoft.me/UTSC-Verification-Of-Illness-Form>) completed by your doctor, along with this form to Keely Hicks (keely.hicks@utoronto.ca).

Completion of this form does not guarantee that accommodations will be made. The course instructor reserves the right to decide what accommodations (if any) will be made. Failure to adhere to any aspect of this policy may result in a denial of your request for accommodation.

Missed Accommodations

If an accommodation is granted but a continued illness/emergency prevents you from meeting the requirements of your accommodation, you must repeat the missed term work procedure to request additional accommodations. **Please make it clear in your subject line that you are requesting a second accommodation.** Note that in the case of a missed make-up test, an opportunity to write a second make-up test may not be provided.

(E.g.) If you are given an extension but are still sick and need more time, or if you miss a make-up midterm, you would need to submit another Request for Missed Term Work Accommodations form and declare your extended absence on ACORN.

Importance of Three Business Day window:

If you are unable to submit your documents within the three business day window, **you must email Keely** (keely.hicks@utoronto.ca) **within the three business day window** to explain the nature of the delay, and when you will be able to provide your documents. Exceptions to the documentation deadline will only be made under **exceptional circumstances**.

Questions?

If you have any questions about this Missed Term Work policy, please contact Keely Hicks (keely.hicks@utoronto.ca) **well before** the date of the test / assignment deadline to describe your circumstances and inquire about procedures.

VIII. Links you might find useful

UTSC Dates and Deadlines

<https://www.utoronto.ca/registrar/dates-and-deadlines>

Skill building, future planning

Academic Advising, Career Centre

<http://www.utoronto.ca/aacc/>

Writing Services

<http://www.utoronto.ca/twc/>

Presentation Skills

<http://www.utoronto.ca/ctl/presentation-skills>

Co-op Program

<http://www.utoronto.ca/askcoop/>

Your well-being

AccessAbility

<http://www.utoronto.ca/~ability/>

Health and Wellness

<http://www.utoronto.ca/hwc/>

Test anxiety

https://www.anxietybc.com/sites/default/files/Test_Anxiety_Booklet.pdf

The Department of Psychology

UTSC Psychology

<http://www.utoronto.ca/psych/>

UTSC Psychology courses

<http://www.utoronto.ca/psych/courses>

UTSC Experiential Learning

<http://www.utoronto.ca/psych/experiential-learning>

Psychology lab opportunities

<http://tinyurl.com/jjq25t7>

Psi Chi @ UTSC

<https://www.utoronto.ca/projects/psichi/>

PSYB55: Course Schedule / Summer 2021, UTSC

May be subject to minor revisions with advance notice from the instructor

| <u>Week</u> | <u>Dates</u> | <u>Agenda for the day</u> | <u>Relevant details</u> |
|------------------------|--------------|--|---|
| 1 | 10 May | Course introduction Foundations of cognitive neuroscience | <u>Textbook</u> : Chapter 1 (pp. 3-21) |
| 2 | 17 May | Neurotransmission and neuroanatomy <i>Deconstructing short-answer questions</i> | <u>Textbook</u> : Chapter 2 (pp. 22-61) |
| 3 | 31 May | Methods in cognitive neuroscience <i>Designing experiments (part I)</i> | <u>Textbook</u> : Chapter 3 (73-111) |
| 4 | 7 June | Perception <i>Designing experiments (part II)</i> | <u>Textbook</u> : Chapter 5 (184-219) |
| MIDTERM EXAMINATION I | | | |
| 5 | 14-18 June | Study space for Midterm I (NO CLASS) | - |
| 6 | 21 June | Object recognition <i>Reading journal articles: the abstract</i> | <u>Textbook</u> : Chapter 6 (223-265) |
| 7 | 22-26 June | READING WEEK | |
| 8 | 28 June | Attention <i>Reading journal articles: the introduction</i> | <u>Textbook</u> : Chapter 7 (276-321) |
| 9 | 5 July | Action <i>Reading journal articles: the methods</i> | <u>Textbook</u> : Chapter 8 (325-58; 365-75) |
| MIDTERM EXAMINATION II | | | |
| 10 | 12-16 July | Study space for Midterm II (NO CLASS) | - |
| 11 | 19 July | Memory | <u>Textbook</u> : Chapter 9 (379-418) |
| 12 | 26 July | Emotion <i>Reading journal articles: the results</i> | <u>Textbook</u> : Chapter 10 (427-59; 468-71) |
| 13 | 9 Aug | Language (/Cognitive Control) <i>Reading journal articles: the discussion</i> | <u>Textbook</u> : Chapter 11 (476-511) |
| - | TBD | FINAL EXAMINATION | (see below) |

Dates indicate when lecture materials will become available on Quercus each week.

There are three examinations in this class: two Midterm and one Final exam whose dates/times are set by the Registrar's.

Midterm Examination 1 will cover ALL lecture and assigned textbook material from weeks 1-4.

Midterm Examination 2 will cover ALL lecture and assigned textbook material from weeks 7-9.

The Final will cover ALL lectures and assigned textbook material from weeks 11-13.