

PSYC52H3 The Cognitive Neuroscience of Attention

I) Course information

Course number: PSYC52H3 F

Thursdays: 1-3 pm
Place: BV355

Prerequisite: PSYB51H3 and [PSYB55H3 or PSYB57H3] and [PSYB07H3 or STAB22H3 or STAB23H3]

Exclusion: PSY475H

II) Instructor:

Dr. Matthias Niemeier
1265 Military Trail SW550
e-mail: psyb51@utsc.utoronto.ca
Office Hours: Wednesdays 1-2pm

III) Teaching Assistants:

Eric Chang & Lawrence Guo

IV) Blurb & Learning Outcomes

This course is about understanding how the human brain collects information from the environment so as to perceive it and to interact with it. The first section of the course will look into the neural and cognitive mechanisms that perceptual systems use to extract important information from the environment. Section two will focus on how attention prioritizes information for action. Additional topics concern daily life applications of attentional research.

By the end of this course, you will have ...

- developed a foundational understanding of the contemporary scientific body of knowledge about the cognitive and neural mechanisms underlying attention
- further developed your ability to consume scientific literature (original and review articles)
- attained a relative independence to acquire scientific knowledge
- strengthened your ability to understand, critique and extend original research in cognitive neuroscience
- practiced your ability to effectively communicate scientific knowledge to others
- improved your ability to successfully collaborate with peers

V) Course readings (required)

There is no textbook for this course. Instead there will be review articles that you will need to read. There will be one required article for each lecture. Additional articles might be recommended.

VI) Web pages

Course Web Site: Quercus

Here you will find the syllabus, and announcements. Also, I will put the lecture slides on that page.

Please check on a regular basis for announcements.

VII) Evaluation

10%	Quizzes	Format: 10 true/false questions during lectures 2-5 and 7-12, top 7 quizzes will be counted
23%	Mid-term test	Format: short answer questions.
7%	Thought paper	Written assignment, 2 pages, double-spaced
7%	(Revised) t-paper	
20%	Journal club reports	
33%	Final Term test	Same format as the mid-term

Quizzes are meant to encourage you to read and prepare the material for a given lecture ahead of time and properly prepare the facts for the respective lecture. Given this objective, it follows that there is no opportunity to make up for missed quizzes and also that the material tested in the quizzes comes from the readings for the respective week. That said, you can but do not have to participate in all quizzes because I will only count your top 7 quiz scores. Quizzes will consist of 10 yes/no or true/false questions about the reading materials of the respective lecture. Quizzes will take the first 5-10 min of each lecture. If you have scores for more than 7 quizzes I'll pick your top 7 scores. Please note that due to this top-7 rule there are multiple opportunities to make-up for missed quizzes. Therefore, **I will not accept accommodation requests** (see item X). *Additional Information: Missed Term Work due to Medical Illness or Other Emergency* for missed quizzes.

The **mid-term test** and the **final exam** will be equivalent in format and will have short-answer questions only. There will be no multiple-choice questions. Short answer questions are more suitable for measuring conceptual understanding of material, beyond memorizing and recognizing facts.

Material required for the exams will include lecture material and text readings. Although the topics covered will overlap, different things may be emphasized in class than in the readings. I recommend reading all the materials and attending all classes. If you miss a class, please make sure to have someone take notes for you. Lectures will not be recorded, and please do not tape the lectures.

It is important that students can demonstrate their intellectual command of the subject matter of this course *in its entirety* at the end of the term. Consequently, it is essential that the final exam provide a comprehensive (cumulative) assessment of the course. The mid-term test (23%) will be 100 minutes long and will be held in class during week 6. It will cover topics from weeks 1 to 5. The final exam (33%) will cover the course in its entirety (weeks 1-5 = Part I, and weeks 7-12 = Part II) and will be two hours long. About 60% of the questions will cover Part II; the other 40% of the questions will provide coverage of Part I. Each question will concern an idea from the lectures or readings and require a written response.

Summary:

- The first midterm (23%) will cover Part I (weeks 1-5).
- A cumulative final exam (33%) will cover both Parts (weeks 1-5 and 7-12)
= 13% [Part I] + 23% [Part II] = 33%.

However, if your performance on the final exam with respect to Part I is greater than your performance on the mid-term test, then I will let your performance on that part of the final exam assume a weight of 36% and your term test grade will not count. In other words, if you can improve from the mid-term test to the final exam, then the mid-term test will be nothing but a practice test. However, there is one condition: a midterm grade needs to be 40% or better for this rule to apply. That is, it will be imperative to prepare for the midterms.

Here the formalized rules:

Mid-term = MID

Final Part I = FIN1

Final Part II = FIN2

If FIN1 better than MID **and** if MID = 40% or better, then FIN1 weighs 36%, MID weighs 0% of total grade.

If MID better than FIN1 **or** if MID less than 40%, then MID weighs 23%, FIN1 weighs 13% of total grade.

FIN2 always weighs 20%.

Make-up term tests. For students who missed the midterm for a valid reason (see below) there will be a make-up option 1-2 weeks after the regular mid-term.

Final Exam Policies & Procedures. The scheduling of final exams and the granting of petitions to defer final exams are matters that fall entirely within the jurisdiction of the Registrar's Office. If you have any concerns relating to your final exam attendance, please contact the Registrar.

Thought paper. The paper will have two main components (an initial submission and a second, revised submission), and will be based on a specific research article (you will be provided with four articles, and you must choose one to write your paper on).

An important aim for this assignment (and the group journal club reports; see below) is to help you improve your writing skills while thinking critically about relevant course material. However, it is difficult to improve writing after feedback has been given without being given an opportunity to revise your work. Thus, this assignment offers you a direct way to address feedback on written work in order to develop your skills at writing and critical thinking, which are skills that will be required long after your university degree is complete. To do so, there will be two submissions for this assignment: an initial submission (Oct 25), and a second submission (Nov 29) where you are able to incorporate the feedback given to you by the TA to improve upon the first submission. More details are given in the rubric posted online on the Quercus site, but below is a brief overview on how the submissions will be graded.

The initial submission is in the form of an electronic copy emailed to one of the TAs, and it is due at the beginning of the lecture on October 25. The second submission is due at the **end** of the day of November 29. This final submission is through Turnitin.

The t-paper will be 2 pages long, double-spaced, 12-point font size. The goal is to write about one of your own ideas about one research paper. Format is as follows

- 1 paragraph Introduction beginning with a 2-3 sentence long summary of the article (perhaps preceded by a more general statement about the concept that is investigated etc. – ‘bigger picture’) about one research article (see marked below). The Introduction needs to end with a thesis statement.
- It follows about 1, 2, 3 paragraphs on your own thought about the article. Focus on one thought only.
- Conclusions: 1 paragraph. Summarize what you’ve been talking about

More information about the t-paper will be posted on Quercus. This includes a document on how to write the written assignment and 2 sample papers. The second/ final submission is by Turnitin. Late submissions mean a deduction of 10% of the thought paper grade per late day. Please make sure you write a genuine paper. Please note that Turnitin provides feedback on how much overlap there is. To see that score please upload your document and wait a few minutes. Scores of less than 10% overlap are expected. If there is too much overlap you have the opportunity to revise your paper and re-upload it before we even see your paper – provided your first upload leaves sufficient time.

Normally, students will be required to submit their course essays to Turnitin.com 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 Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com website.

Group journal club reports. The purpose of this assignment is to help you think critically about the quality of research that gets published, and to improve your writing ability. You will form groups of four, and over the course of the semester will write journal club reports on four separate published papers of your choosing, insofar as they relate directly to the course material. Your TA will need to approve your article selections, so please email him a link to each article once your group has found an appropriate article for each report. For each journal club report, you will need to meet with your group (i.e., have a journal club meeting) to discuss the content of the article and to brainstorm your critique (see rubric posted online on Quercus for more details). As a group, you can decide if each member will take a turn at being group leader and will thus be responsible for writing up the journal report summarizing the group's discussion of the article, or if all of you will collaborate to write each group journal club report. All members of the group will receive the same grade.

Each journal club report will be marked out of 10 and will be worth 5% of your overall final grade (4 entries = 20% of your final grade). Like the thought paper, you will be handing in a first submission, and after feedback, will hand in a second (revised) submission. The first submission will be graded as 6/10 (if it needs revision) or 10/10 if no revision is needed (which is unlikely but possible). Failing to submit a journal report, or submitting plagiarized or inadequate material, will receive a grade of 0/10. Upon appropriate revision, the grade will be updated to 10/10. Late submissions are penalized 10% (1 point) per day past the submission deadline. See the rubric posted on Quercus for further details. Please note that given journal club reports are group efforts, **I will not accept accommodation requests** (see item X. *Additional Information: Missed Term Work due to Medical Illness or Other Emergency*) for the reports.

Formatting: Each journal club report (i.e., the initial submission) should be no longer than 500 words in length and should be written in the style of a blog entry. You do not need to worry about writing in APA format, but you should include references where appropriate. You do not need a title page, but all of the names of the group members should be included on each report.

Note: You need to submit the revised journal club report before the next report is due (e.g., you have to hand in the revision of the first journal club report before the due date for the second

journal club report; the revision of the second journal club report is due before the due date for the third journal club report, etc.).

VIII) Schedule

Week	Date	Topic	Reading
1	05-Sep-19	Introduction	Petersen & Posner, 2012
2	12-Sep-19	Dorsal attentional network	Corbetta & Shulman, 2002
3	19-Sep-19	Spatial maps	Silver & Kastner, 2009
4	26-Sep-19	Cerebral attentional control and frontal eye fields	Thompson & Bichot, 2005
5	03-Oct-19	Cognitive load and working memory	Lavie, 2010
6	10-Oct-19	Mid-term	
6	17-Oct-19	Reading week	
7	24-Oct-19	Subcortical systems	Knudsen, 2018
8	31-Oct-19	Ventral attentional network and neglect	Corbetta & Shulman, 2011
9	07-Nov-19	Attentional networks and oscillations	Fiebelkorn & Kastner, 2019
10	14-Nov-19	Computational models of attention I	Koch & Ullman, 1985
11	21-Nov-19	Computational models of attention II	Itti & Koch, 2001
12	28-Nov-19	Attention and action	Baldauf & Deubel, 2010
	TBD	Final exam	

IX) Important dates

19-Sep-19	1st group journal club report due at the beginning of class; the revised submission must be handed in before the 2nd group journal club report is due
03-Oct-19	2nd group journal club report due at the beginning of class; the revised submission must be handed in before the 3rd group journal club report is due
10-Oct-19	Mid-term exam (covering material from weeks 1-5 lectures, and assigned readings)
24-Oct-19	Analysis/thought paper due at the beginning of class
07-Nov-19	3rd group journal club report due at the beginning of class; the revised submission must be handed in before the 4th group journal club report is due
21-Nov-19	4th group journal club report due at the beginning of class
28-Nov-19	4th group journal club revision due at the beginning of class; Analysis/thought paper revision due at the end of the day through Turnitin
TBD:	Final exam

X) Additional information

Missed Term Work due to Medical Illness or Other Emergency:

All students citing a documented reason for missed term work must submit their request for accommodations **within three (3) business days** of the deadline for the missed work.

Students must submit **BOTH** of the following:

- (1.) A completed **Request for Missed Term Work Accommodations form** (<http://uoft.me/PSY-MTW>), and
- (2.) **Appropriate documentation** to verify your illness or emergency, as described below.

Appropriate documentation:

For missed **TERM TESTS** due to **ILLNESS**:

- Submit the Request for Missed Term Work Accommodations form (<http://uoft.me/PSY-MTW>), along with an **original** copy of the official UTSC Verification of Illness Form (uoft.me/UTSC-Verification-Of-Illness-Form) or an **original** copy of the record of visitation to a hospital emergency room. Forms are to be completed in full, clearly indicating the start date, anticipated end date, and severity of illness. The physician's registration number and business stamp are required.
- Note: If an end date of "ongoing" is specified, the medical note will be assumed to cover a period of two weeks. If no end date / an "unknown" end date is specified, the note will be assumed to cover a period of three business days (starting from illness start date.)

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

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

For missed **ASSIGNMENTS** due to **ILLNESS**:

- Submit the Request for Missed Term Work Accommodations form (<http://uoft.me/PSY-MTW>), along with a **hardcopy** of the Self-Declaration of Student Illness Form (uoft.me/PSY-self-declare-form).

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), submit the Request for Missed Term Work Accommodations form (<http://uoft.me/PSY-MTW>) and attach a copy of your letter. **Specify how many days extension you are requesting** on the request form.
- 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) you will need to meet with your **AccessAbility consultant** and have them email Keely (keely.hicks@utoronto.ca) detailing the accommodations required.

For missed term tests or assignments in **OTHER CIRCUMSTANCES**:

Submit the Request for Missed Term Work Accommodations form (<http://uoft.me/PSY-MTW>), along with:

- In the case of a **death of a family member or friend**, please provide a copy of a death certificate.
- For U of T varsity-level or professional **athletic commitments**, an email from your coach or varsity administrator should be sent directly to Keely Hicks (keely.hicks@utoronto.ca) **well in advance** of the missed work, detailing the dates and nature of the commitment.
- For **religious accommodations**, please email (keely.hicks@utoronto.ca) **well in advance** of the missed work.
- For circumstances **outside of these guidelines**, please email Keely (keely.hicks@utoronto.ca) on or before the date of the test / assignment deadline to describe your circumstances and ask what documentation would be appropriate

Documents covering the following situations are NOT acceptable: medical prescriptions, personal travel, weddings/personal/work commitments.

Procedure:

Submit your (1.) [request form](#) and (2.) [medical/self-declaration](#)/other documents in person **WITHIN 3 BUSINESS DAYS** of the missed term test or assignment.

Submit to: Keely Hicks, Room SW420B, Monday – Friday, 9 AM – 4 PM. (Slide forms under door if out of office.)

After submitting your documentation, 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.

You should continue to work on your assignments to the best of your ability, as extension accommodations may be as short as one business day, depending on the nature of the illness/emergency.

If an accommodation has been granted but you are unable to meet the conditions of the accommodation (ex. you need a longer extension, or you missed a make-up test), you will need to repeat the missed term work procedure and submit additional forms to request further 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.

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.

(E.g.) If you miss a make-up midterm, you would need to submit another Request for Missed Term Work Accommodations form. If your original medical note / documentation

included the date of the make-up midterm, then only the Request form is required. If the date of the make-up midterm fell outside of the dates indicated on your original medical note/other documentation, then a new medical note/other appropriate documentation must also be submitted.

Importance of Three Business Day window:

If you are unable to submit your documents in-person within the three business day window, **you must email Keely** (keely.hicks@utoronto.ca) **within the three business day window** to explain when you will be able to bring your documents in person. Exceptions to the documentation deadline will only be made under **exceptional circumstances**. Attach scans of your documentation, and be prepared to bring your documents to Keely in-person as soon as you are well. Late documents may not be accepted.

NOTE: Assignments due at end of term

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.utoronto.ca/registrar/term-work>).

NOTE: Final Exams

This policy applies only to missed assignments and term tests. Missed final exams are handled by the Registrar's Office (<http://www.utoronto.ca/registrar/missing-examination>).

Help With Writing

If you would like help with academic writing, the following resources are available to you:

- The Centre for Teaching and Learning (AC312) Writing Centre offers students one-to-one appointments and supplementary materials to help improve upon their writing skills. <http://ctl.utoronto.ca/home/> <http://ctl.utoronto.ca/twc/>
- The English Language Development Centre offers support and specialized writing programs for students who do not speak English as their primary language. <http://ctl.utoronto.ca/eld/>
- Advice on academic writing

<http://www.writing.utoronto.ca/advice>

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:

- Using or possessing unauthorized aids;
- Looking at someone else's answers during an exam or test;
- Misrepresenting your identity; and
- When you knew or ought to have known you were doing it.

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; and
- When you knew or ought to have known you were doing so. 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: 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.

Turnitin Written assignments may be subject to submission for textual similarity review and detection of possible plagiarism using the commercial plagiarism detection software under license to the University (<http://www.turnitin.com>). If used, students will allow their essays to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site.

AccessAbility Services

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 approach me and/or the 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.

Literature Searches

Students can use the following resources when conducting literature searches to find relevant articles for their presentation and final essay:

The UTSC Library (AC235)

<http://www.library.utoronto.ca/utsc/>

PubMed

<http://www.ncbi.nlm.nih.gov/pubmed>

PsychINFO

<http://www.apa.org/pubs/databases/psycinfo/index.aspx>

Google Scholar

<http://scholar.google.ca/>

For Your Health

The Health and Wellness Centre (SL270, 416-287-7065) provides diagnostic, treatment and referral services for all illnesses ranging from the medical to psychological to health promotion. The professional staff of physicians, nurses and counselors provides personal advice and assistance with family issues, eating disorders, depression, stress, drug and alcohol abuse, relationship issues, a positive space for gender/sexuality issues, and more.

<http://www.utsc.utoronto.ca/wellness>