

PSYC50: Higher-order Cognition

0.5 credits

University of Toronto, Scarborough

Spring Term, 2017

Mondays 11:00–13:00

LEC01 (MW 140)



Instructor: Prof. Michael Souza (“sues-uh”)

Email: michael.souza@utoronto.ca

Office: PO103, Room 121

Office Hours: Mondays 1-2PM and by appointment

TA associated with the poster project:

Swathi Swaminathan | swathi.swaminathan@mail.utoronto.ca

Online and in-person office hours detailed in a document in the *Poster Project* folder on **Blackboard**

In addition to Prof. Souza, inquiries about the poster project can be directed to Swathi. Her office hours are only for the poster project (i.e., she will not be associated with reading checks).

TA associated with reading check viewings:

Amanda Esson | amanda.esson@mail.utoronto.ca | Office hours (OH) held in PO103-122

OH will occur during the following times: 18-Jan, 01-Feb from 12PM-2PM; 08-Feb, 15-Feb, 01-Mar from 12PM-1PM

You may review your reading checks during Amanda’s office hours, **which are only on weeks where there are reading checks**. Her office hours are only for reading checks (i.e., no poster project inquiries).

I. Your course team



Dr. Souza is an Associate Professor (Teaching Stream) in the Department of Psychology. He received his Ph.D. in Psychology from the University of California, Berkeley. His teaching interests revolve around higher-order cognitive functions, cognitive impairments and neurorehabilitation. He is also interested in fostering opportunities that promote student growth and development.



Swathi is a PhD candidate in Psychology studying the relationship between musical skills and nonmusical abilities across childhood and early adulthood. More generally, she is interested in understanding how cognitive, social and emotional factors modulate human communication. She has master’s degrees in clinical psychology (Bengaluru) and experimental psychology (Oxford).



Amanda is a PhD student in Psychology. She completed a Bachelor of Health Sciences at McMaster University and a Master of Arts at the University of Toronto. She uses structural and functional neuroimaging to study brain dynamics in individuals with autism spectrum disorder.

II. Course description, pre-requisites and learning goals

Executive functions are a set of cognitive functions that enable goal-directed control over our behavior. These functions strengthen during typical development, but can be impaired in a variety of ways (e.g., neurological insult, atypical development, psychological illness). From a content standpoint, this course will provide you an opportunity to gain a better understanding of executive functions from theoretical, experimental and applied standpoints. From a process standpoint, you will have an opportunity to gain experience reading primary

research articles, to collaborate with your colleagues on a research project on an appropriate topic of your choosing, and to build confidence in your scientific voice.

Prerequisites: PSYB57 and one of PSYB07, STAB22, STAB23

After successful completion of this course, you will have:

1. developed a theoretical understanding of what constitutes executive functions, and why they are essential for promoting complex behavior;
2. explored and evaluated research targeting both foundational and higher-level elements of executive functions, and considered how these functions translate into real-world, everyday functioning;
3. practiced reading and analyzing original research articles to better distill out essential pieces of information (i.e., what the results mean) integral to the author's interpretation of their findings;
4. improved your ability to collaborate with colleagues to conduct scientific research;
5. practiced searching the literature to identify appropriate references to build a compelling argument for a research project;
6. gained confidence in your ability to speak in a scientific discourse to an informed audience.

III. Course readings

This course will not use a textbook. The primary reason for this is that we will instead be prioritizing your ability to extract information from original research, as opposed to memorizing content from a textbook that has already done that service for you. This is part of the process of becoming a more critical consumer of information, which is an invaluable skill in a world so inundated with information...

IV. Course webpage

Blackboard Portal will house important course-related announcements, lecture slides (to be posted the day before each lecture), discussion boards to connect with fellow classmates, and course marks. You should check it regularly for course updates.

V. Course requirements and grading

Reading checks (five at 5% each = 25% of the course grade)

(Learning outcome #3)

In an effort to build your ability to consume primary research, we will have several 'lower stakes' reading checks on the assigned reading from the week before (see the course schedule). Reading checks will be focused during the first half of the course to prepare you to successfully navigate the research project. The cumulative value of all of the reading checks is comparable to a typical course midterm, and to clarify just how important the development of this skill is for this course, they will occur in lieu of one.

The reading checks will be held during normal class time and will start at the beginning of class. They will last no more than 25 minutes in duration, and will include multiple-choice and/or short-answer questions. These questions will tap your understanding of the paper, including the rationale for the study, reasonable (not nitpicky) features of the methods, understanding and interpreting the results, and thinking about future avenues for research. Our second class will be a skill-building workshop to help prepare you for this.

Cumulative Final Examination (35% of course grade)

(Learning outcomes #1,2,3)

The goal of the Final is to test your understanding of executive functions as learned through all of the lecture content of the course. It will also include a portion that taps the readings after the spring recess.

The Final will consist of both multiple-choice (MC) questions and short-answer (SA) questions.

MC questions 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. MC questions must be answered using the Scantron form; answers indicated on the test booklet but not the Scantron form will not be scored.

SA questions may require a one or several sentence response based on the question complexity, and may also require the creation or analysis of a visual (e.g., diagram). 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).

Rote memorization of lectures and the readings will not ensure you a high mark; rather, I expect you to not only learn what things are, but also why it is relevant, and how/why it is used, as appropriate. To acclimate you to my question style and to give you an opportunity to test your knowledge as the course progresses, sample questions will be posted after each content lecture. I advise you to go through this while the material is fresh so that you have all of this completed prior to ramping up for the Final.

Importantly, the date of the final is not announced by the University until the middle of the term. You should NOT make travel plans until you learn the date of your final exams. You CANNOT take the final at a different date/time unless you have a verifiable medical reason.

Poster Project (multiple parts [detailed below] constituting a total of 40% of course grade)

(Learning outcomes #2,3,4,5,6)

Together with two partners of your choosing, you will be asked to conduct a research project (literature review) to further explore current research in a topic associated with executive functions. You will be provided with a separate handout that further details this assignment but in short, your group will research a minimum of nine (9) references (averaging 3/group member) and detail what you’ve learned into a scientific poster that your group will present in a conference-like format at the end of the course.

Topic proposal (5% of course grade)

A one-page document that states the topic of your group research project, what motivated its selection (from an academic and real-world perspective), what you hope to examine more specifically, and what you hope to learn from it (i.e., why does this matter).

Revised proposal + annotated bibliography (10% of course grade)

This component has two parts. (1) You must first revisit your ‘Topic Proposal’ based on the feedback you received. You must thoughtfully address the feedback you have received, either making changes as appropriate or carefully defending an idea/proposal with more support. (2) You must create an annotated bibliography, which should include a list of APA-formatted references meeting the minimum threshold of nine, and a brief paragraph explaining the goals/value for each research article chosen. When the marker reads the revised ‘Topic Proposal’ and annotated bibliography, they should have a crystal clear understanding of what you want to study, why it matters, and how your chosen articles help in pursuit of your goal.

Instructor/TA evaluation of your poster presentation (22.5% of course grade)

There will be two days for poster presentations. On the day you are scheduled to present, you and your group will bring carefully crafted tri-fold poster to present the findings from your literature search. You will use this poster as a tool to deliver a ~ 10 minute talk that equitably splits the work across group members. Your instructor and/or TAs will evaluate your presentation based on a detailed rubric. You will be expected to give your research talk multiple times to make space for all of your peer-reviewers (see below), but your instructor/TA will only evaluate your talk once.

You will also complete peer evaluations for some of the other posters on the day that you are not presenting (see more below). The peer evaluations done on your poster will be compiled and will inform a small component of your mark (~ 10% of this portion).

Peer-review of posters (2.5% of course grade)

There will be two days for poster presentations. On the day you are not scheduled to present, you will be peer-evaluating the work of your peers using rubrics provided to you. Your mark will be determined based on not only completion, but also the detail of feedback you provided to the presenters.

VI. Course policies

Classroom conduct and participation

Our classroom is a place where you should always feel safe and respected. It is also a place that is conducive to learning and intellectual curiosity. Any behaviors compromising this environment will not be tolerated and the student(s) and/or individual(s) will be asked to leave.

I work to create an interactive dynamic during my lectures that engages you to think and contribute. I challenge you to use this time to not only become familiar with the content we are discussing, but to also develop your critical thinking skills along with me.

Lecture slides

For your convenience, lecture slides will usually be posted by 10PM the evening before a lecture. They will be posted in PDF format in two versions only (2 slides and 6 slides per page).

You should know that these lecture slides are not a suitable substitute for attending 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.

E-mail policy

In most cases, e-mails will be answered within 48 hours of receipt (not including weekends). The email subject should include our course name and nature of the inquiry (i.e., "PSYC50: Question about Baddeley's model of WM"). The start of your email should include your full name and student ID number so that we know who you are. Emails that you send 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).

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://www.insidehighered.com/views/2015/04/16/advice-students-so-they-dont-sound-silly-emails-essay>>

Office hours

Office hours are a valuable resource for you to learn more about the class and/or important things related to (but outside of) the class. You should consider visiting Prof. Souza'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) you would like to discuss the field of psychology/neuroscience and how to get more involved.

Class discussion board on Blackboard

For your convenience, discussion threads will be created to improve information flow in our course.

On the first thread, you will have a space to share interesting and course-relevant articles or media. On the second thread, you will have a space to ask logistical or related questions to Dr. Souza that other students might benefit from knowing (i.e., not of a personal nature). Content questions will not be answered by Prof. Souza on this thread, but he will happily address any such questions before/after class or during office hours. On the third thread, you may direct questions to your fellow classmates to clarify a concept, form a study group, etc. Please note that you are NOT allowed to post class notes on the discussion board. On the fourth and final thread, you can connect virtually with other classmates who are also in need of a group member for the poster project.

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 reading checks

In my opinion, punctuality to lectures and assessments is a sign of respect to your instructor, teaching assistants and fellow students. Tardy students should not ask the instructor or teaching assistants for what they missed from lecture because they can ask a fellow student. Furthermore, a student will not be allowed to write a reading check if (1) s/he is tardy 15 minutes or more, or (2) a student has already finished and submitted their paper, whichever occurs first. Students in this situation will not be allowed to write and will receive a "0" on the respective check.

When time is called at the end of the reading check, you must immediately stop working and submit your materials. You will not be allowed more time for any reason, including (but not limited to): putting your name or ID on the paper or filling in or changing an answer. You must also remain completely silent until every exam has been collected. Failure to stop working when time is called or to stay silent until all exams have been collected will result in a zero on the exam.

If you miss a reading check due to an excused reason (see next section), the value of that reading check will be split equally across all subsequent (i.e., not already taken) reading checks. In the event that the last reading check is missed for an excused reason, the value of that reading check will be added to the Final exam.

Missed Term Work due to Medical Illness or Emergency

All students citing a documented reason for missed term work (this includes assignments and midterm exams) must bring their documentation to the Undergraduate Course Coordinator, Ainsley Lawson, within three (3) business days of the term test / assignment due date. All documentation must be accompanied by the departmental **Request for Missed Term Work form** (<http://uoft.me/PSY-MTW>).

In the case of missed term work due to illness, only an original copy of the **official UTSC Verification of Illness Form** (<http://uoft.me/PSY-MED>) will be accepted. 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.

In the case of other emergency, a record of visitation to a hospital emergency room or copy of a death certificate may be considered.

Forms should be dropped off in SW427C between 9 AM - 4 PM, Monday through Friday. Upon receipt of the documentation, you will receive an email response from the Course Instructor / Course Coordinator within three business days. The Course Instructor reserves the right to decide what accommodations (if any) will be made for the missed work.

Note that this policy applies only to missed term work (assignments and midterms). Missed final exams are dealt with by the Registrar's Office (<http://www.utoronto.ca/registrar/missing-examination>).

Failure to adhere to any aspect of this policy may result in a denial of your request for accommodation.

AccessAbility

Students with diverse learning styles and needs are welcome in this course. If you have a disability/health consideration that may require accommodations, please approach the AccessAbility Services Office as soon as possible. The UTSC AccessAbility Services staff (S302) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations (416-287-7560 or 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

The University highly values scholarship and academic achievement and takes very seriously any suspected or known cases of cheating and plagiarism. Students are highly encouraged to read the guide on **How Not to Plagiarize** (<http://www.writing.utoronto.ca/advice/using-sources/how-not-to-plagiarize>) and to take advantage of **writing resources** on campus (<http://www.utoronto.ca/twc/>). In addition, our campus has a general **Code of Conduct** (<http://tinyurl.com/oh3ff9n>) that all students are expected to follow when interacting with peers, staff of faculty. The keyword here is respect, a good educational context is one in which all parties respect one another's perspective, opinions, and work.

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. Links you might find useful

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

Conducting research

UTSC Library <https://utsc.library.utoronto.ca/>
Pubmed.org <https://www.ncbi.nlm.nih.gov/pubmed/>
Google Scholar <https://scholar.google.ca/>

Skill building, future planning

Academic Advising, <http://www.utoronto.ca/aacc/>
Career Centre <http://www.utoronto.ca/twc/>
Writing Services <http://www.utoronto.ca/ctl/presentation-skills>
Presentation Skills <http://www.utoronto.ca/askcoop/>
Co-op Program

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.utsc.utoronto.ca/psych/>

UTSC Psychology courses

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

UTSC Experiential Learning

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

Psychology lab opportunities

<http://tinyurl.com/jjq25t7>

The Psychology and Neuroscience

Departmental Association

<http://www.thepnda.org/>

PSYC50: Lecture and reading schedule

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

<u>Lecture</u>	<u>Date</u>	<u>Topics of the day</u>	<u>Readings and deadlines</u>
1	02-Jan	Course introduction Executive functions and higher-order cognition	n/a
2	09-Jan	How to read scientific articles [workshop in class]	Robertson (2012)
3	16-Jan	Theories of executive functions Reading check #01 (on the Lecture 2 reading)	<u>Group forms due</u>
4	23-Jan	Working memory	<u>Topic proposal due</u> Jaeggi (2008)
5	30-Jan	Inhibitory control Reading check #02 (on the Lecture 4 reading)	Lhermette (1986)
6	06-Feb	Cognitive flexibility Reading check #03 (on the Lecture 5 reading)	Zelazo (2006)
7	13-Feb	Planning Reading check #04 (on the Lecture 6 reading)	<u>Annotated Bibliography due</u> Manly (2002)
8	20-Feb	NO CLASS - Spring Recess	<i>nothing assigned</i>
9	27-Feb	Scientific poster presentations [workshop in class] Reading check #05 (on the Lecture 7 reading)	<i>nothing assigned</i>
10	06-Mar	Reasoning and problem-solving	Waltz (1999)
11	13-Mar	Poster presentations - Session #1	<u>Group A presents</u> Group B peer-evaluates
12	20-Mar	Poster presentations - Session #2	Group A peer-evaluates <u>Group B presents</u>
13	27-Mar	Executive functions in "real life" Course synthesis and conclusion	Diamond (2012)
14	TBA	Cumulative Final Examination	Lectures 3-7; 10, and 13 Readings from Lectures 10, 13