2022

Teaching Dossier

T. M. VANESSA CHAN, PH.D.

DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF NOTRE DAME

Contents

Preface

The highlights of teaching experience are presently separated into my time as a teaching professor at the University of Notre Dame beginning Fall 2020, and my time as a graduate student at the University of Toronto up until Summer 2020.

The COVID-19 pandemic has impacted courses throughout the entirety of the 2020 calendar year, and into 2021. since the circumstances for teaching changed between semesters and institutions as the situation developed, this affected courses in each of the Winter, Summer and Fall semesters differently. More contextual information is provided in the highlights for each course. As an overarching statement regarding the impact of COVID-19, it has negatively impacted the creation of a classroom atmosphere and students' experience of learning; for me as an instructor, it has taught me to be a more accommodating and flexible teacher who is more ready for the constant changes associated with students' lives, which is a change I hope to carry forward into all my future teaching.

Statement of Teaching Philosophy

In my very first guest lecture as a graduate student, teaching students about the concept of categorical perception, I introduced research on how musicians had a more defined boundary for categorizing vowels than non-musicians. A student then commented, “So those people singing karaoke outside, they’d be better at categorizing vowels too?” We laughed, and I explained that researchers are usually looking at trained classical musicians in these kinds of studies, but this small teaching moment showed me the potential and importance in teaching students how to relate what they study to what they live outside of the classroom. It was one of the first moments that inspired me to pursue teaching, and the importance of teaching well.

In the modern age of digital technology, every answer to a question is a Google search away; what does that make a teacher? Students may be provided many powerful tools to answer the questions they are asked, but they may not know what questions to ask, or be motivated to pursue that question. I believe that these are the primary challenges a teacher faces today: instilling critical thinking that students can use to engage the world around them, and connecting what students learn in school to the rest of the world in a meaningful manner that demonstrates why it is worth learning. In other words, a teacher prepares students to take agency of their learning in a way that will continue to benefit them for the rest of their lives, a way that fosters their humanity.

From my own experience as a student, the most inspiring teachers I have had take those principles to heart and enact them in practical ways, by making the topic relatable to me, teaching with a genuine passion that inspires curiosity, and gave me opportunities to be responsible for my own education while being clear with expectations. To that end, I aim to make a classroom environment where **students are active participators** in their education, teach in a way that helps students form **concrete ties between themselves and what they learn**, and be a teacher who is **enthusiastic, available and accountable** in her teaching rapport with students.

In my classroom, students are encouraged to ask and answer each others’ questions, both in class and on digital platforms such email and the discussion board; I address all questions to the best of my ability and follow up on any questions that required further research on my part by starting lecture with answers to questions from the previous week. By setting that environment early in the semester, students continued to ask questions that extended beyond the course material. I also opened an anonymous feedback box where students could send in their queries and comments regarding different aspects of my teaching and the class. This gives students the opportunity to tell me what would be the most beneficial for their education, and allowed me to try and shape my teaching to meet their needs.

A particular charm about teaching perceptual and cognitive psychology is that the phenomena that we discuss in class are often things that we experience in our everyday interactions with our environment. Therefore, I often use in-class demonstrations of experiments to help students verify for themselves the results we discuss. For example, when discussing categorical perception, I give the example of voice onset time as how we distinguish between different consonants, and have them listen to a continuum of different stimuli to experience how we have formed boundaries for hearing one consonant versus another. We talk about applications of classical conditioning, both as it has appeared in popular media

(like *A Clockwork Orange* or *The Office*) and in effects on health such as its use in therapies like exposure therapy for anxiety disorders, to take this commonly taught concept into realities that people face.

While fostering students' own curiosity and ability to learn independently, it is also important that they receive enough guidance and feedback to recognize when they are applying their learning well, and how they can improve. I offer a series of quizzes and a scaffolded writing assignment in addition to major test evaluations so that students can receive frequent feedback on their progress in the class. I set a 24-hour buffer for responding to inquiries by email, and indicate this at first lectures and on my syllabi (as noted in my example syllabus on page 24, under Emails and Discussion Board); this way, students have clear expectations for when to expect to hear back from me, and we have respect for each other's time.

In addition to teaching the topic of the class, teachers are also responsible for helping their students develop a curiosity in the world around them – whether that is in their topic or not – as well as honing their analytical skills and rational argument. The scaffolded writing assignment format employed in my upper-level classes (see page 33) is designed to aid students in constructing a compelling argument in a position paper, while using research as evidence for their position. The emphasis on a suitable position and the strength of argument is to encourage students to think less about individual pieces of evidence and more about their contributions to a larger framework, a skill that is easily transferrable to many other disciplines. The topic of choice is deliberately open-ended, so that students are motivated to pursue a topic that truly interests them. I was amazed at the variety of questions that students came up with regarding the course content, and the creativity they demonstrated when given the opportunity.

Another useful skill that transfers between classes, but is not often taught, is how to read scientific literature. Even in my large lecture-based classes, I try to make sure that this is introduced regularly and early on in a student's experience at the university. Beginning in the 2021-2022 academic year, I started using Perusall as a means of encouraging students to think critically about the content they were reading. Beyond just reading and commenting on the paper, we take the discussions of articles into the classroom and explicitly tie in concepts back to what was discussed that day. Feedback from students (see below) also suggested that a crash course on basics would be appreciated, and I collaborated with my TAs to give some small tips on paper-reading.

A further interest and motivation for teaching how to read papers is to then let students practice communicating such research to a lay audience. My upper-level courses frequently involve some collaboration with a local community partner (such as the Forever Learning Institute or Nuner Fine Arts Academy), where my students either create materials explaining scholarly work or communicate about research to these parties directly. As students learn that a term like 'working memory' is not commonplace, it also challenges them to re-encode that information differently and find connections that a non-expert will understand.

I am committed to continue making myself a better teacher in each circumstance I find myself in. The process began with the Advanced Undergraduate Teaching Preparation program from the TA Training Program at the University of Toronto, where I was provided with many resources on effective teaching in many aspects, from the syllabus to improving based on feedback. I enacted what I learned through using my feedback box and mid-semester feedback; I would address the comments I received at the

start of the next class, acknowledging student concerns and requests, and discussing how I would try to implement their suggestions while being realistic about what I could achieve at a given time (see student email, page 12).

One consequence of the feedback box was adjusting my reading check quizzes (see pages 23 and 32) so that instead of asking for details on methods that readers would not be expected to memorize, I made the quizzes open-book and let students use their own marked-up copies of their papers. In addition to giving students agency over their own learning, I also learned from their comments on the assessments on how to better write and structure evaluations.

Thinking back to that first guest lecture, the professor who coordinated the class had done an excellent job of fostering an environment where students felt at ease to express how they were integrating what they learned. In an age where digital sources can provide facts almost instantaneously, it is less important to pass information as it is to inspire students to be curious, help them learn to make connections between their studies and the world around them, and challenge them to ask their own questions. Through my practices and commitment to improvement as a teacher, I aim to emulate their commitment to their work and inspire a new generation of learners, to help cultivate their own curiosity and critical thinking.

Highlights of Teaching Experience (University of Notre Dame)

Course	Fall 2020	Spring 2021	Fall 2021	Spring 2022	Summer 2022
PSY 43358 Music in the Brain	18	19	19	19	-
PSY 43359 Auditory Cognition	12	18	18	14	-
PSY 30520 Introduction to Cognitive Neuroscience	-	57	-	97	-
PSY 30400 Cognitive Psychology	-	-	55	-	-
PCSE 00262 Summer Scholars Neuroscience	-	-	-	-	27

Note: Numbers indicate course enrollment for that semester. The courses offered in the 2020-2021 academic year were affected by restructuring due to COVID-19.

Music in the Brain: This is an upper-year elective course in the Department of Psychology that examines various psychological perspectives related to the perception and performance of music. Students engage with primary literature from the discipline in the form of research articles, and are encouraged to bring their knowledge of various subdisciplines of psychology into their discussion of the research in music cognition.

Auditory Cognition: This is an upper-year elective course in the Department of Psychology that examines auditory processing at a more in-depth level than in a sensation or cognition course. Students read research articles to be in close contact with primary literature, understand the similarities and differences of the auditory modality with other fields of study in cognition, and learn to apply their knowledge of neuroscience methods to the study of audition.

Introduction to Cognitive Neuroscience: A survey-level course covering research regarding how the mind arises from the brain, spanning how neural mechanisms give rise to perception and cognitive operations such as attention and memory. This is a core course for the Neuroscience and Behavior major at the University of Notre Dame and also serves as an elective in the Department of Psychology.

The Spring 2022 semester was the first semester in which undergraduate TAs were introduced to the course. I also coordinated shared assignment formats with my colleague Rachel Branco in the Department of Chemistry and Biochemistry, in an attempt to link the core courses we taught for the NSBH program.

Cognitive Psychology: A survey-level course covering research regarding the theoretical frameworks and behavioural measurement of the mind. Topics include attention, memory, conceptual organization, language, and problem-solving.

Summer Scholars Neuroscience: A two-week pre-college experience that exposes high school students to basic concepts of neuroscience, from the activity of the neuron to the measurement of electrophysiological activity with EEG. The main component of the course is comprised of a group project in which students work to answer a question of their own choice.

Highlights of Teaching Experience (University of Toronto)

Ref.	Role	Course	Time	# of Students	Duties
1	Course instructor	PSY493 (Cognitive Neuroscience)	Winter 2020	50	Designing syllabus and evaluations, planning and delivering lectures, coordinating duties with the course TA, liaising with students online and in-person, submitting final marks to department for approval. *Note: Affected by COVID-19 restructuring.*
2	Course instructor	PSY493 (Cognitive Neuroscience)	Winter 2019	50	Designing syllabus and evaluations, planning and delivering lectures, coordinating duties with the course TA, liaising with students online and in-person, submitting final marks to department for approval.
3	Guest lecturer	PSY260 (Learning and Plasticity)	Fall 2017	180	Lecture topic: Classical conditioning
4	Guest lecturer	PSY260 (Learning and Plasticity)	Winter 2017	180	Lecture topic: Working memory
5	Guest lecturer	PSY260 (Learning and Plasticity)	Winter 2015	180	Lecture topic: Perceptual learning. Preparing lecture material from textbook, incorporating examples from current research.
6	Teaching assistant	PSY100 (Introduction to Psychology)	Fall 2014	1000	Supervising and answering questions from students on the online discussion board, arranging post-exam viewings, holding 2 tutorials and pre-exam review sessions.
7	Teaching assistant	PSY201 (Statistics I)	Winter 2016	300	Holding office hours and post-exam reviews, marking exams.
8	Teaching assistant	PSY290 (Physiological Psychology)	Winter 2018	180	Holding office hours and post-exam reviews, creating exam questions, marking exams, monitoring discussion board and email.
9	Teaching assistant	PSY260 (Learning and Plasticity)	Fall 2017	180	Holding office hours and post-exam reviews, marking exams.
10	Teaching assistant	PSY260 (Learning and Plasticity)	Winter 2017	180	Holding office hours and post-exam reviews, creating exam questions, marking exams.
11	Teaching assistant	PSY260 (Learning and Plasticity)	Winter 2015	180	Holding office hours and post-exam reviews, creating exam questions, marking exams.
12	Teaching assistant	PSY201 (Statistics I)	Summer 2017	160	Holding office hours and post-exam reviews, making worksheets, marking exams.

13	Teaching assistant	PSY260 (Learning and Plasticity)	Summer 2015	100	Holding office hours and post-exam reviews, marking exams.
14	Teaching assistant	PSY260 (Learning and Plasticity)	Summer 2020	60	Marking assignments and exams, email communication with students.
15	Teaching assistant	PSY493 (Cognitive Neuroscience)	Summer 2018	50	Holding office hours and post-exam reviews, marking exams and assignments, giving feedback on term paper progress.
16	Teaching assistant	PSYC56 (Music Cognition)	Winter 2019 (Scarborough Campus)	50	Marking assignments and exams, email communication with students.
17	Teaching assistant	PSYC56 (Music Cognition)	Winter 2018 (Scarborough Campus)	50	Marking assignments and exams, email communication with students.

1. Course description: A fourth-year course in the undergraduate Psychology major at the University of Toronto. A capstone course covering research regarding how the mind arises from the brain, spanning how neural mechanisms give rise to perception and cognitive operations such as attention and memory. A secondary objective of the course is to understand current methodologies in cognitive neuroscience research and equip students to critically engage primary research in the discipline.
This course underwent a sudden transition to remote teaching immediately before the second term test due to the COVID-19 pandemic.

2. Refer to 1 for course description.
As my first time running an entire course as a course instructor, this experience was very formative; I got a very good sense of the amount of time dedicated to each aspect of teaching – preparation, delivery, and administration. The class size was small enough that I was able to be familiar with students, and I actively sought continual feedback from students.

3. Course description: A second-year course in the undergraduate Psychology major at the University of Toronto. Focuses on mechanisms of learning in both animal models and human experimental psychology, their neural correlates, and the plastic changes in the brain associated with learning. Also introduces discipline of psychology of memory, and dominant theories of memory.
This guest lecture focused on the field of research of classical conditioning, its history, behavioural paradigms used for studying it and characteristics of the acquisition of animal behaviour. I solicited feedback from students at this lecture, and demonstrated improvement from the last time.

4. This guest lecture was given on working memory, various theories regarding its structure and function, behavioural tests of humans and animals, and brain structures involved in its governance. This was the first lecture I solicited student feedback from, which proved useful for future teaching experiences.

5. This was my first experience with giving a guest lecture to undergraduates. I presented a topic from the syllabus closely related to my research interests, and included some examples of relevant research

from my lab. The professor was very helpful with the preparation of the lesson and gave feedback (on page 6). One of my most formative experience as a teacher.

6. Course description: A first-year course offered by the Department of Psychology at the University of Toronto. Introduces multiple facets of psychology, including basic brain structures, sensory perception, memory and cognition, personality, social psychology, and human development.
The class was very large, so marking evaluations was automatized, but there were many students to reach out to. This was done through monitoring of the discussion board and regular review sessions of the material. The reviews were optional, but still averaged attendance of 50 students.

7, 12. Course description: A second-year course introducing students to basic statistics, and the importance of statistics particularly to psychology as a discipline. Focus was brought on descriptive statistics, null hypothesis significance testing, and introducing analysis of variance.

8. Course description: A second-year course introducing students to the physiology behind psychological observations. Provides students with a solid background into the biological basis of behaviour. Animal and human research topics include functional neuroanatomy, neural signalling, sensory and motor control, motivational systems, and hormones, and emotions.
While the class size was not very large, I had an unusually large number of responsibilities in this course and found this experience helpful in course administration.

9-11, 13. Refer to 3 for course description.

14. Refer to 3 for course description.
This course was my first experience being a teaching assistant entirely remotely for an asynchronously taught class. As such, almost all of my responsibilities were directed towards grading.

15. Refer to 1 for course description.
I gained a lot of experience with evaluation of student writing in this course. As the final assignment was scaffolded, I guided students in the construction of their initial argumentation, through refining the thesis statements and the scope of the paper. I also assessed the cohesiveness of a proposed paper outline, and gave feedback regarding the strength of a proposed abstract for the term paper based on its ability to summarize the central argument the students were putting forth.

16-17. Course description: Studies the perceptual and cognitive processing involved in musical perception and performance. This class acquaints students with the basic concepts and issues involved in the understanding of musical passages. Topics will include discussion of the physical and psychological dimensions of sound, elementary music theory, pitch perception and melodic organization, the perception of rhythm and time, musical memory, musical performance, and emotion and meaning in music.

Professional Development Activities

Attendee, **University of Toronto Teaching and Learning Symposium**
University of Toronto, May 2019
A one-day symposium with talks from various teaching-focused faculty across a variety of departments. The topic of *Learning Spaces + Places* addressed both the design and use of physical spaces for improving education, such as active learning classrooms, as well as creating spaces for underrepresented groups to be seen and heard in lecture and discussion. Particular sessions of interest included management of large enrolment classes, incorporation of group learning exercises, and the use of sequential writing assignments to improve critical reading skills.

Advanced University Teaching Preparation Certificate Program
University of Toronto, 2015-2017
A two-year program designed to prepare graduate students for teaching university undergraduate courses. Includes ten workshops on various aspects of teaching, including: critical reading, syllabus development, designing assignments, supporting students in stress, developing inquiry-based learning. Two microteaching assessments completed, with emphasis on presentation skills and lesson planning (assessment of lesson planning included on page 14).

Sample of most impactful workshops:
1. Making Your Syllabus Work for You and Your Students
An introduction to basics of syllabus design, what to include, how to clearly state expectations and learning outcomes. This was a key workshop in developing ways to be accountable to students and tell them what they can expect from me.

2. Designing Meaningful Assessments
Guidelines and tips on creating assignments that are useful both to the teacher and the student as an evaluation of learning, encouraging considering learning outcomes when building assignments and scaffolding towards a summative evaluation. Useful in considering the structure of a course and how to build up towards evaluations, even for courses where major assignments are not logistically feasible.

3. Feedback on the Fly: How to collect, interpret, and respond to student mid-course feedback
Focused on ways of getting feedback from students on their learning experience, and how teachers can incorporate their responses into their subsequent teaching. I found this another great workshop in learning how to develop strategies for accountability to my students in teaching effectiveness.

Evaluation of Teaching

Feedback on PSY30400, Fall 2021

Emails from students in Cognitive Psychology, sent to me after the final examination was written. Emphasis mine:

Hi Dr. Chan! I hope you're having a nice break so far.

[…]

I also wanted to thank you for a great semester. **I really appreciated how you adapted your teaching throughout the semester based on student feedback**. Many professors say that they're going to do that, but few actually follow through with it. I loved the course and look forward to learning from you again next semester!

Professor,

I wanted to quickly thank you for this past semester. I enjoyed being in your class and appreciate the **time and effort that you dedicated to helping myself and others succeed**. I just wanted to let you know that all of your work does not go unnoticed. I really enjoyed the content we covered and will definitely use it in my future academic pursuits.

Highlights: Students appreciated the adaptability of the classroom environment.

Feedback on PSY30520, Spring 2021

Emails from students in Introduction to Cognitive Neuroscience, sent to me after the final examination was written. Emphasis mine:

Hi Dr. Chan,

I just wanted to reach out quickly to express my appreciation for your dedication to our Intro to Cognitive Neuroscience class. I really felt your support throughout the course of the semester and **felt I had a personal relationship with you as my professor**, which is rare in a class of our size.
I felt my **skills develop and cultivate due to your instruction and feedback**. The time you put into each and every one of your students really shows.
Thank you for the opportunity to learn and grow from your knowledge and skill and for accommodating a semester like no other.

Hi Prof. Chan,

I tried hopping on the Zoom after I finished the exam, but I just wanted to say thank you for all you did this semester. I really enjoyed this class and **always looked forward to coming to lecture**. Thank you for **fostering such a positive learning environment**!

Highlights: Students found the classroom environment a positive one for learning and were encouraged by the environment. Due to the classroom dynamics being shifted as a consequence of COVID-19 protocols, this was meaningful feedback to receive.

Official Course Evaluations, University of Notre Dame

The university of Notre Dame administers semester-end course evaluations (the CIF, or Course Instructor Feedback). These evaluations are standardized throughout the university. Below is a summary of the numerical composite median values and CIF response rate for each evaluated course.

The composite median is calculated out of 5, and is constructed from a five-point scale based on the following qualities: Organization, Resources, Assignments, Feedback, Preparation, Clarity, Fairness, Develop Mastery, Stimulate Interest, Promote Thinking.

Response rate is provided as an index of the accuracy of the CIF median values.

Course	Fall 2020	Spring 2021	Fall 2021	Spring 2022
PSY 43358 Music in the Brain	4.8 / 83%	5.0 / 95%	5.0 / 74%	5.0 / 74%
PSY 43359 Auditory Cognition	4.6 / 92%	5.0 / 94%	5.0 / 61%	5.0 / 86%
PSY 30520 Introduction to Cognitive Neuroscience	-	4.3 / 83%	-	4.7 / 89%
PSY 30400 Cognitive Psychology	-	-	4.8 / 93%	-
PCSE 00262 Summer Scholars Neuroscience	-	-	-	-

Official Course Evaluations on PSY493, Winter 2019/2020

The University of Toronto's Faculty of Arts and Science solicits official course evaluations from students during the last two weeks of the school semester. Questions are separated based on whether they were asked from the entire institution, the division, the department, and the instructor; I selected the three instructor items based on wanting to evaluate my accessibility to students and the applicability of course theoretical concepts to concrete examples.

2019: Of the 39 students in the course, 21 students (54%) completed the course evaluation. Based on the course evaluation interpretation guidelines issued by the U of T Centre for Teaching Support and Innovation (2018), these give a somewhat precise estimate of the course-wide response (±0.5).
2020: Of the 41 students in the course, 10 students (24%) completed the course evaluation. Based on the course evaluation interpretation guidelines issued by the U of T Centre for Teaching Support and Innovation (2018), these give a general estimate of the course-wide response (±1.0). The course evaluation period coincided with the transition to remote learning caused by the COVID-19 pandemic, which affected not only the class, but also the ability of students to complete these evaluations.

Institution-wide items

Scale: 1 - Not At All 2 – Somewhat 3 - Moderately 4 - Mostly 5 - A Great Deal

Question	Mean (2019)	Median (2019)	Mean (2020)	Median (2020)
I found the course intellectually stimulating.	4.0	4.0	4.4	5.0
The course provided me with a deeper understanding of the subject matter.	4.1	4.0	4.5	4.5
The instructor created an atmosphere that was conducive to my learning.	4.0	4.0	4.1	4.5
Course projects, assignments, tests, and/or exams improved my understanding of the course material.	3.8	4.0	3.9	4.0
Course projects, assignments, tests, and/or exams provided opportunity for me to demonstrate an understanding of the course material.	3.8	4.0	4.1	4.0

Scale: 1 - Poor 2 - Fair 3 - Good 4 - Very Good 5 – Excellent

Question	Mean (2019)	Median (2019)	Mean (2020)	Median (2020)
Overall, the quality of my learning experience in this course was:	3.8	4.0	3.6	4.0

Faculty of Arts and Science items

Scale: 1 - Not At All 2 – Somewhat 3 - Moderately 4 - Mostly 5 - A Great Deal

Question	Mean (2019)	Median (2019)	Mean (2020)	Median (2020)
The instructor generated enthusiasm for learning in the course.	4.1	4.0	4.3	4.5
I would recommend this course to other students.	3.7	4.0	3.8	4.0

Scale: 1 - Very Light 2 - Light 3 - Average 4 - Heavy 5 – Very Heavy

Question	Mean (2019)	Median (2019)	Mean (2020)	Median (2020)
Compared to other courses, the workload for this course was…	3.7	4.0	3.7	3.5

Department of Psychology items

Scale: 1 - Not At All 2 – Somewhat 3 - Moderately 4 - Mostly 5 - A Great Deal

Question	Mean (2019)	Median (2019)	Mean (2020)	Median (2020)
The instructor was enthusiastic about the course material.	4.2	4.0	4.3	4.5
The course instructor expressed an interest in student understanding when explaining course concepts.	4.6	5.0	4.5	5.0
The course material inspired me to learn more about the subject matter.	3.3	3.0	3.8	4.0

Instructor items

Scale: 1 - Not At All 2 – Somewhat 3 - Moderately 4 - Mostly 5 - A Great Deal

Question	Mean (2019)	Median (2019)
During the course, the instructor was approachable when students sought guidance.	4.8	5.0
The course instructor organized lectures in a logical manner.	4.7	5.0
The course instructor used examples when explaining course concepts.	4.5	5.0

Question	Mean (2020)	Median (2020)
The course instructor provided opportunity for classroom discussion.	4.5	5.0
The course instructor encouraged students to ask questions about the course material.	4.6	5.0
The course provided instruction on how to read text, research, and other material critically.	4.2	4.5

Reference:

Centre for Teaching Support and Innovation (2018). *University of Toronto Course Evaluation Interpretation Guidelines for Academic Administrators.* Toronto, ON: Centre for Teaching Support & Innovation, University of Toronto.

Feedback on PSY493 course, April 2019

From two students in PSY493, the course I taught as a course instructor, sent to me after final marks for the course were submitted. Emphasis mine:

Hi Vanessa,

Now that the course is over, I wanted to thank you for a great semester. Both you and [the TA] were **extremely responsive towards your students, and you always followed up**. Overall, this course was a very positive experience, and I mean that due to the amount of support/ willingness to support you and [the TA] both expressed. I hope the psych department knows that you both work very well together, and that **your approachability and attentiveness** is what is needed for a positive student-professor relationship.

I honestly don't think I would have done as well if I felt intimidated to ask for clarification/ ask questions. You both rock, and I hope the department notices and acknowledges that.

[This email was addressed to myself and another instructor; only my segments are included.]

Hi everyone,

[…]

I just wanted to say thanks to both of you for instructing me in recent years, specifically re: introducing me to cognitive neuroscience as a subject area. […] Vanessa's class on cognitive neuroscience really came through for me as the capstone experience I was hoping for. My final grades were of course nothing to write home about, but I managed something like a 96 on my final essay for PSY493, which was a nice validation that I apparently learned something along the way and applied it half-decently, so that's pretty snazzy.

Anyway, thanks for getting me really interested in a new topic and dragging me into half-passible undergrad shape in short order. I got a lot out of both classes and have been applying a lot of what I learned to my other studies and conversations with the other cognition nerds in my life.

Highlights: These were two of the most engaged students in the class who had a vested interest in doing well and frequently provided verbal feedback throughout the course. It meant a lot to receive words of praise from someone who kept track of my progress.

Feedback from students for guest lecture, March and October 2017

Solicited feedback from students collected during guest lectures in PSY260 (Learning and Plasticity). Feedback was scored on a scale of 1 to 5 (1: strongly disagree, 5: strongly agree). The topic for March 2017 was Working Memory, and the topic for October 2017 was Classical Conditioning.

Criterion	March 2017 (N = 64)	October 2017 (N = 79)
1. The lecturer explained the material clearly	3.78	4.47
2. The lecturer spoke clearly & audibly	4.16	4.60
3. The lecturer spent an appropriate amount of time on each concept	3.57	4.38
4. The lecturer used visual aids effectively	3.94	4.67
5. The lecturer seemed interested in the material	4.72	4.75
6. The lecturer was well organized and prepared	4.16	4.76
7. The lecturer was responsive to questions	4.53	4.57
8. I understand what the most important points from this lecture are	3.58	4.37
9. Overall this was a good lecture	3.70	4.41

Students were also given space to give written feedback on one area the lecturer did well, and one area for improvement. Strong elements reported generally were **expertise on the topic** and **enthusiasm for the subject**; elements of improvement were **slowing the pace of the lecture** and **improving transitions between content.**

The results from October 2017 demonstrated improvement across the board in comparison to March; student feedback was in general very positive and useful.

Feedback on teaching guest lecture, January 2015

From Suzanne Wood (Assistant Professor, Teaching Stream), who I guest lectured and was a TA for in PSY260. Emphasis mine:

As for your lecture, I'm glad you found it a beneficial experience! I promise I don't ask TAs to do this just as a torture device, I really do think the practice is invaluable (like writing test questions - you think you know what it's like until you have to do it yourself). You are **clearly excited about the topic of audition and perception, and you conveyed that nicely** last week. My only feedback to help with whenever you may be lecturing again is to just make sure **to take the time to describe experiments in some detail whenever you are showing data** - give examples, etc. This is especially true for a second year lecture, and would not be so pertinent for, say, a conference talk or something of the like. Explain what the axes of the graph are, what's being measured, blah blah blah. It probably sounds like overkill to say things in that much detail, but when people are learning something for the first time, a little hand-holding can go a long way. Great job, overall!

Highlights: useful feedback on tone and pace. It was good to receive constructive feedback on a positive teaching experience.

Microteaching II: Effective Lesson Planning and Delivery – Peer Review, March 2016

A workshop taken on developing effective lesson planning. Participating graduate students were asked to prepare a 20-minute lesson and deliver it to fellow participants. This is a summary of reviews received on a lecture given on categorical perception. Bolded responses in particular reflect aspects of my teaching philosophy.

Lesson Organisation	Review (1: Needs work, 2: Good, 3: Excellent)
Introduction	2.2
Prior knowledge	2
Learning objectives	**2.9**
Body	2.7
Modelling / examples	**2.7**
Internal summary	2.4
Timing and pacing	2.1
Content	2.4
Checks for understanding	2.5
Conclusion	2.1

Effective objectives for students to know what to expect from the lesson. Involved students in generating an example of the topic at hand.

Effective Questioning	Review (1: Needs work, 2: Good, 3: Excellent)
Generates questions	1.75
Quality of questions	2
Response time	2.2
Listening	**2.5**
Quality of responses	2.2

Attentive to responses in order to understand students' questions and concerns accurately.

Discussion Facilitation	Review (1: Needs work, 2: Good, 3: Excellent)
Body language and tone	**3**
Discussion management	2.3
Problem solving	2
Active listening	2.3
Quality of responses	**2.7**

Engaging with students in a dynamic manner, encouraging students to ask questions.

Supporting Materials / Teaching Aids	Review (1: Needs work, 2: Good, 3: Excellent)
Handouts	N/A
Visual aids	**2.7**

Presenting the topic on PowerPoint in a clear manner.

Representative Teaching Materials

1. Sample syllabus: PSY30520 (page 16)

This syllabus is from the most recent version of Introduction to Cognitive Neuroscience taught at the University of Notre Dame. Visual contrasts are used to emphasize particular messages within the syllabus and to establish the tone that I wish to take with my students.

2. Sample exam questions, PSY30520 (page 21)

A sample of exam questions that were used in iterations of Introduction to Cognitive Neuroscience. Questions were written to either: a) engage students by comparing examples of concepts discussed in class, to take them outside of the textbook, or b) to demonstrate an understanding of the experimental basis of the theories discussed, to build their critical thinking skills regarding interpreting the results of experiments.

3. Sample reading check, PSY30400 (page 23)

For PSY 30400, I included five quizzes throughout the course that evaluated the ability of students to critically read a primary research article that was assigned for class. This method of evaluation evolved through student feedback as the course went on; earlier iterations of these quizzes involved reporting back the main findings and some questions regarding the methodology of the papers. In previous iterations, students reported that they were focused on memorizing the results to do well on the quiz, which was not the original intention of the evaluation. Thus, the grading was restructured under a specifications grading format such that getting 4 out of 5 was at threshold for the course, and that each reading check was open for a week after discussing this paper in class.

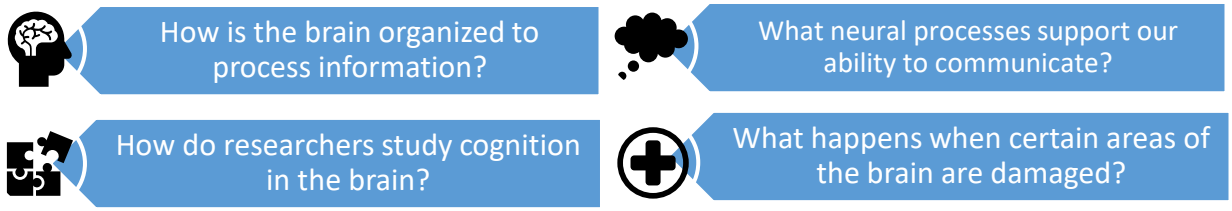
4. Term paper assignment, PSY43358 (page 25)

The term paper is a core component of most 40000-level courses in Psychology at the University of Notre Dame. Because students arrive to the course with a variety of questions, they are encouraged to pursue a topic of their own choice and construct an argument from their research.

Sample course syllabus

PSY30520: Introduction to Cognitive Neuroscience

NSBH30520 / CDT30510 | Spring 2022 | Tuesdays, Thursdays 12:30PM-1:45PM
DeBartolo Hall 101 | Instructor: T. M. Vanessa Chan, PhD



Welcome to Intro to Cognitive Neuroscience! In this class, we will cover a broad array of topics that discuss the relationship between mental phenomena and brain structure and function. How does the brain support complex functions like navigating a city, or reading this syllabus? We will explore these ideas through various aspects of cognition, and how these are accomplished through the coordination of networks of neurons across the brain. Along the way, we will engage empirical research articles to become more familiar with how academic research is communicated with peers in the field.

Course Objectives and Description

Learn and articulate concepts of mind, brain, and behaviour

- Understand how basic neural processes underlie human cognition
- Connect cognitive functions / dysfunctions to a neuroanatomical source
- Reflect on brain-behaviour relationships as it relates to your experiences

Develop skills for research and general scientific literacy

- Apply appropriate neuroscience methods to a given research question
- Critically appraise methods and interpretations from research articles
- Communicate scientific concepts to a general lay audience

From the course calendar: An "Introduction to Cognitive Neuroscience" is a survey course that introduces students to the biological substrates underlying various forms of cognition in humans, with a specific focus on mental processes. We will explore how psychological and cognitive functions are produced by the brain. Cognitive neuroscience is a branch of both psychology and neuroscience, drawing from disciplines such as biological psychology (biopsychology), neuroscience, cognitive psychology, and neuropsychology. We will cover a broad range of topics, including learning and memory, perception, development and neural plasticity, cerebral lateralization and language, emotions and social cognition, stress, sleep and dreaming, and consciousness. No previous coursework in neuroscience is required, but at least some experience with biology or biopsychology is preferred.

Instructor Information

Instructor: T. M. Vanessa Chan, PhD | **Please call me:** Vanessa or Prof./Dr. Chan
Email: tchan3@nd.edu | **Office:** Corbett Family Hall 308 or by Zoom
Office Hours: Wednesdays 2-3:30PM or by appointment
Sign up for office hours here: calendly.com/tmvchan/office (drop-ins are fine too)
Ask me about: Content and concerns about the class, considering graduate school, living abroad, life in Canada (it's not all hockey and maple syrup!)

Graduate Teaching Assistant: [redacted] | **Email:** [redacted]
Office Hours: By appointment; please email to schedule a meeting time
Ask me about: Course content, concerns regarding grading on evaluations

Undergraduate Teaching Assistants:
[redacted] | **Email:** [redacted] | **Contact Hours:** Thursdays 11AM-12PM
[redacted] | **Email:** [redacted] | **Contact Hours:** Mondays 7-8PM
[redacted] | **Email:** [redacted] | **Contact Hours:** Wednesdays 6-7PM
[redacted] | **Email:** [redacted] | **Contact Hours:** Wednesdays 4-5PM
Ask me about: Course content, Deep Dive topics, study tips, etc.

Office hours are designated times set aside for *you*, the students. Please feel free to drop in without feeling like it's an imposition! Keep in mind that office hours are free for any student to use, which means that someone else may be with me if you drop in without making an appointment. **If you would like to have an individual meeting**, please contact me in advance (via email or Calendly) and we will make the appropriate accommodations.

Prerequisites

Introduction to Psychology (PSY10000/20000). Neuroscience and Behavior (NSBH20450) or other biology coursework is recommended but not required.

Textbook

Gazzaniga, M. S., Ivry, R. B., & Mangun, G. R. (2019). *Cognitive neuroscience: the biology of the mind*. Fifth edition. New York: W. W. Norton & Company, Inc.

Course Materials and Website

In addition to the textbook, we will be reading research articles from cognitive neuroscience and related disciplines. One of the objectives of this class is to begin introducing you to scientific research articles and how to read them, if you haven't already had this experience. This will also give you the context for understanding how this research gets subsequently transformed into the news and media we read.
All course materials (including this syllabus) will be posted on the course website on Canvas. Lecture slides for a given class will be posted at latest 12AM on the day of class. Submission of assignments will also take place through Canvas, and any feedback provided on assignments will also be released on

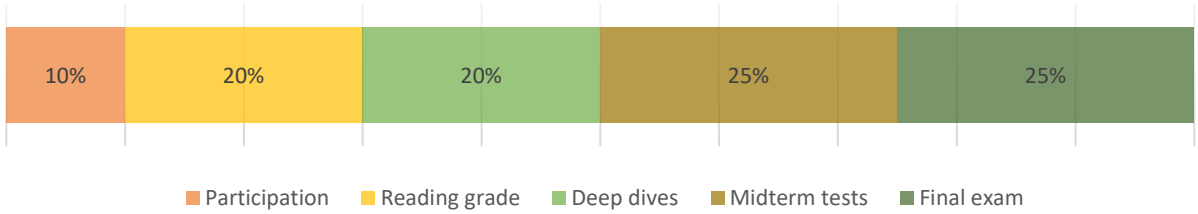
Canvas. **Please turn on notifications for announcements from Canvas**, as announcements will be used extensively to communicate to the entire class regarding updates on class content and assignment information. Furthermore, **please do not repost course material** (including slides, recordings, and assignments) or share outside of the participants of this class.

Email and Online Communications

Please allow for up to 24 hours on a weekday before receiving a response. There is no guarantee on receiving a response to emails on weekends. When emailing the instructor or TAs, please use your official Notre Dame email address and put the course code in the subject heading. I also encourage you to use the Forum on Canvas for asking both content questions and questions regarding assignments. You'll help anyone else who has the same question!

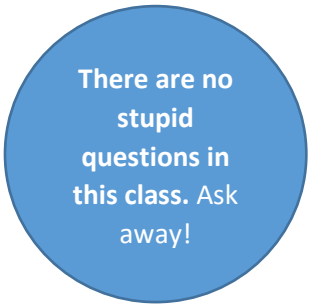
As required, the class may involve the use of Zoom to facilitate remote participation, group discussion, and project planning. To respect the privacy of your peers, please refrain from sharing identifying information from discussions in social media platforms, including screen captures of lecture recordings or group meetings.

Evaluations



Participation:	10%	**Midterm tests:**	25%
Reading grade:	20%	**Final exam:**	25%
Deep dives:	20%		

Participation (10%)



Although this is a fairly large lecture-based class, your participation is important in fostering a meaningful atmosphere for learning. We will frequently have opportunities to discuss, review, and converse about course material. Your participation will be evaluated on several points: engagement with in-class group activities and discussions, and exit tickets (a brief form that you submit at the end of each class via Google Forms). It is my hope that you will feel free to contribute to class discourse without reservation. If there is an extenuating circumstance that precludes your full participation in class through any or all of the above methods, please let me know as soon as possible so I can account for this in your evaluation.

Reading grade: Collaborative reading and extrapolation (20%)

Part of this course is to introduce you to reading primary literature from the discipline of cognitive neuroscience. For some of you, this might be a familiar endeavor; for others, this may be your first experience with reading these papers. We will be reading five papers interspersed throughout the class,

and to help build your reading skill we will be doing two types of assignments: collaborative reading through Perusall and reading reflections.Perusall is a platform on which small groups can annotate a reading together with the goal of fostering discussion and collective understanding of a given text. Reading reflections are a minimum two-paragraph written assignment on one of the assigned papers, one of which is a summary and the other of which is a reflection on the paper with some guidelines. The collaborative reading and reading reflections together will be graded in a specifications grading format, where this portion of your final grade will be determined by whether or not you have met certain benchmarks on a pass/fail basis. This grade will be determined by the number of levels completed by 11:59PM April 26, 2022. Please refer to the 'Reading Grade Calculation' document on Canvas for details.

Deep Dives (20%)

The other avenue for fostering your reading skills are Deep Dives, which are short responses (approx. 1 page) that vary in nature. For the first Deep Dive, you will select a topic of interest, and every subsequent Deep Dive will be an application of class concepts to the topic of interest. These applications will involve you doing research outside of class on your topic, guided by your TAs who will assume the role of topic expert. More details on these assignments can be found on Canvas. Deep Dives will be graded based on effort and the lowest will be dropped.

Midterm tests (2 tests, 25% total)

There will be two midterm tests, which will take place during class time. Together the tests will be worth 25% of your final grade, with the tests weighted based on performance: the test you score better on will be weighted 15%, while the other test will be weighted 10%. Material covered in midterm tests will not be cumulative, although some of the concepts covered in the first part of the course will naturally be relevant for the second part of the course. Midterm tests will consist of multiple-choice and short-answer questions, spanning both textbook and lecture material, as well as any assigned articles for the lectures covered.

Final exam (25%)

The final exam will be worth 25% of your final grade, and will be scheduled during the final examination period. The exam will be cumulative and longer than the two term tests; however, there will be a slightly stronger emphasis on material that is covered after the second term test. Similar to the term tests, the final exam will consist of multiple-choice and short-answer questions, as well as long-answer questions.

Extra credit opportunities

There will be up to 2% of extra credit available for participation in experiments in the Department of Psychology listed on SONA. Each experiment must be related to cognitive neuroscience or cognitive psychology (please ask if you require clarification). To accompany each experiment, you will be asked to submit a short one-paragraph write-up of your participation experience, including 1) a description of what you did during the experiment, and 2) how this related to a concept we learned in class.
Since it is entirely possible that you would have completed an experiment prior to a relevant concept we cover in class, you have until the end of the term to submit all participation write-ups, but I would advise that you at least draft up the description part of the experiment shortly after completing your

participation such that you don't forget any details you would like to include. Each credit hour on SONA will count as 0.5% of your final grade, but only if accompanied by a reflection; if an experiment you participate in consists of more than one credit hour, only one reflection is needed for all hours to count for extra credit. All reflections are due **11:59PM Tuesday, April 26.**

Other opportunities may come up over the semester to gain extra credit. These will be announced in class and over Canvas announcements. In all cases, extra credits are to be used to resolve borderline cases and not make them (i.e. there is no rounding up of final grades, since extra credit will be used for that).

Missing Classes

As participation comprises part of your final grade, it is in your best interest to attend all classes; however, the many new situations we continue to face may preclude your ability to do so. If you do miss a class, please make all efforts to gather information from other sources: download readings and any presentation material, ask for notes from classmates, and so on. If you can let me know in advance that you'll be missing a class for any reason, it would greatly help in planning for the day!

Evaluation Policies

Missing an evaluation: If you know you will be missing a timed evaluation opportunity (such as a midterm test or a reading check), please let me know as soon as possible so we can discuss alternatives. If you have missed an evaluation due to extenuating circumstances, please contact me with an explanation and any supporting documentation. In most such cases, the weight of the missed evaluation will be transferred to the remaining corresponding evaluations; for example, if you miss Midterm 2 due to illness, the weight of Midterm 2 will be moved to Midterm 1, such that Midterm 1 is now worth 35% of the final grade.

Late submissions: For every 24-hour period after the submission due date, 5% off the final mark will be deducted (for example, if it is due 11:59PM on March 1, a submission at 3PM on March 3 will have 10% deducted). If you require an extension, please email me directly with an explanation and any supporting documentation you have.

One-time grace period

- Once during the semester, you can choose to use a 48-hour extension on one of the Deep Dives, but you are required to declare this usage to me via email no later than 24 hours after the initial deadline – it will not be applied automatically. **You do not need to explain the rationale for this grace period.**
- Sometimes, life happens, and I respect your privacy. If for whatever reason you require further accommodation, please speak to me as soon as possible and I will try my best to work with you to find a solution.

Questions on Grading

If you have a concern regarding grading on an evaluation, please first speak to the instructor or the TA who graded the evaluation first: we will be trying to provide you with as much feedback as possible! If a disagreement remains with a TA, you may file a regrade request with the instructor. Should the concern

be deemed legitimate, the section will be re-graded, which may result in a higher, lower or identical grade to the one originally given. You have up to a maximum of two (2) weeks from the time you have received the grade to ask for a re-grade. After two weeks, no re-grade requests will be accommodated.

Grading Scheme

Final grades for this course will be allocated on the following scale:

Grade	Percent	Grade	Percent	Grade	Percent
A	93-100%	**B-**	80- < 83%		
A-	90- < 93%	**C+**	77- < 80%	**D**	60- < 70%
B+	87- < 90%	**C**	73- < 77%	**F**	0- < 60%
B	83- < 87%	**C-**	70- < 73%		

Religious Accommodation

As per the mission statement of the University, our academic environment is made the richer through the contributions of students and faculty from a diversity of backgrounds, cultural traditions, and spiritual beliefs. I will make every reasonable effort to avoid scheduling tests, examinations, or other compulsory activities on religious holy days not captured by statutory holidays.
If you anticipate being absent from class or missing a major course activity (like 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. This can involve make-up assessment times, reweighting of assessments, or alternative assessments.

Accessibility Services

Students with diverse learning styles and needs are welcome in this course. If you have an acute or ongoing disability issue or accommodation need, please contact Sara Bea Accessibility Services (https://sarabea.nd.edu/). The office will assess your situation, develop an accommodation plan with you, and support you in requesting accommodation for your course work. Remember that Sara Bea Accessibility Services will not share details of your needs or condition with any instructor.

Academic Integrity

This course will follow the Undergraduate Academic Code of Honor (https://honorcode.nd.edu/) in expecting that everyone will practice academic integrity and intellectual honesty. 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. Violations of the Honor Code will be reported following the procedures listed at the above webpage.

Examples of honor code violations:

- quoting another person's ideas in your work without clear and proper acknowledgment
- using or possessing an unauthorized aid or obtaining unauthorized assistance in taking an exam or writing a paper
- submitting forged documentation as excuses for missed evaluations
- inappropriately distributing work among group members in a group project

Health and Wellness

If at any point you feel pressured (by time, extracurricular issues) to commit an honor code violation, **please contact me**. We can work out a solution together to avoid this.

Care and Wellness Consultants (https://care.nd.edu/) can put you in touch with resources to help if you feel you are facing barriers to your flourishing as a student, whether those be related to academics, physical and mental health, interpersonal issues, etc. I strongly encourage you to schedule a meeting with them if at any point you feel like you are overwhelmed in any way. Be kind to yourselves and have the strength to admit to yourself when it's not going well for you, and reach out to your support networks whenever you feel you need them.

Classroom Research

This semester your instructor will be conducting a study looking at teaching and learning. The purpose of this study is to determine the factors that influence teaching effectiveness and learning. Your participation in this study will last for the duration of the current semester and will entail activities no different from the regular activities you would otherwise engage in as part of the course. If you would like more information, please do not hesitate to ask. If you would like to opt-out of the study, please talk to me as soon as possible.

Course Schedule

Date	Lecture #	Topic	Textbook chapters	Additional reading	Assessment
Jan. 11	1	Introduction	-	-	-
Jan. 13	2	Historical perspectives	1	-	-
Jan. 18	3	Neurons and synapses	2	-	-
Jan. 20	4	Neuroanatomy	2	-	Deep Dive 1
Jan. 25	5	Methods of cognitive neuroscience	3	-	-
Jan. 27	6	Methods (cont'd)	3	-	-
Feb. 1	7	Chemical senses and somatosensation	5 (174-185)	-	Deep Dive 2
Feb. 3	8	Audition	5 (186-191)	Bidelman & Grall (2014)	Perusall 1
Feb. 8	9	Vision and object recognition	5 (191-200), 6	-	-
Feb. 10	10	Object recognition (cont'd)	6	Leleu et al. (2019)	Perusall 2
Feb. 15	-	Overflow and review	-	-	Deep Dive 3
Feb. 17	Midterm 1: Lectures 1-10				
Feb. 22	11	Motor and action	8	-	
Feb. 24	12	Motor and action (cont'd)	8	Hochberg et al. (2012)	Perusall 3
Mar. 1	13	Attention	7	-	
Mar. 3	14	Attention (cont'd)	7	-	
Mar. 8	*Spring Break: No class*				
Mar. 10	*Spring Break: No class*				
Mar. 15	15	Mechanisms of learning & memory	9 (381-382, 419-423)	-	Deep Dive 4
Mar. 17	16	Memory systems	9	-	-
Mar. 22	17	Executive function	12	-	-
Mar. 24	18	Executive function (cont'd)	12	Gold et al. (2013)	Perusall 4
Mar. 29	-	Overflow and review	-	-	
Mar. 31	Midterm 2: Lectures 11-18				
Apr. 5	19	Emotion	10	-	Deep Dive 5
Apr. 7	20	Speech and Language	11	Lau & Namyst (2019)	Perusall 5
Apr. 12	21	Social cognition	13	-	
Apr. 14	22	Consciousness	14	-	Deep Dive 6
Apr. 19	23	Societal implications	-	-	-
Apr. 21	-	Final review	-	-	-
Apr. 26	-	-	-	-	Deep Dive 7
May 3 10:30-12:30	Final exam: Cumulative **Location: 101 DeBartolo**				

NOTE: Material covered in each class is subject to change. Selection of readings may change. Evaluation dates are final.

Other important dates:
January 17 (Monday): Martin Luther King Day – no classes
January 18 (Tuesday): Deadline to change courses
March 18 (Friday): Drop deadline
April 15-18: Easter break
April 27-28, April 30-May 1: Reading days
April 29, May 2-5: Final examination periods
May 13-15: Commencement weekend

Additional Readings

All additional readings are available on Canvas through Library Reserve.

Bidelman, G. M., & Grall, J. (2014). Functional organization for musical consonance and tonal pitch hierarchy in human auditory cortex. *NeuroImage, 101*, 204-214.

Gold, B. T., Kim, C., Johnson, N. F., Kryscio, R. J., & Smith, C. D. (2013). Lifelong bilingualism maintains neural efficiency for cognitive control in aging. *Journal of Neuroscience, 33*(2), 387-396.

Hochberg, L. R., Bacher, D., Jarosiewicz, B., Masse, N. Y., Simeral, J. D., Vogel, J., … & Donoghue, J. P. (2012). Reach and grasp by people with tetraplegia using a neurally controlled robotic arm. *Nature, 485*(7398), 372-375.

Lau, E. F., & Namyst, A. (2019). fMRI evidence that left posterior temporal cortex contributes to N400 effects of predictability independent of congruity. *Brain and language, 199*, 104697.

Leleu, A., Rekow, D., Poncet, F., Schaal, B., Durand, K., Rossion, B., & Baudouin, J. Y. (2020). Maternal odor shapes rapid face categorization in the infant brain. *Developmental Science, 23*(2), e12877.

Submitted exam questions

Multiple choice:

Q: GABA is one of the major neurotransmitters. A GABA antagonist would have what overall effect on the post synaptic membrane?

a. *Depolarizing*
b. Hyperpolarizing
c. It would release more calcium ions into the cell
d. Elicit an inhibitory post synaptic potential
e. It would increase the refractory period

Q: Ellie is having a late night writing a paper, and looks from typing on her keyboard to the cup of coffee on her desk. Deciding that she needed another dose of caffeine, she reached over with her left hand while looking back at the computer monitor. What brain region would be most associated with judging where in space her hand was prior to moving it to reach for the coffee cup?

a. *Inferior parietal cortex*
b. Supplementary motor area
c. Premotor cortex
d. Basal ganglia
e. Cerebellum

Q: Vivian is going through photo albums of her childhood and comes across a picture of her and her best friend with cake, and recalls the exact moment the photo was taken – they were celebrating another friend's birthday, and she remembered the taste of the cake they were eating. Looking at another photo of that day, she knew it was from the same day but did not have a strong sense of what happened at the moment the photo was taken. What is different between how Vivian responded to the first and second photos?

a. Vivian had an episodic memory associated with the first photo
b. The second photo was familiar to Vivian without eliciting information about the specific moment
c. Her hippocampus would have been more active when thinking about the first photo
d. Vivian's memory associated with the second photo is more semantic in nature
e. *All of the answers are correct*

Short answer:

Q: Your friend is designing an experiment where they are measuring an early neural index of attention that requires temporal sensitivity, and they do not have a lot of research funding. Which neuroimaging method would you recommend? Give one reasons for your recommendation relative to other methods, and one question about this index they would not be able to reliably answer with this method. (4 marks)

A: Method of choice: EEG (1)
Reasons (one of the following):
Has high temporal resolution unlike fMRI (1)
Is comparatively inexpensive unlike MEG (1)
Limitation: Where in the brain is the signal originating? (since spatial resolution is poor) (1)

Sample reading check

PSY 30400 Reading Check 1 (Lafer-Sousa et al., 2015)
ANSWER KEY

1. What did the authors think was the reason for the discrepancy in how 'the dress' was perceived? (1 mark)

Viewers had different priors about the lighting environment (e.g. a cool vs. warm illuminant) and thus perceived the ambiguous dress colours either one way or another.

2. What were the two main ways by which the authors asked participants about their perceived colours? (1 mark)

Verbal report in a 'this is a _____ and _____ dress' fill-in-the-blank
Using a colour-matching tool and asking participants to identify the colour at a given area

3. Explain figure S2 of the supplementary material. How do the authors interpret the results as illustrated in figure S2B? (2 marks)

Figure S2 shows the images of the dress that were displayed with altered lighting conditions, and the classification of the colours by viewers under those conditions. S2B shows that under conditions of overt lighting cues, viewers were biased to the expected colours for a cool vs. warm illuminant, even if they all saw those colours differently in the original image.

4. One potential explanation for the individual differences that the authors discuss is that differences in chronotype (morningness vs. eveningness) align with differences in priors for illuminant. How was this indirectly supported? (1 mark)

Older adults and women tended to see the dress as W/G more, and these people are more likely to have a daytime chronotype and experience more daylight (cool illuminant, leading to W/G perception).

PSY43358 TERM PAPER

WHY A TERM PAPER?

There are two main reasons for assigning a term paper. Firstly, there are so many topics to explore that I want you to explore one that interests you! The hope is that this allows you to engage with material that personally interests you and allows you to get the most out of the course. Secondly, several of the course objectives include learning to read, appraise, and synthesize information from primary research articles. These are useful skills both within and outside of psychology and neuroscience, so it is in your best interest to exercise these skills often and well.

WHAT KIND OF TERM PAPER?

For this paper, you are asked to pick a topic of your choice within the field of music psychology (broadly defined), examine a debate or shifting perspective in that topic, and argue for one perspective. The advances in this field of research have allowed for many new and emerging discoveries, which then informs and motivates new theories of music perception and cognition. You are writing for someone with basic knowledge of psychology and neuroscience (i.e. you don't have to explain to them where the parietal lobe is or what sustained attention is, but you may want to define or clarify terms at the start of your paper as necessary).

Think about what interests you, and what ongoing questions you might have about the research in the field; however, make sure that the topic you pick can actually address the objective of the paper, which is to synthesize this research information into a compelling argument.

Some examples of topics and questions that students have pursued are:

- • Music-evoked autobiographical memories: which theoretical account best explains how episodic memories are associated with music?
- • Use in language learning: can music be used to facilitate learning of a foreign language, particularly tonal languages?
- • Sad music and depression: is listening to sad music an adaptive mechanism for those with depression, or is it actually not a good thing for them?

For your paper, you will be required to include a *minimum* of five (5) primary empirical research articles: articles in which data were collected, analyzed, and reported. You are not allowed to use articles assigned in class as part of the minimum. Other articles and reference materials are permitted, although they will not count to this minimum reference count.

To help you construct your paper over the course of the term, there are three assignments that will comprise the total mark for the paper. These are in order to help you think critically about the topics that you would like to write about, and choose a topic that will lead to a persuasive paper.

Paper Topic

Due 11:59PM February 8, 2022

Please submit your topic and research question for approval prior to starting your paper outline. I want to make sure that what you're interested in won't be too broad or too narrow for the kind of paper I'd like you to write for this class. Choosing a topic that is inappropriate will result in a paper that isn't able to accurately fulfill the goals. Don't keep this to the last minute!
You are not bound to the topic that you initially choose; you may find that in the process of writing your outline, you're either not that interested in what you're writing or it's too hard to find material for what you want. We will have a class dedicated to giving you time to think and bounce ideas off of your classmates about what topic you would like to pursue, and whether it's one that has enough substance to fulfill the goals of the term paper as outlined above.

Paper Outline and Abstract (10% of final mark)

Due 11:59PM March 1, 2022

Here, you will be asked to outline the progression of your paper, as well as how your required empirical articles will fit into the structure of your argument. The articles should be listed in the manner of an annotated bibliography where they would appear in the outline of your paper. Providing additional research is not required at this point, but will be beneficial in our understanding of what direction your article is going in. You will also be asked to write an abstract for your paper; this does not have to be the version of the abstract you submit in the final paper, but will serve as practice for how to structure an abstract.

Peer Review of Draft (5% of final mark)

Due 11:59PM April 19, 2022

One of the great things about having a class of peers is that you can turn to each other for help. I'd like to formalize that process and also let you practice how to give good feedback to your peers. There are two steps to this process:

1. **Please prepare a completed (electronic) draft of your paper for class on Thursday, April 14**. We will spend class time that day starting the process of reviewing a peer's paper draft. Submission of a draft for peer review on April 14 will comprise part of your grade; please note that the one-time grace period policy does *not* apply for this assignment.

2. The peer review itself is due at the end of the following Tuesday, April 19. This will give time for the peer that receives your review to incorporate your useful and insightful comments into their final paper submission.

You will then receive your feedback from a peer, and some comments from me as well. If there is one assignment not to slack on, it would be this one: this one is directly applicable to someone else's work in this class, and they will appreciate it!

FINAL PAPER (30% OF FINAL MARK)

DUE 11:59PM APRIL 29, 2022

The paper itself should be between 2100-2400 words (excluding abstract, captions, and references), double-spaced with one-inch margins in size 12 Times New Roman font. It must be formatted according to APA style, with the correct references, indentations, headings, title page, and abstract with keywords. You are welcome to include up to two figures (with proper captioning) if you feel they are beneficial to the understanding of the paper, but this is not a requirement. Consider carefully whether that figure will be actually helpful!
Consider the following elements in your paper (also when making your paper outline):

1) Theoretical summary

The paper should situate the reader in the context of the research the paper will discuss. The reader should be able to determine how the topic has been historically studied, what the state of the current research is, and the debate that is at the heart of the paper.

2) Evidence integration

The paper should outline the research articles you have found and how they support (or possibly refute) the position you have taken on the debate. The details of each experiment do not need to be discussed, but it should be clear why you chose them for your paper and what it contributes to your argument.

3) Conclusion and future directions

Take the results of your evidence integration and bring them back into the larger picture. What does taking this side of the argument mean for the development of the field? Are there further studies that need to be done in order for the debate to be resolved? Consider these questions as you conclude your paper.

A couple of things you can expect to be evaluated on:
1) Mechanics: Your work should not have spelling or grammatical errors.

2) Writing style: Your writing should clearly communicate your thought to the reader, rathe than making it confusing.

3) Structure: It should be clear how one part of the paper follows from the previous part, and how they all relate to each other.

4) Precision and accuracy: Avoid generalizations and ambiguity in your facts, and make sure that they are correct.

5) Analysis: Your work should demonstrate that you have a solid understanding of the topic and originality of thought.

6) Formatting: Please remember to format in APA style. It's an easy few marks to gain or lose!

QUESTIONS?

If at any point you have any questions about the submissions or the requirements, do not hesitate to contact me. For concerns about writing and citations, consider visiting the Notre Dame Writing Center (https://writingcenter.nd.edu/). Writing is an involved process, but at its core it is all about communicating ideas clearly to other people who read your work. Take this as an opportunity to dive into a topic that interests you and share that with someone else!