Cognitive Processes

PSYC 309

Who, What, When, Where...

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Contact : To make sure we don't miss your message, please include PSYC309 in your subject title always
When : Winter Term 2, Tuesdays & Thursdays
9:30-11am (002), 11am-12:30 (003)
Where : Brock Commons South (BRCS) 1030
Prereqs : Strongly recommended PSYC 101 and one of PSYC 216, 217, or 277

...Why?

The subject of this course is difficult, many times frustrating, but also incredibly beautiful, and one that we are all nonetheless incredibly intimately familiar with — the human mind. To understand our minds — why we see the world, think, and act the way we do — one of the most fundamental questions we must ask is: what are the mental processes that animate the life of the mind? This course will begin with defining what a "cognitive approach" to the study of the mind is in the first place. We will discuss the history of the cognitive turn, and learn the language of approaching the study of the mind in this way. Under this framework, we will consider a full range of mental processes, from perception, attention, memory, the imagination, language, to decision-making. We will then explore how these various processes may unfold over development, shape how we interact with others, underlie our most trying moments — but also contribute to moments of beauty and awe. **The project of cognitive science is to help us make sense of experience by understanding how the mind works**. The goal of this course will be to equip you with a vocabulary through which you can begin to explain parts of your own experiences that you might otherwise find difficult to articulate — and a lens through which you can ask new questions about the way you experience and move through the world that we have yet to capture and understand.

Lectures & Readings

The contents of this course will be delivered through the lectures and the readings (no textbooks!) — and these in turn will make up the contents of the exams. I will provide the lecture slides, but most of these slides will contain minimal text. This means that to do well, you will have to attend the lectures, and you will have to do the readings. These readings have been selected from many sources, and they are designed to demonstrate key ideas, provoke thoughts, and more often than not, raise more questions (than give answers). Don't worry if you find some terms foreign or some methods difficult to follow. I will be here to guide and help you make sense of the content.

Expected Work

60%   ***Two short exams***
The first short exam will be on <u>February 13</u>, and will cover material from January 9 to February 11. The second short exam will be during the final exam period (date TBD), and will cover material from February 25 to April 3. The nature of these exams will be discussed in class. The exam with a higher grade will count for 35%, while the other will count for 25% of your grade. Make-up exams will only be considered for students facing exceptional emergency circumstances that are communicated to the instructor prior to the time of the exam. These will involve completely new questions, possibly in other formats.

25%   ***Thought paper***
This is one of my favorite parts of this course because it will be one of the ways that I can get to know *your* thoughts in a more in-depth way. The specifics of this paper will be discussed in class. This 6-7 page paper will be due on <u>March 18</u>, no later than one hour before the start of the class. We will provide an "early bird" 3% bonus if you submit your paper by <u>March 6</u>. 10% of the grade will be deducted for each day you are late, unless concession is granted.

5%   ***Reading responses***
To encourage engagement with the readings (and to help you not cram for exams), you will be asked to respond to brief question/s about the readings each week. A sample prompt might be: "Do you agree with the claims made in the paper? Why or why not?" Your answers should be no longer than 1-2 paragraphs, and they must be submitted on Canvas no later than Thursday 11:59pm. Other times, you might be given the option to instead find a Youtube video or another journal article that relates to the readings for that week. You only need to complete 10 responses (which means you get 2 passes). Each response is worth 0.5%, but we can give an extra 0.5's for "model responses" that show true engagement with the readings. We will select up to 2 model responses per week.

5%   ***Participation***
Occasionally, in class, I will open up surveys on Canvas based on content that we discuss in lectures. These questions will be a range of short form questions, psychology tests, or thought experiments. In some ways, this is simply to encourage attendance (believe me, I find it just as painful as you all to have to be up at 9am) — but in other ways, this is also to gauge how you are understanding an important concept in class — given how much the content of the lectures will be fair game in exams.

2%   ***Weekly check-ins (optional)***
Each 'quiz' can be run from Canvas' Modules page, and has a minimum number of "points" you need to collect to get a pass. Each quiz is worth 0.5%, up to a maximum of 2%. These check-ins are designed to help me get a sense of how you are progressing through the class. If you do not complete these, that's fine — whatever remaining value will be redirected to the lower-scoring exam (e.g., if you do not complete any check-in, the second lower-scoring exam will be 27% of your grade).

3%   ***Research engagement***
One of the best ways to learn the science is to gain first-hand experience of the experiments that precede the discoveries. You can do so by serving as a participant in the different psychological studies (worth 1% point for each hour) that are conducted in the Department of Psychology's Human Subject Pool (HSP) system.

You can locate, create an account, and sign up for studies by going to https://hsp.psych.ubc.ca. Please register in the system by the end of the first month of classes to have the opportunity to earn your first ½ hour credit with a brief online survey that will increase your eligibility for more studies. Once registered in the system, you will be able to browse through and select which studies you wish to participate in, sign up for an available timeslot, and confirm your accumulated credits afterward. At the end of the last day of class for the term, the subject pool is closed. At that point, you will no longer be able to receive credits. I strongly urge you to participate in and confirm your credits long *before* the last week of class since many studies will not offer timeslots near the end of the term and you may be locked out before allocating your credits to your desired course. Further instruction on how to use the HSP online system can be found at https://psych.ubc.ca/undergraduate/opportunities/human-subject-pool/ in the document entitled "Subject Pool Information for Participants."

For each hour of experimental participation, you can earn one credit towards your final grade. You can sign up for studies by visiting https://ubc-psych.sona-systems.com/. You can find out more about how you can earn extra credits at https://psych.ubc.ca/hsp. (And alternatively, you can also earn these same extra credits by completing a library-writing project, in which you read and summarize a peer-reviewed research article. You can check out the grading policy at the end of this document to more details.)

None of the graded work in this course, unless otherwise specified, is collaborative, i.e., the expectation is that these be completed by yourself alone. This includes your responses to the readings, as well as to the thought paper. In the first place, I have built in these assessments into the course because they constitute one way through which I, despite teaching a bigger lecture class, can hear out **your** thoughts about the material (not your friend's, nor your mother's, nor ChatGPT's) — what struck you, moved you, confused you, or captured your imagination.

Course Outline

Below is a tentative outline for the material we'll cover in this course. Readings will also be posted online on Canvas. The exact timing of the lectures (and the readings) are subject to change — depending on how the course goes (and where your thoughts/questions take us).

1. Tue 1/7: Introduction

2. Thu 1/9: A cognitive approach?
Cosmides & Tooby (1994), "Beyond intuition and instinct blindness …"
Skim: Carandini (2012), "From circuits to behavior: A bridge too far?"

3. Tue 1/14: 'Mental organs'
Carston (1996), "The architecture of mind: Modularity and modularization"

4. Thu 1/16: The hardware / cognitive neuroscience
Weisberg et al. (2008), "The seductive allure of neuroscience explanations"

5. Tue 1/21: Cognition as information processing
Pylyshyn (1999), "What's in your mind?"
Skim: Gallistel (1998), "Symbolic processes in the brain: The case of insect navigation."

6. Thu 1/23: Perception — the first forms of the mind
Skim: Rolfs (2009), "Microsaccades: Small steps on a long way"

7. Tue 1/28: "What do we see?"
Scholl & Gao (2013), "Perceiving animacy and intentionality"

8. Thu 1/30: Space and time
Sacks (2004), "Speed"
Firestone & Scholl (2016), "Cognition does not affect perception" (<u>read only until p.18</u>)

9. Tue 2/4: Attention and awareness
Scholl (2001), "Objects and attention: State of the art" (<u>read only until end of Section 3</u>)
Ward et al. (2016), "Can you perceive ensembles without perceiving individuals? …"

10. Thu 2/6: Beyond vision (read for the *gist*)
Gelstein et al. (2011), "Human tears contain a chemosignal"
Margulis et al. (2022), "Narratives imagined in response to instrumental music …"

11. Tue 2/11: Exam review

<u>Thu 2/13: EXAM #1 + MIDTERM BREAK</u>

12. Tue 2/25: Varieties of imagination in psychology (read for the *gist*)
Galton (1880), "Statistics of mental imagery"
Nedergaard & Lupyan (2023), "Not everybody has an inner voice"

13. Thu 2/27: Structures of memory
Skim: Klinzing et al. (2019), "Mechanisms of systems memory consolidation during sleep"

14. Thu 3/4: "What do we remember?" (read for the *gist*)
Bainbridge (2019), "Memorability"
Nairne (2010), "Adaptive memory"

15. Thu 3/6: "When do we forget?"
Cowan (2001), "The magic number four" (<u>read only until p.26</u>)
Skim: Davis & Zhong (2017), "The biology of forgetting—a perspective"

16. Tue 3/11: Making plans and decisions
Schacter et al. (2008), "Episodic simulation of future events"

17. Thu 3/13: Beliefs and biases
Tierney (2011), "Do you suffer from decision fatigue?"

<u>THOUGHT PAPER DUE 3/18 – BEFORE CLASS</u>

18. Tue 3/18: "What do we think about?"
Bear et al. (2020), "What comes to mind?"
Skim: Morris, "Invisible gorillas in the mind"

19. Thu 3/20: Concepts, grammar, and language
Everaert et al. (2015), "Structures, not strings: Linguistics as a part of the cognitive sciences"
Skim: Nelson et al. (2017), "Neurophysiological dynamics of phrase-structure building …"

20. Tue 3/25: Cognitive processes in development (read for the *gist*)
Perez & McCrink (2019), "Measuring spontaneous focus on space in preschool children"
Wynn (1992), "Addition and subtraction by human infants"

21. Thu 3/27: Cognitive processes in social interactions
Leslie (1994), "ToMM, ToBy, and agency: Core architecture and domain specificity"

22. Tue 4/1: Cognitive processes in mental dysfunction (read for the *gist*)
Gotlib & Joormann (2010), "Cognition and depression: Current status and future directions"
Koller & Cannon (2023), "Aberrant memory and delusional ideation"

23. Thu 4/3: Cognitive processes in aesthetic experiences
Palmer et al. (2013), "Visual aesthetics and human preference"

24. Tue 4/8: Wrapping up

<u>FINAL EXAM</u>

General Policies

The library option

As an alternative to participation in psychology subject pool experiments, you may complete a library-writing project. Such projects consist of reading and summarizing 1) the research question, 2) the methods and 3) the results (in written form) of a research article from the peer reviewed journal Psychological Science. You will receive one (1) research participation credit for each article summary that meets the following requirements.

Requirements:
- The article must have been published in the journal titled "Psychological Science"
- The article must have a publication date from the year 2000 to present (i.e. papers from 2001 are acceptable; those from 1999 or earlier are not)
- The article must be a research article; it cannot be a review article, a news item, a notice, or a letter to the editor, for example
- The summary should be approximately 500 words in length
- You must include your name, student number, course, section, instructor and email address on each summary
- You must log on to the Human Subject Pool (HSP) system (http://hsp.psych.ubc.ca/) and create an account before submitting your article summaries. Your credit is assigned using the online system.

For each course, you may obtain the same number of extra credits via the library option as specified in the course syllabus (i.e. the same number of credits available for students who participate in research).

Summaries must be submitted no later than 10 days before the end of classes. You are to submit your article <u>and</u> your summary to turnitin.com. If you don't have a turnitin account already (from a previous course), you will need to create a user account in Turnitin. For the library assignment the class ID is 46712531, class name is "HSP 2024-2025 W2" and password is "Research". See www.turnitin.com, and click on the "Training" link at the top of the page for detailed instructions on how to submit papers to Turnitin. Any student who is suspected of plagiarism will, at a minimum, not be granted credit, and their course instructor will be notified. Further action may be taken at a departmental or university level.

Makeup policy

If you miss marked coursework for the first time (exam, paper, participation in class) and the course is still in-progress, immediately submit a <u>Student Self-Declaration</u> to me so that your in-term concession case can be evaluated.

If this is not the first time you have requested concession or classes are over, fill out Arts Academic Advising's <u>online academic concession form</u> immediately, so that an advisor can evaluate your concession case.

If you are a student in a different Faculty, please consult <u>your Faculty's webpage on academic concession</u>, and then contact me where appropriate.

Grading policy

In the Psychology Department, we aim to offer learning experiences that welcome and challenge all students to engage meaningfully in our discipline. We strive for grades that accurately reflect student learning and achievement of course learning objectives, rather than solely reflecting their performance relative to others.

In Psychology at UBC-V, we employ department-wide grading standards to promote equitable alignment, supporting students and course instructors as they learn and teach across many diverse courses and sections. For each Course Section, instructors should aim for a grade average in the following Target Ranges (before any bonus HSP points are added, but including any mandatory HSP points): **B- (68-71%) in Introductory 100-level and 200-level courses; B (72-75%) in Intermediate 300-level courses; B+ (76-79%) for Advanced 400-level courses and Selective-Entry lower-level courses** (e.g., PSYC 277, 278, 312, 370, 371, 349, 359, 365). Ranges are intended to provide some flexibility to instructors and account for differences that can occur between classes. Ranges increase across year levels to account for improvements in student learning, and students' ability to self-select into more specialized courses.

During the course, instructors may choose to adjust grades and/or difficulty of the assessments, to align with the Target Range. At the end of the course, if the average falls outside the Target Range (either direction), instructors will typically be expected to use a linear transformation to adjust final grades (i.e., add or subtract the same number of points to all students' marks, while ensuring no student fails the course due to this transformation). If a course mean falls in within one +/- letter grade band above the Target Range (e.g., in the B+ range for Intermediate courses), and the instructor believes these grades to be justified, the instructor may submit a justification request using the departmental approval final grades submission form, and the grades may stand. This Upper Range is intended to inspire further excellence in learning and teaching, and allow for the possibility that some classes select for higher performing students. Courses with means exceeding the Upper Range will be expected to provide justification as well as use a linear transformation to fall within the Upper Range.

Grades are not official until they appear on students' academic record. Students will receive both a percent and a letter grade for this course. At UBC, they convert according to the key below:

A+	90-100%	**B+**	76-79%	**C+**	64-67%	**D**	50-54%
A	85-89%	**B**	72-75%	**C**	60-63%	**F**	0-49%
A-	80-84%	**B-**	68-71%	**C-**	55-59%		

Academic honesty
If you have any questions as to whether or not what you are doing is even a borderline case of academic misconduct, it is better to always just ask me. And for details on pertinent University policies and procedures, please see Chapter 5 in the UBC Calendar (http://students.ubc.ca/calendar) and read the University's Policy 69 (available at http://www.universitycounsel.ubc.ca/policies/policy69.html).

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work. Violations of academic integrity (i.e., misconduct) lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating may result in a mark of zero on the assignment or exam and more serious consequences may apply when the matter is referred to the Office of the Dean. Careful records are kept in order to monitor and prevent recurrences. A more detailed description of academic integrity, including the University's policies and procedures, may be found in the UBC Calendar: Student Conduct and Discipline.