COURSE SYLLABUS

Course Name: Brain and Behaviour
Course Code: PSYC 304B-002
Class Time and Place: Mondays, Wednesdays and Fridays 9 am – 10 am, WESB 100

I want to acknowledge that UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the xwməθkwəy̓əm (Musqueam) people. The land it is situated on has always been a place of learning for the Musqueam people, who for millennia have passed on their culture, history, and traditions from one generation to the next on this site.

TEACHING TEAM

Instructor

Dr. Camila Cavalli (she/her)
camila.cavalli@ubc.ca - I aim to respond within 2 business days. For urgent inquiries, please indicate it in the subject line
Office hours: Tuesdays 1:30-2:30 & Wednesdays 10:30-11:30 in Kenny 3502 or by appointment

Hi, I am Camila, and I am excited to be your instructor for this course!

My research interests include learning, human-animal interactions, and animal welfare. Before being a Lecturer in the Psychology department, I was a Postdoctoral Fellow at the Animal Welfare Program at UBC, working in the Human Animal Interaction lab on general dog cognition research as well as exploring ways to maximize therapy dog welfare during sessions with children.

Teaching Assistants

Jackson Schumacher (he/him)
schumacher@psych.ubc.ca

Office hours: Booked through e-mail appointment

- Master of Arts 2020, University of British Columbia, Behavioural Neuroscience
- **PhD Student** 2020-present, University of British Columbia, Cognitive Science
- Lab: Neural Circuits and Cognition Lab
- **Research interests**: My current project uses optogenetics and fiber photometry to investigate the role of prefrontal or striatal dopamine release in modulating risk/reward decision making.

Shayden Schofield-Lewis (he/him)
ssl@psych.ubc.ca

Office hours: Booked online at https://shayden.youcanbook.me/

- Master of Arts 2024, University of British Columbia, Behavioural Neuroscience
- **PhD Student** 2023-present, University of British Columbia, Cognitive Science
- Lab: Centre for Gambling Research at UBC
- **Research interests**: I explore the features of life that pull us towards or push us away from making decisions involving risk. To study this, I am developing a slot machine simulator and betting simulator where I can manipulate characteristics of the experience to better understand how it affects behaviour.

DIVERSITY & INCLUSION

I intend to create an inclusive learning environment in my classroom. As a teacher I aim to promote autonomy and encouraging lifelong learning, which I do through mutual trust and respect. I approach teaching this course with the firm belief that all students can learn well and succeed, and my focus is on providing you with the materials, activities, and supports needed for you to do so.

Your suggestions are encouraged and appreciated, please let me know ways to improve the effectiveness of this course and/or make it more accessible to you.

Please see below for wellness resources including mental health support.

WHAT IS THIS COURSE ABOUT?

"Any man could, if he were so inclined, be the sculptor of his own brain"
Santiago Ramón y Cajal

Welcome to PSYC 304!

In this course we will explore the dynamic relationship between brain and behaviour. We will examine how the brain makes it possible for us to think, feel, and act.

To achieve this, we will analyze how neural structures and processes make behaviour possible, as well as how experiences and behaviour can in turn shape the brain.

We will begin with the foundations of brain function and information processing, then move on to study how these processes support complex behaviours, and how their disruption can lead to pathological outcomes.

YOUR LEARNING GOALS

By the end of this course, you should be able to:

1. Describe the functions of different types of brain cells and structures.
2. Explain how neural structures support various psychological processes.
3. Analyze the potential outcomes of damage to different parts of the nervous system.
4. Understand research methods commonly used in neuroscience.
5. Critically evaluate current research and topics in neuroscience.
6. Apply neuroscience concepts to everyday life and critically assess related claims in media and popular culture.

COURSE FORMAT/ STRUCTURE

This course meets in-person at WESB-Room 100 (See details and map) on Mondays, Wednesdays and Fridays 9-10 am.

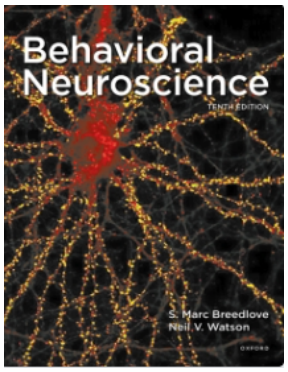
Please come to class prepared to participate in your learning, as active engagement is valued and highly encouraged to ensure your success in this course.

I will provide the slides before each class, but **I recommend you take your own notes**. The class period will be devoted to interactive lectures as well as discussions with your peers in pairs and groups, which will be based on the textbook, scientific papers, and/or watching videos related to the topic.

Lectures will be recorded. Keep in mind that, although the recording is focused on me and the slides, you may appear or be heard in the recordings. To maintain peer and instructor confidentiality please do not share these recordings with anybody who is not part of this class. Note that recordings can be helpful if you miss a lecture or want to hear a specific part again, but these are not a substitution for attendance, and **you should plan to come to class in-person.**

LEARNING MATERIALS

Required textbook:



Breedlove, S. M. (2022). *Behavioral Neuroscience* (10th ed.). Oxford University Press Academic US.

Estimated price $102 (1 year of online access)

Get the book here

Course Website: https://canvas.ubc.ca/courses/173906

Lecture slides and any additional materials will be available on Canvas.
I will also use Canvas to make announcements about the course (make sure you set up your announcement alerts so you do not miss important messages! – Guide on how to do this).

Piazza discussion forum: https://piazza.com/ubc.ca/other/psyc304b002

We will use Piazza as our discussion forum this semester. It will be a helpful resource for you to connect with other students. This is a space where can ask any questions you may have about the course and the materials, and your peers will be able to answer you to the best of their knowledge. I encourage you all to try and answer each other questions to the best of your abilities. Others can chime in and clarify further. Me and the TAs will check the forums and may "endorse" an answer or add clarifications if needed, but note that this is primarily a student-centred space.

LEARNING APPRAISALS

Appraisal	Dates	Percent of Total Grade
Exam 1	10/10	18
Exam 2	7/11	18
Exam 3	During the Final Exam Period (December 10 – 21, date TBD)	16
Exam 4	DATE TBD	16
Exam 5	DATE TBD	16
Exam 6	During the Final Exam Period (April 14 - 25, date TBD)	16
Total		**100%**
Bonus REC participation	By last day of classes	3%

Note: See end of the syllabus for detailed course schedule.

1. Exams

- There will be **6 exams** throughout this course.
    - **In-term exams**: Exams 1, 2, 4 and 5 will be written in person during our usual class time.
    - **"Final" exams**: Exams 3 and 6 will be written during the Final Exam Period in December and April, respectively. Note that the date of these exams is designated by UBC and you must be able to write them at any time within the exam period. Avoid booking any travel until these dates are published in mid-October and mid-February.
- **Exams will not be cumulative, but new topics may integrate previously learned concepts.**
- Exams will cover materials from the textbook and the lectures. Unless otherwise stated, everything in the assigned chapters as well as all lecture materials are examinable.
- Exams will include multiple-choice, fill-in-the-blanks and short-essay questions.
- Exams are closed book.
- You must bring your student ID to each exam.
- Exam grades will be posted on Canvas.

Reviewing exams:

- Exams will be available to review with your TAs after they are graded.
- If there is a grading dispute that cannot be resolved with the TA, I will regrade that component of your exam. Note that this can result in the same grade, an increase, or a decrease according to my judgement.
- Any grading disputes must be brought to the Teaching Team within 2 weeks of exam grades being released.

Exam concessions
See Arts department academic concession for details on concessions.

What if I miss an exam?

- If you miss **exam 1, 2, 3, 4 or 5** you must **contact me as soon as possible and within 48 hours** of the missed exam. Please include a Student Self Declaration Form. I want to be mindful of your privacy, so please do not share any other medical/personal documentation with me.
  - **If you miss more than one exam**, contact me first, but note that I may ask you to reach out to your Faculty's Advising Office (i.e., Arts Advising, Science Advising) if I feel ill-equipped to judge the nature of your hardship.

- If you miss **exam 6** it will be treated as missing a final in a one-term course. You will need to **apply for Standing Deferred Status** with your Faculty's Advising Office. Note that I have no control over the granting of this concession. If your deferred status is granted, you will be allowed to take the deferred exam in Summer 2026 at a date scheduled by the Registrar.

- **You will be asked to write a make-up exam with the TAs which will take place within one week of the missed exam.** For exam 3, the make-up date should typically be arranged before the start of the new term. The exception for this would be if the original exam falls during the last week of finals, in which case the make-up should be completed during the first week of the new term. Note that the TAs will be supporting many students and only one alternate date may be available. Please be flexible and do your best to accommodate to their availability.
- **If you are unable to attend the make-up date, the weight of the missed exam will shift to exam 6.**

- If you know you will be absent for planned reasons, such as work, sports, or family obligations, please don't assume your absence will automatically be accommodated. Let me know about any prior commitments by September 15 to let me consider the specifics of your situation.

2. Extra credit - Research Experience Component (Human Subject Pool)
As part of this course, you are invited to earn **up to 3% extra credit** in one of the following ways:

2.1 Participate in the Psychology Department Human Subjects Pool: Most students will choose to earn their research experience component by **participating in psychology studies (worth 1% point for each hour)** through 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://ubc-psych.sona-systems.com/. 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 and earn your credits long before the last week of class. Further instruction on HSP can be found at https://psych.ubc.ca/undergraduate/opportunities/human-subject-pool/

2.2 Alternative assignment: 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 system (https://ubc-psych.sona-systems.com/) 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).

You must submit your article and summary to turnitin.com. **For submission information, see** https://psych.ubc.ca/undergraduate/opportunities/human-subject-pool/**, click on HSP Participant Information, and read the section on the Library Option.** See turnitin.com for more information. Any evidence of plagiarism may result in lack of credit, and instructors will be notified. Further action may be taken by the department or university. 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.

COURSE POLICIES

Classroom conduct

I want everyone to feel welcome, safe, and respected in our classroom. I expect you to treat all your classmates, your instructors and yourself with respect both in face-to-face and online interactions. This includes being considerate when asking questions or making comments, not monopolizing discussions, and minimizing potential distractions for other students.

In case of instructor illness/personal emergency: If I am unable to come to class, I will communicate plans as soon as possible using the Announcements feature in Canvas. If I am well enough to teach, class will be moved online (our classroom will still be available for you to sit in). If I am not, I will do my best to find a colleague that can substitute me or provide a recorded lecture as soon as I am able.

Accommodations - Centre for Accessibility

UBC is committed to equal opportunity in education for all students and so are we. The Centre for Accessibility facilitates disability-related accommodations designed to remove barriers for

students with disabilities and ongoing medical conditions. If you have a need for accommodation, please contact UBC's Centre for Accessibility (604.822.5844, info.accessibility@ubc.ca).

Grading and scaling

The Psychology department employs 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 a student's academic record. You 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	76-79%	C	60-63%	F	0-49%
A-	80-84%	B-	68-71%	C-	60-63%		

Academic integrity

Academic integrity is a commitment to upholding the values of respect, integrity, and accountability in academic work. It means being an honest, diligent, and responsible scholar. **This includes taking exams without cheating and completing assignments independently or acknowledging collaboration when appropriate.**

Psychology Department's Position on Academic Misconduct

Cheating, plagiarism, and other forms of academic misconduct are very serious concerns of the University, and the Department of Psychology has taken steps to alleviate them. In the first place,

the Department has implemented software that can reliably detect cheating on multiple-choice exams by analyzing the patterns of students' responses. In addition, the Department subscribes to TurnItIn – a service designed to detect and deter plagiarism. All materials (term papers, lab reports, etc.) that students submit for grading will be scanned and compared to over 4.5 billion pages of content located on the Internet or in TurnItIn's own proprietary databases. The results of these comparisons are compiled into customized "Originality Reports" containing several sensitive measures of plagiarism; instructors receive copies of these reports for every student in their class. In all cases of suspected academic misconduct the parties involved will be pursued to the fullest extent dictated by the guidelines of the University. Strong evidence of cheating or plagiarism may result in a zero credit for the work in question. According to the University Act (section 61), the President of UBC has the right to impose harsher penalties including (but not limited to) a failing grade for the course, suspension from the University, cancellation of scholarships, or a notation added to a student's transcript. All graded work in this course, unless otherwise specified, is to be original work done independently by individuals. If you have any questions as to whether or not what you are doing is even a borderline case of academic misconduct, please consult your instructor. 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.

Note on the use of Generative AI tools: You are permitted to use artificial intelligence tools, including generative AI, to gather information and review concepts in this course. This means you may use ChatGPT or similar tools to help you brainstorm and study (but be mindful of potentially inaccurate information!). The use of Generative AI tools is not permitted during examinations or other for-grade activities (such as the Library option of the REC). For guidelines on the use of generative AI, see the Generative AI Tools FAQ.

UNIVERSITY POLICIES

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available on the UBC Senate website.

HELPFUL RESOURCES

Academic support

- **Chapman Learning Commons**: Academic resources, tutoring information and studying tools. https://learningcommons.ubc.ca
- **UBC Academic Learning Resources**: https://students.ubc.ca/enrolment/academic-learning-resources
- **UBC Library Resources:** https://guides.library.ubc.ca/psychology

IT support

- **UBC IT helpdesk:** https://it.ubc.ca/got-question-about-it-products-and-support
- **Textbook support:** https://bookstore.ubc.ca/course-materials-support/

Health & Wellness

- **Early Alert:** The Early Alert program provides proactive support and intervention for students to address challenges they may be facing before these become overwhelming.
- **Campus Lightbox:** Campus Lightbox centralizes information about mental health and wellbeing resources on campus, and how students can best access them.
- **Health and Wellness:** The Faculty of Arts has complied a list of health and wellness support options available to students.
- **Other resources:**
    - **UBC wellness centre** – resource hub with information to improve wellbeing: https://students.ubc.ca/support
    - **The kaleidoscope**: peer support group http://the-kaleidoscope.com/
    - **UBC Mental Health Awareness Club**: http://blogs.ubc.ca/ubcmhac/
    - **AMS Student Services**: https://www.ams.ubc.ca/support-services/student-services/
    - **UBC Psychology Clinic**: https://clinic.psych.ubc.ca/
    - **Student Health Service:** https://students.ubc.ca/health/student-health-service

BC Crisis Centre: https://crisiscentre.bc.ca/ 9.8.8 (call or text), 310.6789 (call). Crisis line available 24/7.

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See Schedule on the next page.

FIRST TERM SCHEDULE

Please check our Canvas website for the most updated version of the schedule. I will use Announcements to notify you of any changes.

Course withdrawal: If you wish to withdraw without any record of this course on your transcript, you must do so by September 15. If you wish to withdraw with a "W" on your transcript, you must do so by October 24.

Week 1	3-Sep	Welcome	Syllabus
	5-Sep	Studying the biology of behaviour	Ch 1 (1.1)
Week 2	8-Sep	The nervous system	Ch 2 (2.1 – 2.4)
	10-Sep		
	12-Sep		
Week 3	15-Sep		
	17-Sep		
	19-Sep		
Week 4	22-Sep	Electrical signalling	Ch 3 (3.1 – 3.3)
	24-Sep		
	26-Sep		
Week 5	29-Sep	Methods: Relating Brain and Behaviour ▪ Levels of Analysis/History ▪ Brain imaging techniques ▪ Measuring electrical activity in the brain	Ch 1 (1.3, 1.4) Ch 2 (2.5) Ch 3 (3.4)
	1-Oct		
	3-Oct		
Week 6	6-Oct		
	8-Oct	Review	
	10-Oct	EXAM 1	
Week 7	13-Oct	Thanksgiving – no class today	
	15-Oct	Chemical signalling	Ch 4 (4.1- 4.4) [Note 4.5- 4.7 will be covered in Term 2]
	17-Oct		
Week 8	20-Oct		
	22-Oct		
	24-Oct		
Week 9	27-Oct	Hormones and the brain	Ch 5
	29-Oct		
	31-Oct		
Week 10	3-Nov		
	5-Nov	Review	
	7-Nov	EXAM 2	
Week 11	10-Nov	Midterm break	

	12-Nov	Midterm break	
	14-Nov	Principles of sensory processing	Ch 8 (8.1)
Week 12	17-Nov	Touch and pain	Ch 8 (8.2 - 8.3)
	19-Nov	Hearing and balance	Ch 9 (9.1 - 9.6)
	21-Nov	Taste and smell	Ch 9 (9.7 - 9.8)
Week 12	24-Nov	Vision	Ch 10
	26-Nov		
	28-Nov		
Week 14	1-Dec	Motor Control	Ch 11
	3-Dec		[Note 11.6 will be covered in Term 2]
	5-Dec	Review/closing of first term	
December finals period		EXAM 3	

SECOND TERM TOPICS

- Sex (Ch 12)
- Homeostasis (Ch 13)
- Biological Rhythms, Sleep and Dreaming (Ch 14)
- Emotions, Aggression and Stress (Chapter 15)
- Learning and Memory (Chapter 17)
- Psychopathology: Biological bases of Behavioral Disorders (Chapter 16)
- Psychopharmacology, Drug Addiction (Chapter 4, 4.5-4.7)