

Behavioural Neuroscience 1

PSYC 370 001

T/Th 9:30-10:50 AM

Buch A203 (All lectures will be recorded)

COURSE INFORMATION

Instructor:	Todd Kamensek	todd.kamensek@ubc.ca
Teaching Assistant:	Andre Zamani	azamani@psych.ubc.ca
Pre-requisites:	One of PSYC 260, 270; One of PSYC 217, 277; One of PSYC 218, 278	
Textbook:	Selected readings will be provided (for free) from: Kandel, E.R. et al. (2012), Principles of Neural Science, 5 th Edition.	
Website:	All course related material can be found at canvas.ubc.ca	
Office Hours:	Instructor: Todd Kamensek – By appointment	Zoom Meeting
	TA: Andre Zamani – By appointment	Zoom Meeting

ACKNOWLEDGEMENTS

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 in their culture, history, and traditions from one generation to the next on this site.

Various sections of this syllabus were inspired and/or adapted from colleagues at UBC, including Dr. Jason Snyder, Dr. Ipek Oruc, Ella Weik, and Mana Ehlers.

LEARNING GOALS

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

1. Be able to apply what is known about neurons and simple circuits to help understand how they might work in other areas of the brain.
2. Be able to critically evaluate classic and state of the art methods for studying neurons and circuits.
3. Be able to identify shared and unique mechanisms by which different forms of sensory stimuli are detected and transduced into electrical signals.
4. Have a contemporary view of the theories and research that has shaped our understanding of how the brain integrates information from our senses to create representations that can be stored as memories. You will have an appreciation for the complex hierarchical nature of memory formation and how memories can influence behaviour.

5. Be able to recognize how different memory systems learn about complimentary aspects of experience, and what may happen in the event of dysfunction of any of these systems.
6. You will be more comfortable reading, interpreting, communicating, and discussing contemporary scientific research with your peers.

LEARNING APPRAISALS

Grade breakdown		
Tests	4 non-cumulative tests @ 19.5% each	78%
Reading club presentations	2 X 3% each	6%
PSYC 370 Magazine	2 articles X 7% each	14%
Tweet Machine	10 tweets	2%
Total		100%

Bonus 2% HSP extra credit

SUBJECT POOL EXTRA-CREDIT POINTS. One way to learn more about psychology is to be a participant in ongoing research projects. You may earn up to # points of credit toward your course grade by participating in studies that are posted on <https://ubc-psych.sona-systems.com>. Please register in this online system by end of the first month of class. You can also earn your first half hour of credit by completing pretesting survey that will make you eligible for a wider variety of studies. Please note that in a given term, you can earn no more than one hour of credit for online studies (not including the pretesting).

As an alternative to participating in studies, you may choose to complete library writing projects, in which you read and summarize a research article; each article summary counts as one hour of research participation. More information about this option can be found at: <http://www.psych.ubc.ca/resguide.psy>. All your credits for study participation or the library option will be added to your final course grade, after any scaling that may have been applied.

Exams

- The course is roughly split into four sections. Each quarter will end with an exam.
- Each exam (60 minutes) is composed of multiple choice and short answer questions.
- Each exam is non-cumulative and worth 19.5% of your final grade.
- IMPORTANT: The 4th exam will take place during the final exam period. Do not make travel plans until you know the date of your final exams. You cannot take the final at a different time.

Reading club presentations

- Students will form groups of four and sign up for two presentation dates. Students may either present in quarters 1 and 3, or 2 and 4.

- On their respective presentation dates, students will present (10 minutes) a provided research article to their group members during “reading club”. Reading club will occur twice per quarter. These presentations will not be recorded.
- To facilitate better understanding of the assigned articles, students may collaborate between groups if presenting on the same article. However, the final presentation and PowerPoint slides must be individually made original work.
- If you are unable to attend class on a presentation day, you will be required to submit a video presentation (screen cast or audio embedded PowerPoint) for your group to watch and discuss.
- Following your [live] presentation, please upload a copy of your PowerPoint to Canvas. This copy does not need to be audio embedded or recorded.
- If a presenter is absent from class and has not submitted a recorded presentation – OR – a group does not have a presenter for that day (say for a group of 3), then the members of that group may join another group’s presentation/discussion.
- The provided research articles are meant to enhance your learning and material covered in these presentations will be testable. Important concepts will be reviewed by Todd.
- Each presentation is worth 3% of your final grade (2% Peer Evaluation: 1% PowerPoint)
- There will be a five-minute question period following each presentation, following by 5 minutes for peer feedback.

PSYC 370 Magazine: Article submissions

- In addition to each presentation students will write a 1-page science communication article for the provided reading. Each article (2 total) will be worth 7% of your final grade.
- Each article will contribute to a mini, 8-part magazine created by each group.
- Detailed instructions and grading rubric will be provided on Canvas.

Tweet Machine

- 2% of your final grade will be earned by uploading a screenshot of a 280-character Tweet, or tweet draft (in Word) in 10 out of the 14 weeks of class. The tweets are meant to highlight or expand on topics introduced in class. Select tweets will be featured in the beginning of class each week.
- Each “Tweet” is worth 0.2% up to 2% max.

COURSE POLICIES

COVID-19

- **If you are sick, it is important that you stay home.** Complete a self-assessment for COVID-19 symptoms here: <https://bc.thrive.health/covid19/en>. In this class, the marking scheme is intended to provide flexibility so that you can prioritize your health and still succeed.
- If I am well enough to teach, but am taking precautions to avoid infecting others, we may hold the class online. If this happens, you will receive [an email, an announcement in Canvas...] informing you how to join the class.
- Lectures will be recorded and linked to the course Canvas page if you miss class.

- COVID-19 Safety: You are required to wear a non-medical mask during our class meetings, for your own protection and the safety and comfort of everyone else in the class. For our in-person meetings in this class, it is important that all of us feel as comfortable as possible engaging in class activities while sharing an indoor space. Non-medical masks that cover our noses and mouths are a primary tool for combating the spread of COVID-19. Further, according to the provincial mandate, masks are required in all indoor public spaces including lobbies, hallways, stairwells, elevators, classrooms, and labs. There may be students who have medical accommodations for not wearing a mask. Please maintain a respectful environment. UBC Respectful Environment Statement.
 - o these exemptions to include: “(a) If the student is unable to wear a face covering because of (i) a psychological, behavioural or health condition, or (ii) a physical, cognitive or mental impairment; (b) if the student is unable to put on or remove a face covering without the assistance of another person.”
<https://www2.gov.bc.ca/assets/gov/health/about-bc-s-health-care-system/office-of-the-provincial-health-officer/covid-19/covid-19-pho-order-face-coverings.pdf>
- There will be masks available for students at the Dean’s Office, Arts Advising, Arts ISIT, and distributed to other prominent locations in the Buchanan classroom complex, in the event a student has forgotten to bring a mask to class.
- Please let me know in advance if you have an exception. Those refusing to put on a mask without an exception may be asked to leave class.
- Since we are wearing masks in class, please try to avoid eating while in class, and make sure to re-adjust your mask after having a sip of water, coffee, tea, etc.
- Please call 8-1-1 to determine if you should get tested for COVID-19 if you are sick.

Lectures, Readings

- Course content will be presented in a variety of formats including traditional lectures, student presentations, and in-class discussions/activities. Regular attendance is highly recommended.
- Lecture slides will be uploaded to Canvas after class. Lecture slides will be numbered to facilitate note taking.
- Provided readings are meant to supplement your understanding of the content covered in lecture. For exams, you are responsible for all material covered in-class (lecture and reading club). Material found in the selected textbook readings not covered in class will not be tested.

Exams

- Exams are closed book and will be conducted over Zoom. Therefore, you do not need to come to class on scheduled exam days.
- It is essential that you have a webcam to be able to take these synchronous exams. All students must turn on their webcam for the duration of the exam.
- You may be asked to show your student card and/or share your screen during the exam.
- It is expected that you complete the exam individually, any collaboration, use of course materials, note-sharing, engaging in discussion boards, or private communication between students is prohibited.

- **IMPORTANT:** The 4th exam will take place during the final exam period. Do not make travel plans until you know the date of your final exams. You cannot take the final at a different time.
- *Arriving late to an exam:* A student will not be allowed to write an exam if (1) they are 30 minutes late, or (2) another student has already finished and submitted their exam, whichever occurs first. Students in this situation will not be allowed to write the exam and will receive a zero. Absolutely no exceptions will be made.
- Exams will not be returned to students, although they may be viewed during the TA's office hours.
- Aside from simple corrections, any request for remarking must be made in writing to Todd Kamensek. Otherwise, first talk to your TA.
- Grades will be posted to Canvas as soon as they are available.

Missed exams

- If you miss an exam for a valid reason, without notice, (see [UBC Vancouver Senate's Academic Concession Policy V-135](#)) you must contact Todd within 72 hours of the exam date and you may need to submit a request for academic concession. For a missed exam, the weight will be equally transferred to the other 3 exams. If possible, please contact me before the exam, not after, if you are needing an accommodation.

Emails/Questions

- In most cases, emails will be answered within 2 business days.
- Please include "PSYC 370" in the subject line.
- For questions about assignments, grading, and exam viewings please contact your TA.
- For questions about material covered in class, or any other comments, questions, or concerns please contact Todd.
- This term we will be using Piazza for asynchronous class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. If you have any problems or feedback for the developers, email team@piazza.com.
- Find our class signup link at: <https://piazza.com/ubc.ca/winterterm12021/psyc370>

Accommodations:

- Please let Todd know as soon as possible if you will be seeking accommodation through the Centre for Accessibility or if you have religious obligations that will conflict with this course in any way.
- Students who plan to be absent for varsity athletics, family obligations or similar commitments cannot assume they will be accommodated and should discuss their commitments with Todd before the withdrawal date (September 20).

COURSE SCHEDULE

Week	Date	Topic	Readings/Information
Quarter 1 – Neurons, synapses, circuits			
1	Sept. 9	Lecture 1: Course introduction	
2	Sept. 14	Lecture 2: Neurons: Anatomy and Methods 1	Kandel Chapter 2
2	Sept. 16	Lecture 3: Neurons: Membrane potential, actions potentials	Kandel Ch. 6 pg. 126-135
3	Sept. 21	Lecture 4: Synaptic transmission	Kandel Ch. 8 pg. 184-187, Ch. 10 210-215, 222, 225, 227-232
3	Sept. 23	Lecture 5: Synaptic transmission and Circuits	Kandel Ch. 12 260-265, fig 12-5b, 269, 271, fig 12-6, fig12-7
4	Sept. 28	Lecture 6: Neurons: Anatomy and Methods 2	
Reading Club – Student Presentations			
4	Sept. 30	No Class - National Day for Truth and Reconciliation	
5	Oct. 5	Test 1	Information covered in lectures 1-6
Quarter 2 – Sensory systems			
5	Oct. 7	Lecture 7: Visual System (Retina)	Kandel Ch. 26 (Retina), Kandel Ch. 21 (sensory processing overview)
6	Oct. 12	Lecture 8: Visual System (Pathways and Circuits)	Kandel Ch. 25
6	Oct. 14	Lecture 9: Visual System (cortex)	
Reading Club – Student Presentations			
7	Oct. 19	Lecture 10: Auditory system	Kandel Ch. 30 pg. 655-667, Ch. 31 pg. 684-686, pg. 690-692
7	Oct. 21	Lecture 11: Somatosensory, Olfactory & Gustatory systems (Guest Lecture)	Kandel Ch. 22 pg. 483, Ch. 23 499-508, 516-518, Ch. 32 pg. 716-720, pg. 726-735
Reading Club – Student Presentations			
8	Oct. 26	Test 2	Information covered in lectures 7-11
Quarter 3 – Representation formation			
8	Oct. 28	Lecture 12: Ventral Stream, association cortex	Kandel Ch. 17, 18, 28 (selected readings)
9	Nov. 2	Lecture 13: Dorsal stream, association cortex	
9	Nov. 4	Lecture 14: Entorhinal cortex, hippocampus, and place cells 1	
Reading Club – Student Presentations			
10	Nov. 9	Lecture 15: Entorhinal cortex, hippocampus, and place cells 2	
Reading Club – Student Presentations			
10	Nov. 11	No Class - Remembrance Day	
11	Nov. 16	Lecture 16: Synaptic Plasticity and memory encoding 1	Kandel Ch. 67 pg. 1489-1519
Quarter 4 – Memory systems			
11	Nov. 18	Test 3	Kandel Ch. 65 pg. 1441-1451 Information covered in lectures 12-15
12	Nov. 23	Lecture 17: Synaptic Plasticity and memory encoding 2	Kandel Appendices pg. 1592-1597
12	Nov. 25	Lecture 18: Memory Consolidation and reconsolidation	
13	Nov. 30	Lecture 19: Semantic memory and habit formation	Kandel Ch. 66 pg. 1480-1485

		Reading Club – Student Presentations	
13	Dec. 2	Lecture 20: Memory and disorders 1 (Guest lecture)	
		Reading Club – Student Presentations	
14	Dec. 7	Lecture 21: Memory and disorders 2	
	Dec. 10 - 22	Exam Period - Test 4	Information covered in lectures 16-21

***Note: Minor adjustments to the schedule may occur throughout the semester

UNIVERSITY AND DEPARTMENT POLICIES

Adjusted Department Scaling Policy for 2021W

In order to reduce grade inflation and maintain equity across multiple course sections, all psychology classes are required to comply with departmental norms regarding grade distributions. However, in the spirit of flexibility and compassion in light of COVID-19 and the associated return to in-person teaching, those departmental norms have been adjusted upwards by 5% for 2021W. According to these adjusted norms, the average grade in 100- and 200-level Psychology classes will be 72 for an exceptionally strong class, 70 for an average class, and 68 for a weak class, with a standard deviation of 14. The corresponding figures for 300- and 400-level classes will be 75, 73, and 71, with a standard deviation of 13. Scaling may be used in order to comply with these norms; grades may be scaled up or down as necessary by an instructor or the department. 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%	C+	64-67%
A	85-89%	C	60-63%
A-	80-84%	C-	55-59%
B+	76-79%	D	50-54%
B	72-75%	F	0-49%
B-	68-71%		

Bullying and harassment

At UBC, we strive to provide a safe, respectful and productive work environment for our faculty, staff and student employees. The [Respectful Environment Statement](#) sets out the expectations of everyone who is a member of the UBC community in this regard. Bullying or harassment are behaviours that prevent us from the kind of respectful and productive environment envisioned in the [Respectful Environment Statement](#). Bullying or harassment are not acceptable and will not be tolerated at UBC.

Academic Misconduct & Discipline

The University's regulations governing student discipline in the event of plagiarism, cheating and disruptive behaviour in class are included in the UBC Calendar. Visit <http://www.calendar.ubc.ca/Vancouver/index.cfm?tree=3,0,0,0> for more information. Each student is responsible for familiarizing themselves with the University's regulations.

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 11

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 (available at <http://www.universitycounsel.ubc.ca/policies/policy69.html>).

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 and cultural 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 here: (<https://senate.ubc.ca/policiesresources-support-student-success>)

HELPFUL RESOURCES

Some of you might find yourselves overwhelmed by the circumstances surrounding COVID-19 and the transition from online, back to in-person learning. You are not alone with this. Come talk to us. There are also lots of resources to find support on and off Campus.

Academic Integrity (<http://learningcommons.ubc.ca/academic-integrity/>) – Defines plagiarism, provides tips to avoid it.

Student Health Services (<https://students.ubc.ca/health/student-health-service> – Phone number: 604-822-7011): Student health provides students with a variety of healthcare related services to help you maintain your health while studying. Access to doctors and registered nurses.

UBC Wellbeing (<https://wellbeing.ubc.ca/>): At UBC, we recognize the foundational importance of wellbeing to our success as individuals, as a university, and as a community. We aspire to support our people to achieve their full potential in teaching, learning, working, and research by making wellbeing a priority that guides our daily interactions, decisions, policy planning, and program development.

UBC Wellness Centre (<https://students.ubc.ca/health/wellness-centre>) The UBC Wellness Centre believes that a healthy mind, body, and spirit are foundations for students to achieve

their personal and academic goals. Located in the [UBC Life Building](#), the Wellness Centre is a friendly, peer-hosted space offering a range of wellbeing programs for students.

The Kaleidoscope (www.the-kaleidoscope.com): Kaleidoscope Mental Health Support Society strives to provide a mutual aid model of peer support for individuals who identify with having lived experience of mental health concerns in a safe(r), non-judgmental, stigma-free environment. We recognize that different types of treatment and coping work for different people, and we are neither for, nor against, any particular type.

Counselling Services (<https://students.ubc.ca/health/counselling-services> - Phone number: 604-822-3811): Counselling services offers a variety of resources to help you maintain your mental health while in school. You may see a counsellor on an individual basis, attend group counselling, or to document an illness if you should require academic concession.

AMS Peer Support (<https://www.ams.ubc.ca/student-services/peer-support/> - Phone number: 604-822-2901; Email: peersupport@ams.ubc.ca): Peer Support provides free, confidential, one-on-one peer support for UBC students and staff facing a wide variety of challenges..

SHARE (www.vivreshare.org): Self Harm Anonymous Recovery & Education is a social innovation aiming to promote self-care, educate about self-harm & provide support for anyone affected by self harm, including friends & family.

Centre for Accessibility (<https://students.ubc.ca/about-student-services/centre-for-accessibility> – Phone number: 604-822-5844). The Centre for Accessibility facilitates disability-related accommodations and programming initiatives designed to remove barriers for students with disabilities and ongoing medical conditions in all aspects of university life.

Indigenous Portal (<https://indigenous.ubc.ca/>) – Your pathway to learning about UBC’s commitment to Indigenous engagement at its Vancouver campus and an information resource for Indigenous students, faculty and the wider community.

Equity and Inclusion Office (<https://equity.ubc.ca>) – *Confidential* advice on harassment, human rights & diversity issues.

Centre for Writing and Scholarly Communication (<http://learningcommons.ubc.ca/improve-your-writing/>; Email: cwsc.infor@ubc.ca) – Non-credit courses on academic, professional, and creative writing, free tutoring services, online writer’s workshops, and help for student’s whose first language is not English.

UBC Library Reference and Instruction, help and support (<http://help.library.ubc.ca/>; <https://services/library.ubc.ca/>) – Writing and documentation workshops, subject librarians, how-to guides on literature searches. Very helpful!

OWL at Purdue (<https://owl.english.purdue.edu/owl/resources/560/01/>; <http://owl.english.purdue.edu/owl/section/5/25/>) – A wide variety of online writing resources.

Mood Disorders Centre UBC (<https://www.centreforbrainhealth.ca/clinics/clinic-information/mood-disorders>; Phone number: 604-822-7512): The outpatient Mood Disorders Centre, located in the Djavad Mowafaghian Centre for Brain Health, focuses on depression and bipolar disorders. This service functions primarily as a consultation clinic, in which patients receive careful assessment, diagnosis, and treatment recommendations.

Mental Health Awareness Club (<http://blogs.ubc.ca/ubcmhac/>). The UBC Mental Health Awareness Club (or UBC MHAC) is UBC's largest mental health promotion club. Our goals are to raise awareness for mental health, promote and support positive mental health, and eliminate the stigma towards mental illnesses and mental health conversations.

UBC Psychology Clinic (<https://clinic.psych.ubc.ca/>): Professional psychological services provided to the community, including assessment & treatment for children, adults & families by clinical psychology trainees.

BC Crisis Center (www.crisiscentre.bc.ca - Phone number: 604-872-3311): Non-profit, volunteer-driven organization that provides emotional support to youth, adults, and seniors in crisis in BC. Crisis line available 24/7.

Distress Line (Phone number: 1-800-Suicide (784-2433)). If you are in distress or are worried about someone in distress who may hurt themselves, call 1-800-SUICIDE 24/7 to connect to a BC crisis line, without a wait or busy signal.

AMS Food Bank (<https://www.ams.ubc.ca/student-services/food-bank/>): If you are in a financial emergency AMS food bank can provide you with a food hamper. You can use the service up to 6 times each term.