

Psychology 461-002: Neuroplasticity and Behaviour

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2024 Winter Term 2 | Updated 2025-01-05

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Class Hours: Tue/Thu 15:30-17:00

Class Room: Buchanan A102

Course Description

This course will introduce you to the most extraordinary and adaptive function of our nervous system: the capacity to change—also known as neuroplasticity. Just as evolution allows life to change across generations, neuroplasticity gives hope to the individual organism to change across its lifespan. Without neuroplasticity, we could not learn a new language, develop nostalgic memories of childhood, engage in productive self-improvement, or have any hope of functional recovery following a brain injury. Following introductory lectures on the mechanisms underlying neuroplasticity with select example topics, the course opens to allow you, the student, to develop a focused understanding and appreciation of a research paper related to neuroplasticity. Each student will be a part of a presentation to teach the class about the methodology, results, and greater importance of the selected research paper. Subsequent assessments encourage the acquisition of iterative knowledge by allowing students to engage with and disseminate knowledge about these research papers in new ways.

Course Objectives

After completing this course, you will be able to:

- Define and describe structural and functional mechanisms of neuroplasticity.
- Analyze the relationship between neuroplasticity and behaviour, and appreciate how this relationship can be positive or negative.
- Critically evaluate various experimental methods used to investigate neuroplasticity.
- Apply knowledge of neuroplasticity to real-world contexts such as brain injury, learning, and psychiatric conditions.
- Effectively communicate scientific findings to a variety of audiences.

Acknowledgement

UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the 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 Assistants

Daria Oleinichenko

E-mail: oleinich@student.ubc.ca | Office hours: By appointment.

Course Details

Required Materials

Required readings will be posted on Canvas as PDFs. There is no required textbook for this course. Please complete the readings prior to the relevant class.

Grading Breakdown

| Assessment | Weight |
|--------------------|--------|
| Midterm | 30% |
| Presentation | 30% |
| Peer Reviews | 5% |
| Thought Papers | 10% |
| Poster | 10% |
| Press Release | 10% |
| Sixty-Second Pitch | 5% |
| Total | 100% |

Lectures and Attendance

Lectures will be held in-person and on campus. This course is designed to be collaborative and facilitate productive discussion. As such, attendance is expected. There will not be lecture recordings. If you miss a class due to illness or otherwise, it is your responsibility to contact a fellow student to find out what you have missed.

Office Hours

TA office hours can be booked directly through their e-mail. Instructor office hours will be held online via Zoom and can be booked via this link: <https://shayden.youcanbook.me/>. Please only book one session at a time to allow all students an opportunity to access office hours.

Piazza

We will be using Piazza as a discussion forum this semester. Piazza is useful because it allows you to anonymously collaborate with your fellow students. I encourage you to interact with your classmates to work on course content, get reminded on course administration, talk about interesting extracurricular psychology topics, etc. Please note that we will be checking and responding on Piazza, but only as time permits. Think of Piazza as a student-centered discussion bolstered by the instructor where necessary.

Evaluation of Learning

Exam (30%)

General Exam Information

- There will be one exam. There will be no final exam during the final examination period.
- Exams held on campus will take place in our usual classroom, and you must attend at the designated time. If you have arrangements with the Centre for Accessibility (CfA), they will be honoured, but you must register your exam time with the CfA in advance as this process is not automatic.
- You must bring your UBC student ID card to the exam as proof of identification. If you do not have one, please obtain it prior to the exam date.
- All content discussed in lectures and the assigned readings is examinable.
- Exams are closed-book. No notes or references are permitted during the exam. Failure to comply constitutes Academic Misconduct and will result in consequences.
- You will not be permitted to write any exam if: you are more than 30 minutes late, or another student has already submitted their exam.
- Midterm exam grades will be posted on Canvas.
- Please read UBC's academic concession policies. This document details what supports are available to you should you experience a hardship during the term.
- Students who plan to be absent for work responsibilities, varsity athletics, family obligations, or other commitments must discuss their commitments with the instructor within the first two weeks of class to be considered for alternative arrangements.
- Midterm exam review sessions will be arranged by the TA(s) after grades are returned. The exam must be returned at the end of the session. You may not take notes or photos of the exam.

Missing Exams and Alternative Arrangements

- If you are sick or otherwise unable to attend an exam, please do not come to the exam. Instead, contact the instructor and TA(s) as soon as possible to discuss alternative arrangements. You must contact us by 11:59 PM PST on the day of the missed exam to be considered for alternative arrangements.
- If you miss an exam and do not contact us by the deadline or fail to attend any alternative exam date arranged, you will receive a grade of 0 for that exam.
- Alternative arrangements for midterm exams are at the discretion of the instructor.
- Grading disputes are uncommon but should first be handled with the TA. If a resolution cannot be reached, inform your TA to contact the instructor, who will then regrade the assessment. Note that this can result in your grade increasing or decreasing. All grade disputes must be submitted within one week of the TA-led midterm review session held after the midterm grades are posted.

Presentations (30%)

The latter portion of this course emphasizes student-driven presentations of a primary source experimental journal article relevant to this course. Each presentation will be **10-minutes** long. These presentations can be completed either by groups of two students or by one student. Logistically,

there can only be a certain people working in a group or by themselves, so please indicate in the course survey, posted on Canvas, if you would prefer to work by yourself or in a group and I will do my best to take that into consideration. Partners and presentation times will be assigned randomly approximately three weeks into the semester. These will be in-person and on-campus presentations, but they will not begin until after the in-class midterm exam.

The presentation must teach the class about the background, methodology, results, and greater importance of the selected primary research paper (i.e., not a review paper). Put another way, these presentations should be done in the style of a journal club presentation. You can see example guidelines for a neuroscience journal club presentation [here](#). Please be prepared to answer 5 minutes of questions following your 10-minute presentation, or lead a 5-minute discussion of your own thoughts on your selected paper. **Please submit your chosen paper to the instructor and TA for approval, as every presentation must receive approval from either the instructor or the TA.**

Peer Reviews (5%)

You will be given time following each presentation to provide anonymous peer feedback. These evaluations are graded to encourage producing thoughtful and valuable feedback to your peers. Attending every presentation is encouraged, however to accommodate unexpected emergencies and difficult schedules it is only necessary to submit peer reviews for 80% of all presentations in order to receive full marks. Your presentation grade is not determined by your peers.

Thought Papers (10%)

At the end of each week of presentations, you are to submit a one-page, double-spaced thought paper connecting ideas from two different presentations that week or connecting one presentation topic to a personal experience or academic interest. These thought papers are not formal and are intended to be an opportunity to brainstorm and make novel and interesting connections between topics or experiences.

Poster (10%)

You will translate the results of your selected research paper into an academic poster. These are documents typically prepared for scientific conferences where other researchers can walk through aisles of posters, stopping at particularly interesting or eye-grabbing posters. Posters are large documents and can be over a meter wide and tall. The goal of a poster is to distill the paper's findings into a quickly digestible and engaging visual document. You can submit your poster as a group if you were in a group, or you can choose to submit by yourself even if you were in a group.

Press Release (10%)

Effectively communicating scientific findings with brevity is a crucial skill to develop. As part of this, you will translate the results of a research paper presented by one of your peers (i.e., **different from your selected research paper**) into a press release. A press release changes the jargon of science into a more conversational and story-telling language style so that it can be understood and easily followed by almost any audience. The press release cannot be longer than one page or longer than 350 words.

Sixty-Second Pitch (5%)

The sixty-second pitch will be an audio recording where you attempt to pitch an experiment to someone who could fund you to conduct that experiment. You will have to rapidly summarize the premise of your experiment, why it is important, how you will conduct it, and what you expect to find in only sixty seconds. **This pitch must be a completely new experiment and not one you selected for your presentation, poster, or press release.**

Course Policies

Grade Scaling

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. Further information on letter grades is available on the [UBC Academic Calendar](#).

Late Submissions Policy

All online deadlines will be 23:59 PST of the date of the deadline. Submissions after the deadline will have a 10% deduction per calendar day, including weekends and holidays. For example, a

submission that was submitted 3 days late that would have normally received 80% would receive: $80\% * (100\% - 10\% * 3 \text{ days}) = 56\%$.

Please do your best to meet in-class presentation times. However if there is an emergency or illness, please contact the teaching team as soon as you can so that we can try to find an accommodation.

E-mail Policy

Instructors tend to have an extremely high volume of e-mails. It would be preferable to devote available time to making class lectures fun, up-to-date, and interesting to you. To this end, please post course content questions to the Piazza discussion forum and email the instructor with administrative concerns (problems with the course website or a critical emergency affecting the course). When drafting an email, please use the appropriate etiquette (if you are unsure what that means, see [here](#)). Please refrain from using Canvas messages.

Accessibility

UBC is committed to equal opportunity in education for all students including those with documented physical or learning disabilities. If you believe you fall in this category, please visit the [website for the Centre for Accessibility](#) to take the necessary steps to ensure that you have every opportunity that you deserve to excel in your studies.

The university accommodates students with disabilities who have registered with the Centre for Accessibility office (see above). The university also accommodates students whose religious obligations conflict with attendance or scheduled exams. Please let us know within the first two weeks of class if you will require any accommodation on these grounds. Other absences (e.g. varsity athletics, family obligations, or similar) are not part of the university policy and you should not assume they will be accommodated. Please discuss these with us by the add-drop deadline.

During your time in this course, if you encounter medical, emotional, or other personal problems that affect your attendance or academic performance, please notify us as soon as possible, as well as your Faculty Academic Advising Office. Please refer to the [UBC Calendar](#) for a definition of academic concession and its purpose.

Statement on Equity, Diversity, and Inclusion

Similar to the broader UBC community, the Psychology Department—and this class—seeks to build a community where students feel included and are treated equitably. This class aims to be inclusive of gender identity, gender expression, sex, race, ethnicity, socioeconomic background, sexual orientation, political affiliation, religious affiliation, ability, health, and age.

As is the nature of psychology courses, the lecture materials, textbook, instructor, or other students may sometimes raise sensitive and/or controversial topics. In these circumstances, we must keep discussion respectful and productive. Our classroom is a place where you should feel safe and respected. It should also be a place that is conducive to learning and intellectual inquiry. Any behaviour on your part that compromises that environment will not be tolerated and you will be asked to leave. If you encounter any issues with the inclusivity of our class, please get in touch with either the instructors or the TA.

You can learn more about our diversity initiatives in the Department of Psychology by visiting the [Psychology EDI website](#).

Academic Integrity

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; nor should you help others to do the same. For example, it is prohibited to: share your past assignments and answers with other students; work with other students on an assignment when an instructor has not expressly given permission; or spread information through word of mouth, social media, websites, or other channels that subverts the fair evaluation of a class exercise, or assessment.

We are working hard to provide all the materials you need to succeed in this course. In return, please respect our work. All assignment instructions, quiz questions and answers, discussion questions, announcements, PowerPoint slides, audio/video recordings, Canvas modules, and any other materials provided to you by the Teaching Team or in the textbook are for use in this course by students currently enrolled. It is unacceptable to share any of these materials beyond our course, including by posting on file-sharing websites (e.g., CourseHero, Google Docs). It is unacceptable to copy and paste sentences from the textbook (e.g., definitions) into for-profit software (e.g., Quizlet) for use in studying. Respect the Teaching Team and textbook authors' intellectual property, and follow [copyright law](#).

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 if the matter is referred for consideration for academic discipline. Careful records are kept to monitor and prevent recurrences. Any instance of cheating or taking credit for someone else's work, whether intentionally or unintentionally, can and often will result in at minimum a grade of zero for the assignment, and these cases will be reported to the Head of the Department.

As a member of the academic community, it is your responsibility to understand these concepts. Misconduct will be penalized to the fullest extent available.

All submitted work can be subjected to a review for authenticity and originality. Such review may include the use of third-party tools, including but not limited to Internet-based services such as TurnItIn.

Department of Psychology 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](#) and read the University's [Policy 69](#).

Statement on AI tools

Artificial intelligence (AI) tools such as ChatGPT have rapidly become an integral part of society. Submitting work generated by an AI to fulfill course requirements is strictly prohibited. However, utilizing AI as a supplementary tool to your learning is welcome. Examples of fair AI use cases are: generating exam study questions, working through conceptual understanding of course ideas, and expanding on class learning by exploring extensions of lectures.

It is important to note that, by nature of their design, not all information provided by these tools are accurate or informed by empirical evidence. Course materials (readings, slides, lectures) will always be the most relevant sources of information for the scope of this course.

Policies and Resources to Support Student Success

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that crises can arise 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, spiritual 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](#).

Special Thanks

I would like to extend particular gratitude to everyone who helped me develop this course. Thank you Daria Oleinichenko, Tanvi Puri, Dr. Jeremy Hosking, Dr. Catherine Rawn, Dr. Grace Truong, Dr. Catharine Rankin, Dr. Jason Snyder, and Dr. Todd Handy for all your invaluable expertise and assistance.

Class Schedule

| Date | Topic | Readings | Notes |
|------------|--------------------------|----------|---------------------------------|
| 2025-01-07 | Orientation | | |
| 2025-01-09 | Introduction | Unit 1 | |
| 2025-01-14 | History | Unit 2 | |
| 2025-01-16 | Sensitive Periods | Unit 3 | January 17: Drop without W ends |
| 2025-01-21 | Drugs & Neuroplasticity | Unit 4 | |
| 2025-01-23 | The Hippocampus | Unit 5 | |
| 2025-01-28 | Parenthood | Unit 6 | |
| 2025-01-30 | Ageing | Unit 7 | |
| 2025-02-04 | Exercise | Unit 8 | |
| 2025-02-06 | Emotion | Unit 9 | |
| 2025-02-11 | Neurogenesis | Unit 10 | |
| 2025-02-13 | Midterm Exam | | |
| 2025-02-18 | NA | | Midterm break |
| 2025-02-20 | NA | | Midterm break |
| 2025-02-25 | Scientific Communication | | |
| 2025-02-27 | Presentations | | |
| 2025-03-04 | Presentations | | |
| 2025-03-06 | Presentations | | March 7: Drop with W ends |
| 2025-03-11 | Presentations | | |
| 2025-03-13 | Presentations | | |
| 2025-03-18 | Presentations | | |
| 2025-03-20 | Presentations | | Poster due |
| 2025-03-25 | Presentations | | |
| 2025-03-27 | Presentations | | |
| 2025-04-01 | Presentations | | |
| 2025-04-03 | Presentations | | |
| 2025-04-08 | Flexible Class | | 60s Pitch due |
| 2025-04-12 | Final Exam Period Begins | | |
| 2025-04-14 | | | Press Release due |