

Psychology 461 – Neuroplasticity and Behaviour

ACKNOWLEDGEMENT: UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the xwməθkwəyəm (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.

WHO: Instructor: Tanvi Puri

PhD Program in Neuroscience

Office Hours: Thursday, 12:30-1:30; DMCBH Room 3402

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TA: Bonnie Lee

PhD Program in Neuroscience

Office Hours: By appointment

Email: bonnie_lee@psych.ubc.ca

WHERE:

Before Oct 13:

[Djavad Mowafaghian Center for Brain Health \(DMCBH, 2215 Westbrook Mall\), Room 3402](#)

On/After Oct 13:

[Life Sciences Center. Rooms will vary, LSI 1001, 1002 or 1003 \(I will send out an email day of\)](#)

WHEN: Tuesdays and Thursdays, 11:00AM – 12:20PM

ALL assignments (except the in-person midterm) are due at 11:59pm on the designated date.

HOW: [CANVAS link](#)

[Piazza Link](#)

Assigned readings can be found on Canvas. No textbook needed, save your \$.

WHY: This course is designed to introduce students to the field of hippocampal neuroplasticity. The lectures will focus on the hippocampus, arguably the structure of the brain that shows the most dramatic plasticity across the lifespan. Most of the course will be devoted to neurogenesis within the hippocampus but also will include topics such as changes in dendritic morphology, volume changes, with an emphasis on how sex, stress, aging, and disease can alter plasticity of the hippocampus and how this may be related to behaviour.

Disclaimer: Please note that this schedule and the in person/online designations may change due to the pandemic/unforeseen circumstances, we will update this syllabus and meeting guidelines as conditions evolve, and anything that is labeled in person might move online. Our first priority is always the health and safety of everyone involved with this course, and we recommend that you keep a mask on in class unless you are speaking. If you need a mask at any time, we will be happy to provide one, just ask!

COURSE OUTLINE

Details for all assignments are listed in the course calendar on page 4

Midterm	100 points (25%)
The midterm is currently scheduled in person on October 25 (this may change based on COVID guidelines). Regardless, material from both the lectures and the papers will be on the exam. You will be responsible for reading the materials in the articles in the order shown on the schedule that follows. The midterm will consist of short and long answer questions.	
Talk	100 points (25%)
This is an 8-minute presentation on a (relevant, course-related) topic of your choice. Suggested common topics are available on page 5 of this document, but feel free to come up with your own. ALL topics must be approved by the TA or instructor. We will draw for names/topics/due date during the second/third week of classes. The talks will begin after the midterm and be given live during class. Think of this talk as an opportunity to present background information on your “Research Proposal” (see below) topic. Grading outline/criteria/a sample are available on Canvas.	
Research Proposal	152+8 points (40%)
Proposal.....	152 points (38%)
Think of this as a grant proposal. You are writing to a funding agency to convince them of the merits of spending \$\$\$ on your topic of interest (that must be the same as your “Talk” topic). Grading outline/criteria/a sample are available on Canvas, but broadly, your proposal should include a literature review, 2 objectives with accompanying hypotheses, a brief experimental outline, and finally, a significance statement/conclusion. To be submitted on Canvas by Dec 6.	
Topics and aims.....	8 points (2%)
Please submit a ¼ page assignment clearly stating your chosen topic, why it is interesting, a couple of sentences about what is currently known about your chosen topic, what isn’t, and clearly state the knowledge gap you’re interested in filling in. To be submitted on Canvas by Nov 1.	
Quizzes.....	20 points (5%)
Quizzes will be uploaded on canvas and are based on the weekly reading assignments (WRA). There will be one quiz due each week, and one quiz can cover multiple WRAs. Please refer to the calendar at the end of this document for detailed due dates. There are 6 scheduled quizzes, the quiz with the lowest score will be dropped automatically (you do not need to write to us). Therefore, 5 quizzes will be counted towards your grade, and each quiz is worth 4 points (1%) and should not take more than 10 minutes to complete.	
Participation.....	20 points (5%)
This class is a discussion seminar format, please do your best to come prepared to discuss the lecture content (with questions or ideas) or issues in the readings (assigned for the first half of the course). The second half of the term involves student presentations, and your participation grade will include peer evaluations of talks. This will be done via in person questions, or questions posted in Canvas discussion boards (questions must be posted within 24h of the talk to count).	
Extra credit.....	8 points (2%)
You can earn up to 2% extra credit by attending Neuroscience Colloquia (Fridays at 11AM) (click here) or Women’s Health Research Seminar Series (Mondays at 12pm) (Click here) respectively on Zoom. Each lecture is worth 0.5%, you have to submit a ¼ page write up on Canvas.	
Total.....	400 points (100%)

POLICY ON MISSING/LATE ASSIGNMENTS

1. The research proposal will be deducted at 10% per day if the deadline is missed
2. You cannot make up for a missed quiz (but one is dropped automatically)
3. Once you select/accept a date for your talk, you must make every effort to make this date

TIPS FOR SUCCESS

1. I cannot stress this enough: be mentally and physically present! The vast majority of what you need to know for the exam will be covered in class, and over the many years I have been involved in this course, attendance and engagement have been the greatest predictors of success. The “I will catch up with lecture videos this weekend” is a myth.
2. Please practice your talks ahead of time (more than once!) as this is essential for determining how long your talk is, but better yet is an important factor in creating a good talk. Practice transitioning between slides over everything else, don't make your slides text heavy. Know your material, a surface level talk can be spotted at once.
3. Show up to office hours. We are here to answer your questions and understand complex material, please do not hesitate to come talk to us about anything. That said, please don't wait until the day before the midterm to get all your questions answered, keep up with the material as you go.

Notes on Piazza: We will be using Piazza this semester for class discussion ([click here to access the 461 sign up link](#)). The piazza for our class has folders for readings/midterm/proposal/lecture material etc. If you have a question on course content, logistics, the midterm etc., we encourage you to post them on Piazza, where we can answer your questions quickly and efficiently. We also encourage you to answer your fellow students' questions. Questions correctly answered in a timely manner before the TA or instructor will contribute towards participation credit.

'For course policies regarding in-term academic concessions, please refer to the relevant UBC calendar entry: <http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,329,0,0>.'

DAY	DATE	Room	AGENDA/TOPIC	DUE ON THIS DATE
Tuesday	Sept 6	-	Imagine Day	
Thursday	Sept 8	-	Intro, good vs bad science, Beh	
Tuesday	Sept 13	-	Intro to HPC	Quiz 1
Thursday	Sept 15	-	What is plasticity, volume	
Tuesday	Sept 20	-	Grey matter changes in HPC	Quiz 2
Thursday	Sept 22	-	Dendritic morphology, spines	
Tuesday	Sept 27	CBH	Spines, techniques, imaging	Quiz 3
Thursday	Sept 29	CBH	Talk topics, Assignment Q&A	
Tuesday	Oct 4	CBH	Paper Critique	Quiz 4
Thursday	Oct 6	CBH	Neurogenesis in the HPC: what	
Tuesday	Oct 11	CBH	NG in HPC: where, how, when	Quiz 5
Thursday	Oct 13	LSI 1003	NG in HPC: aging	
Tuesday	Oct 18	LSI 1002	NG in HPC: disease	Quiz 6
Thursday	Oct 20	LSI 1002	Review Session	
Tuesday	Oct 25	LSI 1001	Midterm	Midterm
Thursday	Oct 27	LSI 1003	Student Talks	
Tuesday	Nov 1	LSI 1002	Student Talks	
Thursday	Nov 3	LSI 1003	Student Talks	
Tuesday	Nov 8	LSI 1002	Student Talks	
Thursday	Nov 10	LSI 1003	Student Talks	
Tuesday	Nov 15	LSI 1002	Student Talks	
Thursday	Nov 17	LSI 1002	Student Talks	
Tuesday	Nov 22	LSI 1001	Student Talks	
Thursday	Nov 24	No Class	No Class	Tanvi traveling for conf
Tuesday	Nov 29	LSI 1002	Student Talks	
Thursday	Dec 1	LSI 1002	Student Talks	Extra credit assignments due
Tuesday	Dec 6	LSI 1002	Student Talks	Final Research Proposal Due
HAPPY HOLIDAYS!				

SUGGESTED TOPICS FOR STUDENT TALKS

Neurogenesis in other regions

Olfactory neurogenesis

Cocaine

Cannabinoids

Alcohol and Neurogenesis

Endocannabinoids and neuroplasticity

Pregnancy

Postpartum

Postpartum Depression

Social behaviour and Neurogenesis

Sexual behaviour and Neurogenesis

Early life adversity

Androgens

Estrogens

Aging

Cognitive training (Luminosity?)

Alzheimer's Disease

Mild Cognitive Impairment

Depression

Circadian Rhythms

Bipolar Disorder

Sex changing fish

Schizophrenia

Obsessive compulsive disorder

LTP and learning

LTD and learning

Paired pulse inhibition

Autism

Epigenetics and plasticity

Adolescent stress and plasticity

Microbiome

Exercise and plasticity

Elite sports and brain morphology

Musicians and plasticity

Video games and plasticity

Gambling

Stroke

Glia and plasticity

Inflammation

Multiple Sclerosis

Chronic Pain

Microglia

Sleep

Obesity

Diabetes

Cell adhesion molecules

Chemotherapy

Oxytocin

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](#).

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 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. **Do** use **PubMed** (first choice) on the Library's website at <http://www.library.ubc.ca>. and try our guide specially designed for Psyc 460/461 <http://guides.library.ubc.ca/psyc460>

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>).

The University accommodates students with disabilities who have registered with the **Disability Resource Centre**. The University accommodates students whose religious obligations conflict with attendance, submitting assignments, or completing scheduled tests and examinations. Please let your instructor know in advance, preferably in the first week of class, if you will require any accommodation on these grounds. Students who plan to be absent for varsity athletics, family obligations, or other similar commitments, cannot assume they will be accommodated, and should discuss their commitments with the instructor before the drop date.

Students have the right to view their marked examinations with their TA, providing they apply to do so within a month of receiving their final grades. This review is for pedagogic purposes. The examination remains the property of the university.

Psychology Department's Policy on Grade Distributions and Scaling

To reduce grade inflation and maintain equity across multiple course sections, all psychology classes are required to comply with departmental norms regarding grade distributions. 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%		

COVID-19

This is an evolving situation so unfortunately we will have to play much of the term by ear and by provincial guidelines. However, given that the course was run successfully all last year online I am confident we will get through this while maintaining our health and safety for ourselves and those surrounding us. If you are abroad, keep in mind that some UBC courses might cover topics that are censored or considered illegal by non-Canadian governments. This may include, but is not limited to, human rights, representative government, defamation, obscenity, gender or sexuality, and historical or current geopolitical controversies. If you are a student living abroad, you will be subject to the laws of your local jurisdiction, and your local authorities might limit your access to course material or take punitive action against you. UBC is strongly committed to academic freedom but has no control over foreign authorities (please visit <http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,33,86,0> for an articulation of the values of the University conveyed in the Senate Statement on Academic Freedom). Thus, we recognize that students will have legitimate reason to exercise caution in studying certain subjects. If you have concerns regarding your personal situation, consider postponing taking a course with manifest risks, until you are back on campus or reach out to your academic advisor to find substitute courses. For further information and support, please visit: <http://academic.ubc.ca/support-resources/freedom-expression>

COPYRIGHT

All materials of this course (course handouts, lecture slides, assessments, course readings, etc.) are the intellectual property of the Course Instructor or licensed to be used in this course by the copyright owner. Redistribution of these materials by any means without permission of the copyright holder(s) constitutes a breach of copyright and may lead to academic discipline.

Further information about academic regulations, course withdrawal dates and credits can be found in the University Calendar. You are encouraged to read this material. If you run into trouble and need information about studying, preparing for exams, note taking or time management, free workshops and advice are available from the Student Resources Centre, which can be reached through the

School and College Liaison Office at 822-4319 and from Student Success,
<http://www.students.ubc.ca/success/>.

An excerpt from Dr. Catherine Rawn with gratitude:

In the academic community—a community of which you are now a part—we deal in ideas. That’s our currency, our way of advancing knowledge. By representing our own and others’ contributions in an honest way, we are (1) respecting the rules of this academic community, and (2) showcasing how our own novel ideas are distinct from but relate to their ideas. But academic integrity goes well beyond formal citation. **Welcome to the academic community. You are expected to act honestly and ethically in all your academic activities, just like the rest of us.**

Make sure you understand UBC’s definitions of [academic misconduct](#), [consequences](#), and expectation that students must clarify how [academic honesty](#) applies for a given assignment. *Please ask if you’re not sure.* (While you’re checking out the calendar, you might want to check out the “[Student Declaration and Responsibility](#)” statement you agreed to when you registered.)

What does academic integrity look like in this course? *At any time: if you are unsure if a certain type of assistance is authorized, please ask. If you have a need that is unmet by existing course materials, course structure, and/or our learning community members, please ask.*

DO your own work. All individual work that you submit should be completed by you and submitted by you. All assessments, large and small, are designed to help you learn Research Methods. It is *unacceptable* to use an editor (paid or unpaid) without my permission to revise, correct, or alter your work, because your submission is no longer your own work. It is *unacceptable* to buy/sell/swap/share assignment questions or answers on any platform. It is *unacceptable* to misrepresent your identity by using someone else to complete any portion of a course (e.g., comment on a discussion board, complete a quiz question). It is *unacceptable* to help someone else cheat.

AVOID collusion. Collusion is a form of academic integrity violation that involves working too closely together *without authorization*, such that the resulting submitted work gains unfair advantage over other students because is a measurement of the *group/pair/others’* understanding rather than the *individual* understanding (definition adapted from [OpenLearn](#)). For example, collusion on an open book test includes working together to write answers or answering someone else’s question in a WhatsApp chat. See more examples of collusion [here](#). Assignments that are explicitly the product of group collaboration *have authorization*, so don’t count as collusion. Preparing to individually complete an assignment or test by studying together (e.g., discussing concepts, quizzing each other and giving feedback on each others’ answers) doesn’t count as collusion. In this course, **your final paper should be individually written**; you are presenting your own representation of the research project you previously developed in collaboration with others.

Can I work with a classmate to co-create study notes? Yes, you can create your own original collaborative notes (but see below). I recommend using the features in Canvas groups to ensure your work remains protected. Send me a message using Canvas Inbox, and I’ll create a Group just for you. That will allow you to upload and share notes, and to work collaboratively on Pages ([see this site for an introduction to these features](#)). I also recommend starting your collaboration with a written agreement that addresses integrity issues, such as these: *Who else can see/use/contribute to these notes? How will we ensure we are not violating copyright?*

DO NOT share materials provided for you to use in this course. 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 in PSYC 461. It is *unacceptable* to share any of these materials beyond our course, including by posting on file-sharing websites (e.g., CourseHero, GoogleDocs). 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.

DO acknowledge others’ ideas. Scholars build on the work of others and give credit accordingly—this is a quality of strong academic writing. In this course, you will learn and practice ways to acknowledge others’ work. Citing our sources in both formal and informal ways will be essential, and appropriate, depending on the assignment. For example, much of the way I think and write about academic integrity has been influenced by the work of Dr. Laurie McNeill, including [her excellent wiki](#) that curated many of the above links, as well as Dr. Sarah Elaine Eaton, including her [webinar series](#).

DO learn to avoid unintentional plagiarism. Visit the Learning Commons’ guide to academic integrity to help you organize your writing as well as understand how to prevent unintentional plagiarism, which can be challenging when first learning to paraphrase. Visit <http://learningcommons.ubc.ca/resource-guides/avoiding-plagiarism/>. An example tip: Do not copy and paste text from other sources, including other people’s work, even in a draft. It’s easy to unintentionally misrepresent those words as your own in a later draft (which would still qualify as plagiaris.

