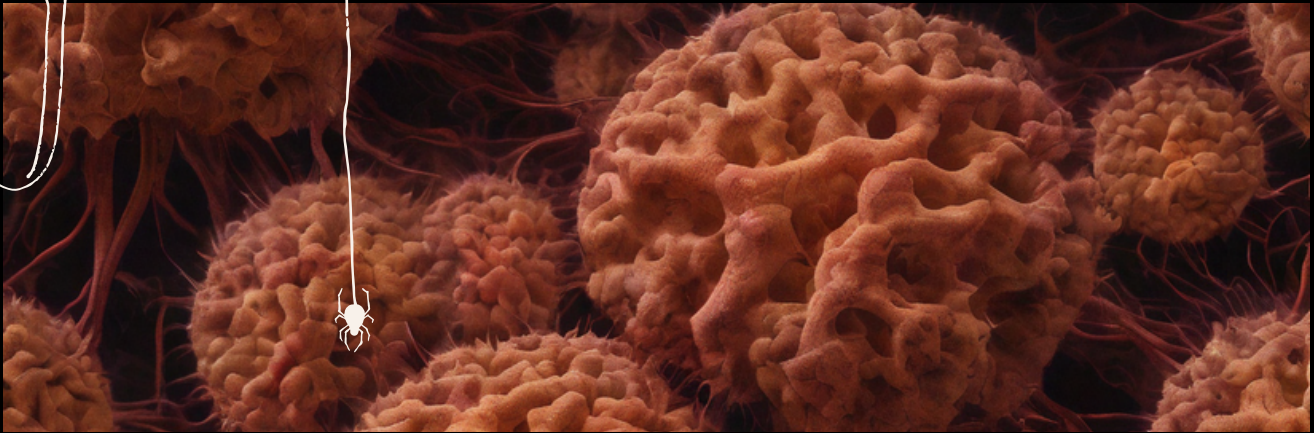


THE BRAIN BLAST

UBC Undergraduate Program in Neuroscience Newsletter

EDITION 2 - FEAR AND THE AMYGDALA

11/31/23



Welcome to the second edition of the The Brain Blast! This month we're talking all about fear (boo). This edition, we have some amazing interviews from Manya and Anna, some amazing labs to reach out to, and also the results of our polls from last month!!! Okay, we'll stop talking again, time to dive in.....



THIS MONTH'S THEME:

FEAR

FOR OUR SECOND MONTH, WE'LL BE EXPLORING FEAR. WHILE OUR NEUROSCIENCE PROGRAM IS WONDERFUL, STUDYING FOR YOUR NSCI 302 MIDTERM, REACHING OUT TO LABS, AND MAKING NEW FRIENDS CAN BE SCARY!! FEAR NOT, WE'RE HERE TO HELP YOU WITH THAT. ALSO, TRY TO COUNT HOW MANY SPIDERS WE PLACED IN THIS MONTH'S NEWSLETTER!!

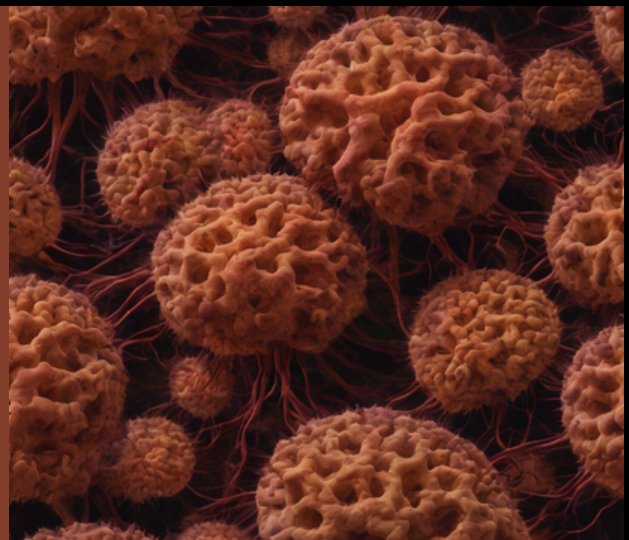


TABLE OF CONTENTS

-  3 Course Summaries
-  4 Journal + Media Articles
-  5 Labs of the Month
-  6-8 Faculty and Student Spotlights
-  9 Upcoming Events
-  10 September Poll Results
-  11 Resources + Student Polls

THIS MONTH IN NSCI 200: INTRODUCTION TO CELLULAR AND MOLECULAR NEUROSCIENCE

This month in NSCI 200, we covered topics ranging from cell membrane permeability, to resting potentials, to action potentials and the properties of synapses. We also had our first midterm, with the class hitting an impressive average of 83.2%. We've also started working on the poster project assignment, in which we dissect a neuroscience paper from a researcher at UBC and later present a summary at a class-wide conference. On Monday we had a rare set to have a resume workshop with Steven Barnes, the director of the program, check out last edition's interview with him to hear more of his advice!

THIS MONTH IN NSCI 300: LABORATORY TECHNIQUES FOR THE NEUROSCIENCES

This month in NSCI 300, we did some wicked dissections and recordings! In our labs, we sacrificed some crayfish and recorded their resting membrane potential, their spontaneous potentials, and even some sensory stretch receptor potentials! Each lab started with a dissection of the muscle segments of the lobsters. We would then implant intracellular microelectrodes into the muscle cells to measure the RMP. We also took extracellular recordings from nerve 3 and nerve 2 by sucking the nerve fibers into a suction electrode.

THE NEURO REVIEW @ UBC

THIS MONTH IN NSCI 302: MECHANISMS OF NERVOUS SYSTEM FUNCTION AND RECOVERY

This month, we spent a large chunk of time introducing various neurodysfunctions such as Parkinson's disease, Alzheimer's disease and epilepsy. We were provided with an in depth discussion that elaborated on the differences between epilepsy and seizures. We also talks about the sensorimotor system, aspects of the eye and various types of memory. Steven made these experiences very worthwhile by inviting a guest speaker come and talk about his experiences, making the entire learning environment personal. We also will be having our second midterm on Halloween, so we wish everyone the best of luck!

THIS MONTH IN NSCI 311: ADVANCED NEUROANATOMY

We completed our first midterm (woohoo!). We reflected on how the state, level, and content of consciousness can influence our perception of the world. After exploring the spinal cord and brainstem, we finally made it to the cortex! We zoomed into the cortex and took a look at the visual system, language networks, and hemisphere lateralization, discussing case studies along the way. We also have been developing 'cortical networks', creating fabulous social media pages for the brain's cortical areas.



RESEARCH ARTICLES



Dive into this month's two highlighted research articles covering sensory perception and synaptic transmission. These are both topics that are currently being covered in NSCI 200 (Fundamentals in Cellular Neuroscience) and NSCI 311 (Advanced Neuroanatomy), and PSYC 370 (Behavioural and Cognitive Neuroscience I)

SPATIAL PERSPECTIVE AND IDENTITY IN VISUAL AWARENESS OF THE BODILY SELF-OTHER DISTINCTION

As discussed in NSCI 311 and PSYC 370, the ways in which we perceive the world, move our bodies, and interact with others largely depends on distinguishing the self from the external world. This article explores how spatial perspectives influence how we extract and integrate visual information.

OLIGODENDROCYTES REGULATE PRESYNAPTIC PROPERTIES AND NEUROTRANSMISSION THROUGH BDNF SIGNALING IN THE MOUSE BRAINSTEM

One of the glia cells we learned about in the start of the year has reappeared as we now learn more about communication between synapses. If you are curious as to the cellular mechanisms of oligodendrocyte synaptic regulation, this article dives into deeper detail.



PODCASTS AND MEDIA



DR. KREBS

DR. OYEDELE

YOU'RE GOING TO NEED A TRANSPLANT - NOW WHAT?

On this episode of Body Banter Dr. Krebs and Dr. Oyedele, are joined by Stephen Gillis, a media producer and kidney transplant recipient. This episode discusses what it means to live in a body that turns against you, what it's like being on the receiving end of patient care during a medical emergency, how exercise and community are true game changers when it comes to recovery, and gratitude for our bodies and organ donors.

[LISTEN ON THE BODY BANTER WEBSITE, OR WHEREVER YOU GET YOUR PODCASTS!](#)

DOPAMINE SEROTONIN & TIME PERCEPTION

HUBERMAN LAB



DOPAMINE, SEROTONIN, AND TIME PERCEPTION

This episode from the Huberman Lab covers some of the different neurotransmitters and their role in time perception and circadian rhythm. Besides the scientific mechanism, this episode also gives 10 different science supported protocols that help you regulate your circadian rhythm for better focus, productivity, and creativity. As the cold weather starts to descend upon us here in Vancouver, the topic of 'seasonal entrainment', that is how our brain and body change in response to the different seasons is an interesting section within the episode to take a listen to as well.

DR. RONALD RENSINK



From mechanisms to practical applications of visual displays, the UBC Visual Cognition Lab explores visual intelligence - how the visual system creates a variety of perceptual experiences from the light entering the eyes.

HISTORICALLY, THE UBC VISUAL COGNITION LAB HAS TAKEN UNDERGRADUATES AS VOLUNTEERS, DIRECTED STUDIES STUDENTS, AND RESEARCH ASSISTANTS
[LAB WEBSITE](#)

NEUROSCIENCE LABS OF THE MONTH

The Computation, Cognition, and Movement Lab broadly speaking studies, motor learning and movement control. Different techniques used include motor psychophysics and computational modeling.

[THE CCM LAB HAS TAKEN UNDERGRADUATES AS CO-OP/WORKLEARN STUDENTS BEFORE. LAB WEBSITE](#)

DR. HYOSUB KIM



STUDENT SPOTLIGHT:

Manya Malhotra

Manya is a third-year Neuroscience student. As a transfer student, this is only her second year in Vancouver. At UBC, you can find her looking for an undiscovered study spot or waiting in the Blue Chip line between classes!

WHY NEUROSCIENCE AT UBC?

I initially enrolled in the Bachelor of Science program at UBC Okanagan and hoped to major in Psychology, but in my second year I realized how much I loved learning about Neuroscience! I loved being at a UBC institution because of the passion for learning everyone around me shared but I knew I had truly found my calling with Neuroscience. Living in Kelowna turned out to be a lot more difficult than I had imagined and while I applied to transfer to the Neuroscience program, I have to admit that I was also looking for any excuse to leave. My mental health was at an all-time low in Kelowna but when I hadn't received a definitive answer with only four months to go till the next academic year began, I made my peace with the fact that I most likely would not be able to join the program as I had hoped. I took the time to cope with the things I was dealing with at the time and meet people I will hold close to me for the rest of my life when, in June of 2021, I finally got accepted into my dream program! It was thrilling and entirely unexpected so late in the year but I was happy that I was able to join this program, not because I felt compelled to leave another place, but because I had gotten an opportunity to study what I love and I was entirely ready to take it!

WHAT WAS SOMETHING THAT SCARED YOU COMING INTO THE NEUROSCIENCE PROGRAM? HOW DID YOU OVERCOME THIS FEAR?

Coming into the Neuroscience program, I was scared of so many things! I was terrified of starting over again in yet another place I was completely unfamiliar with, extremely doubtful of whether or not I was smart enough to even be here, and nervous about whether this was the right choice for my career and for me or not, among many other fears I can't even recall anymore. The scariest things for me were being able to believe in myself and my capabilities as well as to convince myself that just because one experience was hard to get through, did not mean that this one would be too. I overcame these fears by allowing myself to be excited about the newness of it all. Focusing on my love for the subject and how much I wanted to learn helped me convince myself that I was deserving of the chance I had gotten. I can't lie and say that I have completely gotten over my fears, especially being someone who deals with ADHD and mental illness on a daily basis, I still find myself overwhelmed and doubtful from time to time. In fact, my journey dealing with these feelings has made me understand the need for conversations about accessibility in academia, the gaps in the system as it currently exists, and the importance of highlighting the voices of those who deal with neurodivergence and mental illness in their lives to make the necessary changes!



WHAT IS ONE THING YOU WISH YOU KNEW BEFORE STARTING YOUR NEUROSCIENCE JOURNEY AT UBC?

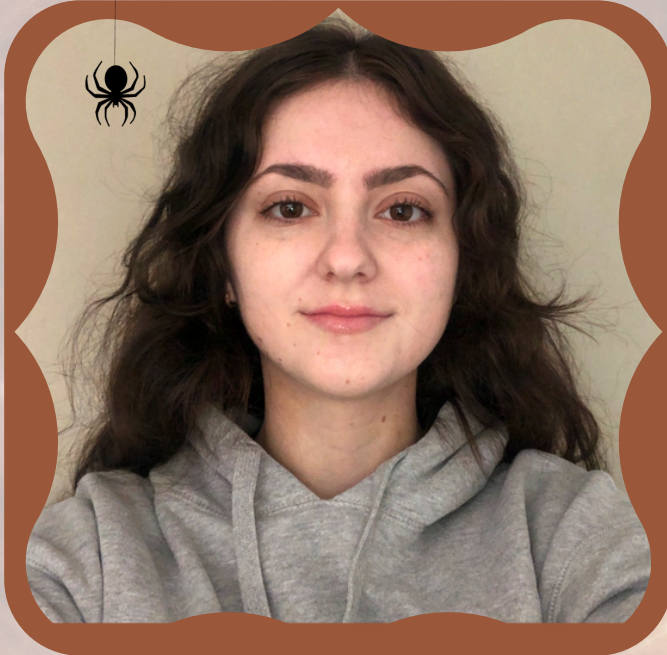
One thing I wish I had known before starting my neuroscience journey at UBC is how important it is to prioritize caring for yourself and allowing yourself to take real time off and away from your work! Life as a student has been and continues to be overwhelming for most students, if not all, and more often than not, I have noticed the carelessness I show myself reflects in my academic performance as well. I wish someone told me that even taking just one entire day a week to think of or do absolutely nothing of importance will actually help me use the time I have far more productively as compared to if I spent seven days a week in a state of constant misery, causing me to get too overwhelmed to do any work or to relax at all!

WHAT'S YOUR HALLOWEEN COSTUME THIS YEAR?

I haven't decided yet but I think I am going as Buttercup from the Powerpuff Girls!

Research 101: An Interview with Anna Mazurenko

In an interview with Anna Mazurenko, a recent graduate of the Honours Behavioural Neuroscience program at UBC, she outlines her answers to three of the most common questions asked about undergraduate research.



HOW DO I GET PAID?

WORK LEARN

Work Learn positions from UBC's Careers Online typically open in August for winter term positions, and March for summer term positions. The best way to approach WorkLeans is to utilise your past connections in labs to see if there are any upcoming Work Learn positions in their lab, as current lab members are often prioritised. Some of the positions on Careers Online receive upwards of 150 applicants, so it can be very difficult to land these positions without prior experience or connections. If you do choose to go this route, make sure to reference why you like their specific research in your application. Go ahead and read some of their published papers and make sure to reference them.

CO-OP

Although Anna has no direct experience with Co-op, she recommends being aware of the fact that Co-op is a common (although competitive) way to get paid research experience at a lab in and outside of UBC. Typically, one would apply to neuroscience co-op in their third year, complete their co-op in fourth year, and then finish their degree with a final fifth year of classes.

SUMMER RESEARCH GRANTS

The NSERC USRA, SURE award, and other summer research grants exist to fund students on their own summer research project. There is a detailed page on the Neuroscience Student Guide listing more information on applying for these. Anna had success through the SURE award in the Department of Zoology and the NSERC USRA through the Department of Psychology, continuing her work with the Soma Lab with her own projects. It is advised to apply for zoology or other science disciplines instead of psychology, as typically psychology is much more competitive and can be difficult to land.

HOW DO I START?

THE DREADED COLD EMAIL

A common way students attempt to work their way into a research position is through cold emailing multiple professors. Unfortunately, this typically has a low success rate even if you are spending a lot of time crafting beautifully formatted emails. It has worked for people in the past, but there are easier methods, which we will talk about now below!

CONNECTIONS!

In Anna's experience, the best way to get your foot in the door in research is to utilize your connections. Anna landed her first position after a second year neuroscience class, NSCI 201 (previously PSYC 270), by asking the professor about the potential to do research with him. It can help to go to a professor's office hours regularly, and make sure you are a familiar face from lectures by sitting in the front of the class. Anything from an upper year student to a professor can be a connection, don't be afraid to ask about possible opportunities, the worst that can happen is they say no!

URO/REX

Another program some of you may be familiar with is called REX, run by UBC's Undergraduate Research Opportunities, or URO. REX's deadline has unfortunately passed this year, but this can be a great opportunity to work on your own project with a graduate student mentor, with a presentation at MURC to finish it off. For more information, visit: REX - Undergraduate Research Opportunities.

WHAT CAN I HOPE TO GAIN?

RESEARCH SKILLS

Depending on the type of lab you work in you might gain skills in anything from PCR and different wet lab skills, to data analysis, to scientific writing and communication. These types of skills are of value no matter where you end up after your degree.

PUBLICATIONS

Within your lab, if you have an involved role in a certain project you will typically be listed as an author. These are helpful in graduate school applications, as it shows potential supervisors that you already have experience working within a lab.

PRESENTATIONS

Presenting at various conferences is a great opportunity to practice your public speaking skills. There are various undergraduate conferences at UBC, for example: MURC, NURC, and PURC. These presentations don't necessarily need to be your own project, you just have to get approval of whoever is the lead on the project you are part of. You are even able to present the same topic at multiple of these conferences! There are also other large research conferences outside of UBC one can pursue, such as ENDO, the Endocrine Annual Society Meeting, which Anna presented at last summer in Chicago.

EVENTS OF THE MONTH



OCTOBER'S NEUROSCIENCE RESEARCH COLLOQUIUM

NOV 3

Dr. Douglas Wulie: Cerebellar Control of Flight in Birds: Easy as 1, 2, 3

NOV 17

Dr. Rosemary Bagot: At the intersection of threat and reward in nucleus accumbens glutamatergic afferents.

NOV 24

Dr. Irene Vavasour: Diving into neuroimaging research with FINS

DEC 1

Dr. Mark Bevan: Dysregulation and rescue of subthalamic nucleus locomotor function in Huntington's disease mice

Rudy North Lecture Theatre, Djavad Mowafaghian Centre for Brain Health

Zoom:

Meeting ID: 91512 289258

Passcode: 289258

Join us the CSS and UNC for our first ever co-hosted Meet the Profs Event for a fun night of connecting with professors, faculty, and advisors from a diverse range of disciplines (Neuroscience, Cognitive systems, Psychology, Linguistics, and MORE) Oh, and did we forget to mention? We will be doing this over DRINKS

Date: Fri, Nov 3rd

Time: 5PM - 9PM

Location: Koerner's Pub @ UBC

! Please RSVP through the link below !

[RSVP LINK](#)

UNC X CSS PRESENTS:

MEET THE PROFS

NSCI PEER TUTOR PROGRAM

This program is an opportunity to develop a greater sense of community within the neuroscience undergraduate program. Third-year students volunteer to tutor and mentor the incoming second-year cohort. This program will be piloted in NSCI201.

It will consist of 2-3 peer tutors for the course, working in collaboration. Weekly

Time-Commitment:

Around 3 hours/week.

[APPLY](#)

IN STRESSFUL SITUATIONS, DO YOU TEND TOWARDS FIGHT OR FLIGHT?

FIGHT
45%

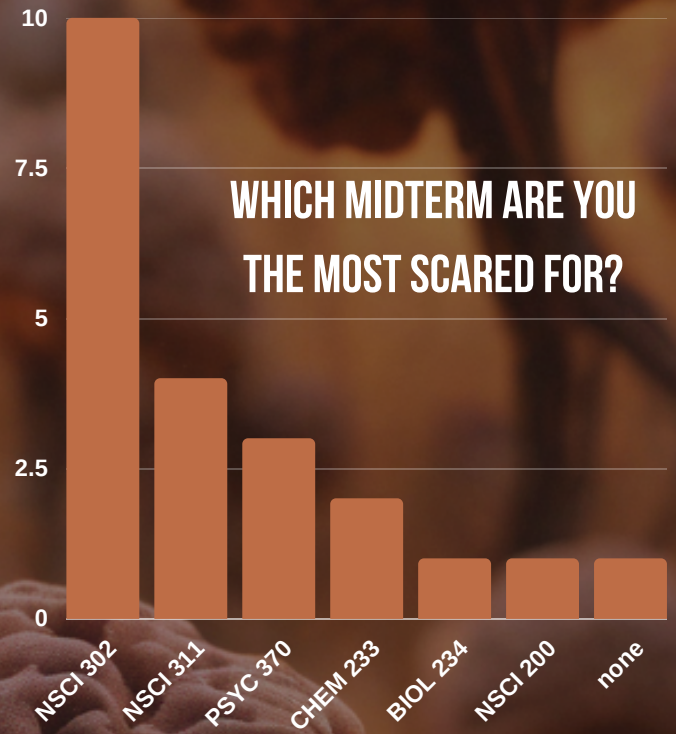


FLIGHT
55%

ON A SCALE OF 1-5, HOW MUCH DO YOU ENJOY SPOOKY THINGS?



WHICH MIDTERM ARE YOU THE MOST SCARED FOR?



RESULTS: SEPTEMBER STUDENT POLLS

SUBMIT POLLS FOR NEXT MONTH

WHAT IS YOUR STRANGEST FEAR?

- Deep, dark water
- Missing a midterm cause you forgot
- Spiders
- Adi
- My boyfriend's mom
- Shaking peoples hands
- Wasps
- Dolls
- Ketchup
- Garages at night
- Moths
- Other people
- TBI
- Growing up
- Going to sleep and never waking up
- Eyes watching me in unlikely places
- Being broke
- the Ocean
- Birds

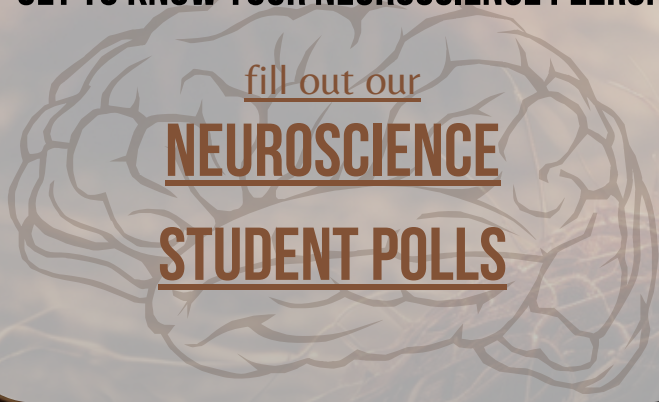
IF YOU HAD TO DRESS UP AS A PART OF THE BRAIN, WHICH PART WOULD YOU CHOOSE?

- Cerebellum
- Hippocampus
- Amygdala
- Cranial Nerve V
- Medulla
- Prefrontal Cortex
- Primary Motor Cortex
- Basal Ganglia
- The Ventricular System

"I'd carry a textbook around and talk using sophisticated language and write everything down on my notebook"

UNTIL NEXT TIME!

GET TO KNOW YOUR NEUROSCIENCE PEERS!



fill out our

NEUROSCIENCE

STUDENT POLLS

THANKS FOR READING!

Do you have any questions, feedback, or suggestions about the Neuroscience Newsletter or the Neuroscience Program? Want to be featured in the next Neuroscience Newsletter?

LET US KNOW IN THE [NEUROSCIENCE NEWSLETTER FEEDBACK FORM](#)

OFFICE HOURS: RYAN BOUMA

If you have any program-related questions, please direct them to Ryan, the program advisor at advising@neuro.ubc.ca

RESOURCES:

[WELLNESS RESOURCES](#)
[SEXUAL ASSAULT RESOURCES](#)
[EQUITY/HUMAN RIGHTS RESOURCES](#)

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