Neuroscience Student Organizations Workshop

Winter Quarter 2022

Workshop Schedule

4:00 - 4:05 p.m.– Introductions

4:05 - 4:15 p.m.- Nu Rho Psi

4:15 - 4:25 p.m.- Interaxon

4:25 - 4:35 p.m.- Neuroscience Undergraduate Society (NUS)

4:35 - 4:45 p.m.- Grey Matters at UCLA

4:45 - 5:00 p.m.- Mix and mingle! Meet people! Ask questions!

UCLA Student Organizations, Leadership & Engagement

Search...

RESOURCES POLICIES ORGANIZATIONS LEADERSHIP FUNDING STUDENT LEADER TOOLKIT PROGRAM ACTIVITIES BOARD CEY AWARD

Student Organizations

https://sa.ucla.edu/RCO/public/search

Search student organization by :

All Categories

Search with keyword

Search

- [x] Graduate
- [x] Undergraduate
- [x] Graduate/Undergraduate
- [x] Staff/Faculty/Administrators

Contact

105 Kerckhoff Hall
(310) 825-7041
uclasole@ucla.edu

Stay Connected

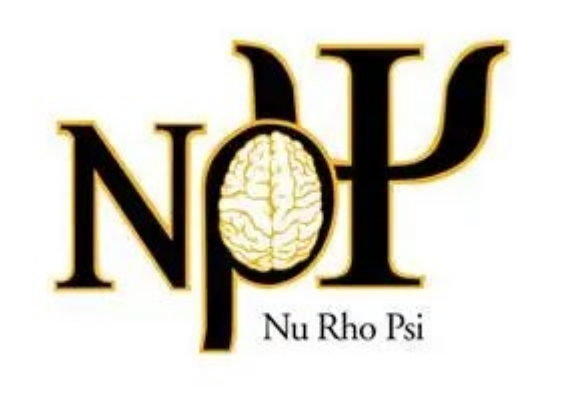
Nu Rho Psi

Mary Bishara and Calvin Patel,
Co-Presidents

Nu Rho Psi

UCLA’s Neuroscience Honor Society

What is NuRhoPsi



- Nu Rho Psi is an independent non-profit, grass-roots organization comprised of neuroscientists, like you.
- We focus on both the research and medical side of neuroscience, allowing you an opportunity to discover what you are truly passionate in
- We are a national honor society, with various chapters across the nation, allowing you to be part of an exclusive alumni network

What Do We Do?

E-Journal Club

Research Fairs/ Opportunities

Peer-Mentoring Program

Professional Development Workshop

How to Join

01

Sign up for our mailing list (QR code is below!)

02

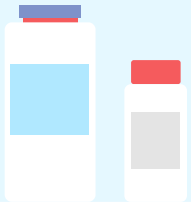
Look out for our application and check the prerequisites on the application

03

If accepted, you will be inducted and given pin + certificate

04

Attend meetings and have fun :)



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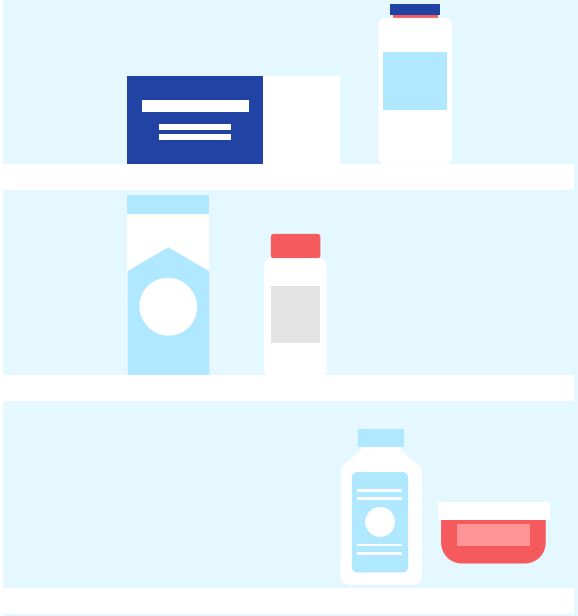
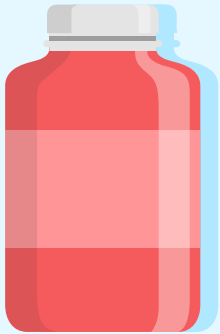


@nurhopsi_ucla

nurhopsiucla@gmail.com

https://nurhopsiucla.wixsite.com/website

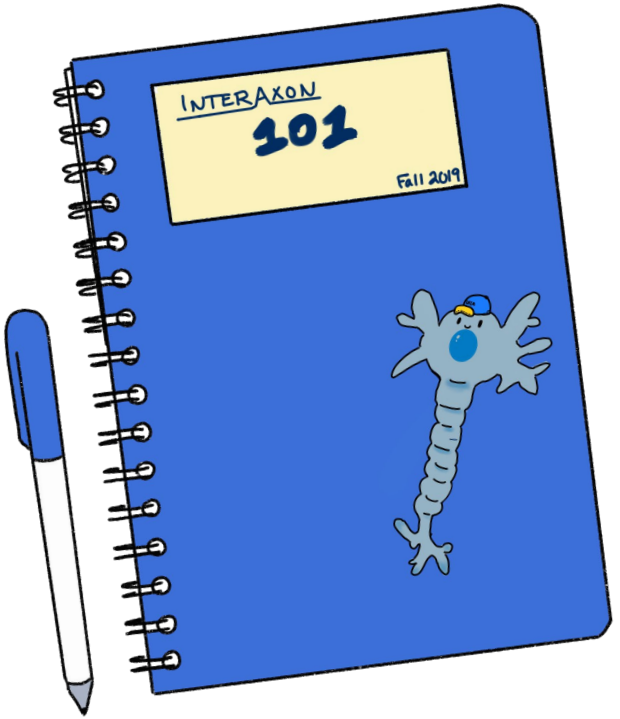


Interaxon

Dhruv Khosla, Co-President, and Sanjana Munagala, Project Director

InterAxon at UCLA

InterAxon Crash Course



InterAxon's Mission Statement

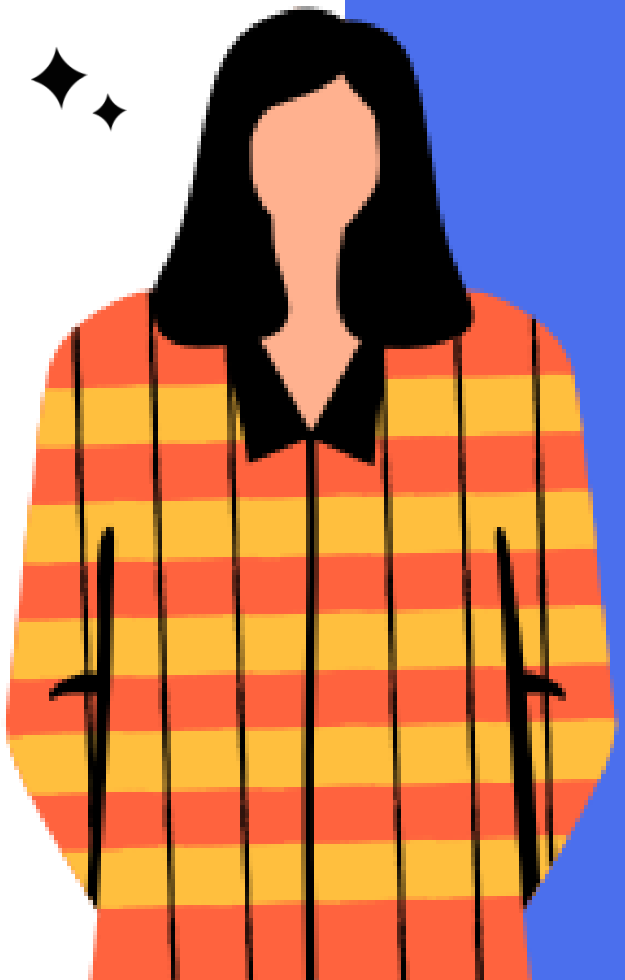
"Our mission is to create and foster interest, excitement, and curiosity about the brain. We travel to elementary schools, middle schools, and high schools in disadvantaged areas of Los Angeles to work with students at schools receiving poor funding in the sciences."

Active Membership Requirements:

General Meetings	Events
7	3 credits
Socials/Fundraisers	Committee Work
2	1 Committee

Event credit will be lost if you:

- Cancel for an event within 24 hours of the event.
- Do not show up for your scheduled run-through.



Runthroughs!

Runthroughs

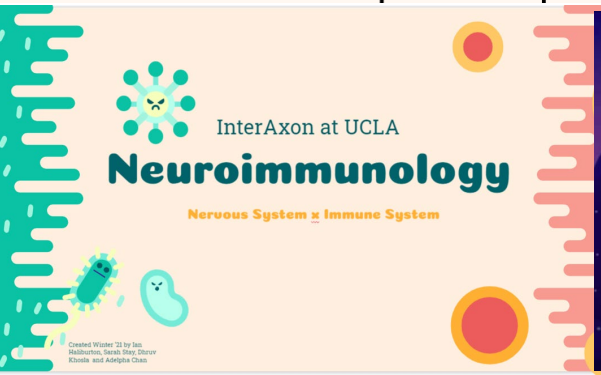
- A designated time (approx. 30 minutes) where you do an informal mock presentation to a Project Director
- You are expected to have read and practiced presenting the outline for the poster you will be presenting at your event
  - Outlines are sent to your email at least 1 day before your runthrough
- This time is only for you to get practice and receive feedback on your knowledge and presentation skills from Project Directors
- We do not expect you to be experts on your outline or "perfect" presenters! We are there to help you do the best you can, so that you can execute the information to the students we visit

- If you are not prepared at your scheduled runthrough you will return home and reschedule or possibly not attend the event
- We always want to give the students we visit the best experience, so come prepared!

BrainSTEM Committee

Who are we?

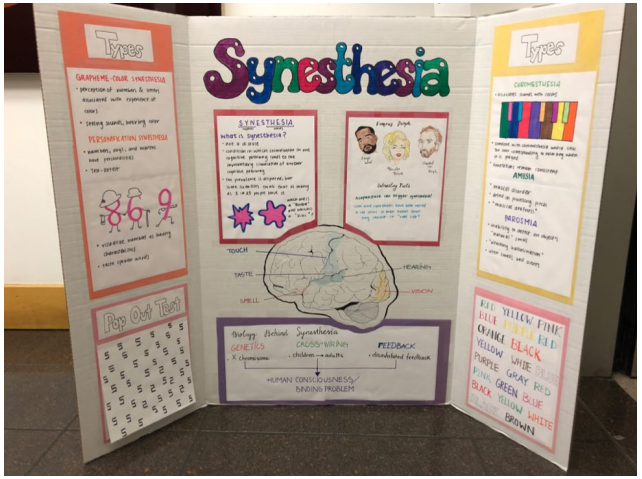
- Make presentations using outlines on various topics related to neuroscience!
- Make recordings of presentations to add to our Youtube Channel!
- Age up or down videos that have already been made!

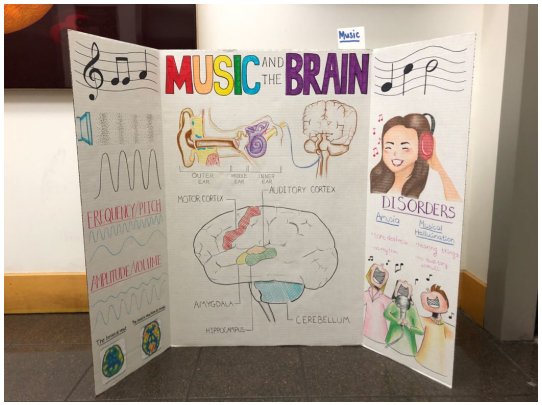


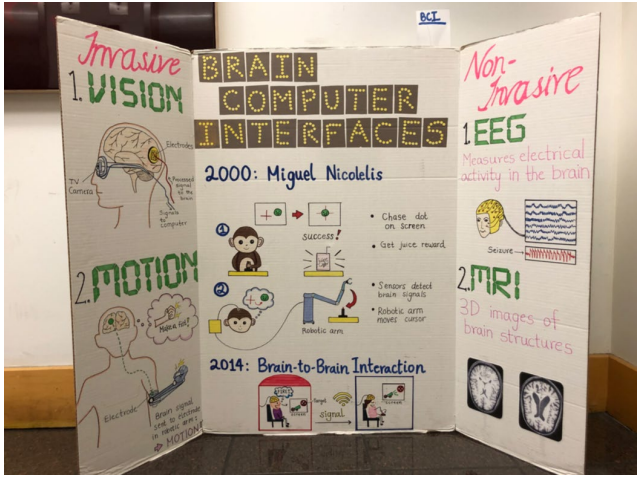
Project Glia Committee

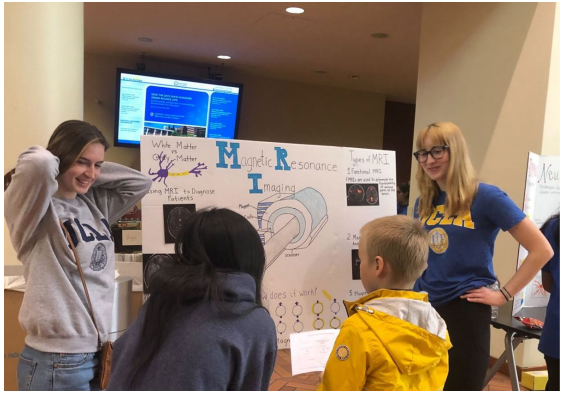
Boards

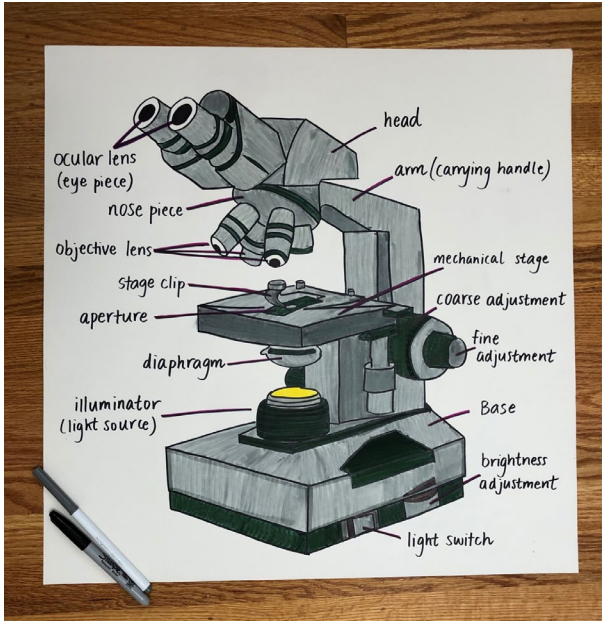
- Make new tri-fold boards for in-person presentations
- Update older tri-fold boards with new additions recently implemented in outlines (ie. add age appropriate features)
- A chance to be **creative** ! We can't wait to see your artistic abilities in action











Outlines & Demos

- Create outlines on topics that we can present
- Update outlines based on age-appropriateness and new information
- Learn about interesting new topics!
- Create demo videos to show fun activities students can do, especially for remote presentations
- Many ways you can contribute, through editing, filming, voiceovers, etc.

All age groups
Ages 3-7
Ages 8+
Introduction (A)

Definition:

- What are some senses you've heard about? What are the 5 senses you usually learn about in school?

  Taste, touch, smell, sight, hearing… Any other ones?

- Why do you think it's important to study the senses?

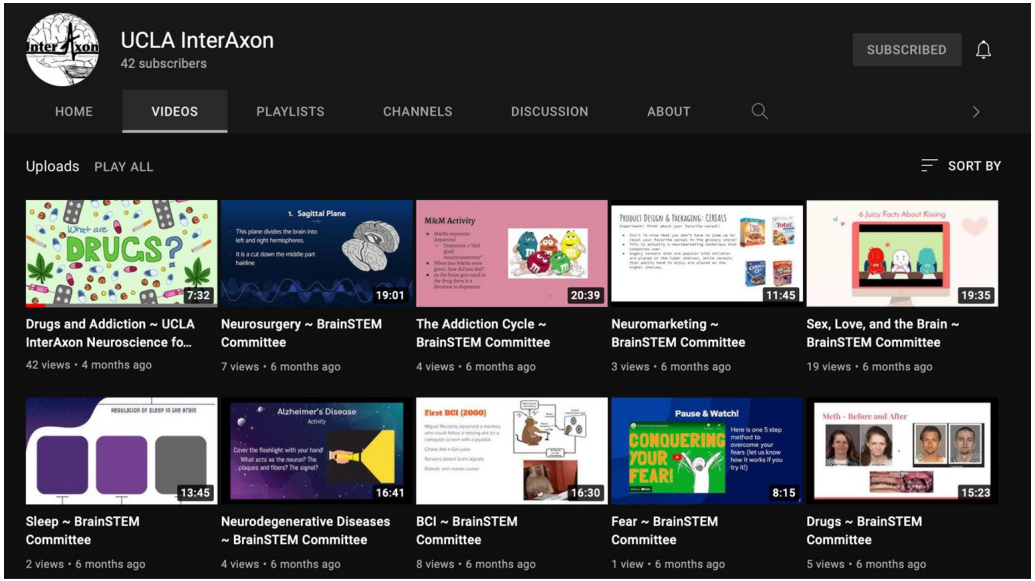
People often have sensory disorders, such as nearsightedness, hearing loss, inability to smell, etc.. Understanding the senses lets us come up with medicine or scientific tools to possibly even help these people regain their senses

From Sense to Perception

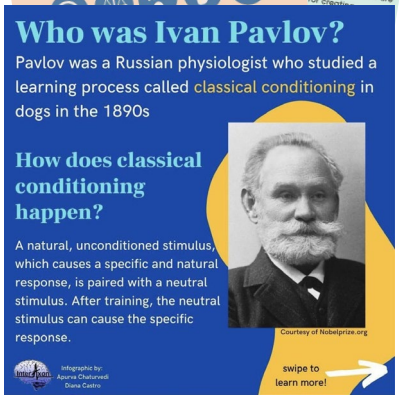
- **Sense: physical capacity for an organism to provide data for perception**
  - **Perception: How you interpret your senses and give them meaning.**
    - **How you perceive things is heavily based on your experiences and memories throughout your whole life**
    - **Example of perception: Let's say I really like fast food but you don't. When I pass by In-N-Out and smell the burgers and fries I will think it smells really good but if you pass by you'll think it smells bad.**
  - **Why are senses important?**
    - **Let us stay safe and maintain homeostasis**

Media Committee

Animations

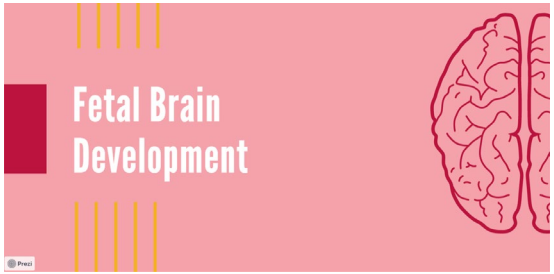


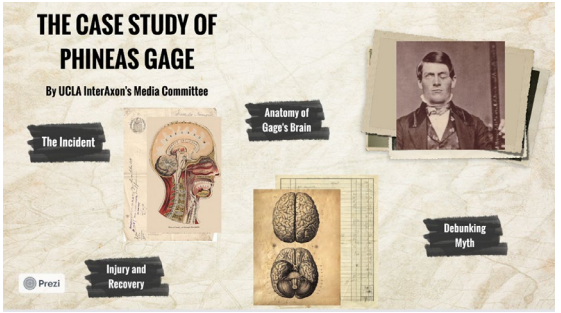
We need animators, editors, script writers, etc. to make videos for the new InterAxon TikTok and more YouTube Shorts!!



Infographics

- Put together infographics on topics ranging from psychology to neurosurgery to case studies!
- Can work **individually** or with others as a **group**.
- Will be showcased on our **Instagram**, **Email** List, and **Website**
- Can use **Canva** (left) or **Prezi** (right), but feel free to suggest other platforms!
- Get creative by illustrating your own icons & drawings or adding activities like crosswords!





Translations Committee

New to InterAxon this year!

- Increasing the number of students we reach + support
- Create new resources for students in other languages
- Both audio + visual resources
- Based on interest, no experience needed!

Mentorship Program

Let’s make

F·R·I·E·N·D·S

Thanks for coming!!!

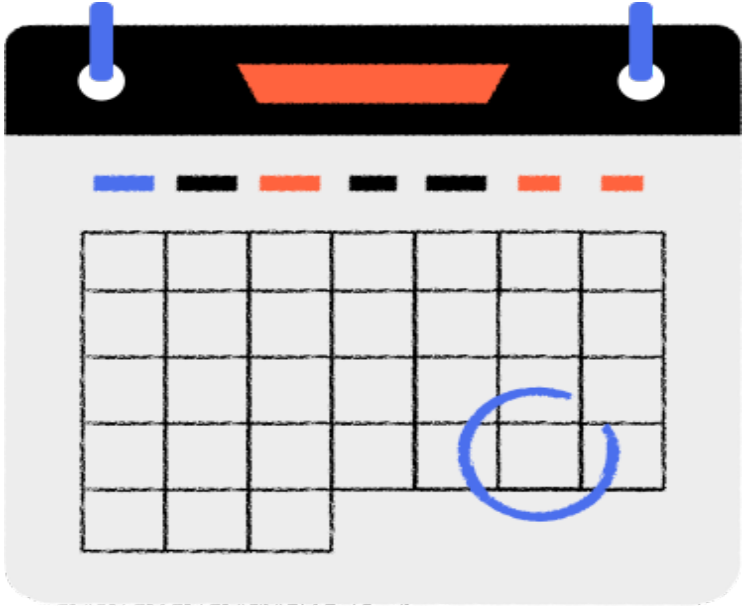
Contact Us:

Email: ucla.interaxon@gmail.com

Instagram: @interaxonatucla

Website: interaxonatucla.org

YouTube: Interaxon at UCLA



General Meetings:
Wednesdays, 6-7 PM
Zoom for Weeks 2-4
First Floor Gonda Conference Room Weeks 5-10 (hopefully)

Membership Form

Very short and easy! Just follow along and pay attention!

Format:

- 2 questions about why you're interested in InterAxon
- 6 multiple choice questions

Complete:

- Publicity Release
- Additional Waiver
- Lifetime $20 membership fee → Shirt!!!! Venmo @interaxon_1

Neuroscience Undergraduate Society (NUS)

Simon Moore, President

Winter Workshop

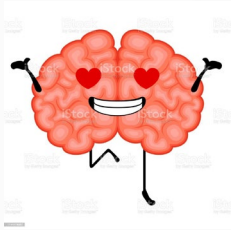
Neuroscience Undergraduate Society

Welcome back! We missed you!

General Information

Meetings every Tuesday of an odd week (1, 3, …9) @ 6 PM in Gonda 1357

- Also hybrid! Zoom: **977 0990 6013**



General Member Groupme

NUS Website

Events/Resources

- Professor Luncheon
- Med School Panel/Guest Speakers
- Study Buddy
- Mentor-Mentee
- Lab Placement Fair
- Journal Club
- Learn with nUS
- Intern

Professor Luncheon

- Facilitated by Academic Enrichment Committee

Currently planning on two more this quarter!

Med School Panel/Guest Speaker

- Facilitated by Professional Development Committee

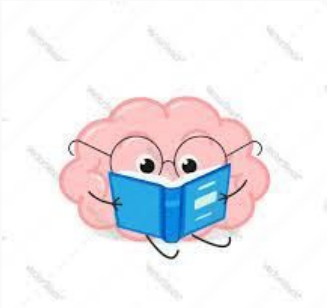
- Previously had Yale Medical School admissions officer present on requirements and advice to navigate undergraduate > med school

- Yale Med School graduate and now spinal neurosurgeon at UCLA Health expected to present this quarter

Study Buddy

- Facilitated by S B Committee
- Review sessions held for select lower division classes and the entire core m101A series

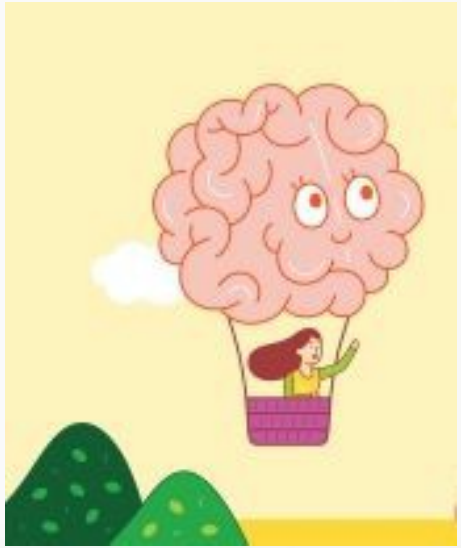
- Working with UCLA PhD candidate Terry Prins this quarter!



Mentor-Mentee

- Facilitated by MM Committee
- Pair ~3-4 UCLA 1st/2nd years with 13rd/4th year
- Socials, advice sessions, 1-on-1 with mentor + meet other undergrad neuro majors!

- Tailored to MD, PhD, or MD/PhD

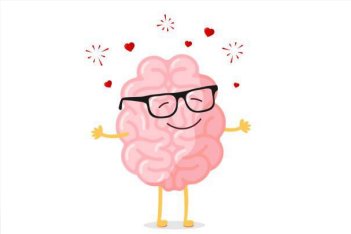


Lab Placement Fair

- Facilitated by Academic Enrichment Committee
- Meet PIs and lab members recruiting undergrads!
- Select spots for NUS members

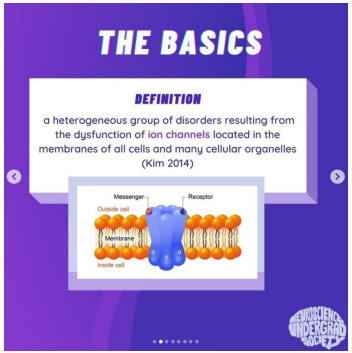
Journal Club

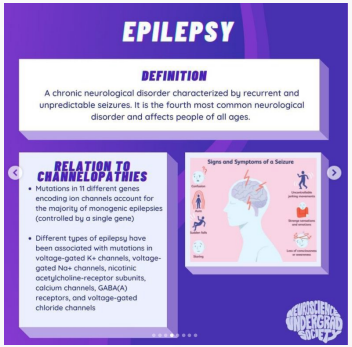
- Facilitated by JC Committee
- Weekly meetings to discuss seminars and research articles pertaining to neuroscience
- Can fulfill departmental and college honors requirements
  - Write page-long responses to discussion
  - Attend at least 3 talks/seminars throughout quarter
  - Earn B or higher in NS m101A
- Not required to be a neuro major or pursuing honors to participate!



Learn with nUS

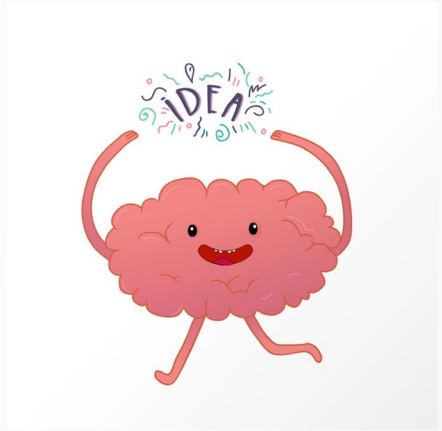
- Facilitated by Membership Outreach Committee
- Instagram series where we summarize concepts directly taught in the NS 101 core series and present them in a digestible way!





Intern

- Fall quarter recruitment
- ~ 14 interns
- Great preparation for board!
- Be the change you wish to see in NUS



Become a Member Now!

- Fill out a membership application at **tinyurl.com/nusapp21**
- Venmo **$20** to @kyliie_t
  - Memo: **"(Your name) NUS App Dues"**
- Collect your **t-shirt** sometime later this quarter or Winter quarter
  We are not tracking attendance, but we encourage you to show up to meetings!
- Receive cords for graduation

Questions?

- Thank you for your attention!
  Come on and join nUS!

Grey Matters at UCLA

Deepna Chand, President


GREY MATTERS

What is Grey Matters?

- An Undergraduate Neuroscience Journal – but not your typical journal.
- Undergraduate students author, edit and design articles about neuroscience-related topics in a way that is easy to understand by someone without a science background.
- Each article is accompanied by appealing art pieces to enhance the readability of the article.
- Let’s see some of those spreads!

YOUR MIND ON MOVIES

by Isabella Cannava
art by Hailey Kopp

Marion Crane steps into her relaxing shower on a stormy night [1]. Her relief is palpable as the warm water cascades over her and she turns toward the showerhead with a smile. A different angle shows a blissful Marion in the foreground, but a shadowy figure lurking in the background, indicating that this peaceful moment may not last very long. Suddenly, the shower curtain is ripped open and the iconic violins tear into the soundscape, accompanying Marion's screams. In a rapid array of close-ups and quick cuts, Marion Crane is stabbed and murdered by the shadowed stranger and left lying in the bathtub, lifeless and alone. The shower-murder scene from Hitchcock's Psycho is arguably unparalleled in cinema history as it tested the boundaries of violence and explicitness, a technique which made the whole movie one of the most emotionally evocative films of its time [1]. As such, Psycho, one of the first modern horror films, was a smashing box office success, likely due to the revolutionary nature of the cinematic techniques used to inspire terror in scenes such as the shower-murder scene [2].

Films and their associated cinematic devices have a unique ability to elicit emotional responses from audiences that are in line with the filmmakers' creative vision and intended viewer reception. The study of the emotional and neural reactions to cinema lays the foundation for the new and emerging science of neurocinema [3]. Before the introduction of neuroimaging methods, which provide visualizations of the brain and its activity, the knowledge of an audience's reaction to a film was limited to factors such as box office performance and subjective reports from audience members after viewing the movie [4]. With the help of neuroimaging methods like functional magnetic resonance imaging (fMRI) and electroencephalograms (EEG), among others, we can now record neural responses and investigate what is happening in the brain while watching a film [4]. The ability to analyze neurological reactions to cinema poses the question of whether movies can be intentionally manufactured to evoke a specific brain response across viewers. If so, what implications does this have for the future creation and consumption of cinema?

A study conducted by Uri Hasson and colleagues in 2008 to investigate emotional and neural responses to films revealed that there is a clear difference between how we process real-time videos of everyday happenings compared to the events of a film, as observed through neuroimaging [3]. The results of this study indicate a unique human neurological response to movies. Since movies often contain storylines and events that imitate reality, Hasson, one of neurocinema's pioneers, sought to make a neural distinction between true reality and the imitated reality displayed in movies. To do so, he presented participants with a video of Washington Square Park in New York City that did not have any camera movements, plot, or distinguishable characters. It was simply a video of what one would see when sitting on a bench in the park. Then, he presented the first 30 minutes of Sergio Leone's The Good, the Bad and the Ugly, a 1967 Western film. With the use of fMRI, Hasson found that during the movie clip, there were synchronized brain responses amongst viewers, which were explored through a method called inter-subject correlation (ISC) analysis [3]. ISC analysis is a method used to analyze fMRI data obtained during exposure to naturalistic stimuli, like a movie [5]. One of the challenges of ISC, however, is that the reliability of the technique depends heavily on sample size, with a sample size of at least 30 participants leading to truly reproducible results [5]. A high ISC indicates that participants' brain reactions are similar to each other at specific points during the viewing process [3]. This suggests that at those moments, the source material has a stronger grip on the audience's cognitive processes as compared to material that produces a low ISC. During the film clip, participants had a high ISC, but during the video of the park, the ISC was low. The low ISC while watching the video of the park indicates that a simple replication of reality is not enough to elicit a synchronized response from viewers in the way that movies do [3]. Therefore, it is likely that there is something specific and compelling about the replication of reality seen in films that is not present in our perception of everyday life.

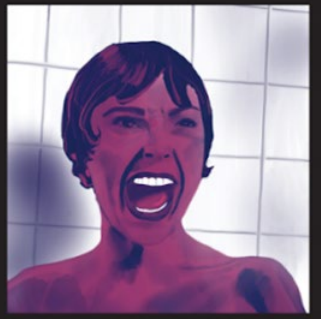
One of the features of film that distinguishes it from real life is that it is presented with flow and structure, and constructed with directorial intervention. Conventions of time and space are manipulated to help move a narrative along [6]. In Psycho, when Arbogast, the private investigator searching for Marion Crane after her disappearance, is questioning members of the community, we do not see every conversation he has in real time nor any video footage of him moving from house to house [1]. Instead,

sion [2]. Furthermore, during moments where the editing was complicated and rapid, the areas of the brain dealing with visual processing were further synchronized, implying that cinematic techniques with fast-paced visuals activate areas of the brain dealing with vision, likely due to the heightened requirement of focus elicited by these techniques. Similarly, at points where the soundtrack provided essential information about the storyline, it was the auditory regions of the brain that were activated and synchronized among participants [2].

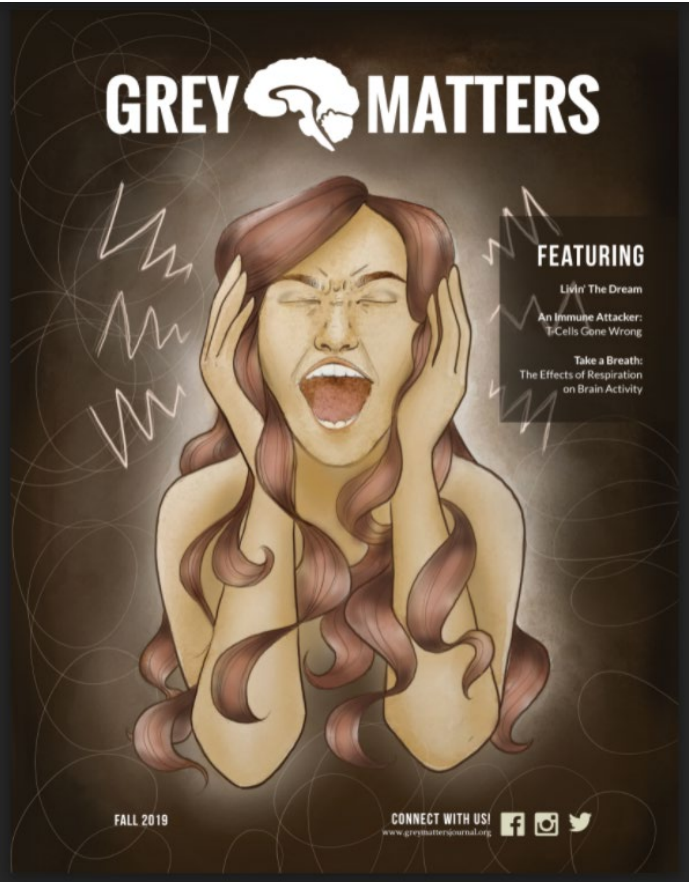
Not only was synchronized neural activity observed during auditory and visual cues throughout the movie, but there was also evidence of emotional engagement with post-production editing such as rapid montage, which is switching between shots quickly, and cinematography choices such as close-ups [2]. Post-production editing is arguably one of the most integral parts of filmmaking, and the way a film is edited can impact neural processes that occur in viewers' brains [11]. There are many distinct editing techniques that are specific to different genres and/or production companies. Hollywood-style editing, for example, is one that aids the film's narrative and guides the audience through the story, typically following a character's actions with the camera. On the other hand, MTV-style cutting is quick and relatively unrelated to the narrative. In a study conducted by Andreu-Sánchez, spontaneous blink rate (SBR) was used to investigate participants' attention during parts of films that make use of these editing techniques. SBR was found to be inhibited during the first second after a cut, a switch from one shot to another, was made, which means that audience members' eyes stayed open for a full second after that cut [11]. A correlated SBR amongst audience members indicates that each participant had their eyes open at specific and similar points of the movie. While this establishes that film editing can affect and guide our attention, the actual neural responses to these edits can be measured with EEG technology.

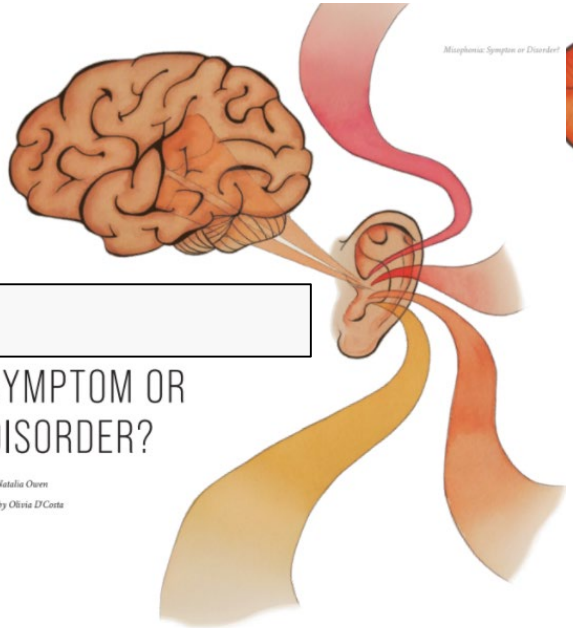
EEG technology, which detects the brain's electrical activity, enables us to evaluate responses in the brain when certain film editing techniques are used. In the aforementioned study, MTV-style editing increased activation in visual zones, likely due to the unpredictable and spontaneity of the cuts [11]. The effects of these cuts, however, did not extend to the prefrontal zones. This contrast indicates that the viewers recognized the chaotic visual cues, but the information was not reaching conscious levels of executive function with which the prefrontal cortex is typically involved. On the other hand, Hollywood-style cutting did not have a major impact on visual zones and instead affected prefrontal zones, meaning that audiences were likely focusing on following the narrative being presented instead of visually processing chaotic editing [11]. The clear differences in neural responses to these two prevalent editing styles support the notion that post-production editing can be done with an intended effect on the audience's attention or response already in mind.

In the future, could filmmakers essentially provoke pre-planned brain responses from their viewers? Research on horror movies and neurological fear responses show that specific audience manipulation could perhaps be a possibility. In an article on the rise of neurocinema, Kevin Randall, a writer interested in neuromarketing, postulates that filmmakers could use information about



known neural responses to cinematic techniques to their advantage [12]. By using certain shots, cuts, and music, movie makers could maximize excitement in brain areas such as the amygdala or prefrontal cortex [7, 11]. For example, Hollywood-style editing is used as Norman Bates cleans up the murder that was committed in the hotel [1, 11]. We see him mop up the blood, move the body, clean the furniture, and get rid of Marion Crane's belongings in a sequential manner that helps us understand the progression of movement and plot at this moment in the movie [1]. Based on Andreu-Sancez's findings, it is likely that this scene elicits responses in the prefrontal cortex as it aids the narrative and provides audiences with integral information to the story line [11]. In contrast, the chaotic editing used in the shower-murder scene likely triggered reactions in the audience's visual cortices rather





SYMPTOM OR DISORDER?

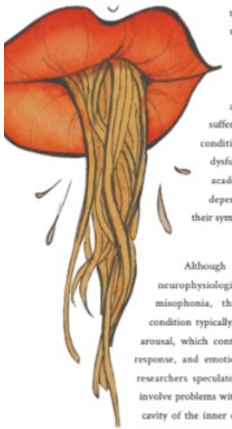
by Natalia Owen

art by Olivia D'Corta

A coworker slurps chicken noodle soup. A classmate refuses to stop coughing. A friend gulps down their coffee as if it were the last cup on earth. Many people find these sounds unpleasant, even irritating, but few experience an overwhelming, aggressive impulse to silence the source of the noise. This constitutes the sentiments of individuals suffering from the little-known, but growing condition called misophonia.

INTRODUCTION: AN OVERVIEW OF

As revisions to the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) continue to be proposed among clinicians and researchers, a growing topic of discussion concerns the potential inclusion of a condition known as misophonia. From the Greek "miso," meaning hatred, and "phon," pertaining to or having the nature of sound, misophonia quite literally means "hatred of sound." However, for individuals suffering from this condition, a specific set of sounds disproportionately triggers negative reactions. Specifically, human sounds of chewing, loud breathing, and throat clearing as well as external, nonhuman sounds such as engine noises cause intense anxiety, aggression, and consequent avoidance behavior [1]. Misophonia also differs from other auditory disorders due to its emphasis on an individual's emotional response. In contrast with phonophobia, in which fear serves as



the dominant emotional response to a sound, misophonia primarily induces feelings of annoyance, revulsion, and agitation. Individuals suffering from this psychiatric condition often experience dysfunction in their personal, academic, and social lives depending on the severity of their symptoms.

Although there is currently no neurophysiological indicator of misophonia, the symptoms of this condition typically manifest in autonomic arousal, which controls the fight-or-flight response, and emotional discomfort. Many researchers speculate that misophonia may involve problems with the cochlea, the spiral cavity of the inner ear that produces nerve impulses in response to sound vibrations. Other researchers have noted the possible overlap of misophonia with anxiety disorders, such as Obsessive-Compulsive Disorder (OCD), which also tends to provoke avoidance behavior, suggesting that misophonia may be an indicator of other psychiatric disorders rather than a separate mental illness [2].

Despite an increasing number of patients describing experiences with misophonia, the uncertainties of its neurological basis due to the lack of research on this condition prevent the DSM from proposing any official diagnostic criteria. Nonetheless, building interest in the psychological condition of misophonia has led researchers to investigate its neural basis and discuss whether misophonia should be regarded as a distinct brain disorder or as simply a symptom of related psychiatric disorders, such as OCD.

NEUROSCIENCE BEHIND

One study led by Arjan Schröder of the University of Amsterdam investigated the potential link between misophonia and impairment in auditory processing by measuring the N1 response in patients with misophonia during an auditory oddball paradigm [3]. The N1 response or "peak" is a measurable sensory component involved in auditory stimulation and indicates the brain's recognit sudden change in sensory stimuli. As an element electroencephalogram (EEG) signal, the N1 peak is used in large scale brain activity in awake, behaving patients. N1 often measured using an oddball paradigm, in which subje a silent movie while listening to repetitive "standard" so randomly-occurring, atypical "oddball" sounds. Research found a reduced N1 peak in patients with schizophr bipolar disorder, indicating a possible link between thi signal and psychiatric dysfunction. Schröder's study re decreased N1 response in patients with misophonia significantly lower peaks in response to the atypical misophonia patients than in the control patients. In oth the patients with misophonia did not attribute as much to the "oddball" tones as the control patients did [3].

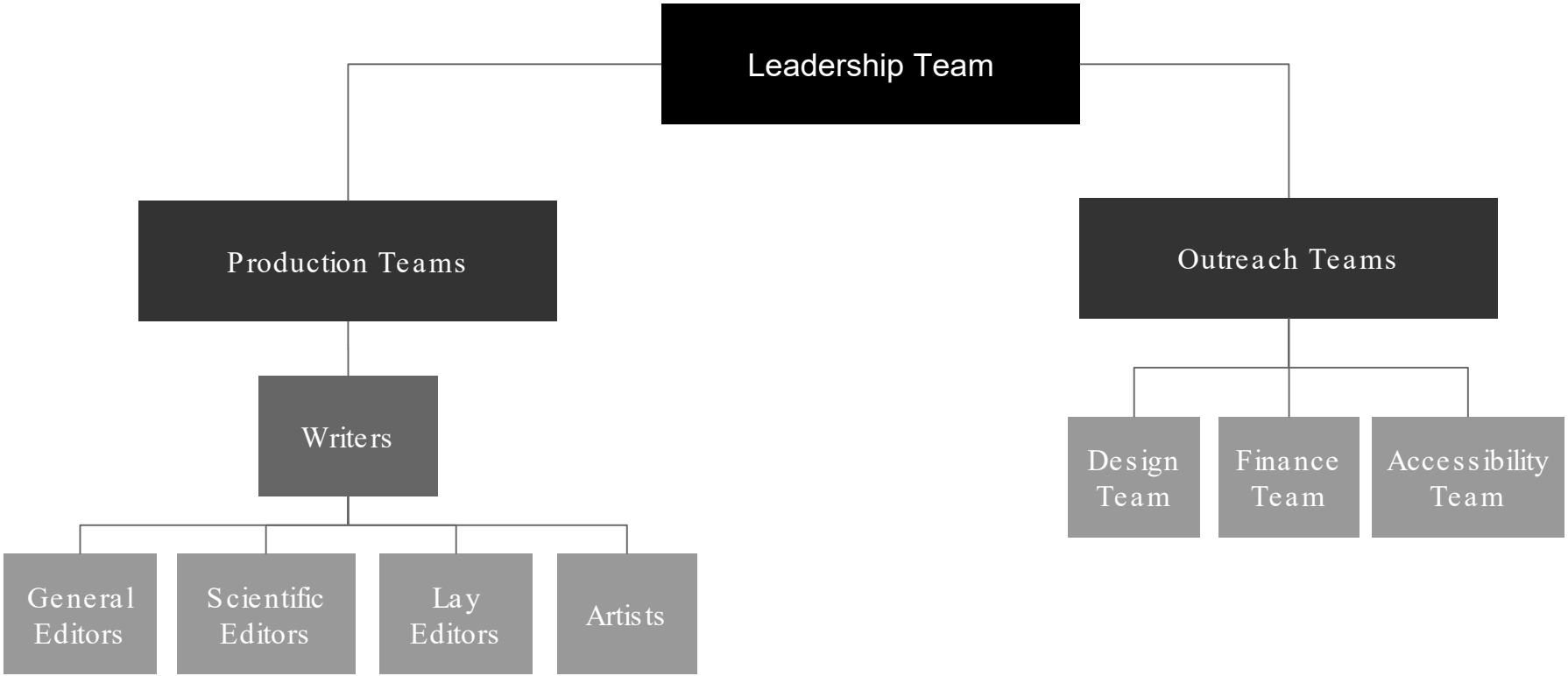
This suggests that the patients with misophonia may exp low-level neurological impairment during auditory pr The researchers offered one explanation for this, noting misophonia patients were already in a state of heightene compared to the control patients, as indicated by their responses to standard mood questionnaires. As a re patients with misophonia may not have recognized as dis difference between typical and atypical tones as the patients did, reinforcing a possible neurobiological hin auditory processing [3].

A similar, more comprehensive, study looked at the neur well as the physiological responses characteristic of mi Researchers exposed misophonic and control sub misophonia trigger sounds, common unpleasant sou neutral sounds. They collected fMRI data as well as behav linked to the autonomic response, such as heart rate and skin response, which measures electrical activity in the The results reported hyperactivity of the anterior insul (AIC) in misophonic patients during the trigger sounds. acts as an integral part of the brain's salience networ directs attention to relevant stimuli specific to the indivi study's report of hyperactivity in this area suggests tha with misophonia attribute a higher importance to trigge Moreover, the AIC is known to be a central hub for in sensory information and emotional response, which coul the impulsive aggression that many individuals with m report. Physiologically, when listening to trigger so misophonia patients exhibited an increased heart rate and

Why Grey Matters?

1. Enhance public understanding of neuroscience.
2. Inaccessibility of research. Who has the money? Who has the time?
3. Prevalence of misinformation. As scientists, we can make efforts to disseminate information in a way that can be comprehended by the general population.
4. Aid in the development of skilled scientific communicators - talk science with their PI's, their peers and their parents.

Looking to Get Involved?



Application Information

- All applications can be found on our website: greymattersjournalucla.wordpress.com. Applications are open now!
- Homepage → Get Involved → “Writing” → Apply
- Rolling-basis. Applications will begin to be reviewed by the Leadership Team on 1/14. They will permanently close on 1/21 at 12:00 pm. Take your time with your proposals though!
- No-stress! Each application should be able to be completed in 1-2 hours.
- Any question, email potentiation.ucla@gmail.com

FAQ: What if I want to do more for Grey Matters?

- Become a member of the leadership team!
- 1st round of applications. Rolling-basis. No interviews! Rest easy! I will close applications by 1/21 12:00 pm.
    1. ~~Managing Editor: General~~
    2. ~~Managing Editor: Scientific~~
    3. Managing Editor: Lay
    4. Website Director
    5. ~~Art Director~~
    6. Senior Managing Editor
    7. Graphics Designer
    8. ~~Publicity Director~~
    9. ~~Finance Director~~
    10. ~~Accessibility Director~~
- 2nd round of applications (TBA).
    1. Events Coordinator
    2. Design Director
    3. …

Link to the application form
will be revealed on our website by Tuesday @ 8pm.

Mix, Mingle, Have Fun!

Thank you for coming!