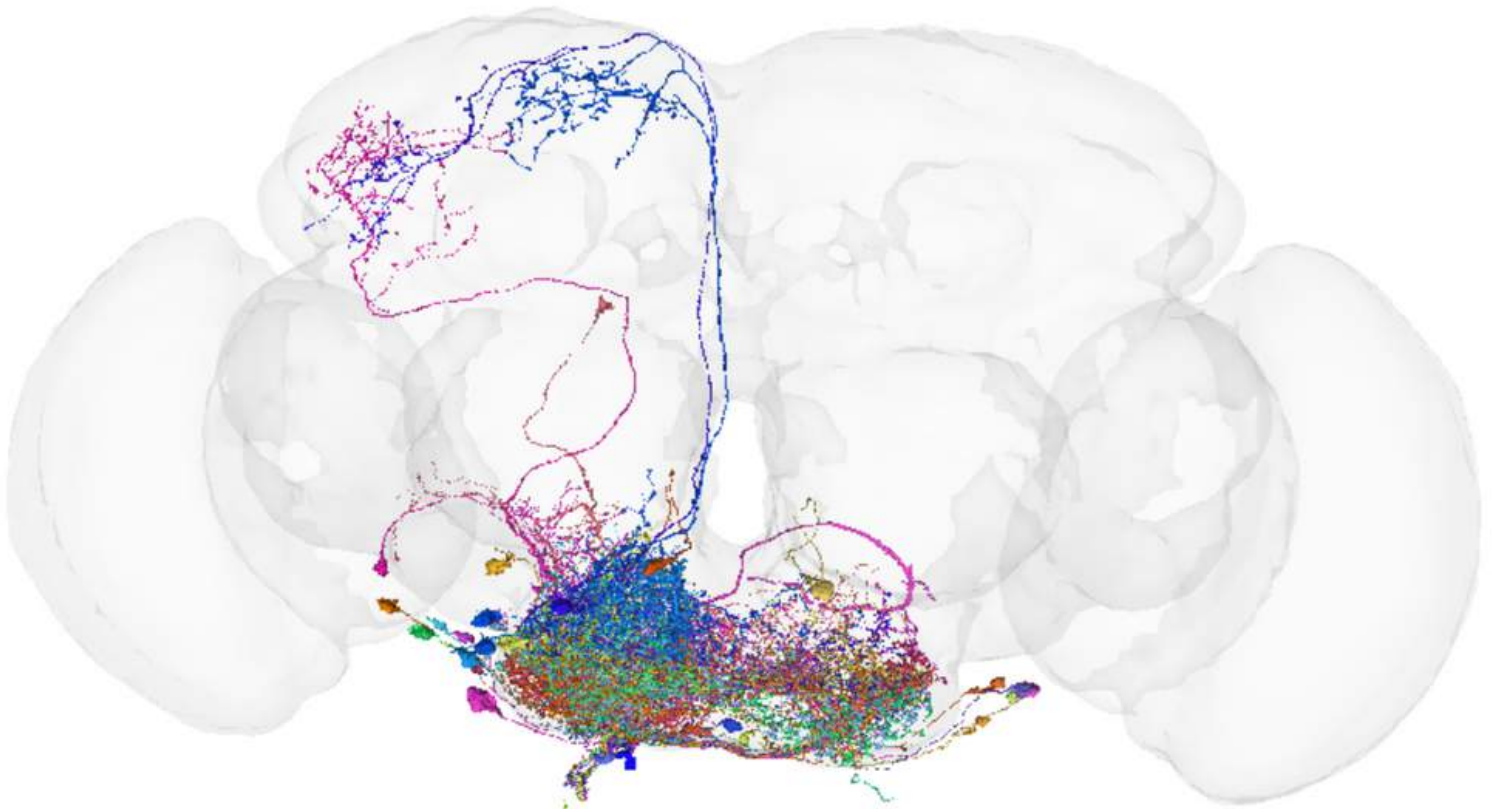


A YEAR IN UVM NEUROSCIENCE

2024-2025

May, 2025



This year, the most complex whole-brain connectome to date was generated for the fruit fly brain, [click HERE](#) to learn more about UVM's involvement. Researchers are now using this dataset to understand behavior. Here, all of the excitatory cholinergic neurons postsynaptic to "sweet" taste cells in the left hemisphere are plotted.

Image created by Julia Neefe, NSCI class of '26

Over the past academic year, students in our undergraduate Neuroscience program have excelled in their pursuit of academics, research, and beyond. Multiple seniors finished their degrees with a 4.0 GPA, and Henry Bijur received the Hannah Howard Prize, which is given to the student with the highest academic achievement across the entire College of Arts and Sciences. We also inducted one of our largest groups of students to date into the UVM Chapter of the Nu Rho Psi Honors Society. Recently, ten students also completed a senior thesis, conducting research in labs spanning 3 colleges and 8 departments across UVM. Their research has advanced our understanding of a wide range of topics, from the molecular mechanisms of eye development to evaluating the experience of patients in a clinical setting. Our students have also supported each other through the Neuroscience Club and have started a new chapter of the Brain Exercise Initiative at UVM, which will support cognitive function in the elderly through volunteer work. Congratulations on all of your accomplishments over the past year!

Donna Toufexis, Director & Molly Stanley, Associate Director



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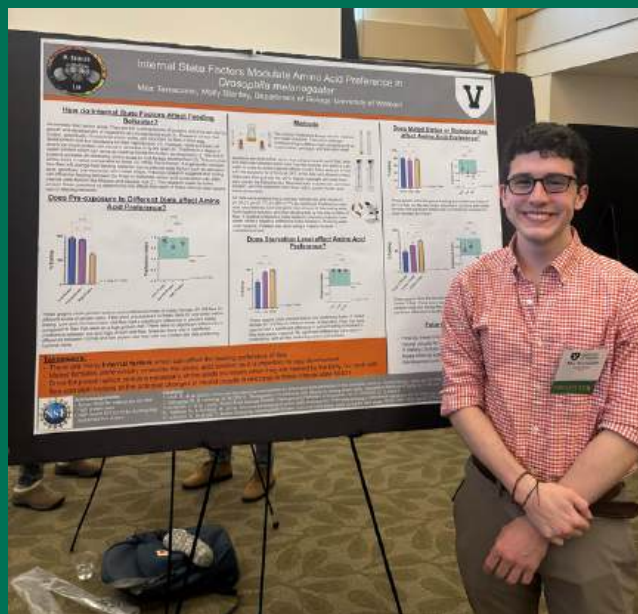
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keep in touch!*

Students presenting their research at the 2025 Student Research Conference, where UVM celebrated the achievement of becoming an R01 research university.



Max Terraciano, NSCI class of '26



Lindsey Earle & Jake Grenon, NSCI class of '26



Dr. Brigitte Lavoie giving Dr. John Cryan a plaque commemorating the first Dr. Gary Mawe Memorial Lecture at the NBH Forum. Photo by Molly Stanley.

CELEBRATION AND COLLABORATION: UVM HOSTS THE 15TH ANNUAL NEUROSCIENCE, BEHAVIOR, AND HEALTH FORUM

by Noell Koslowsky, Science Communication Intern

The Vermont Chapter of the Society of Neuroscience knocked this year's 15th annual Neuroscience, Behavior, and Health Forum out of the park. The weekend was dedicated to the late Dr. Gary Mawe, Ph.D., a former professor in the Department of Neurological Sciences at the University of Vermont Larner College of Medicine. Dr. Gary Mawe had a significant impact on neuroscience communities across the world, proven true by Dr. John F. Cryan, Ph.D. making the trek from Ireland to memorialize and celebrate their collaboration and friendship throughout the years. Dr. Cryan is a Professor and Chair in the Department of Anatomy and Neuroscience at University College Cork.

Dr. Brigitte Lavoie, a long-time collaborator of Dr. Mawe at UVM, said, "It was an honor to have John Cryan give the keynote speech at the NBH forum this year. John and Gary's friendship grew from their common love for sciences and their genuine curiosity and friendly attitude which led them to prolific collaborations in their respective field. They also share a strong commitment to teaching and sharing their knowledge beyond the scientific community, values that are supported by the NBH forum."

On Friday, January 31st, Dr. John F. Cryan shared his research on how the microbial world interacts with our bodies to impact almost every aspect of our day-to-day lives. We obtain our gut microbiome at birth, and his research has found correlations between C-sections and psychological stress in adulthood. His research has also found that germ-free mice have profound neurodevelopmental changes, with upregulation of myelin genes in the prefrontal cortex, deficits in fear learning, changes in long term potentiation, and much more. Many of these changes can be reversed or managed through a diet of fermented foods or the consumption of probiotics. After the keynote address, the night morphed into one of socializing and dancing as the cash bar opened and UVM's Dr. Jom Hammack took to the stage with his band Unruly Allies to provide live music.



The band Unruly Allies performing after the keynote lecture at the NBH Forum. Photo by Noell Koslowsky.



Dr. John Cryan giving the keynote lecture at the NBH Forum in the Davis Center. Photo by Xin Rui Lim.

The ball continued to roll into Saturday, February 1st, where presenters from UVM and surrounding institutions shared their research with audience members through 20-minute platform talks, 5-minute data blitzes, and posters. Research presentations highlighted the vast field of neuroscience, showcasing work in humans as well as different model systems, including mice, *C. elegans*, *Drosophila*, zebrafish, and in vitro models. The UVM mascot, Rally Cat, stopped by the forum to support the event.



The NBH Forum organizers posing with Rally Cat. From left to right: Molly Stanley, Jeremy Barry, Travis Todd, Lillian Russo-Savage, and Xin Rui Lim. Photo by Lindsey Earle.

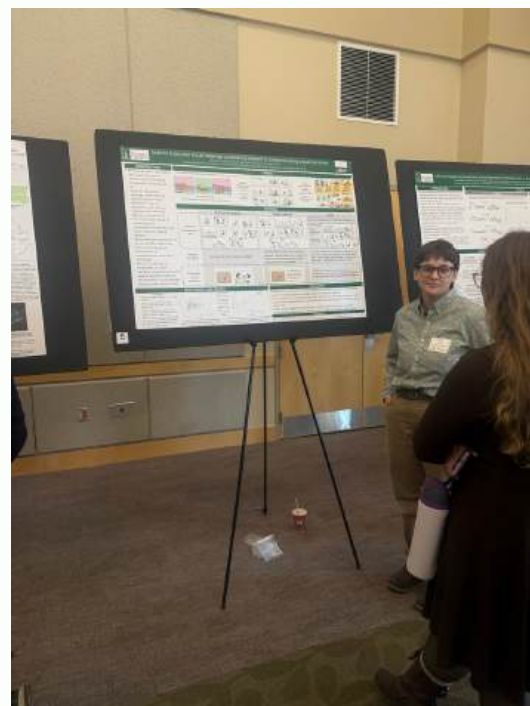
Dr. Sue Ishaq from the University of Maine encouraged us to eat more raw broccoli sprouts, as her research showed that a 10% raw broccoli sprout diet in a mouse model of inflammatory bowel disease led to decreased inflammatory symptoms, as well as improved bowel movements. This suggests that dietary changes can impact conditions such as Crohn's disease and Ulcerative Colitis. Research from across the spectrum of neuroscience was presented, with Dr. Adam S. Sprouse Blum of UVM highlighting his clinical research on migraines in different hemispheres of the brain, Dr. Leo T.H. Tang of UVM sharing his research on *C. elegans*

worms to study the biological mechanisms of learning and memory, and Dr. Aman S. Aberra of Dartmouth College presenting his research on how subthreshold electric fields alter neurotransmission. PhD candidate Christian Arntsen showcased his research with the fruit fly, *Drosophila*, highlighting how artificial sweeteners differentially stimulate bitter or sweet taste pathways using calcium imaging and optogenetics. PhD candidate Lillian Russo-Savage who presented her research on gut-brain connections said, "The NBH forum has always been a wonderful opportunity to stay informed on all the varied and exciting research being conducted both internally at UVM and in our local community, at neighboring institutions. I have also greatly benefitted in my training as a graduate student from the ability to gain experience presenting my work to my colleagues in different formats each year."

The day continued with poster presentations from scientists across every level of study in neuroscience, from multiple colleges and universities. Emma Renwick, an undergraduate student in the UVM Department of Psychological Sciences, presented their research on the associations between trauma exposure and perceptions of conflict within the family system. A presentation from Dr. Emily Coderre's lab, on how Autistic traits and visual language proficiency interact for comprehending visual narratives, was presented by undergraduate student Del Rosner.

Two graduate students, Anna Lyndaker and Kathryn Bates, from Dartmouth College presented on how the estrous cycle impacts behavioral outcomes following traumatic brain injury.

Reflecting on the event, McKenna Smith, an undergraduate student at UVM said, “I feel privileged to be able to be an audience member and view posters and presentations from all over the Northeast.” This annual forum showcases the diversity of research across the field of neuroscience at UVM and surrounding institutions, and provides a great networking and learning opportunity for those in neuroscience or related fields at all levels of study.



Del Rosner presenting research from the Coderre Lab during the poster session at the NBH Forum. Photo by Noell Koslowsky.

This year’s award winners:

Best platform talks: Aman Aberra, PhD & Lillian Russo-Savage

Best blitz talk: Christian Arntsen

Best graduate poster: Shaina Weingart

Best undergraduate poster: Lindsey Earle

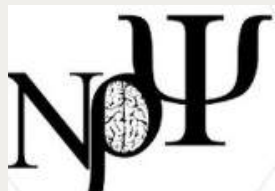
Most entertaining faculty: Suzanne Ishaq, PhD



NBH Forum trainee award winners with their certificates. From left to right: Lindsey Earle, Christian Arntsen, Lillian Russo-Savage, Shaina Weingart, and Aman Aberra. Photo by Molly Stanley.



Dr. John Cryan’s presentation of a poem at the NBH forum in the Davis Center.



NU RHO PSI HONORS SOCIETY

The national honors society for neuroscience aims get students involved to use their education and experience in neuroscience and apply that to relationships across the US. There are great resources for experience in research and internships opportunities and in the local community.



LEADERSHIP TEAM

President:

Jake Grenon

Vice President:

Anna Wachter

Treasurer:

Gabe Spiegel

Secretary:

Grace Firehock

Faculty advisor:

Dr. Alicia Ebert

GRADUATING SENIORS

(previous & new members)

Grace Firehock

Lexie George

Gabriel Speidel

Skye Sutherland

Lydia Tate

Gaby Vallejo

Anna Wachter

Julia Bates

Maddie Hughes

Auny Kussad

Anastasiya Semyannikova

Torie Snyder

NEW INDUCTEES

Molly Manning

Ellison Armitage

Katie McCluskey

Isabelle Baker

Madison McCuin

Gwenyth Boren

Chiara Petracek

Jillian Corbit

Gabriella Psaltos

Miles D'Andrea

Caleb Purvee

Lindsey Earle

Carolin Raino

Evan Elliot

Samara Sahagian

Hunter Holoubek

Ella Sarama

Caroline Kehlet

Cameron

Campbell Kemp

Thompson

Viola Linton

Emery Tuch



uvm.nu.rho.psi
UVM Nu Rho Psi

CONGRATULATIONS!



Congratulations to our 2025 Graduating Senior Award Winners!



Henry Bijur

HANNAH HOWARD PRIZE

This award is given annually to the student with the highest academic achievement in the *entire College of Arts & Sciences*. We are honored that one of our Neuroscience students received this recognition. Henry is a student in the Honors College who completed a senior thesis with Dr. Osama Harraz, and demonstrated excellence in his academic work. He made the Dean's List every semester and was a member of the Phi Beta Kappa honor society.



Henry with Dr. Toufexis at the CAS Honors Ceremony.

Photo by Owen Leavey





Congratulations to our 2025 Graduating Senior Award Winners!



Lillian Hand

BRUCE S. KAPP AWARD

This award is given annually to graduating seniors in neuroscience who have conducted outstanding independent research in neuroscience while maintaining high scholastic standards. The award is named for Bruce Kapp, who was a Professor of Psychology from 1971-2001. Dr. Kapp was a pioneer in the study of the neurobiology of emotion, and his work has dramatically influenced and directed the research of subsequent scientists in the field.

Kasia Ludkiewicz

EXCELLENCE IN NEUROSCIENCE AWARD

This award is granted to the graduating senior who has achieved the highest academic performance in the program. Quite often these students not only excel in scholarship but are also active in research and service to the University and their community.

Nidhi Konnanur & Jackson Del Porto

RODNEY PARSONS AWARD

This award is given to a senior who demonstrates outstanding achievement in scholarship, leadership, and research in the field of neuroscience. The award is named for Rodney Parsons, a long-time former faculty member who served as the Director of the UVM Center of Biomedical Research Excellence in Neuroscience.

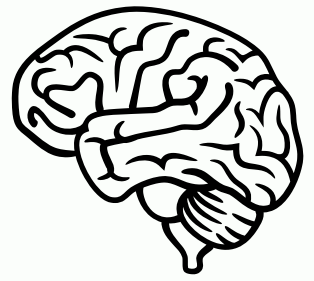


*Award winners
with Dr. Toufexis
at the CAS Honors
Ceremony.
Photo by Owen
Leavey*





2025



NEUROSCIENCE SENIOR THESIS DEFENSES

Samuel Wolf

Advisor: Joseph Kennedy, Emergency Medicine, LCOM

"(ComPass): Comparing Patient Experience in People with Communication Access Needs"

William Alexander Black

Advisor: Jom Hammack, Psychological Sciences, CAS

"Investigating the Existence and Implications of a PACAP-mediated Circuit from the Medial Habenula (MHb) to the Interpeduncular Nucleus (IPN)"

Rachel Johnson

Advisor: Paula Deming, Biomedical & Health Sciences, CNHS

"Investigating the Glutamine-dependent Metabolism of Knockout STK11 Lung Adenocarcinoma"

Lila Rose Tomlinson

Advisor: Alicia Ebert, Biology, CAS

"Investigating the Role of DCBLD2 in Visual Function and Eye Development"

Jackson Ross Del Porto

Advisor: Andrew Fritz, Biochemistry, LCOM

"The role of Runx1-mediated suppression of breast cancer tumorigenicity"

Henry Charles Bijur

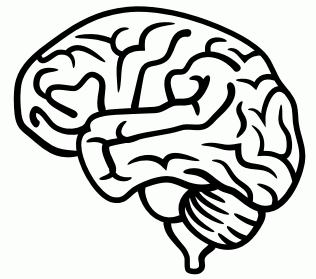
Advisor: Osama Harraz, Pharmacology, LCOM

"Redox modulation of Piezo1 channels in brain capillary endothelial cells"



2025

NEUROSCIENCE SENIOR THESIS DEFENSES



Zoe Charlotte Rosenfelt

Advisors: Christopher Kojzar, Art, CAS

& Nathan Jebbet, Neurological Sciences, LCOM

"Representation Matters: Advancing Diversity, Equity, and Inclusion in Medical Illustration"

Cate Ford Szpila

Advisors: James Stafford, Neurological Sciences, LCOM

& Eric Thrailkill, Psychological Sciences, CAS

"Non-Contingent Alcohol Deliveries During Extinction Weaken Reinstatement of Alcohol Seeking in Mice"

Grace Catherine Firehock

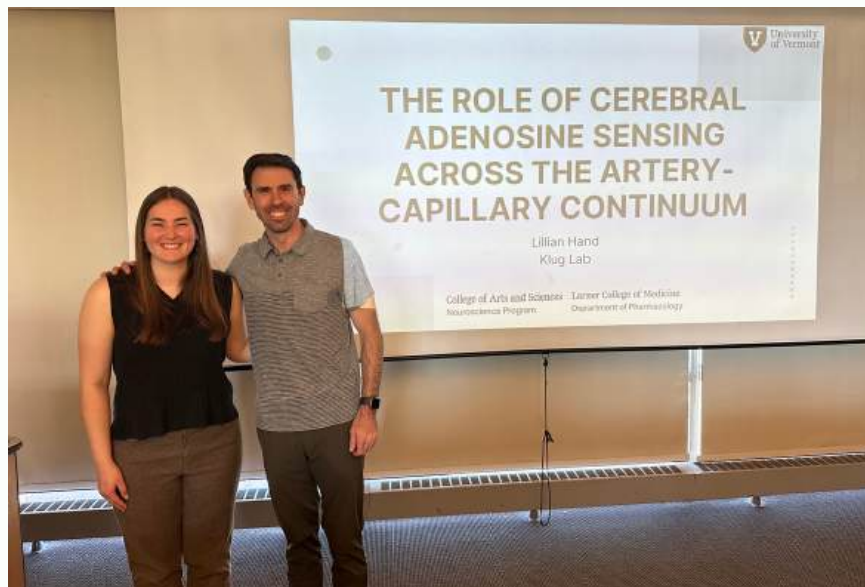
Advisor: Donna Toufexis, Psychological Sciences, CAS

"Levonorgestrel Androgenic Effects and the Delay of Habit Development in Female Rats"

Lillian Hand

Advisor: Nicholas Klug, Pharmacology, LCOM

"Mechanisms of cerebral adenosine sensing across the artery-capillary continuum"



Lillian Hand with her advisor at her thesis defense.



UNDERGRADUATE RESEARCH AWARDS

SPONSORED BY GENEROUS DONATIONS FROM
NEUROSCIENCE ALUMNUS, GAIN ROBINSON.

Sof Antelo

Helms Cahan Lab
Dept. of Biology

*"Biological Mechanisms of Colony
Founding and Aggressive Behaviors
in Veromessor pergandei Queens"*

Read a full UVM article featuring
Sof's research [HERE!](#)



Luke Frost

Toufexis Lab
Dept. of Psychological Sciences

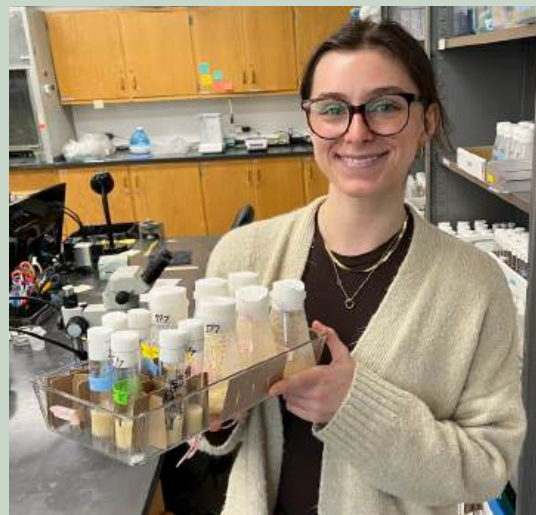
*"Examining the Effect of Gonadal
Steroids in the Striatum in Fear
Extinction"*



Lindsey Earle

M. Stanley Lab
Dept. of Biology

*"Dopamine and Insulin Receptor
Signaling in Sweet Taste Cells
Influence Protein and Sugar Sensing
in Drosophila melanogaster"*





NEUROSCIENCE CLUB

A VERY CHILL LOW COMMITMENT CLUB THAT IS OPEN TO ANY MAJOR!

The Neuroscience Club at UVM is a student-run organization that meets every week during the fall and spring semesters. Our club serves as a meeting of students interested in neuroscience to learn more about the field and its ongoing discoveries through student presentations, research discussions, trivia nights, and other fun events. We want to provide a community for all students interested in neuroscience!

Some of the exciting events we have hosted this year include a neuroanatomy lab hosted by a professor in LCOM, a tour of a neuroscience research lab, and an alumni panel. Follow on Instagram for updates on events!

**NEURO CLUB
MERCH**

Support the neuro club and buy
an awesome hoodie!

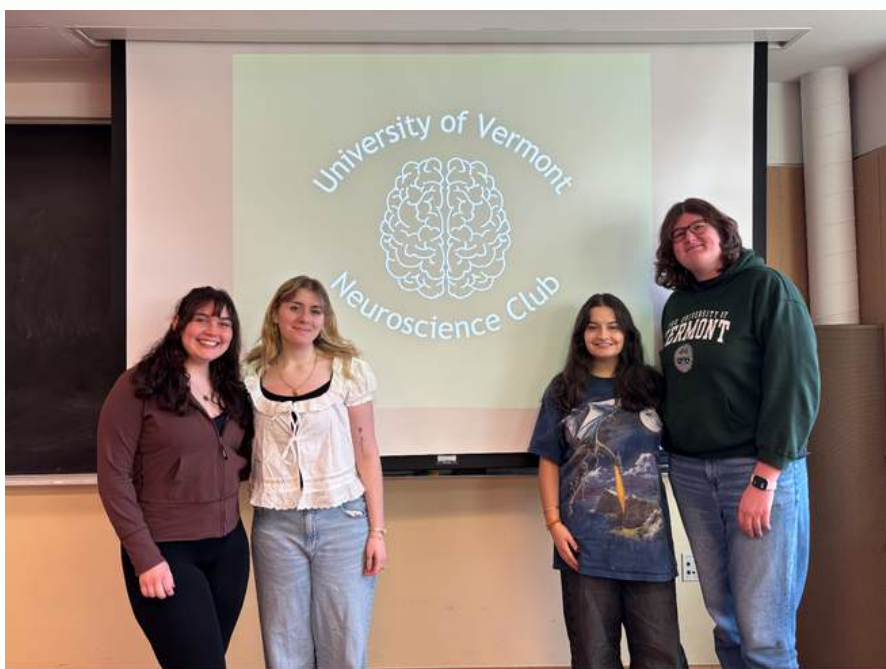


**NSCI Course
Registration
Advising**

Tuesday 4/1 @ 6:00pm

Aiken 112





A picture of the neuroscience club executive board members. From left to right: Hannah Humphreys (Vice President), Lia Ouaknine (secretary), Maya Rao (Co-President), Ella Sarama (Co-President). Not pictured: Samara Sahagian, treasurer.



uvm_neuro_club
UVM Neuroscience Club

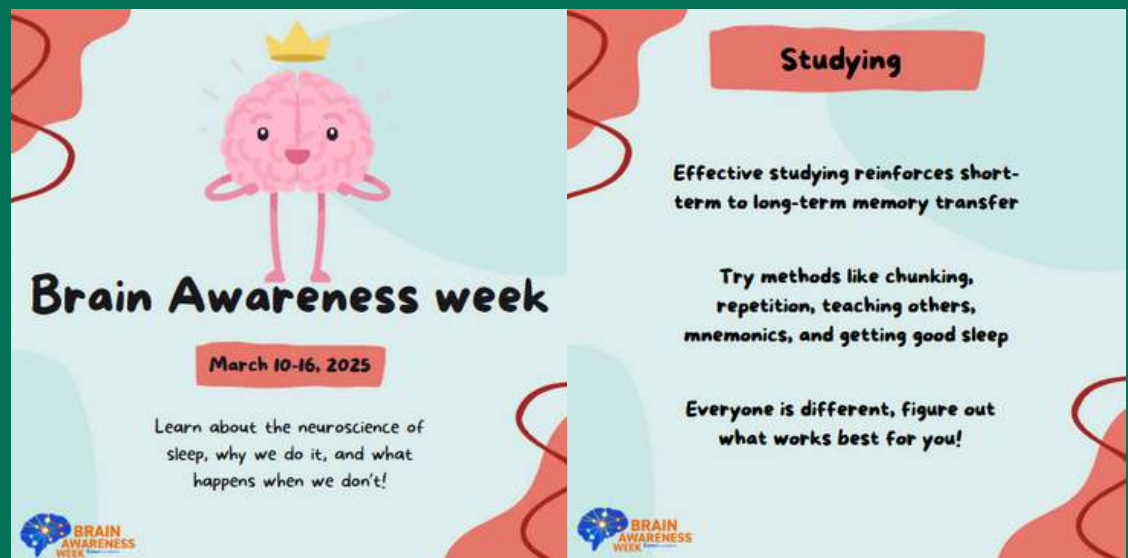
SciComm Internship

Students receive internship credit hours for science communication work



Noell Koslowsky '26 is a Neuroscience major and pharmacology minor. She co-produced the department newsletter, created content for Brain Awareness Week for the official Biology Instagram, and wrote an article for the Neuroscience Department website and newsletter. On top of this internship, Noell spends most of her time doing her course work and studying, spending time with her friends. In her free time, you will usually find her playing games, watching movies, or hammocking outside on a nice day.

UVM
Biology
Instagram



The Science Communications Internship was started in spring 2023 and aims to provide students with the opportunity to engage in scientific media communications. The overall goal for the internship is to create and content related to our neuroscience program across various platforms such as the website, social media, and this newsletter. Interns can expect to conduct interviews, write articles, create social media posts, and apply their photography or graphic design skills.

Contact Dr. Molly Stanley, the faculty advisor, for more information: Molly.stanley@uvm.edu

Thank You to Our Recent Donors!

- Gain Robinson supported our student research awards, providing students with essential funding to support ongoing research.
- Jerry Jacobs recently created the Gerald Jacobs Scholarship to provide financial aid to students in our Neuroscience program.

These donations have a HUGE impact on our students & program, and we sincerely appreciate your contributions!

Please consider donating to Neuroscience: [Donate Here](#)

Follow on Instagram for Neuroscience updates



@biologyuvm @uvm_nbh_forum



Connect with Alumni & Share Updates!

Join UVM's global alumni network: www.UVMConnect.org.

Are you a UVM Neuroscience alumni with an interesting story or update to share? Our SciComm interns would love to hear from you!

Please email Molly.stanley@uvm.edu.

