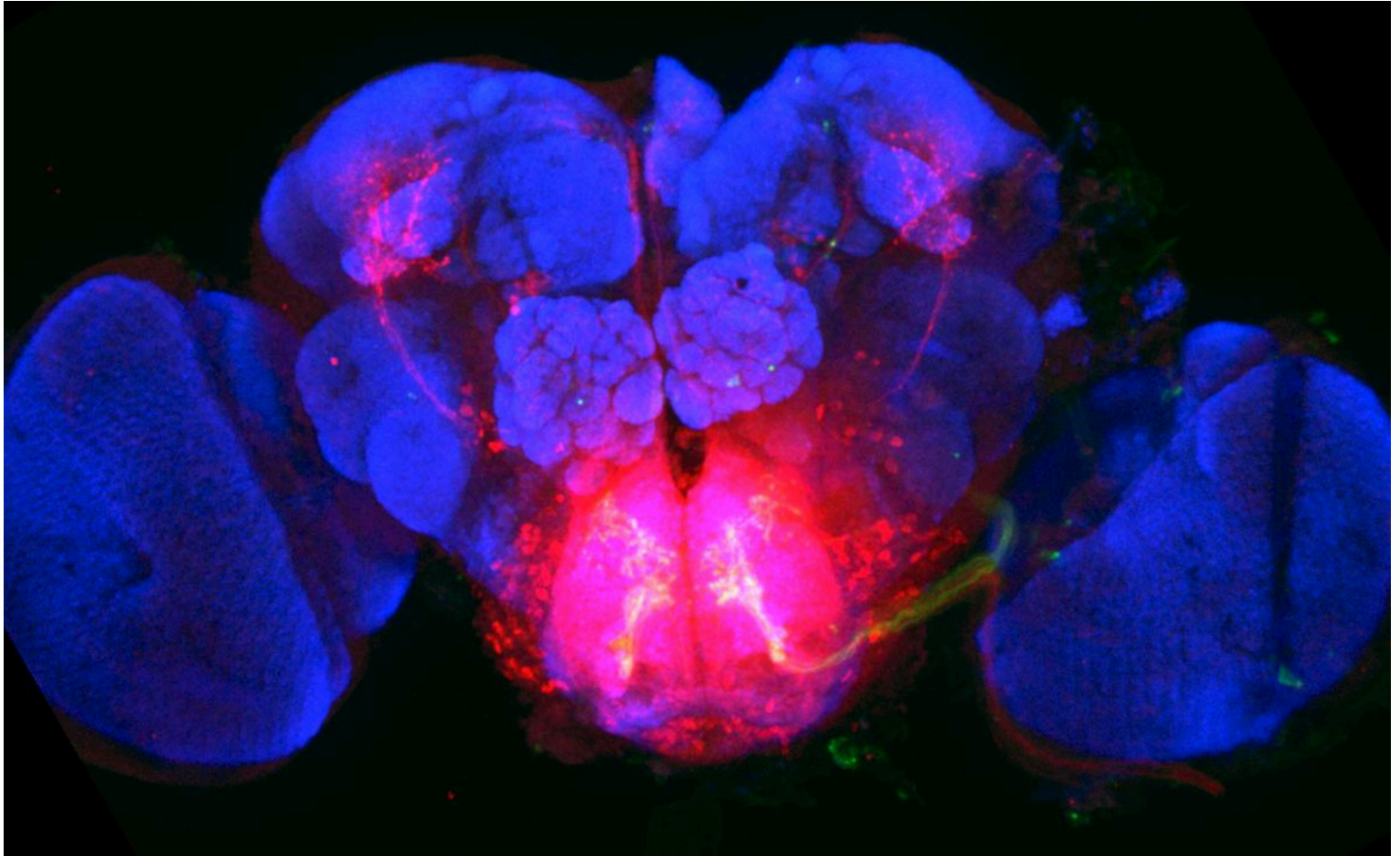


A YEAR IN UVM NEUROSCIENCE

2023-2024

May 31, 2024



Confocal image of a fruit fly brain with 'sweet' taste neurons labeled in green, and all postsynaptic neurons in red using a genetic tool called trans-Tango. *Photo by Jacqueline Guilemin, PhD candidate in the M. Stanley Lab*



A group of Neuroscience students and faculty at the 2024 commencement!

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keep in touch!*



Photos from the 2024 Commencement



Platform Talk Presentation in Grand Maple Ballroom at NBH Forum: photographer: Darian Cook

14TH ANNUAL NEUROSCIENCE, BEHAVIOR, HEALTH FORUM

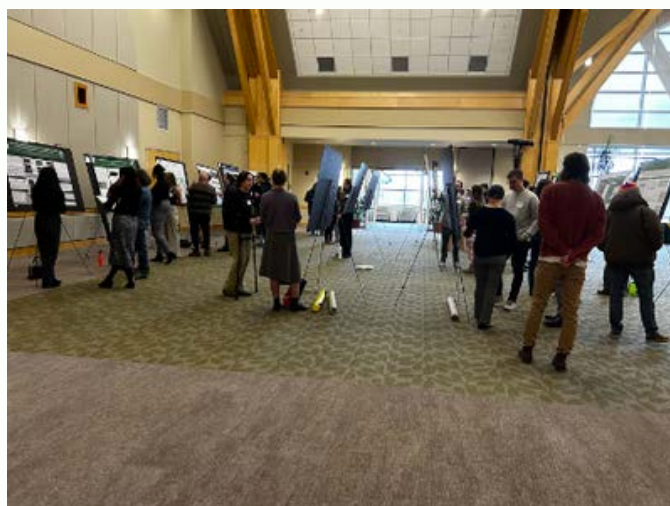
by Darian Cook, Science Communication Intern

Vermont kicked off 2024 with a bang, marking the 14th annual NBH forum, and to say it drew a remarkable crowd would be an understatement. It boasted the highest number of registered attendees in its history, greeted by a grand celebration showcasing regional neuroscience research from institutions across New England. Hosted by the Vermont Chapter of the Society of Neuroscience, an international organization, this forum promised cutting-edge insights and networking opportunities.

The event commenced on Friday, February 2nd, with a keynote address by Dr. Kerry Ressler, Ph.D., delving into the translation of brain mechanisms of fear to our understanding of PTSD and trauma-related disorders. The day transitioned into an evening of socializing, featuring a cash bar and live music courtesy of the band CombustOmatics, led by Dr. Jom Hammack, UVM's own Director of the Undergraduate Neuroscience Program.

The momentum continued into Saturday, February 3rd, with a lineup packed with engaging activities. Participants were treated to a series of Platform Talks, each spanning approximately 15 to 20 minutes, and Data Blitz sessions, each condensed into a dynamic 5-minute presentation.

Esteemed researchers like Dr. Yangguang Ou from UVM shared groundbreaking findings, including her pioneering work on electrochemical biosensors for mental health disorders. Dr. Ou's research on tryptophan revealed intriguing insights into amino acid dynamics in the striatum. Dr. Ou finished her talk by emphasizing her students' painstaking contributions to this cutting-edge research. Neuroscience graduate student Jenan Husain in Dr. Benedek Erdos's lab showcased her exploration of chronic neuroendocrine stress on bladder activity and postdoctoral fellow Dr. Mohammad Elmahdy from UVM gifted the audience with a Data Blitz of his behavioral evaluation of a specific mechanosensory sensor in brain vasculature in mice and it's relation to cognitive functions. Other highlights included postdoctoral fellow Dr. Jennifer Anderson's research on LOX-1 inhibition selectively preventing aortic but not cerebral stiffness in a model of preeclampsia and won the award of Best Platform Talk and Dartmouth graduate student Alicia Barber's longitudinal study shedding light on sex-specific disease trajectories in Alzheimer's.



Poster Presentation in UVM's Grand Maple Ballroom



Taylor Bean receiving the Best Undergraduate Poster award

The day culminated in a showcase of nearly 40 research posters, each offering a glimpse into the forefront of neuroscience research. Among the diverse array of presentations, Mahafuza Aktar delved into BNST PAC1 receptor neuron projections, while Nick Fontaine's work on PAC1 receptor antagonism garnered acclaim for its insights into chronic stress management as he won the Best Graduate Student Poster at the forum. Grace Davis, Lily Russo-Savage, and numerous other researchers at various levels of training shared their compelling contributions.

Reflecting on the event, fourth-year undergraduate student Grace Davis remarked, "I'm really glad I got to attend the NBH forum this year! The UVM Neuroscience community is filled with so many brilliant people. I found I was inspired by many of the talks and the many opportunities for thoughtful discussion throughout the weekend. As a scientist-in-training, I feel proud to be a part of a community with such a vibrant appreciation for science."



Poster Presentation in 4th Floor of the Davis Center

Similarly, another undergraduate student Eli Rachimi stated that they "thought the event overall was incredibly fun. It was wonderful to get to know a large variety of scientists at UVM and Dartmouth and to be able to showcase the research that is happening through this event. I felt the forum was very interdisciplinary with not only neuroscience but many other fields as well and made me feel more connected to the neuroscience and psychological researchers here. On a last note, Dr. Hammack's band did a fantastic job and made Friday all the more fun."

Looking ahead, attendees are already anticipating next year's event, slated for early February 2025. With hopes for another record turnout, the success of this year's forum serves as a testament to the enduring enthusiasm and commitment of the neuroscience community.

This year's award winners:

Best Platform Talk: Dr. Jennifer Anderson

Best Data Blitz presentation: Abigail Myer

Best Graduate Student Poster: Nicholas Fontaine

Best Undergraduate Poster: Taylor Bean

Best Postdoc Poster: Dr. Xin Rui Lim and Dr. Mohammad Elmahdy

Most Entertaining Faculty Talk: Dr. Alexis Brieant



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: Emily Baumoel
Vice President: Jocelyn Botelho,
Treasurer/Secretary: Grace Davis
Faculty advisor: Dr. Jom Hammack

- Outreach with ECHO: focuses on neuroscience education for kids
- Outreach with Vermont Brain Bee with Lisa Bernardi
- Tabling at Davis Center to spread awareness about NRP
- Bake sale Davis Center Atrium



NEW INDUCTEES

Zakir Beridze (senior)
Darian Cook
Grace Firehock
Jake Grenon
Nadia Huber (senior)
Ellie Morris (senior)
Gabriel Speidel

GRADUATING SENIORS

Zakir Beridze (new member)
Isabel Berman
Alexandra Bodelle
Jade Cleary
Charlotte Levy
Nadia Huber (new member)
Ellie Morris (new member)
Grace Davis
Jocelyn Botelho
Emily Baumoel





NEUROSCIENCE CLUB

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



Meetings consist of: course registration once a semester advice for students, jeopardy, anatomy lab visit, EEG lab visit, jeopardy, movie night, bake sale, and various information presentations (for example neuroscience of fear, neurodevelopment, stroke, Mock thesis defense, seizure first aid training, etc)



uvm_neuro_club
UVM Neuroscience Club

2024 Undergraduate Research Awards

This year's recipients of the Neuroscience Research Award received funds for research supplies and submitted reports about their experiences (shared briefly below).

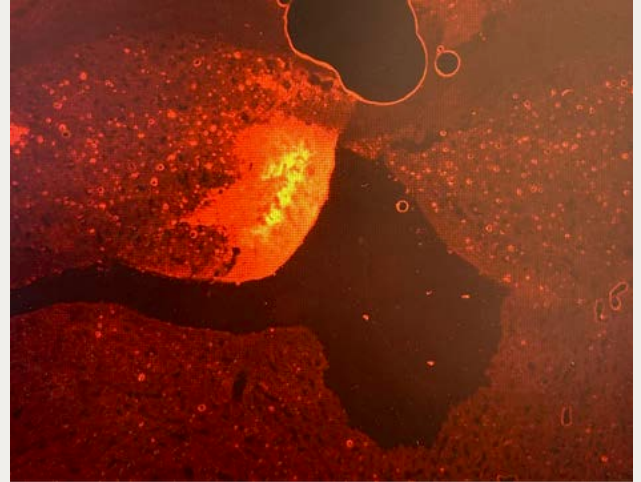
William Black

Hammack Lab

Dept. of Psychological Sciences

"Investigating the existence and implications of a PAC1 receptor expressing circuit from the Medial Habenula to the Interpeduncular Nucleus"

The photo shows expression of a fluorescent protein in the brain after AAV vector injection from this project.



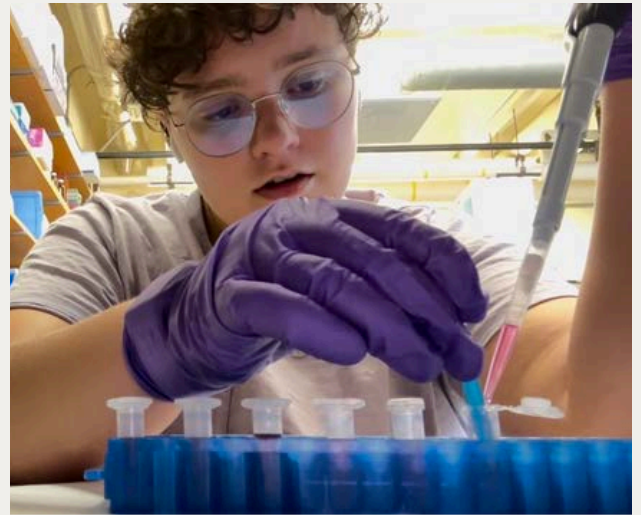
Sof Antelo

Helms Cahan Lab

Dept. of Biology

"Veromessor pergandei Queen Social Behavior and Genetics"

The photo shows Sof extracting mRNA from the brains of ant queens to examine gene expression differences across queens from different regions to understand how genes relates to behaviors.



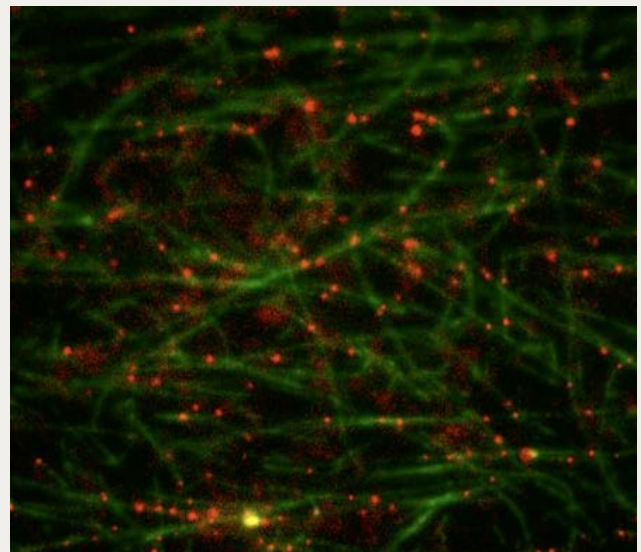
Hamza Azhar

Ali Lab

Dept. of Molecular Physiology & Biophysics

"Effect of ALS-Related SOD1 mutants on the motility of microtubule-based motor Dynein"

The photo shows a capture from a TIRF microscope visualizing Dynein movement along microtubules with mutated SOD protein that Hamza took during this research project.



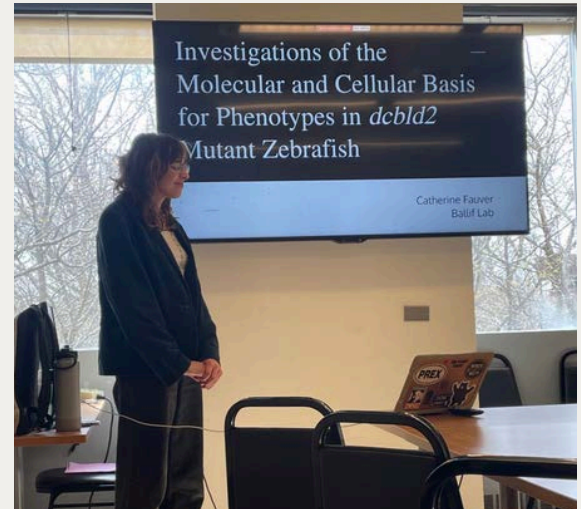
2024 Undergraduate Research Awards

This year's recipients of the Neuroscience Research Award received funds for research supplies and submitted reports about their experiences (shared briefly below).

Catherine Fauver **Ballif Lab** **Dept. of Biology**

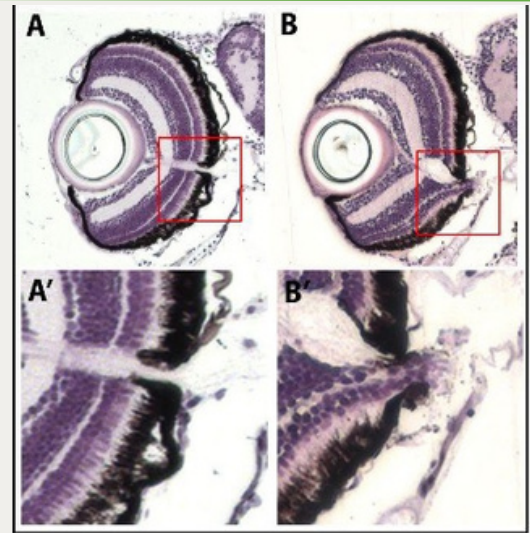
"Sub-cellular characterization of a phenotype truncation allele of DCBL2 and bioinformatic analysis of the tissue-specific compensation potential of DCBLD1 and 2 in zebrafish development"

The photo is from Catherine's thesis defense that resulted from this project.



Lila Tomlinson **Ebert Lab** **Dept. of Biology** *"DCBLD2 Investigation"*

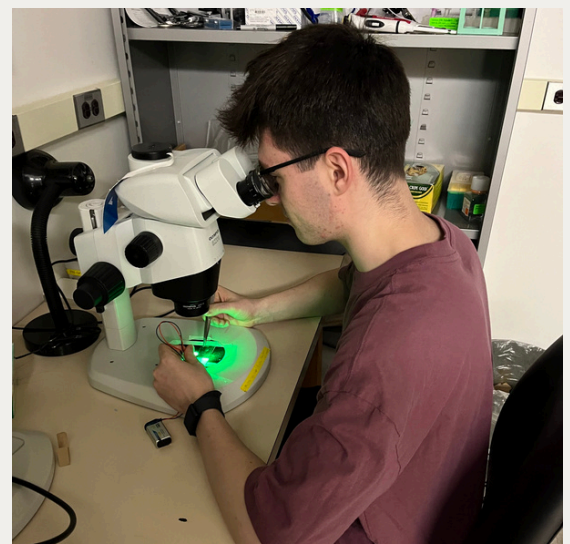
The photo shows images of the zebrafish retina that are part of this project to investigate the role of the DCBLD2 gene in retinal integrity. Lila's work centered around optimizing PCR and sequencing of genetically modified fish to be able to study the role of this gene further.



Jake Grenon **M. Stanley Lab** **Dept. of Biology**

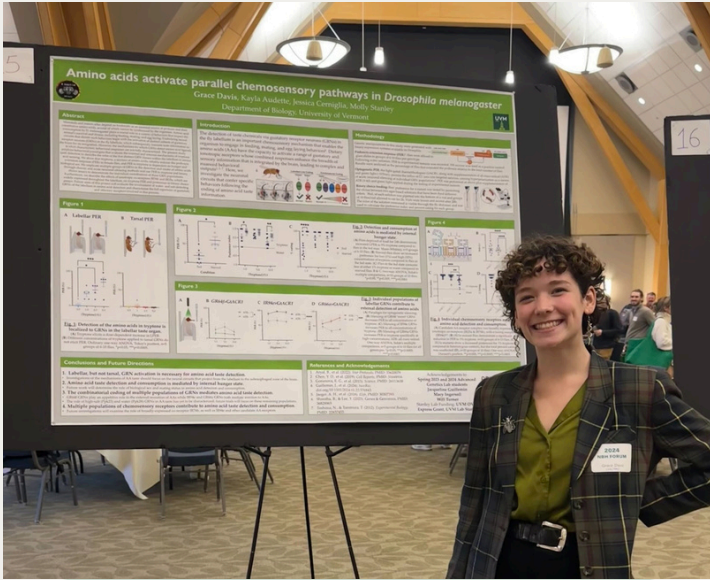
*"Artificial sweeteners activate sweet and bitter taste cells on the *Drosophila* labellum"*

The photo shows Jake performing an experiment to optogenetically silence taste cells in fruit flies with green light while they taste artificial sweeteners as part of this project.



Student Research Presentations

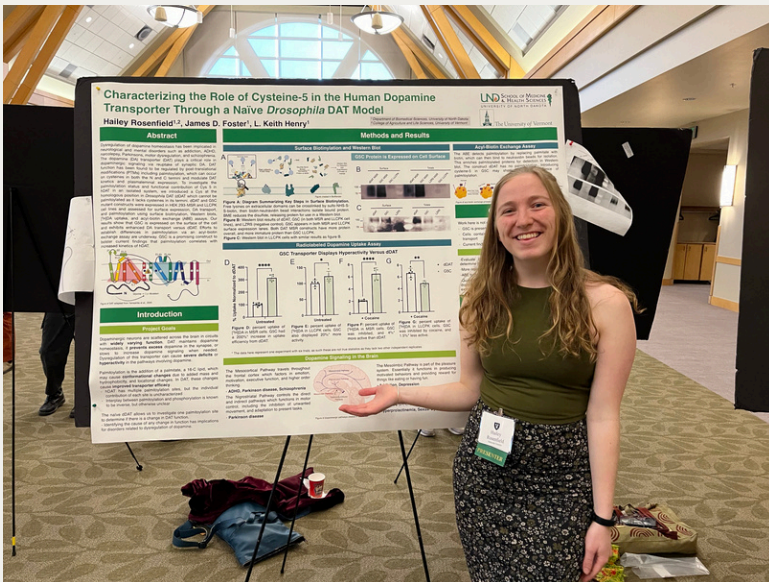
Many of our undergraduate students presented their research projects throughout the year. Here are a few examples of students presenting at the Neuroscience, Behavior, Health Forum and the UVM Student Research Conference (SRC) in 2024.



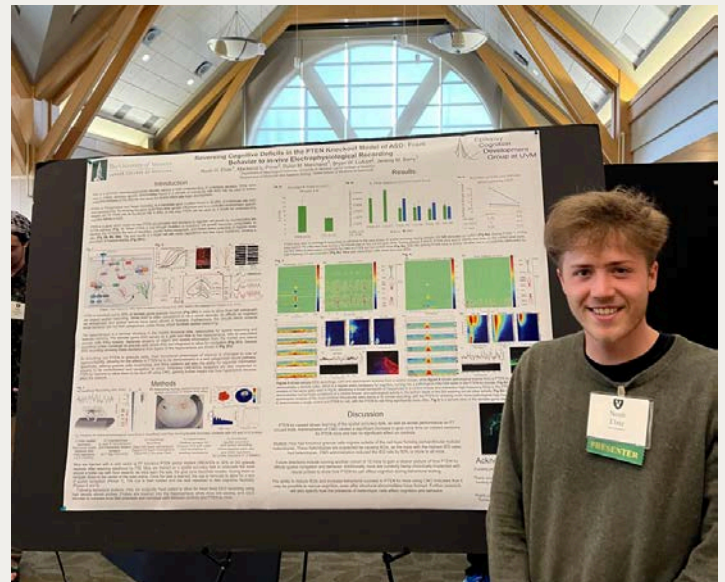
Grace Davis
Senior Neuroscience Major
M. Stanley Lab
Senior thesis project research: NBH Forum



Brendan Cox
Senior Neuroscience Major
Mawe-Lavoie Lab
Senior thesis project research: SRC



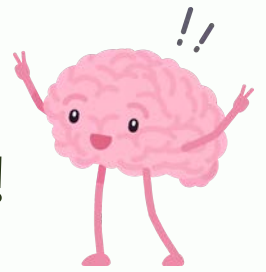
Hailey Rosenfield
Junior Neuroscience Minor
Henry Lab (U. North Dakota)
Summer research project: SRC



Noah Elste
Senior Neuroscience Major
Barry Lab
Senior thesis project research: SRC



Congratulations to our 2024 Graduating Senior Award Winners!



Noah Elste

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.

Isabel Berman & Ruby Guth

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.

Grace Davis

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 and Chair of the Department, and since 2001 has served as the Director of the UVM Center of Biomedical Research Excellence in Neuroscience.



Students receiving their awards at the College of Arts and Science Award Ceremony

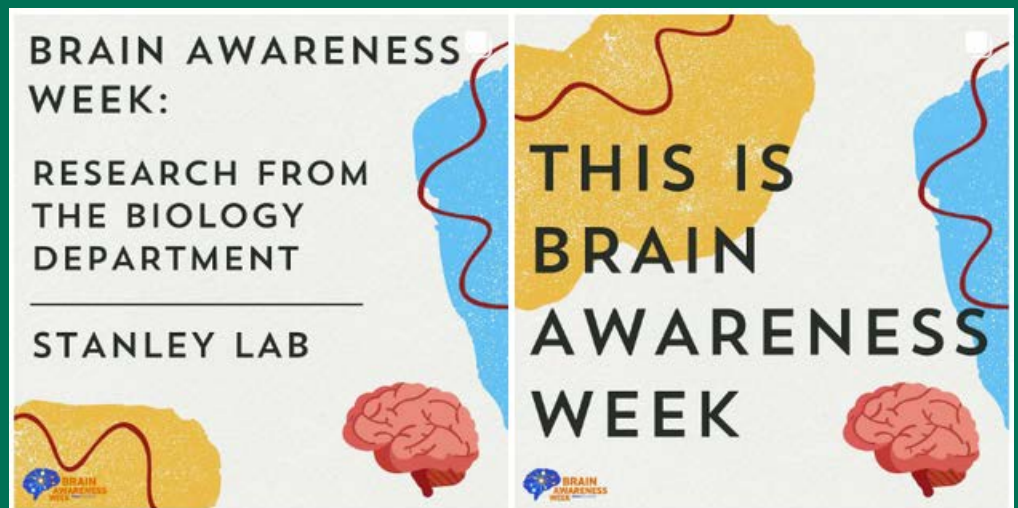
SciComm Internship

Students receive internship credit hours for science communication work



Darian Cook '26 is a Neuroscience major with a minor in Psychological Science. They 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. In addition to this internship, they have spent most of this semester helping friends with schoolwork, preparing for their academic year abroad in Italy, and working at the Skinny Pancake on campus. In Darian's free time you can usually find them outside enjoying the sun, hammocking, in the library or drawing.

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 content for department news across various platforms such as the website, social media, and this newsletter publication. 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!

We would like to sincerely thank you for your contributions. Your support has made a significant impact in the lives of our students, particularly in the aftermath of a global pandemic. Supporting undergraduate research at UVM ensures students the opportunity to work side-by-side with faculty to advance technology, change policies, build understanding, and improve lives.

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

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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.

