Duke UNIVERSITY
Psychology & Neuroscience

2021-2022

ANNUAL IMPACT REPORT

CHARLES LAFITTE FOUNDATION PROGRAM IN PSYCHOLOGICAL & NEUROSCIENCE RESEARCH AT DUKE UNIVERSITY

CHARLES LAFITTE™
FOUNDATION

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WHERE WE ARE **TODAY**

As we reflect on the 21-22 academic year, support from the Charles Lafitte Program in Psychological Research played many roles: it helped students to attend virtual conferences; supported student-led research programs; provided seed grants for innovative faculty research (which in turn provided additional research opportunities for students). We remain very grateful for how the funding supports research training and research excellence in our department.

However, less visible but equally important is that the support from the Charles Lafitte program supports community. Fostering community is increasingly important given the new normal: a world in which more people are working remotely, with research meetings, data collection, and conference presentations increasingly occurring online.

The Lafitte funding focuses on research interactions: between undergraduates and graduate students, between faculty and students. And such collaborations require people to talk to each other, to share ideas, and to come together to create something greater than what any one individual would achieve

As we look ahead to 22-23, we will prioritize funding that promotes community at the same time as research excellence. We plan to restart in-person travel awards and look for other ways to encourage people to interact with each other, in person.

On behalf of all of our students, staff, and faculty, I want to express my gratitude to the Charles Lafitte Foundation.

Elizabeth J. Marsh
Professor and Chair,
Department of Psychology & Neuroscience, Duke University

BY THE NUMBERS

With generous support from The Charles Lafitte Foundation, the Department of Psychology & Neuroscience has funded innovative research that engages its undergraduate students, graduate students, and postdoctoral fellows.

P&N offers research grants, conference awards, research project funding, URS matching awards, and publication support.

Funding applications are reviewed by a committee of P&N faculty members and key criteria for the grants program includes: overall scholarly merit, innovativeness, anticipated impact upon applicants' research experiences and/or general experiences at Duke, and feasibility for completion by specified deadline.

8 Undergraduate Small Grants

15 URS Matching Grants

20 Graduate Awards

4 Virtual Conferences

1 Open Access Publication

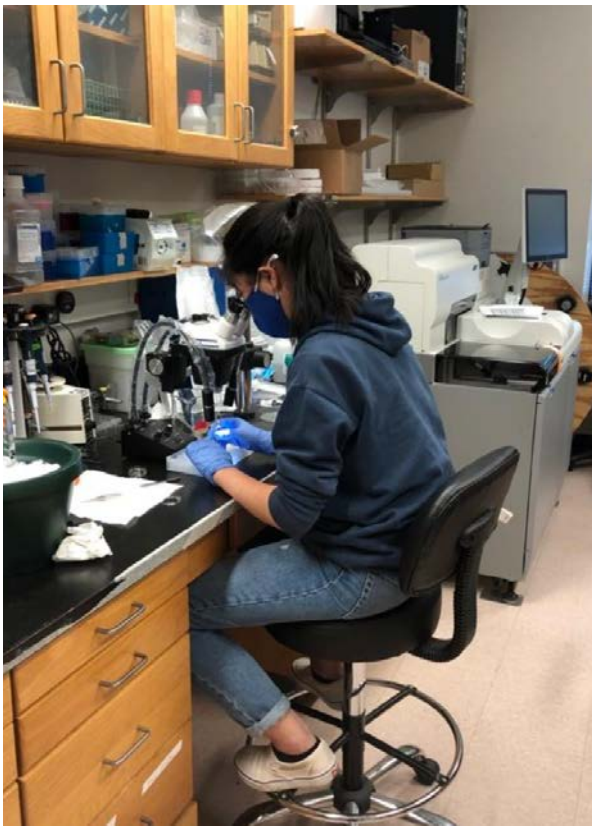
UNDERGRADUATE **RESEARCH**

Grace Qi, Neuroscience '23, received a URS matching grant to investigate the role of disruptions in circadian rhythms and metabolic pathways in Alzheimer's disease. Preliminary evidence has shown that hibernation and Alzheimer's disease display many of the same biological markers, including hyperphosphorylated tau, altered circadian rhythms, and altered metabolism.

Qi's hypothesis is that Alzheimer's disease is an evolutionary relic of hibernation that has become irreversible, leading to death.

To investigate her hypothesis, Qi has been exploring at the distribution of proteins of interest in the retina, where photoreceptors and other cells transmit information about environmental lighting conditions to downstream circadian rhythm circuitry in the brain. The goal was to investigate the differences in the amounts and distributions of these proteins in Alzheimer's mouse models versus wild-type controls.

"The URS matching grant was incredibly helpful for my project since it allowed me to procure new antibodies for use in staining that my lab did not previously have." - Grace Qi



Qi performs a dissection of a retina with the dissection scope.

Megan Gerges, Psychology '23, completed the first half of her independent research study titled The Effects of Trust Violations. Gerges' project evaluates how the timing of trust violations – early trust violations versus late trust violations – impacts subsequent cooperative behavior based on the political ideology of U.S. participant (conservative or liberal) and the political ideology of the participants.

> *"During this semester, I worked on finishing a literature review, designed and coded the experiment, wrote and submitted the IRB Protocol, and ran study sessions for the experiment. This has been a challenging and rewarding experience and I am extremely excited to continue working on this project!"*

As part of her study, participants play a repeated trust game that measures cooperative behavior against the computer (though they were unaware of this and were made to believe that they were playing against another human participant) where their partner withheld tokens from them either in the first two rounds (an early trust violation) or in later rounds (a late trust violation). Focuses on data from the final five rounds of lay, Gerges measured how cooperative participants were after having their trust violated.

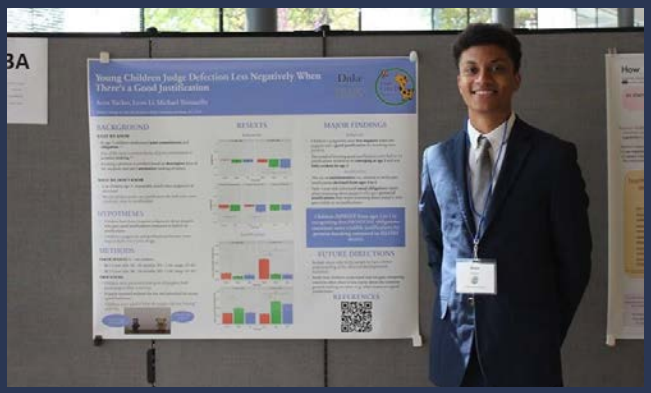
Gerges (center) and members of the Duke Sociological Study of Cooperation Lab test her experiment prior to running the study with participants.

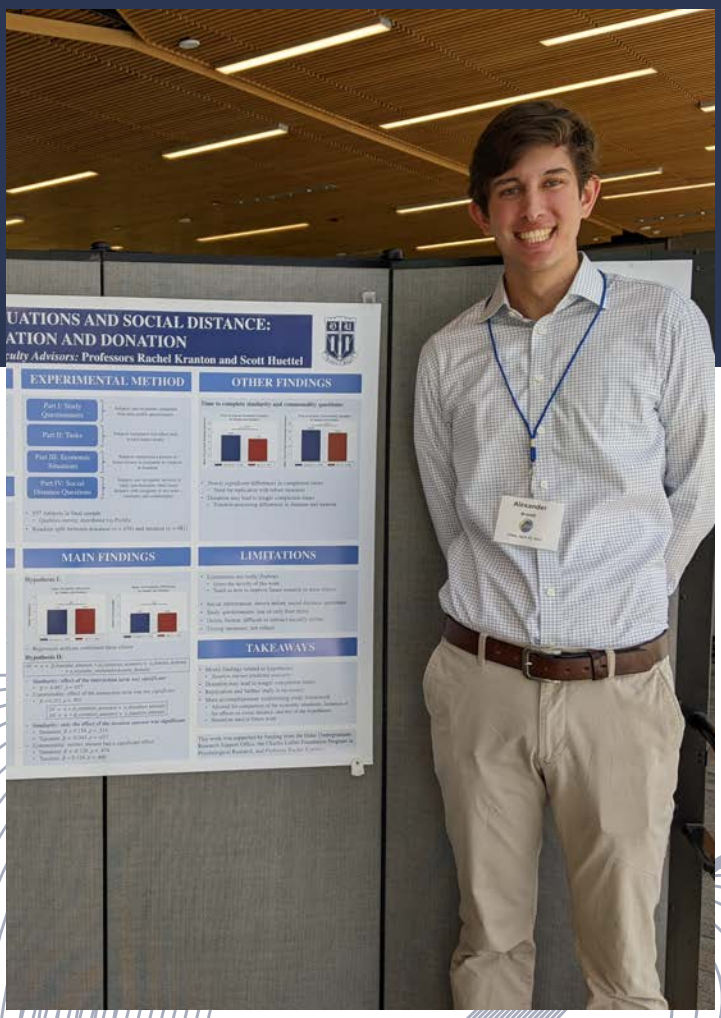
UNDERGRADUATE CONFERENCES

Duke's Visible Thinking Conference is an annual event that celebrates the achievements of undergraduate researchers and explores students' original scholarship in the natural and social sciences.

Thanks to generous support from The Charles Lafitte Foundation, the department of Psychology & Neuroscience was able to match all URS student grants from the Undergraduate Research Support Office.

All undergraduate students who received Lafitte matching support for URS grants presented their work, in person, in April 2022 at the Visible Thinking Conference.

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Professors Rachel Kranton and Scott Huettel
EXPERIMENTAL METHOD
OTHER FINDINGS
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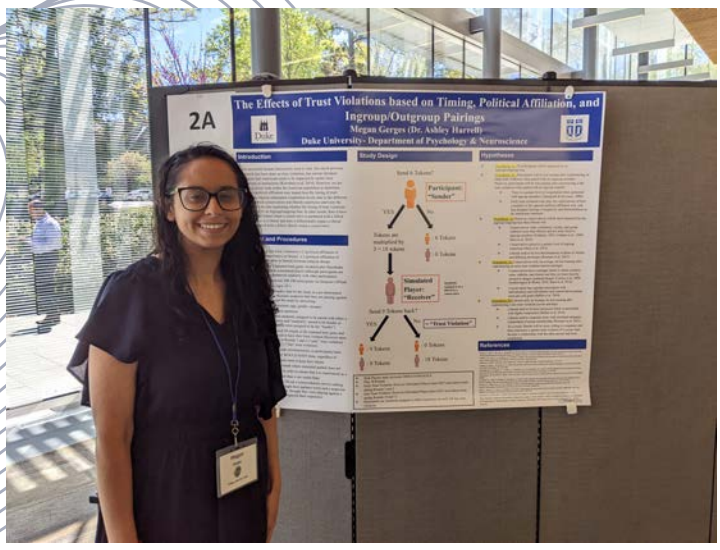
Next Steps
Implicit Association Testing
Longitudinal Studies
Educational Intervention


2A
The Effects of Trust Violations based on Timing, Political Affiliation, and Ingroup/Outgroup Pairings
Megan Gerges (Dr. Ashley Harrell)
Duke University- Department of Psychology & Neuroscience

GRADUATE **RESEARCH**

Receiving the *Identity, Diversity, Inclusion, Equity, and Thriving Grant Award* has allowed graduate student **Jessica Coleman**'s team to conduct qualitative interviews to better understand factors related to distress and pain in invasive cancer interventions in the pelvic and genital region and explore approaches that may reduce suffering.

The data collected will be used to identify distressing or painful procedures, learn about risk and protective factors for pain and distress related to those procedures, and understand how histories of discrimination and interpersonal violence impact experiences of those procedures.

The initial data has informed Coleman's dissertation proposal and lead to a successful submission for additional funding for a Bass Connections Project.

A team of graduate and undergraduate students are working to analyze these data, and undergraduates will collaborate on intervention development and dissemination of findings to the Duke Cancer Institute to inform policies and service provision.

With the generous support of the Charles Lafitte Foundation, graduate student **Morgan Taylor** conducted an online study on Qualtrics in October 2021. The goal was to investigate heuristic use across the adult lifespan (20-90 years old). While much aging and decision-making research focuses on older adults' reliance on simple strategies, their usage of classic decision-making heuristics like anchoring or availability is unknown.

In Taylor's study, participants made judgments that could be answered by relying on five different heuristics: anchoring, availability, recognition, representativeness, and sunk cost bias. Results found no age differences in the use of the classic heuristics of anchoring, availability, recognition, and representativeness; however, replicating past work, Taylor found age differences in the sunk cost bias - younger adults were more likely to fall prey to the bias than older adults.

This work suggests that the classic heuristics proposed by Tversky and Kahneman are used universally across the adult lifespan. Taylor is preparing a manuscript of this project for publication in the academic journal Psychology and Aging.

FACULTY SEED GRANTS

- **Elika Bergelson***: Connecting Early Social Skills to Robust Word Comprehension In Infancy*
- **Staci Bilbo**: *Role of intestinal macrophages in the sculpting of gut dysfunction and the social brain following prenatal exposures to air pollution and maternal stress*
- **Ruth Day**: *Knowledge Structures in Psychology*
- **Mike Gaffrey**: Effects of Maternal Experience of Discrimination During Pregnancy on Infant Brain Development
- **Bridgette Hard**: *Can Metaphorical Language Influence Academic Engagement and Achievement?*
- **Scott Huettel**: *Visualizing the Timing of Decision Processes*
- **Tom Newpher and Minna Ng**: *The student experience in STEM courses during the pandemic: a comparison of traditional face-to-face versus online course versions*
- **Jim Shah**: *The Impact of Feedback Beliefs on Self-Regulation and Well-Being*
- **Nancy Zucker and Sarah Gaither**: *Translating Undergraduate Peer Coaching to Professional Academic Communities*

FACULTY **RESEARCH**

Connecting Early Social Skills to Robust Word Comprehension In Infancy

Elika Bergelson, Crandall Family Assistant Professor of Psychology & Neuroscience, was a recipient of the 2021-2022 Faculty Research Seed Grant for her project: *Connecting Early Social Skills to Robust Word Comprehension In Infancy* (CLF).

The CLF project examines how the ability to understand pointing is linked to the ability to understand words. While prior research points to links between pointing and word-learning in infancy, most has focused on when infants start producing pointing gestures and words rather than understanding them.

Bergelson's research asks specifically whether point comprehension precedes and predicts the "comprehension boost" in word-learning at 12-14 months.

Bergelson's experiments measure word and point comprehension based on eyegaze and manual object selection, and the project is empowering undergraduate students to query human development as part of a larger research program on language acquisition.

The Bergelson team is in the early days of data collection, with an eager group of staff and undergraduates training in lab protocols and the first infant participants beginning this summer.

"This research is much more hands-on than other methods I have used, and it is both gratifying and fascinating to engage with each individual child's developing social skills. They grow and change so quickly between 10 and 16 months and it is exciting to watch them learning in real time as they point, play, and laugh. I'm thrilled to be able to contribute to mapping out the connections between infants' language learning and social cognition with this important research opportunity."

- Lilliana Righter, Staff Member, Bergelson Lab

"My research has been completely transformed by the support of the Lafitte Faculty Seed grants, and this year is no exception."

– Bridgette Martin Hard, Professor of the Practice of Psychology and Neuroscience

Over the past few years, **Bridgette Martin Hard**'s research has been transformed by the support of The Charles Lafitte Foundation. Hard was able to hire a research coordinator – a Duke alumnus – to provide many levels of support for her research and the many undergraduate collaborators in Hard's BRITE Lab.

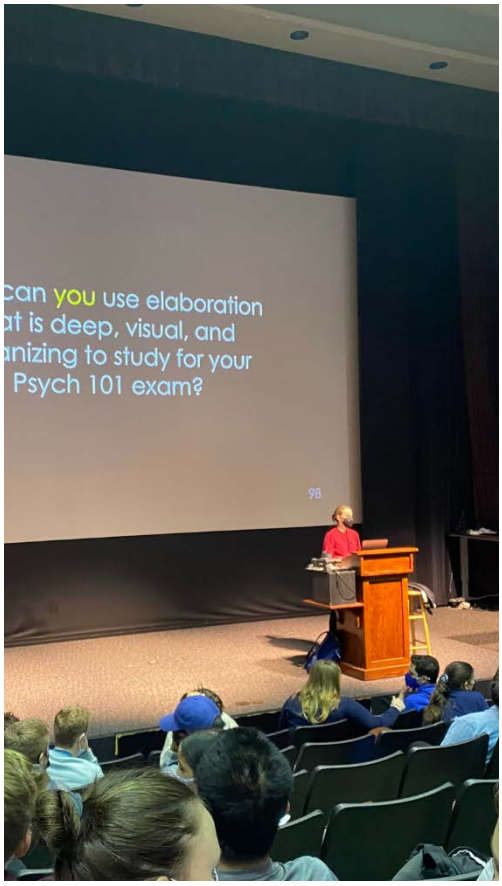
The research coordinator helped launch a grant-supported classroom intervention study in the spring term of 2022 examining the effects of metaphorical language on student perceptions of an instructor. She also helped mentor five students completing their own research projects for graduation with distinction.

Hard's graduation with distinction students received several awards for their thesis research this year, including two Holton Prizes for research in education and the departmental Zener award for outstanding research in psychology.

Several other students in the BRITE Lab also conducted their own projects and presented their research at national conferences in the spring.

Hard's research coordinator continues to build a collection of resources for training undergraduate researchers including: modules on applying to conferences, obtaining research funding, post-graduation professional development jobs, resources for summer opportunities, poster templates, general design and presentation recommendations for undergraduates early in their research career, development opportunities, professional headshot photo session, resume review, medical school application review, and PhD application review sessions.

The funding provided for this invaluable role has propelled Hard's research - and that of her students - forward to greater success.



PROGRAM EXCELLENCE

WHAT HAPPENS WHEN DUKE SENIORS LEAD FIRST-YEARS THROUGH PSYCH 101?

"There are a lot faculty who wish they had course evaluations that look half this good."

Reviews that positive are not something you expect to hear from a professor about teaching by undergraduate students, but it's just what **Bridgette Martin Hard** said about the Costanzo Teaching Fellows.

Spearheaded by Hard, a professor of the practice of Psychology & Neuroscience who teaches Psych 101 to more than 600 Duke students each academic year, the Costanzo Fellows are a team of Duke seniors who assist Hard by leading small discussion sections for mostly first-year students in the mammoth introduction to psychology course.

Hard is an expert in pedagogy who joined Duke in 2017 as part of a larger departmental effort to expand its peer-teaching model. Each spring, she selects a cohort of about 20 rising seniors from a large and competitive pool of applicants, all of whom were once first-year students in her Psych 101 class.

Those selected as Costanzo Fellows become paid members of the course's teaching team. With training and guidance from Hard, they spend the academic year teaching their own small sections (two in the fall and one in the spring) to their younger Duke peers, making the course particularly supportive for first-year students.

It's a collaborative peer-teaching model built on layers of support, trust and credibility — and course evaluations show it's working.

Guides for more than psychology

Introductory psychology is valuable and interesting for a wide swath of incoming Duke students, which is one reason it's such a highly enrolled class. Students learn about themselves and the world around them — and about psychological concepts that apply to everyday experiences in health care, law, policy, business and elsewhere.

But the undergraduate Teaching Fellows are arguably the critical element in making the course special. Capped at 15 students per section, the small size of the Psych 101 discussion groups allows for a greater sense of community to develop.

"Without the Teaching Fellows we would just be a big class of 300 students, all of whom would feel like anonymous people in a seat," Hard said. "The fellows make the course personal — and that's really important. We're not only introducing these new students to amazing course content, but we're also helping ease them into college."

"The class was very personalized in discussion sections because we had small group conversations and participated in hands-on learning activities each week," said sophomore Reed Lessing.

The proximity in age between the Psych 101 students and Teaching Fellows is a notable factor in the rapport that's formed between the two groups. Because the seniors are not that far removed from the experience of being a first-year student themselves, they recall what it's like to be new to Duke, sitting in a large lecture hall with hundreds of others, as well as the feelings of stress, pressure and excitement that often accompany the start of college.

As such, the Teaching Fellows serve as mentors for the younger students, who come to them each week in section not just for help in the class, but also to talk to about life and school more broadly.

“Being led by someone who had been in our shoes meant that we had someone to turn to who was on our side, who could teach us not only about psychology, but also about what is expected of students at Duke in general,” said rising sophomore Dav King, who was one of six students to receive an award for his Psych 101 research project last fall.

Having already taken Advanced Placement psychology in high school, King was initially bothered that Psych 101 was a degree requirement and thought there would be little purpose in taking a massive lecture class.

“By the end, I was incredibly grateful that Psych 101 was required for all Psychology majors,” he said. “The class was a blast, and the small discussion section is the best I've been a part of at Duke.”

Learning to teach, teaching to lead

Like most novice educators, the Teaching Fellows tend to start the year by sticking close to the provided lesson plans, gradually building confidence and making the material more their own by swapping discussion activities or adding personal storytelling, a teaching tool that Hard models in her Psych 101 lectures.

In its essence, the Costanzo Fellowship is a capstone experience for the seniors in the undergraduate teaching team — a chance to go back to one of their first experiences as a Duke student in a dedicated leadership role.

“Like them, I also wanted to be an enthusiastic presence and show how psychological concepts are useful in the everyday,” she said.

To ensure Teaching Fellows are able to offer that leadership, Hard designed the program to provide multiple layers of feedback.