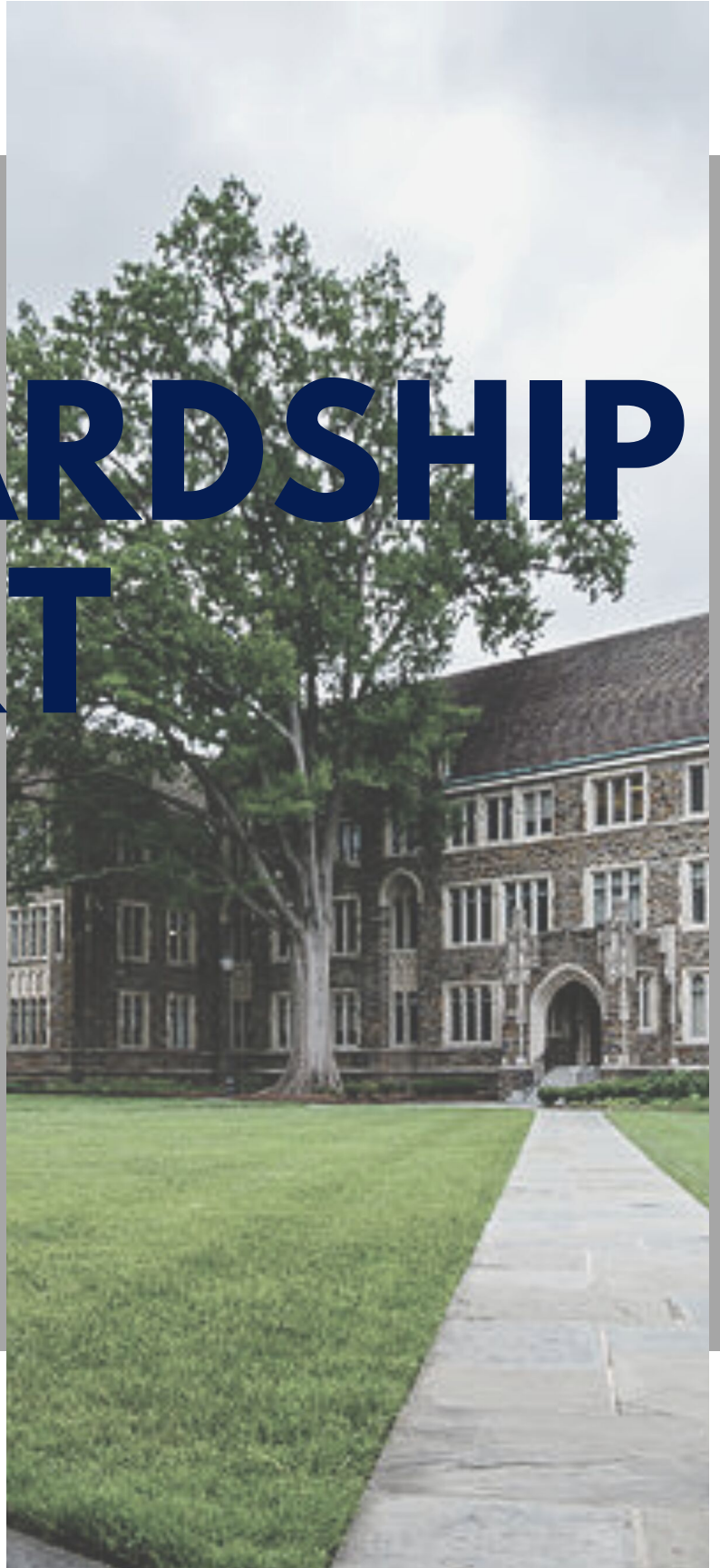


STEWARDSHIP REPORT

2018-2019



Duke
UNIVERSITY

PSYCHOLOGY &
NEUROSCIENCE


CHARLES LAFITTE™
FOUNDATION

A LETTER FROM OUR CHAIR

It has been an exciting year for Psychology and Neuroscience at Duke! Through support from the Charles Lafitte Foundation, we have been building a new model for research in our department and at Duke – one centered on collaborative teams of faculty and students. This report tells their stories.

You'll hear from undergraduate students who gained a new appreciation for the power of research through their first trip to an academic conference. You'll see mentorship in action within our Vertical Integration Program, which pairs undergraduate and graduate students in summer research. You'll read about our research teams – each formed around innovative questions that will require novel approaches for their solution.

In just this first year of the program, more than 100 P&N students and faculty have participated in these new programs. We are proud of all of their accomplishments – and we are hopeful to convey that pride through this report.

Scott Huettel, PhD

Chair, Department of Psychology & Neuroscience

2018-2019

FUNDING MISSION

The Charles Lafitte Foundation Program for Research in Psychology and Neuroscience at Duke supports Duke University psychology and neuroscience students and faculty to launch innovative new studies, cultivate undergraduate engagement in research laboratories, and connect P&N to the broader research community.



IMPACT BY THE NUMBERS

32

*undergraduate students
presented research
at conferences*



7

*faculty
seed grants*



112

*undergraduate research & travel
grant applications received*



19

*VIP students
funded*



63

*undergraduate
students attended
conferences*

17

*graduate student
research grants*



28

*graduate student
travel awards*



UNDERGRADUATE ENGAGEMENT

Duke undergraduate students reported that Lafitte-funded research projects have allowed them to engage in the following academic, professional, and personal growth opportunities:

- Data collection & analysis
- Scholarly writing
- Conference attendance
- Professional networking
- Graduate school prep
- Public speaking
- First-time air travel
- Research software training
- Intellectual pursuits
- Project collaboration
- Poster design
- Relationship-building
- Career advancement
- Creative input
- Effective communication
- Practical problem-solving



VERTICAL INTEGRATION PROGRAM (VIP)

The Vertical Integration Program (VIP) is an annual summer research program offered by the Department of Psychology & Neuroscience which **provides undergraduates the opportunity to participate in an intensive research experience** often leading to a senior honor's thesis. The term "vertical" refers to the program structure, which allows VIP fellows to conduct research **with the guidance of both a faculty and a graduate student adviser**. The **Lafitte Foundation funded the 2019 VIP program** wherein students receive a participant stipend and complete the following components:

- Work in the lab of faculty mentor
- Meet regularly with both research mentors
- Attend twice-weekly seminars (faculty talks, panel discussions, PD activities)
- Attend a four-session statistics workshop (optional)
- Present research findings to peers, graduate students, and faculty
- Present a research poster to the broader university community



THE VALUE OF PRESENTING RESEARCH

The most valuable part of the conference was the opportunity to present research, which I have been working on for the past year. I created a poster with my mentor and learned the elements necessary for a clear and engaging presentation. I practiced talking about my work in a thoughtful manner. The conference audiences asked questions about my work, which allowed me to investigate other possible ideas moving forward that could help improve the project.

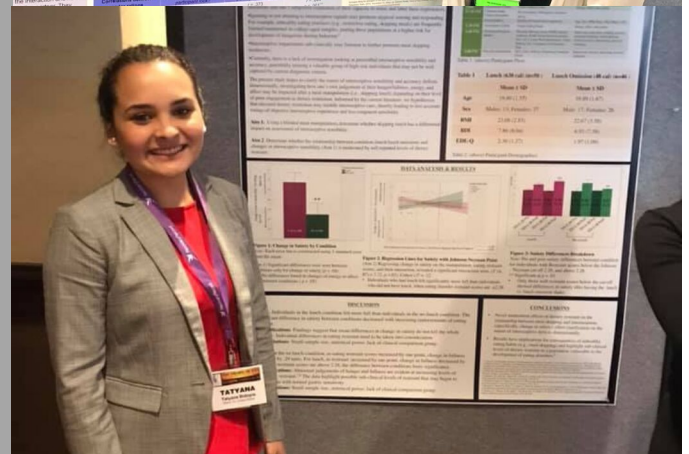
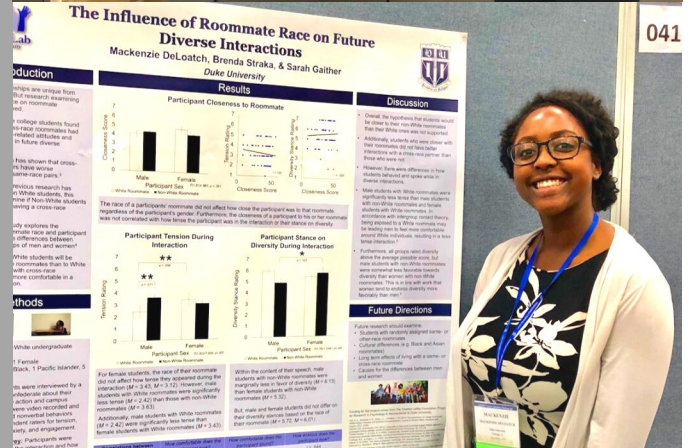
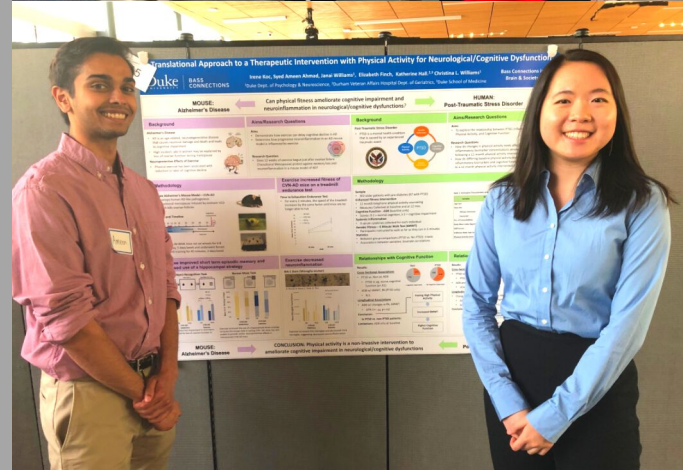
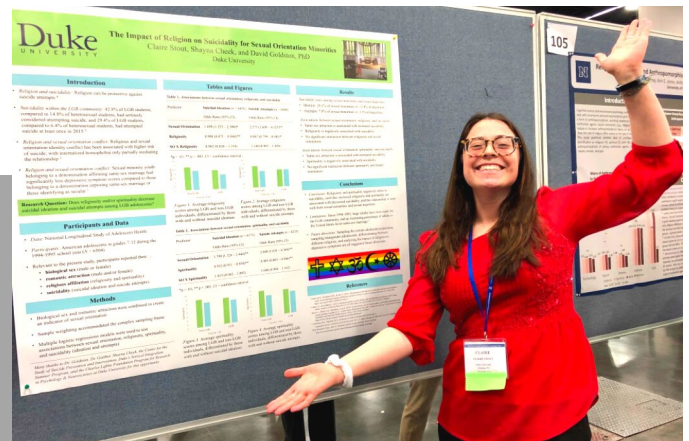
– Madison Hunter

I cannot express my gratitude enough for the opportunity that this travel grant allowed me to have. With the help of this award I traveled to the Society for Personality and Social Psychology convention in Portland, Oregon. The experience that I had while I was there was incredibly formative for me as an academic. Not only was I able to present on something that I was incredibly passionate about, I was also able to see my hard work come to light. I found myself wishing for another hour or two to discuss my work with my fellow conference attendees, hearing their feedback and interest in something that I worked so hard on. This experience as an undergraduate presenter was not only rewarding but also has ignited a desire to continue researching.

– Anna Petterson

I was able to present this research at SPSP which was absolutely wonderful. I appreciated being able to talk to other people who were interested in the same areas of research as I am. Conversing with others allowed me to share what I had done, think critically about my results, and get more ideas for future research.

– Mackenzie DeLoatch



CONFERENCE TRAVEL

Baltimore, MD: *Society for Research in Child Development:*

Boston, MA: *Boston University Conference on Language Development*

Buies Creek, NC: *Carolina Psychology Conference*

Cape Cod, MA: *Society for Applied Research in Memory and Cognition*

Los Angeles, CA: *Psychology Undergraduate Research Conference*

New Orleans, LA: *Psychonomic Society*

New York City, NY: *Int'l Conference on Eating Disorders; Linguistic Society of America*

Palo Alto, CA: *The Stanford Undergraduate Research Association*

Philadelphia, PA: *Neuroeconomics*

Portland, OR: *Society for Personality and Social Psychology*

Raleigh, NC: *Society of Southeastern Social Psychologists; NC Cognition Conference*

San Diego, CA: *Society for Neuroscience*

San Francisco, CA: *The Cognitive Neuroscience Society*

St. Petersburg, FL: *National Institute on the Teaching of Psychology*

Washington DC: *Association for Psychological Science*



RESEARCH ENHANCES THE DUKE EXPERIENCE

THE FREEDOM TO EXPERIMENT

"As an undergraduate, I want to leave Duke knowing that I've explored different options and possibilities for my future. It's asking a lot of an undergraduate to know exactly what they're interested in at such a young age! There's a lot of social interaction in our lab, and I've really enjoyed that aspect. **I've grown intellectually and learned new skills like statistics programming and experiment coding.** I've also come to realize that it's one thing to learn something, and it's another thing to explain it well to participants."

- Younis Mahmoud

BUILDING MENTOR RELATIONSHIPS

"We all share a common point in our journeys: Duke. In making the most of my undergraduate education, **I hope to become a part of this interconnected network of accomplished researchers and scientists in the field of cognitive neuroscience.**"

- Sophia Li

IGNITING A LOVE OF LEARNING

"This conference was one of my favorite parts of senior year because **it reminded me why I conduct research, why research is so important, and about the endless opportunities to learn about human development.** I'm so grateful I had the opportunity to attend SRCD because of this generous grant!"

-Mahnoor Nazeer





WHAT IS THE CONSTELLATION OF BELIEFS THAT MAKES FOR A SUCCESSFUL AND HAPPY LEARNER?

Over the past two decades, research in applied psychology has revealed how beliefs about intelligence determine academic outcomes. With the help of Lafitte funding, a team of Duke students takes the research forward.

“Think of someone you know who is intelligent. Why would you describe them as intelligent?” These are the questions being asked by doctoral students Christina Bejjani and Brenda Yang in collaboration with their faculty mentor Dr. Bridgette Hard.

The project, entitled Teaching Intelligence Mindsets with Student Data, is developing a mindset web app that codes student responses to open-ended questions about intelligence; the goal being to measure fixed or growth mindset. The data provides information about students’ academic attitudes and well-being, and informs an understanding of how mindset influences students’ lives. The findings are being shared in classes across Duke as a way to teach students about how intelligence mindset manifests. Sharing student data responses within Duke classrooms has been a positive and enlightening experience for students with comments ranging from “I love being able to see my own data in the class” to “It’s so motivating to know that I can change my growth mindset.”

Dr. Hard believes that this project has direct and overarching benefits both for the Duke learning community and the broader research community. “I see this research as planting seeds all over Duke about what research on teaching and learning looks like and how valuable it can be,” she said. “I love Christina and Brenda’s project for that reason. We’re building relationships with faculty across disciplines, particularly in STEM, and getting them to think about some of the psychological factors of the classroom; we’re showing them that it’s not scary or strange to collect data that could inform teaching practices.”

“As undergrads, they’re being given creative input into the research process; they’re noticing patterns and generating their own ideas about language indicators to predict mindset.”

Dr. Bridgette Hard
Professor of Psychology

Yang notes the importance of this work for student populations. “This project has intuitive value to undergraduate students,” she explained. “Current research around mindset is about predicting GPA, but we’re also looking at other measures, such as wellness indicators, in an effort to shift the culture. We want to add complexity to the idea of mindset in a way that’s helpful for students to effectively nurture growth mindsets.”

Tommy O’Connor, an undergraduate studying computer science and psychology at Duke, has created an algorithm that codes the response prompt language into the mindset web app. “This research heavily involves undergraduates,” Bejjani shared. “Without the Lafitte funding for the research assistants, this project wouldn’t be going as far.” Yang recalls O’Connor’s interest at their first mentor-mentee meeting in using his technical skills to solve an interesting problem. “It’s the kind of work Tommy wants to do professionally in the future, and this project has provided the opportunity to develop those skills now, as an undergraduate,” Yang explained. “We don’t want all these bright, curious, technically savvy people to just work in industry. We also need them to help with psychological problems, and this is a really special case where technical skills are integral to the research questions.”



Dr. Hard agrees and believes that the experiences being offered to Duke undergrads as part of the Lafitte funding are unique. “Trained research assistants are working to sift through response data and categorize information. That’s interesting work because as undergrads they’re being given creative input into the research process; they’re noticing patterns and generating their own ideas about language indicators to predict mindset.”

Bejjani and Yang hope their mindset app, along with suggested exercises within and beyond the classroom, prove useful to instructors who are looking to promote growth mindsets in their students. The research team is also working to publish an article for the scholarly journal *The Teaching of Psychology*, wherein the findings from this project will be shared along with the web application itself. The hope is that instructors and teachers can use these tools to develop academic profiles of students and examine the efficacy of classroom interventions and activities as they relate to mindset.

“It’s the kind of work [undergraduates] want to do professionally in the future...We don’t want all these bright, curious, technically savvy people to just work in industry. We also need them to help with psychological problems.”

Brenda Yang
Graduate Student

“This research heavily involves undergraduates. Without the Lafitte funding for the research assistants, this project wouldn’t be going as far.”

Christina Bejjani
Graduate Student

HOW DO WE ELIMINATE BARRIERS TO MENTAL HEALTH ACCESS?

13 DUKE UNDERGRADUATES CREATE PEER MENTAL HEALTH COACHING PROGRAM



Across U.S. college campuses, 25% of students report feeling lonely, hopeless, or depressed in the past year (American College Health Association). With support from faculty experts in mental health and computer science, Duke students have developed infrastructure for a peer mental health coaching program implemented using virtual avatars.

This innovative model of mental health coaching, which will reach those in need in the precise moment when things are stressful, could lead to tremendous strides in helping students manage stress and anxiety. The interventions are accessible through smartphone technology, and the avatar delivery structure could help alleviate potential stigma for those seeking help.

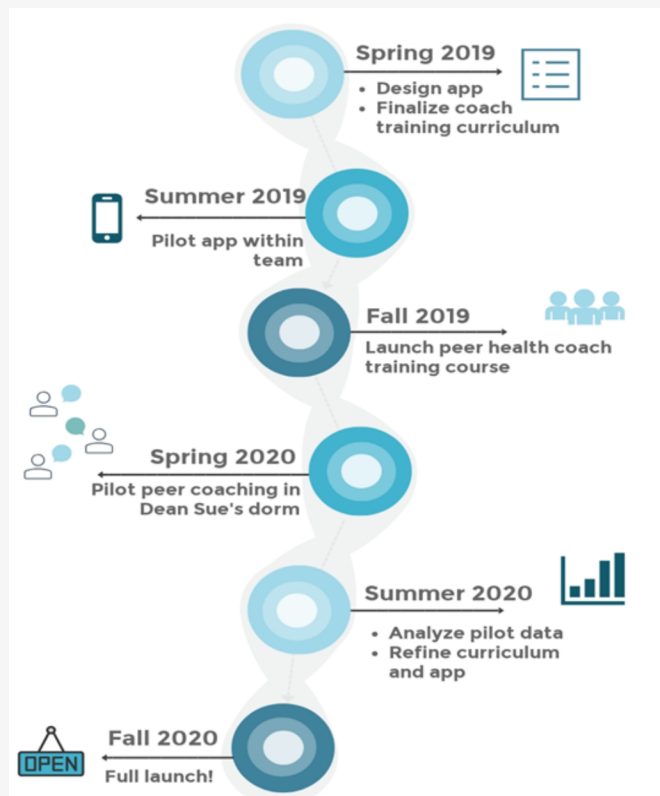
The project's ultimate goal is to cultivate a Duke community that actively seeks to help one another by removing potential barriers to student mental health support. The program's main areas of focus include training efficacy, mental health/empathy of peer coaches, and monitoring shifts in student mental health.

"No other U.S. university is attempting the scope of outreach of this project."

DR. TIM STRAUMAN
PROFESSOR OF PSYCHOLOGY

The project's student innovators began by simulating a "day in the life" of a Duke student, and conjured 400 possible outcomes, both practical and relating to mental health, that could cause difficulty or distress. A network of resources was then systematically formed to address each of these moments, and a backend database was compiled with the goal being a comprehensive, searchable resource for peer coaches to use when providing in-the-moment support to students.

Duke psychology professor Dr. Tim Strauman asserts, "No other U.S. university is attempting the scope of outreach of this project. We're planning to offer a full-semester, full-credit psychology course designed to train an elite group of students to qualify as peer health coaches. Now that's something for which we can be proud."



DO ADOLESCENTS' FRIENDSHIP BELIEFS INFLUENCE FRIENDSHIP QUALITY? DUKE RESEARCHERS EXAMINE LONELINESS, STRESS, COPING, AND SLEEP PATTERNS IN THE AGE OF SOCIAL MEDIA

Within Duke's research community, several large samples of college students' friendship beliefs have been studied and researchers have reliably measured participant responses to better inform the literature on friendship quality and feelings of loneliness in everyday life. However, among adolescents, feelings and ideas about their peer friendships is not a topic that has not been closely examined.

Duke graduate student Paula Yust believes that expanding understanding in this area and investigating adolescent friendship beliefs will help inform future efforts to promote successful friendship development in adolescence, particularly in the age of social media.

Yust's study tracks how adolescents' friendship beliefs relate to the quality of close friendships

and how adolescents respond to conflicts of interest and violation of core friendship expectations.

The study is conducted in collaboration with a local Durham high school and assesses approximately 680 junior and senior student participants. The survey measures students' mental health, stress, coping, and sleep patterns, as well as the ways in which students' social media usage potentially impacts their social relationships, academic engagement, and mental well-being.

The study is administered using Qualtrics software and employs an incentivized method with regard to participation: at the end of the study, students from each grade level vote to select a charity to donate proceeds. "We've had great results with this type of incentivizing with high school students," Yust said. "It's a great way to show participants appreciation for their involvement and a way to feel good about giving back to the community."



“Perhaps the data can help school administrators reflect on what steps can be taken to help students alleviate some of that stress.

- Paula Yust

Yust hopes that the findings from the research can inform school leadership in its efforts to support students' social, emotional, and academic well-being, as well as place friendship-beliefs research within the larger context of adolescent daily school life. "We've found that many students are getting less than four hours of sleep per night because of homework demands," she explains. "That seems to be an area where greater balance is needed, and perhaps the data can help school administrators reflect on what steps can be taken to help students alleviate some of that stress."

As a Lafitte-funded project, Duke undergraduate students have been an integral part of this research, both in its planning and execution, including survey preparation, data collection and analysis, and presenting of research findings.



HOW DOES DISCRIMINATION INFLUENCE EXPECTATIONS OF EXCLUSION?

UNDERGRADUATE AND GRADUATE STUDENTS IN THE DUKE IDENTITY AND DIVERSITY LAB EXPLORE THE SOCIAL, COGNITIVE, AND BEHAVIORAL RESPONSES TO IDENTITY THREAT



Current studies in the field of social identity primarily utilize a singular-identity framework and overlook the potential role that multiple identities (e.g. multiracial, dual-minority) may play in one's response to social threats. Dr. Sarah Gaither and her lab of 24 undergraduate students are working to push the field's perspective forward by being more inclusive and investigating the ways diverse participants respond to perceived gender and racial identity threats. These relevant and impactful studies are asking pointed questions such as:

What factors contribute to racial and gender identity development?

At what age do social identity concepts initially develop?

Do racialized emojis influence social inclusion?

In addition to this valuable research, 11 undergraduates from Dr. Gaither's lab received Lafitte funding for conference travel, resulting in the presentation of six first-authored student posters at professional conferences. Dr. Gaither feels strongly about the importance of conference attendance for students, stating: "Going to a conference is very powerful because students are exposed to all different types of research ideas, questions, methods, and populations. [Conferences] inspire students to become motivated and to better understand what science can do for them. The undergrads were all very excited to attend – many of whom had never flown on an airplane before, so this was a new life experience on top of being a research experience. It has really been very inspirational."

Additionally, two of Dr. Gaither's graduate students received funding to mentor undergraduates: working collaboratively to design posters, practicing poster speeches, and attending conference networking events. Doctoral candidate Brenda Straka reflected on her mentoring role by stating, "I've enjoyed mentoring undergraduate students throughout the process of attending a national conference, which can be an overwhelming experience. From providing students with research feedback, to advising their poster presentations, to offering guidance on which conference workshops to attend – it has been a very rewarding process."

A large portion of Dr. Gaither's grant focused on funding undergrads for work study positions as research assistants, as well as toward the purchase of a new freezer to store biomarker samples. The new equipment has been a vital purchase for the research process, as part of the studies' data involves collecting saliva samples to evaluate how testosterone levels predict aggression in response to gender threat for a project led by graduate student Adam Stanaland. "Previously we've had to run these types of studies offsite," Dr. Gaither explains. "Now, with Lafitte funding, we've been able to purchase a freezer as a shared resource for the department's student and faculty research."



FACULTY SEED GRANT RECIPIENTS

Tobias Egner, Associate Professor: *The Eyes are the Window to the Mind: Tracking Control over Multiple Items in Working Memory*

Sarah Gaither, Assistant Professor: *Social, Cognitive, and Behavioral Responses to Identity Threat**

Bridgette Martin Hard, Associate Professor of the Practice: *Do Beliefs about Teaching Shape Academic Attitudes and Outcomes?**

Kevin LaBar, Professor: *Causally Testing a NeuroCognitive Model of Distancing as an Emotion Regulation Technique*

Eve Puffer, Assistant Professor: *A Pilot Trial of a Family-Strengthening Intervention for Low-Resource Communities: Integrating Prevention and Treatment Within Supportive Social Structures in Kenya*

Timothy Strauman, Professor: *Peer Avatars: Improving In-The-Moment Delivery of Mental Health Services**

Christina Williams, Professor: *Mapping a Depression-Like Phenotype in a Female Mouse Model of Alzheimer's Disease: Relation to Cognitive Decline, Hippocampal Plasticity, and Neuropathogenesis**

*Research featured within report



2019-2020

LOOKING FORWARD

We hit the ground running this past year, but there is still much to be done! Our primary goal remains the same: Changing the culture of our department (and eventually Duke!) so that all students benefit from our world-class research. To progress toward this goal, we have five areas of priority for the coming year.

First, we seek to **build awareness** among our undergraduate students, both about research in general and about the specific opportunities provided by the Charles Lafitte Foundation. We want to attract students to our kick-off events, to departmental talks and poster sessions, and to classes with embedded research opportunities. We have had a great response from the students who have already participated – and they will be our best ambassadors for the next generation of students!

Second, we will provide new opportunities for **student travel** by recruiting graduate students to serve as mentors for early-career undergraduate students who attend research conferences. We have seen the impact that our VIP mentoring program has on undergraduates near the end of their time at Duke, and we want our first- and second-year students to have that same experience.

Third, we want to highlight the accomplishments of our seven **current research projects** (see previous pages), each of which allowed a team of undergraduates, graduate students, and faculty to explore a new frontier of research.

Fourth, we will support a set of **new research projects**, each led by one or more of our faculty and each again involving a team of students. We had an outstanding set of submissions this summer for projects that will start at the beginning of the new academic year.

Finally, we want to be a **model for integrating research and education at Duke**. Considering our two undergraduate majors and the span of our faculty's research throughout both social and natural sciences, new programs in P&N can have ripples throughout Duke. We will work with our colleagues in Trinity College to ensure that what we learn has impact well beyond our department. We are excited about what comes next!

