



- 2 VISION
- 3 MESSAGE FROM LEADERSHIP
- 4 THE BASS CONNECTIONS MODEL
- 6 2018-2019 PARTICIPATION
- 8 2018-2019 HIGHLIGHTS
- 18 SCHOOL SPOTLIGHT: MEDICINE
- 20 PROGRAM EVALUATION
- 22 FUNDING
- 23 SHOWCASE AND AWARDS



## VISION

Bass Connections aims to create a **distinctive new model for education**, predicated on collaborative, interdisciplinary inquiry, that actively engages students in the exploration of big, unanswered questions about major societal challenges.

From sparking bold ideas, to engaging with local and global communities, to connecting faculty and students from all corners of Duke's campus, Bass Connections supports President Price's strategic framework (Duke WILL) for shaping the university of tomorrow.

The Duke WILL framework is focused on five core areas:

- » **EMPOWER THE BOLDEST THINKERS**  
The discoveries and advances that will improve lives begin with attracting the very best people.
- » **TRANSFORM TEACHING AND DISCOVERY**  
New fusions of our research and educational missions will create an inclusive and robust learning community.
- » **BUILD A RENEWED CAMPUS COMMUNITY**  
This will be a healthier, more vibrant, and more inclusive environment that promotes growth among our students, faculty, staff, and visitors.
- » **FORGE PURPOSEFUL PARTNERSHIPS**  
We will find new ways to use our educational and research resources to deepen and strengthen our relationships across the Carolinas and throughout the Southeast.
- » **ENGAGE A GLOBAL NETWORK**  
We will invest in developing next-generation engagement platforms to extend and deepen all aspects of university life.

# MESSAGE FROM LEADERSHIP

A group of students hikes up a mountain in Nepal to help villagers assess hypertension. Two undergraduates attend an oral argument at the U.S. Supreme Court, hearing how their research has shaped a landmark case on partisan gerrymandering. A student digs through the Durham Public Library to uncover how race affected local tuberculosis patient care before World War II. A team investigates seeds collected from elephant dung samples in Gabon. Another student discusses critical thinking skills with second graders at a local public school.

**These Duke students are engaged in wildly different kinds of research**, reflecting the many ways that Bass Connections teams cross disciplines, whether to pursue data analysis, archival research, laboratory studies, pilot interventions, policy analysis, prototyping, or fieldwork. Even with all this variety, these students are **developing a common set of capacities** – facility in tackling complex, large-scale problems by defining and scoping out research questions; a knack for working within diverse teams and communicating across disciplinary boundaries; and the flexibility to adjust course in the face of adversity.

As we have seen the Bass Connections model thrive throughout our six-year history, we have sought to innovate, evaluate, refine, and share. We are thrilled to share these highlights from the past year:

## Innovate

We created Bass Connections Open – an experimental channel that welcomes faculty to propose projects that don't align with one of our five themes but otherwise fit our model. The nine teams selected through this channel tackled issues ranging from sexual assault on college campuses, to healing and resilience for adult survivors of childhood cancer, to the buried intellectual history of early modern female philosophers.

## Evaluate

Many of the projects we supported in the first few years of Bass Connections have taken root, yielding productive research partnerships and seeding new opportunities. Our growing number of alumni have also leveraged their capacity for problem-solving into diverse careers. To better understand these long-term outcomes, we launched a multiyear evaluation effort to track the program's enduring impact on faculty research, student trajectories, and community partners.

## Refine

When we see common challenges across teams, we address them systematically. For example, in response to growing evidence that teams benefit from assigning someone (often a graduate student or postdoc) to serve as a project manager, we have encouraged adoption of this role – 85% of our teams now have such a position, and team leaders link this structure to project successes. We have also partnered with the Duke Project Management Community of Practice and Duke Libraries to provide training and resources to share best practices.

## Share

As we learn from our own efforts, we share these lessons with other schools interested in models for team-based, applied research, ranging from high schools to community colleges to international research universities. At the same time, we have engaged with similar programs elsewhere to take advantage of their insights and best practices. We plan to accelerate this knowledge exchange in coming years by increasing the number of project teams involving faculty and students from partner institutions.

Of course, programs like Bass Connections cannot exist, let alone thrive, on their own. We extend our appreciation to the many faculty, staff, administrators, students, external partners, and donors who propel this program forward.



**Edward J. Balleisen**

Vice Provost for Interdisciplinary Studies  
[eballeis@duke.edu](mailto:eballeis@duke.edu)



**Laura Howes**

Director,  
Bass Connections  
[laura.howes@duke.edu](mailto:laura.howes@duke.edu)



The project teams that Bass Connections supports are making a difference here on campus — building new bridges across disciplines and schools and helping us redefine higher education for the 21<sup>st</sup> century. But more importantly, they are making a difference in communities across the region and the world, marshaling Duke's intellectual resources toward solving the most significant problems we face as a society.

**VINCENT E. PRICE**  
President of Duke University

## THE BASS CONNECTIONS MODEL

Bass Connections bridges the classroom and the world beyond campus, giving students from all of Duke's schools a chance to tackle complex societal problems alongside our superb faculty.

We support research teams and courses that draw on perspectives and methods from multiple disciplines, as well as robust engagement with communities, stakeholders, and decision-makers.

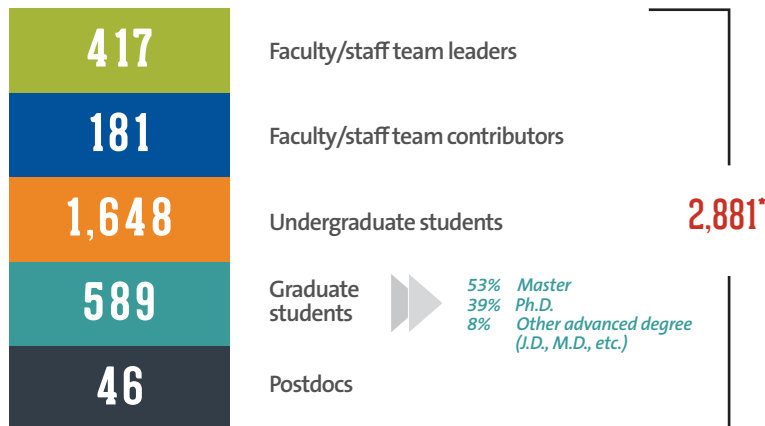
Named in honor of founding donors Anne T. and Robert M. Bass P'97, the program exemplifies Duke's commitment to engaging students in interdisciplinary inquiry. The Basses' \$50 million gift sparked a new approach to integrating research, education, and civic engagement within the university. By including a \$25 million matching challenge, their donation has already inspired more than 65 donors to support this innovative program.

### Integration of Research, Teaching, and Engagement

- » In **year-long project teams**, students and faculty engage in interdisciplinary, collaborative research that explores complex societal issues.
- » Numerous **one-semester courses** feature collaborative assignments and interaction with external partners on applied, interdisciplinary problems.
- » In **intensive summer programs**, students spend six to ten weeks immersed in team-based mentored research, often with external partners.
- » **Student research awards** support faculty-mentored projects proposed by individuals or teams of students.



### Involvement of Faculty and Students at All Levels



Number of Participants Fall 2013 through Spring 2019

\* Participation figures in the electronic version of this report have been updated since the printing of the original report to correct for a mistake in how faculty/staff participation figures were reported.



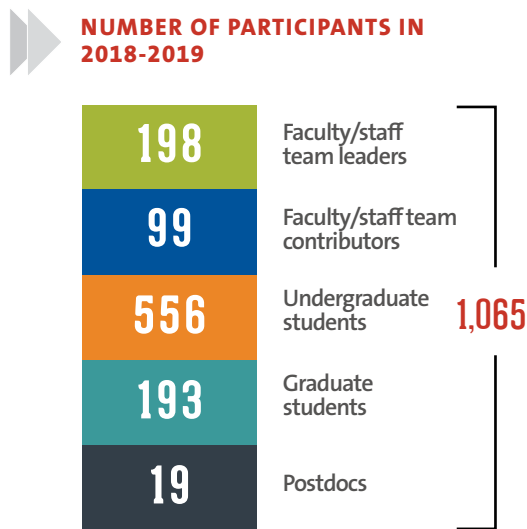


## 2018-2019 PARTICIPATION

In 2018-2019, **59 project teams** brought together faculty, postdocs, graduate students, undergraduates, and external partners to tackle specific problems over the entire academic year. Students and faculty also engaged in **53 one-semester courses** and **40 team-based summer research projects**.

### Participation across Duke

*Includes 2018-2019 project teams and 2018 summer programs; figures include several individuals who participated in more than one Bass Connections experience (e.g., a year-long project team and a summer program)*



**FACULTY AND STAFF PARTICIPATION BY SCHOOL, 2018-2019**

SCHOOL	NUMBER OF FACULTY/STAFF TEAM LEADERS AND CONTRIBUTORS
Trinity College of Arts & Sciences	75
School of Medicine	72
University-wide Institutes, Initiatives, and Centers	39
Duke Libraries and University Units	29
Pratt School of Engineering	26
Nicholas School of the Environment	23
Sanford School of Public Policy	14
School of Law	11
School of Nursing	4
Divinity School	2
Duke Kunshan University	1
Fuqua School of Business	1

### Community Participation

**42 of our 59** (71%) year-long project teams in 2018-2019 had one or more formal community partners or clients, totaling **99 external affiliates**.

**Each** 2018 Data+, Story+, and Global Health Student Research Training team **had a partner, sponsor, or client**, most of whom were based outside of Duke.

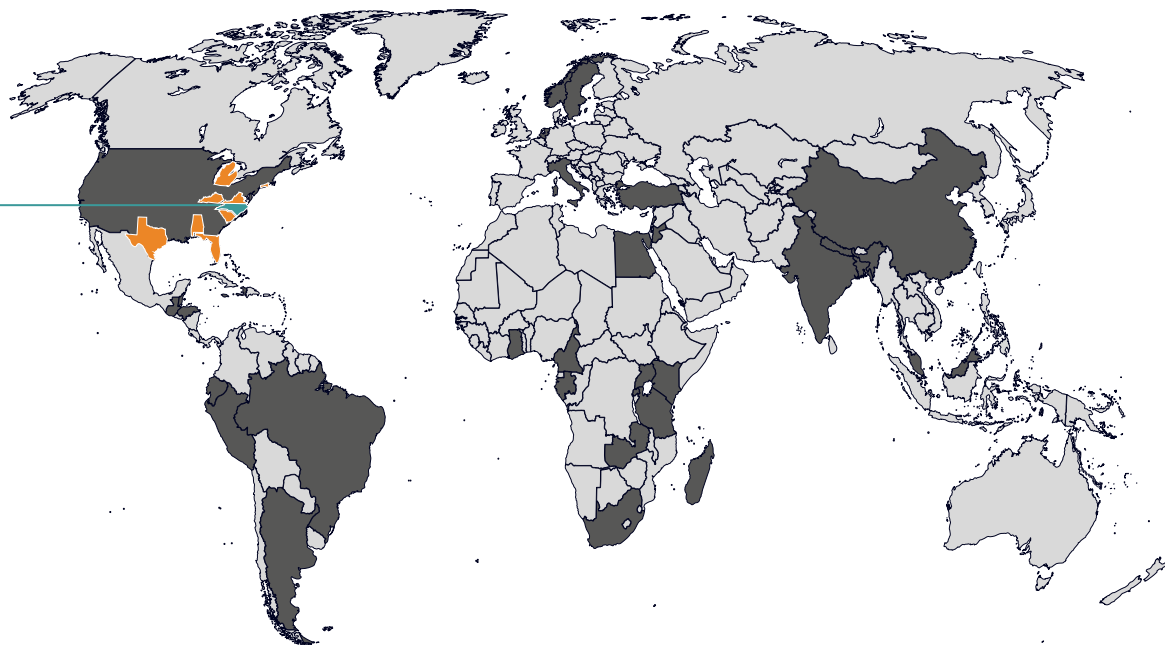
**8 graduate students and 10 undergraduates** from other colleges and universities joined our teams in 2018-2019.

## External Partners

Fall 2013 through Spring 2019

Most teams work with community partners outside Duke, including nonprofits, universities, school systems, hospitals, government agencies, and private companies. Teams have worked with **249 partners in 33 countries on five continents** in addition to cities and towns around the U.S. and right here in Durham.

**NORTH CAROLINA:**  
Alamance County  
Asheboro  
Asheville  
Beaufort  
Belmont  
Carrboro  
Chapel Hill  
Concord  
Durham  
Lumberton  
Madison County  
Pembroke  
Raleigh  
Spruce Pine  
Wanchese  
Wilmington



*Includes project teams and summer programs*

## Sharing the Model

Bass Connections aspires to develop a **new approach to active learning and applied research**, refine that approach through ongoing evaluation, and see it spread to other educational institutions. Eager to share insights gleaned over the past five years, we have engaged with leaders at more than 55 educational institutions to share the Bass Connections model and learn from successful approaches elsewhere.

As one example, we **hosted a delegation of senior leaders from the University of Maryland, Baltimore County (UMBC)** for a two-day visit in 2017. Inspired by our Story+ summer program, UMBC piloted its Interdisciplinary CoLab with three projects in 2018. During a four-week summer program, small teams of undergraduates created research-based narratives about the university's archive of fantasy and science fiction fanzines, the Carbon Zero Project that fostered an environmentally sustainable campus, and stories of race and social justice in Baltimore. The 2019 projects focus on East Baltimore documentary photography, local immigration history in the 19<sup>th</sup> and early 20<sup>th</sup> centuries, and climate change in the marine ecosystem of the Arctic.

## Themes

The program's **five thematic areas** connect related project teams, courses, summer programs, and other collaborative research experiences. Each theme is hosted by one of Duke's interdisciplinary institutes and initiatives.

**BRAIN & SOCIETY** | Duke Institute for Brain Sciences

**INFORMATION, SOCIETY & CULTURE** | Rhodes Information Initiative at Duke

**GLOBAL HEALTH** | Duke Global Health Institute

**EDUCATION & HUMAN DEVELOPMENT** | Social Science Research Institute

**ENERGY & ENVIRONMENT** | Energy Initiative

*Bass Connections Open provides additional opportunities for projects that align with the Bass Connections model but fall outside of the scope of the five themes.*

## Leadership

**EDWARD BALLEISEN** | Vice Provost for Interdisciplinary Studies

**LAURA HOWES** | Director, Bass Connections

**SARAH DWYER** | Director of Communications, Interdisciplinary Studies

**MEGHAN O'NEIL** | Assistant Director, Bass Connections

## FACULTY ADVISORY COUNCIL

**Chair** **LEIGH ANN SIMMONS**, School of Nursing (Fall 2018);  
**ERIK WIBBELS**, Political Science, Trinity College of  
Arts & Sciences (Spring 2019)

**ELIZABETH ALBRIGHT**, Nicholas School of the Environment

**GEOFFREY GINSBURG**, School of Medicine

**MANOJ MOHANAN**, Sanford School of Public Policy

**MICHELLE NOWLIN**, School of Law

**CHARLES NUNN**, Evolutionary Anthropology, Trinity College of Arts & Sciences

**SUJIN PAK**, Divinity School

**AMANDA RANGLES**, Pratt School of Engineering

**DEBORAH REISINGER**, Romance Studies, Trinity College of Arts & Sciences

**DANIEL VERMEER**, Fuqua School of Business

### Theme Leaders

**LORI BENNEAR**, Nicholas School of the Environment

**DAVID BOYD**, Duke Global Health Institute

**ROBERT CALDERBANK**, Computer Science and Mathematics, Trinity College of  
Arts & Sciences; Pratt School of Engineering

**ANNA GASSMAN-PINES**, Sanford School of Public Policy

**WALTER SINNOTT-ARMSTRONG**, Philosophy, Trinity College of Arts & Sciences;  
Kenan Institute for Ethics

**MARY STORY**, School of Medicine; Duke Global Health Institute

**VICTORIA SZABO**, Art, Art History & Visual Studies, Trinity College of Arts & Sciences

**LEONARD WHITE**, School of Medicine

### Deans' Representative

**WILLIAM BOULDING**, Fuqua School of Business

### Ex-Officio

**EDWARD BALLEISEN**, Vice Provost, Interdisciplinary Studies

**JOHN KLINGENSMITH**, Associate Dean, Academic Affairs, Graduate School

**GARY BENNETT**, Vice Provost, Undergraduate Education

**ARLIE PETTERS**, Dean, Academic Affairs, Trinity College of Arts & Sciences

### Student Representatives

**DALIA DICHTER** '21, Undergraduate Student Representative,  
Duke Student Government

**ANGEL CHEN**, Master of Biostatistics '19, Graduate and Professional  
Student Council Representative

## STUDENT ADVISORY COUNCIL

**JOHN BOLLINGER**, M.S. in Global Health '21

**SAM EURE**, Mathematics '19

**ELSA FRIIS**, Ph.D. in Psychology '21

**NAZLI GUNGOR**, Computer Science and Electrical & Computer Engineering '20

**CHRIS HASSEL**, Arabic and Economics '21

**CONNOR HENDERSON**, Public Policy Studies and Chinese '19

**JAI EUN HUH**, Biology and Chemistry '20

**PRITHVIR JHAVERI**, Computer Science '19

**NATHAN LIANG**, Psychology and Neuroscience '21

**BRUNY KENOU**, Neuroscience '20

**SHWETA LODHA**, Neuroscience '19

**KATHARYN LOWETH**, International Comparative Studies '19

**ASHTON MERCK**, Ph.D. in History '21

**AMINA MOHAMED**, Public Policy Studies and Global Health '21

**CHRISTINE O'CONNELL**, Neuroscience '19

**LUIZA PEREZ**, Sociology and Global Health '19

**APOORVA RAMAMURTHY**, M.S. in Biomedical Engineering '21

**SAHIL SANDHU**, Program II '20

**AMEYA SANYAL**, Psychology and Global Health '21

**NATALIE YU**, Program II '19

**JULIANA ZEMKE**, M.S. in Global Health '19



# 2018-2019 SELECTED HIGHLIGHTS

## Year-long and Summer Project Teams

### ► Gerrymandering and Democracy

Gerrymandering has been present in our democracy since the early 19<sup>th</sup> century. Courts have struck down district maps that clearly disadvantage racial minorities, but they have often declined to intervene in cases where maps intentionally favor a political party, in part because they lack a credible way of assessing such claims.

In 2012, Math professor Jonathan Mattingly watched this dynamic play out in North Carolina, where Republicans won nine of the 13 seats for the U.S. House of Representatives, even though Democrats received 51% of the votes. Interested in exploring gerrymandering, Mattingly partnered with an undergraduate on a summer research project. Using votes cast in the 2012 election to evaluate hundreds of alternative district maps, they were unable to find a single map that led to the same outcome.

A series of **Data+ summer teams** extended the analysis to other states, and several external partners joined the effort. This year, a **Bass Connections team** compared districting plans across states, analyzed the effectiveness of statistical tests currently used to detect gerrymandering, and finished analyzing the extent of gerrymandering in the North Carolina General Assembly. Team members also worked with four local high school students to develop two new algorithms that generate representative collections of redistricting plans, and study how counties must be split to adhere to “one person, one vote” redistricting criteria.

The team saw this research travel all the way to the U.S. Supreme Court. Oral arguments for *Common Cause v. Rucho* occurred on March 26, 2019; the evidence for this case rested heavily on the expert testimony of Mattingly and the accompanying research, with significant contributions from undergraduates. In addition, the team helped conduct research investigating gerrymandering in the North Carolina legislature, which went into an expert report for *Common Cause v. Lewis*.

#### TEAM LEADERS

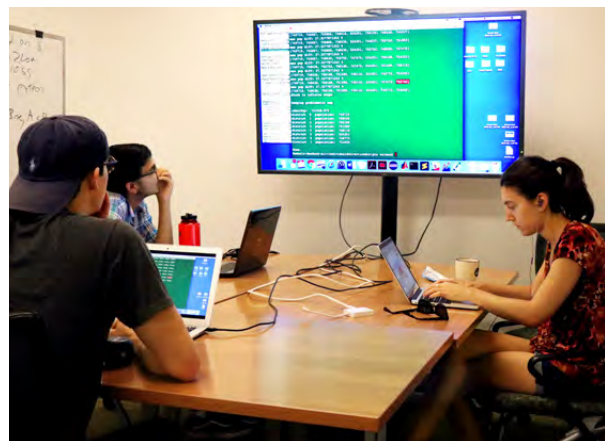
**Gregory Herschlag and Jonathan Mattingly** | Mathematics, Trinity College of Arts & Sciences  
**Frederick Mayer** | Sanford School of Public Policy



*To learn about the abstract mathematics from experts like Professor Mattingly and then go to the Supreme Court and see the Justices appreciate and cite our research was amazing.*

*That moment made it clear to me that data and democracy are inextricably tied in our collective future, and that I want to work at their intersection in my own future.*

**LUKE FARRELL '19**

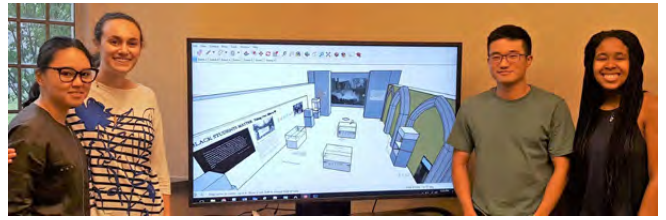




## ▶ Allen Building Takeover at 50

On February 13, 1969, members of Duke's Afro-American Society entered the university's main administrative building and staged a protest to bring attention to issues confronting black students on campus. The 50<sup>th</sup> anniversary represented an opportunity to look back at the event through a new lens.

A **Story+** summer team examined a rich trove of materials in the University Archives. The undergraduates created a digital exhibit on the Allen Building Takeover and mapped out a physical exhibit in Perkins Library. In Spring 2019, the exhibit provided a space for visitors to reflect on the takeover, how it shaped the university, and lessons that remain relevant today.



*Participating in Story+ is a professional experience. I widened my professional network, and I practiced managerial/administrative skills.... But I also learned, alongside my students, fascinating details about campus history and Durham history. I saw incredible archival documents that showed the full spectrum of campus responses toward the Allen Building Takeover.*

ELLEN SONG, PH.D. IN ENGLISH '18 | Graduate student mentor



### TEAM LEADERS

Valerie Gillispie, Meg Brown, Arianne Hartsell-Gundy, Yoon Kim, Amy McDonald, and Hannah Rozear | Duke Libraries

## ▶ Gender in the Media

Which messages are pervasive in women's and men's magazines, and how do these messages change over time, across magazines, and among target audiences? Examining 500 covers of *Cosmopolitan*, *Esquire*, *Essence*, *Good Housekeeping*, and *Seventeen* from 2010 to 2018, a **Data+** summer team developed and applied techniques of image analysis, text analysis, and sentiment analysis.

One main finding was that the magazine covers reinforce gender norms and stereotypes. In addition, the team amassed considerable evidence to show that data science can easily incorporate subjective judgments. The students learned to question their methodologies of analyzing data and look for biases in their research questions, data sources, and even their understanding of feminism.



### TEAM LEADERS

Charlotte Sussman and Michelle Sroka | English, Trinity College of Arts & Sciences

*Seeking to navigate the divides between the humanities and data taught both myself and my students how to become better at envisioning and articulating not only the goals and scope of a project, but also why it matters.*

MICHELLE SROKA, PH.D. IN ENGLISH '19 | Graduate student mentor

## ► Environmental Justice in the Rural South

On the road from Montgomery to Selma, Alabama, Lowndes County is home to about 10,000 residents. Three-quarters of the population is black, and a third live in poverty. Catherine Coleman Flowers grew up there, and she knows first-hand about the problems caused by inadequate wastewater treatment and sanitation.

Flowers is executive director of the Alabama Center for Rural Enterprise (ACRE) and practitioner in residence at Duke's Franklin Humanities Institute. She also serves on the board for the Climate Reality Project.

Up to 90% of homes in Lowndes County have no septic system or an inadequate one, resulting in poor health outcomes. A third of residents who participated in a study by Baylor University tested positive for hookworm.

Building on a partnership between Duke and ACRE begun in 2014, a **Bass Connections team investigated policy solutions, funding mechanisms, and septic system design**. Team members began by visiting Lowndes County to learn from Flowers, meet community members, and hear from impacted families.

The team analyzed survey data from more than 300 households and prepared a cost analysis of various sanitation solutions. Broadening their focus, they developed maps of sanitation access in Alabama, North Carolina, and West Virginia, and created a digital timeline of environmental justice events and leaders across the U.S.

Team members also took part in a climate justice training on campus, attended the Climate Reality Leadership Corps training in Atlanta, traveled to Washington to hear Flowers' testimony at a congressional hearing, and learned more about environmental justice during a trip to "Cancer Alley" in Louisiana.

Several graduate students on the team also received a **Duke Support for Interdisciplinary Graduate Networks (D-SIGN) grant** to evaluate strategies to address the wastewater management problem from engineering, policy, economic, scientific, and human angles.

### TEAM LEADERS

**Elizabeth Albright and Erika Weinthal** |  
Nicholas School of the Environment  
**Emily Stewart** | Duke Human Rights  
Center at the Franklin Humanities Institute



*I think it is vital for researchers and the broader academic community to truly understand that we are not saviors. We should be working with (really for) these affected communities in ways that are transparent and incorporate mechanisms of accountability.*

**BRANDON HUNTER**  
Ph.D. in Civil & Environmental Engineering '20

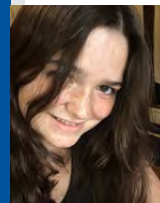
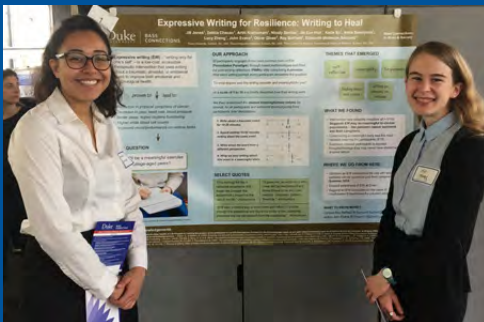
## Writing to Heal

Even when childhood cancer is successfully treated, psychological effects can endure for decades. Parents and caregivers also report significant emotional distress.

Expressive writing offers a low-cost therapeutic intervention for former patients and caregivers. Guided by prompts, participants write about a traumatic or stressful event. Sustained expressive writing promotes healing from emotional upheavals, while helping resolve current challenges, cultivate resilience, and improve overall health and well-being.

A Bass Connections team set out to determine whether a pilot expressive writing intervention can increase resilience for adult survivors of

childhood cancer and their caregivers. Along the way, all students became certified as expressive writing instructors and completed portfolios documenting their work. Following completion of the study and data analysis, team leaders plan to expand the scope of the research into the Durham community.



*When I applied for this team, I was expecting to focus on helping others, but through the compassion and guidance of Dr. Evans, I realized that expressive writing could heal not only cancer survivors but also my family, my friends, and myself.*

**LYDIA GOFF '21**

### TEAM LEADERS

**Raymond Barfield** | School of Medicine and Divinity School  
**Oliver Glass** | School of Medicine  
**John Evans** | Wellness & Writing Connections

## Political Polarization

Sharp divisions in beliefs are difficult to bridge. What if we could ask questions that would make us better at understanding different points of view? Tackling the problem of political polarization, a Bass Connections team investigated which questions increase humility, empathy, and openness as well as which questions raise barriers to constructive discourse.

Team members took advantage of their varied backgrounds and skills to craft a series of experiments. One study used automatic, data-driven language analysis to spotlight distinctive ways that conservatives and liberals frame the same political issues differently on social media. Another study found that, despite common assumptions, more specific questions lead to more positive outcomes than ambiguous or abstract questions.

Team members presented their research at the universities of Connecticut, Colorado, Michigan, and Manchester. Drawing on his involvement with the team, Philosophy professor Walter Sinnott-Armstrong published *Think Again: How to Reason and Argue* (Penguin and Oxford University Press) and engaged in public outreach through numerous popular outlets such as *Time*, the *Wall Street Journal*, and *Psychology Today*.



*Most people can't know as many fields as are needed to approach these complex problems. Our team includes philosophers, a mathematician, a data scientist, a political scientist, an education theorist, and others. Part of the point of the team is that we each help everybody else.*

### WALTER SINNOTT-ARMSTRONG

Chauncey Stillman Professor of Practical Ethics in the Department of Philosophy and the Kenan Institute for Ethics

### TEAM LEADERS

**Walter Sinnott-Armstrong** | Philosophy, Trinity College of Arts & Sciences; Kenan Institute for Ethics  
**Joshua Skorburg** | Philosophy, Trinity College of Arts & Sciences

## ▶ Energy Access in Zambia

In this large southern African country, off-grid energy companies know there is widespread demand for their services. However, they struggle to identify the best locations for expansion, and many communities still lack access to electricity—a key barrier to jobs, quality of life, and economic growth.

**This Bass Connections team set out to understand the energy access problem and potential solutions from the perspectives of people dealing with it first-hand.**

Through two trips to Zambia, team members built relationships with key players in the sector. They also visited a wide range of communities and went door to door to understand residents' energy needs and habits.

Back on campus, they created an open-source geospatial model to help project developers and system planners identify location-specific assets, opportunities, and barriers for expanding access to energy. Users can apply filters, add custom data layers, examine customers' willingness and ability to pay for services, and identify the most appropriate sites for off-grid electrification based on individualized criteria.

Team members also produced an overview of the Zambian off-grid ecosystem including all important stakeholders, financing and assistance platforms, and market barriers.

Three Nicholas School master's students are moving forward on one aspect of this work, teaming up with energy services company Standard Microgrid to understand the types of small businesses that are critical to anchoring electricity demand and spurring development in Zambian microgrid communities.

*Growing up, I was fascinated by energy. I made it my life's mission to see how we can gain different perspectives and solve this problem of energy access around the world. There's so much happening in the energy community at Duke... through Bass Connections, we step out of our textbooks and start solving real-world challenges.*

AASHNA AGGARWAL '19



### TEAM LEADERS

T. Robert Fetter and Jonathan Phillips |  
Nicholas Institute for Environmental Policy  
Solutions; Energy Access Project



## Remembering Jim Rogers, Founder of the Energy Access Project at Duke

Duke lost a dear friend and an energy industry pioneer with the passing of James E. "Jim" Rogers on December 17, 2018.

"There's no question that Jim's leadership and support helped make Duke University a leader in energy policy and education," said Duke President Vincent E. Price.

Rogers was the former president and CEO of Duke Energy and the author of *Lighting the World: Transforming Our Energy Future by Bringing Electricity to Everyone*. As a Duke University Senior Fellow, he worked with colleagues at the Nicholas Institute for Environmental Policy Solutions and the Duke University Energy Initiative to advance education and research on energy access.

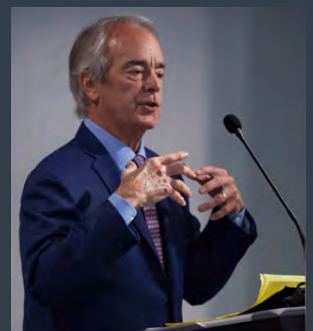
"The more Jim embedded himself in the interdisciplinary energy community here, the more promise he saw for Duke as a hub for productive activity on the global challenge of energy access," said Tim Profeta, director of the Nicholas Institute.

In 2017, a gift from Rogers and his wife M.A., paired with matching funds from the Bass Connections Challenge, helped launch the Energy Access Project. The

goal is to develop new, collaborative ways to meet the energy needs of the world's most disadvantaged communities without exacerbating climate change through interdisciplinary research, engagement in the policy process, and education.

Bass Connections teams are one way for faculty and students to engage in research toward this aim. In 2018-2019, two teams came together to tackle the challenge of energy access: one focused on Zambia (see above), and one on using satellite imagery to create an energy infrastructure map of the world.

Energy Access Project director Jonathan Phillips said that Rogers established a strong foundation for Duke's efforts. "Jim was the kind of leader who sets others up for success rather than having everything revolve around him," he reflected. "From the start, he asked the right questions. He emphasized the importance of strategic collaboration. He prepared us to thrive."



## ▶ Global Displacement

Navigating the complexities of American healthcare presents acute challenges for newly resettled refugees. Last year, Romance Studies professor Deborah Reisinger joined faculty from the School of Medicine and the Sanford School of Public Policy to lead a Bass Connections team that studied the barriers refugee families face in accessing health services.

This year, students in Reisinger’s course on Francophone migration and resettlement took on a service-learning project aimed at making things a little easier for this community. Through a local resettlement agency, they **engaged with French-speaking refugee families in Durham and produced a series of videos** on situations that new arrivals may find linguistically or culturally confusing, such as filling a prescription.

Reisinger received the 2018-2019 Richard K. Lublin Distinguished Teaching Award from Trinity College of Arts & Sciences. As a colleague noted in her nomination, “She has found creative ways to integrate all the core missions of the university – research, education, and community engagement.”

### COURSE LEADER

Deborah Reisinger | Romance Studies, Trinity College of Arts & Sciences



*We can learn about the issues displaced people face through readings, news articles, or discussions. But we cannot truly understand the needs of others until we sit down with them, lay aside our accumulated knowledge and assumptions, and just listen to their stories.*

NEFER BATSULI '20

## ▶ U.N. Climate Change Negotiation

In December, ten graduate students and two undergraduates traveled to Katowice, Poland, for the **Conference of the Parties to the United Nations Framework Convention on Climate Change**, known as COP 24. This unique experience was the culmination of a team-based course on key issues affecting global climate negotiations. As part of their coursework, students were paired with NGOs or country delegations and wrote memos on specific issues highlighted by the conference. Once in Poland, the students served as assistants for these organizations and delegations, giving them the chance to experience climate negotiations first-hand.

### COURSE LEADERS

Billy Pizer | Sanford School of Public Policy  
Jonathan Wiener | School of Law  
Galen Hiltbrand and Tasfia Nayem | Master of Environmental Management '19



*This course was incredibly valuable in understanding the complexities and sheer magnitude of work that goes into international agreements regarding climate change. I walked away with actions I can take that will hopefully make an impact in the grand scheme of tackling climate change.*

COREY SUGERIK

Master of Environmental Management '20

## ▶ Responding to Hurricane Florence

In September 2018, Hurricane Florence hit the coast of North Carolina, killing 53 people and resulting in damages estimated between \$17 and \$22 billion. Less than one month later, Hurricane Michael devastated parts of Florida. Recognizing that resiliency in the face of natural disasters is a growing challenge facing our society, Bass Connections issued a special call for projects to explore this issue and funded four projects (see below) that started in Spring 2019 to tackle research to inform hurricane preparedness and resiliency efforts. They'll share findings at a symposium in 2019-2020.

*Deep Learning and Remote Sensing for Coastal Resilience and Disaster Response*

*Developing Data Tools for Natural Disasters: Implementing Best Practices for Electricity-dependent Medicaid Enrollees*

*Ecological and Social Time Scales in Hurricane Response and Recovery*

*Understanding Natural and Human Initiation and Transmission of Cascading Hazards*



## ▶ Evaluating Healthcare Innovation

For this gateway social science class, students worked in teams to devise potential solutions to challenges articulated by their **clients at the Duke Institute for Health Innovation**. Their projects explored the use of telehealth video conferencing to improve the transition from hospital care to a nursing facility, machine learning models to recognize early clinical deterioration in pediatric inpatients, and techniques for reducing patient bottlenecks in Duke Hospital's Emergency Department.

At the end of the course, all three clients were interested in continuing to work with the students. They plan to select one project to take forward, partnering with the students on implementing an evaluation process.

**COURSE LEADER:** [Jessica Sperling](#) | Social Science Research Institute

*Dr. Sperling's class inspired me to apply to Program II [Duke's self-designed major] with my area of study called Implementing Healthcare Innovation. My major will address the gap between the creation of evidence-based innovations and their implementation into routine healthcare, including classes in Public Policy, Psychology, Global Health, Statistics, Sociology, and Innovation & Entrepreneurship.*



**ZOE KING '21**

## ▶ The Modern Regulatory State

Drawing on experience with two prior Bass Connections teams, History doctoral student Ashton Merck used her Bass Instructional Fellowship to **integrate team-based research** projects into an interdisciplinary course for undergraduates. Students worked together to research solutions to an emerging regulatory problem of their choice, drawing on historical case studies. They addressed such timely issues as dockless bikes in cities, antitrust actions against large technology firms, legalization of cannabis products, assault weapons bans, and policing content on social media.

The teams presented their research-in-progress in a workshop format and received feedback from a dozen graduate students and faculty members from Law, Business, History, Economics, Public Policy, and Philosophy.

**COURSE LEADER:** [Ashton Merck](#) | History, Trinity College of Arts & Sciences



*I asked students to work in groups for the final paper because I had experienced first-hand the value of collaborative research and writing as part of a Bass Connections team. It can be enormously challenging to coordinate research findings and writing with other people, but as the students discovered, it is often far more rewarding than a standard term paper.*

**ASHTON MERCK, PH.D. IN HISTORY '21**

For many Bass Connections participants, the work doesn't end with the conclusion of the academic year. Many choose to take their research further through grants and other opportunities within Duke and beyond.

For faculty, the year-long research teams often function as seed grants that catalyze new collaborations and research avenues.

For some students, the experience of engaged interdisciplinary research confirms initial intellectual directions and career aspirations. For others, participation opens up entirely new paths. Below are just two examples of continued impact from past teams.

### ▶ Identifying “Slums” in India

In the summer of 2018, Duke researchers held a public workshop at the Indian Institute of Management-Bangalore to share findings from a seven-year study on slums. Attendees included government officials, NGOs, policy experts, and academics. The workshop was covered by the Indian press and made the front page of the *Times of India*.



**The research stems from a series of four Bass Connections teams** led by Public Policy professor Anirudh Krishna and Political Science professor Erik Wibbels.

This team used satellite imagery to identify dozens of slums that were not included on the official government lists, which rely on outdated surveying methods. Only official slums are eligible for government services. The team also interviewed 9,000 residents in hundreds of slums in three cities and across a wide range of living conditions.

Krishna and Wibbels have received **grants from the Omidyar Network and the International Growth Centre** to further their work studying property rights and public services in Indian slums.

*My multiyear Bass Connections project with Anirudh Krishna provided the analytical and empirical foundation for several successful grant proposals and several years' worth of sustained work in the slums of India. So far that work has produced a gaggle of published papers and two dissertations—and courtesy of policy engagements, I am now doing related work elsewhere. More importantly, it was through this project that I learned how to work with big collaborative teams, and that has deeply impacted all of my work since then.*

**ERIK WIBBELS** | Robert O. Keohane Professor of Political Science

**Team outputs** have shaped decision-making by government agencies, nonprofits, and companies. These outputs take a wide variety of forms, such as:

- *Journal articles and book chapters*
- *Proposals for external grants*
- *Prototypes*
- *Reports with study findings and recommendations*
- *Apps*
- *Conference presentations*
- *Museum exhibitions*
- *Theses and dissertations*
- *Public performances and talks*

### ▶ A Better Way to Gather Data on Marine Mammals

Three undergraduates received a Bass Connections Student Research Award to improve on marine tracking tools and support the development of energy harvesting techniques, tested with their Bass Connections team, for powering marine tech. They are working to produce a tag platform to record the behavior of a diving marine mammal, which integrates several sensors to measure spatial movement.

Teaming up with a Ph.D. student, they are refining their device and planning to make it available through a spin-off company called FaunaLabs. Their aim is to make the effective and low-cost “FaunaTag” device available to researchers and educators around the world through an open-research license. A separate license will be available to those wishing to use the technology for commercial contexts.

*The FaunaTag's open-research license and its lower price point compared to other tags on the market will allow it to reach research communities that don't currently have easy access to animal tags. These people may be in developing countries or studying species that haven't been considered valuable enough, so we're opening a completely new sector in the tag area.*

**SAM KELLY**

B.S.E. in Mechanical Engineering '18, NAE Grand Challenge Scholar: Engineering Tools for Nearshore Ecology

## Alumni

For many students, participating in Bass Connections has a profound effect. Numerous graduates continue working on issues they began tackling with their teams, and in some cases, their research experiences lead to further degrees and inspire future plans.



*I would give full credit to Data+ for putting me on the awesome career path that I'm on now. The program is so unique that when applying for jobs after graduation, I got the majority of my interviews from people who wanted to hear more about my project. The independence I gained from that research project is something that not only got me in the door at my current job, but has also helped me succeed here.*

### LINDSAY HIRSCHHORN

B.S.E. in Mechanical Engineering '17, Operations Data Analyst at delivery.com  
Bass Connections: RTI-Duke Data+ Practicum



*As a member of this Bass Connections team, I learned what it takes to develop, test, and publish policy recommendations for federal action on climate change. The knowledge I gained in research, interviews, and writing for a policy audience has been invaluable, as have the professional connections I made through my team lead Robert Bonnie, who previously served as Undersecretary of Environment and Natural Resources in the U.S. Department of Agriculture. In fact, those connections and the expertise I developed through Bass Connections helped me land my current position.*

### ALEX RUDEE

Master of Environmental Management '18, Research Analyst for Natural Infrastructure at the World Resources Institute  
Bass Connections: Turning the Mid-Century Decarbonization Strategy into Concrete Policy for U.S. Forests and Agriculture



*The Corning team members were fantastic mentors. With weekly calls, we were able to learn quickly and adjust our solutions. It was great working with Corning on a project where it was made clear that they were actively interested in the outcome of our work, and were invested in us proposing a useful solution. Also, I learned the value of a diverse team, which enabled us to think more broadly about the question at hand.*

### KRISTEN COLLAR

Ph.D. in Physics '17, Senior National Security Analyst at the Johns Hopkins University Applied Physics Laboratory  
Bass Connections: Energy Efficiency in Industry: High-tech Glass Manufacturing at Corning Inc.





# Nationally Competitive Scholarships

Thirty Duke students received prestigious national scholarships in the 2018-2019 academic year. Among them are ten Bass Connections team members.

## Rhodes

### KUSHAL KADAKIA '19

Bass Connections: Innovation & Technology Policy Lab; NC Medicaid Reform Advisory Team

Kushal was one of 32 recipients chosen from among 880 applicants throughout the country. He will complete a master's degree in evidence-based social intervention and policy at Oxford before applying to medical school. Kushal was named a Truman Scholar in 2018 as well as a Duke Faculty Scholar.



*I have a major in Biology and a major in Public Policy. The two departments are on opposite ends of campus and ordinarily don't overlap, but because of Bass Connections I've been able to identify unique connections between them and carve out an academic niche at their intersection. That intersection is where I hope to stand in my future career, influencing my decision to pursue both graduate school and medical school. I'm grateful to Bass Connections for changing my perspective on what it means to be a student and what it means to be able to do scholarship and service.*

## Udall

### KYA LOCKLEAR '21

Bass Connections: Wired for Learning: Supporting Thinking Skills in the K-2 Classroom

Kya was awarded this scholarship in the area of Native American tribal healthcare. She plans to pursue a dual degree in medicine and psychology so that she can address the mental health needs of Native American children.

## Boren

### RYAN GEITNER '21

Bass Connections: Prevention of Sexual Misconduct on University Campuses; Making Young Voters

## Critical Language

### DANIEL SPRAGUE '21

Bass Connections: Consumer EEG, Mental and Emotional States, Privacy, and the Brain

## Marshall

### JULIE UCHITEL '19

Bass Connections: Summer Neuroscience Program

Julie was among the 48 recipients, chosen from more than 1,000 applicants across the U.S. She will pursue two master's degrees in the U.K. to develop an optical imaging technology for newborns at risk for brain injury (Cambridge) and build expertise in international child studies (King's College London).

## Goldwater

### AZIM DHARANI '20

Bass Connections: Duke Undergraduate International Genetically Engineered Machine Team

### JILL JONES '20

Bass Connections: Expressive Writing for Resilience in Adult Pediatric Oncology Survivors and Their Caregivers

### CAROLINE WANG '20

Bass Connections: Data and Technology for Fact-checking; Data+

Duke's Goldwater Scholars were selected from a pool of 1,223 natural science, engineering, and math students nationwide.

## Knight-Hennessy

### RUBY (LILLIE) REED '14

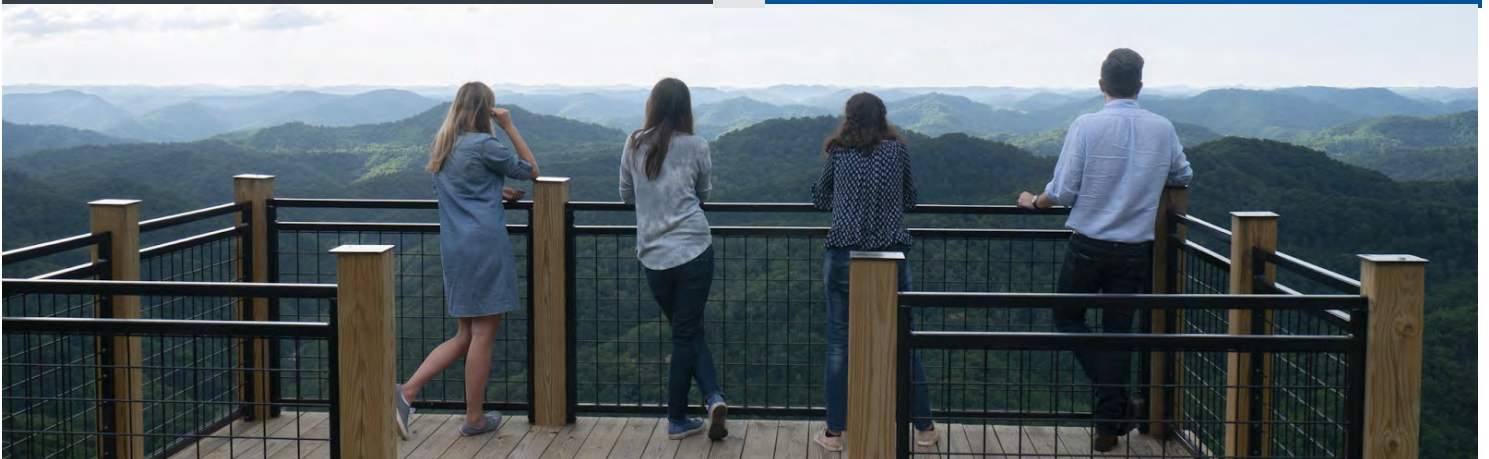
Bass Connections: North Carolina Latino Health Project

Lillie is one of 68 recipients out of 4,426 applicants to receive this scholarship. She will pursue a medical degree at Stanford.

## Fulbright

### CHARLES HUANG '19

Bass Connections: Expressive Writing for Resilience in Adult Pediatric Oncology Survivors and Their Caregivers



## SCHOOL SPOTLIGHT: MEDICINE

Faculty and staff from all of Duke's schools engage in Bass Connections, finding new avenues to collaborate with faculty and students from other schools on a range of research questions.

Since 2013, **167 faculty and staff** from the School of Medicine have participated in the program, including 51 who have served on multiple teams. Here are three examples of their involvement.



### Collaborative Research in Uganda

There are 25 neurosurgeons at Duke Hospital, but the entire country of Uganda has fewer than half that number.

Neurosurgery professor Michael Haglund is committed to helping Uganda increase its neurosurgical capacity. He leads Duke Global Neurosurgery and Neurology, a unit in the School of Medicine that collaborates with Mulago National Referral Hospital and Makerere University in Uganda.

Along with training more neurosurgeons, the partnership seeks to improve patient outcomes after surgery. In 2016, a Bass Connections team began focusing on three key issues in Mulago's neurosurgery ward: medication management, patient-family education, and infection control.



Led by Haglund and Neurosurgery professor Anthony Fuller, the team has made steady progress on these key goals. It has increased patients' and caretakers' understanding of their medications, developed educational materials to build health literacy skills, deployed hand sanitizer stations, and lowered the infection rate by 15-20%.

This experience has been transformative for many Duke students. Over the past four years, participants included 16 undergraduates – many of whom participated for multiple years – as well as four medical students and one master's student. Some have continued their involvement through follow-on research and senior theses as well as coauthored manuscripts; some recent graduates are now bringing this valuable experience to medical school.

Haglund and Fuller are also involved in another Bass Connections team in partnership with Makerere University. Led by Psychiatry and Behavioral Sciences professor Deborah Attix, the team carried out a mixed method study on the needs of primary healthcare providers who treat epilepsy. Findings will inform efforts to design educational programs with the goal of improving epilepsy treatment in Uganda.



*It's been a tremendous opportunity to work on this, and our students have been amazing. We start with research questions, but students are driving the research design. The infection rate has dropped down to less than 8%, driven mainly by the work that undergrads were able to do.*

**ANTHONY FULLER**  
Assistant Professor in Neurosurgery



## Innovative Approaches for Integrated Care

Orthopaedic Surgery professor Janet Prvu Bettger focuses her research on improving outcomes for people who experience a life-altering injury or illness. She launched the Global Alliance on Disability and Health Innovation (GANDHI for short) to develop and test integrated care models that help vulnerable people gain independence and reintegrate into their communities living with disability or chronic disease.

*I have found leading Bass Connections to be professionally transformational for me as an educator. Working with students across schools and programs brought new meaning to interdisciplinary research. I am forever committed to engaging undergraduate students in clinical and population health research.*

**JANET PRVU BETTGER**

Associate Professor of Orthopaedic Surgery

Bettger brought students into her work through a Bass Connections team that began in 2016. Team members compared strategies and policies in different countries, and country partners joined the team meetings by video to describe hospital-to-home transitions in their contexts. Projects in 2017 focused on digital health and stroke systems of care in the Asia-Pacific region. In 2018, Bettger and Surgery professor Catherine Staton received a grant from the NIH to build capacity for hospital-to-home care transitions for trauma and injury patients in Tanzania.

*Dr. Janet Bettger leads by teaching and championing her students. GANDHI fully embodies the Bass Connections spirit and is truly a collaborative and interdisciplinary endeavor.*

**JACKIE XU '19**

Member of GANDHI since its inception in 2016

This year, student team members focused locally. To help address unmet needs, they partnered with Durham's Lincoln Community Health Center to design Help Desk, an initiative in which student volunteers follow up with local patients who have been referred to community services. Pilot results were presented at the North Carolina Community Health Center Association conference. To help improve physical activity, students led Duke's application to be designated as an Exercise Is Medicine campus, held a public colloquium, and presented the academic-community-health system partnership at the American College of Sports Medicine Conference.

## Emerging Respiratory Viruses

Zoonotic diseases, caused by pathogens transmitted from animals to humans, account for approximately three out of five new human illnesses. In Southeast Asia, novel respiratory viruses such as avian and swine flu have caused significant outbreaks affecting human and animal populations. To understand the emergence of zoonotic diseases and prevent future pandemics, we need greater surveillance for such pathogens in areas where people and animals come into contact.

Beginning in 2017, Duke One Health team members, mentored by Professor Gregory Gray, organized and guided a Bass Connections team that built on an existing project in Sarawak, Malaysia. A diverse group of undergraduate, graduate, and medical students partnered with Sibu and Kapit hospitals and the State Health Department to test for viruses in hospital wards, open markets, swine farms, and slaughterhouses. A master's student in Global Health from Duke Kunshan University participated in the team. The team's research led to multiple publications. Three team members subsequently won scholarships to pursue Ph.D. degrees.

The 2018-2019 team refined the surveillance efforts for emerging respiratory viruses in Malaysia and increased Sibu Hospital's laboratory and diagnostic capacity. This work also yielded data for future grant applications and several manuscripts.



# PROGRAM EVALUATION

An annual evaluation helps Bass Connections leadership strengthen the program and understand its impact on students, faculty, and the societal issues addressed through the projects. All data reported below is based on survey respondent data.

## Highlights from the 2018-2019 Survey

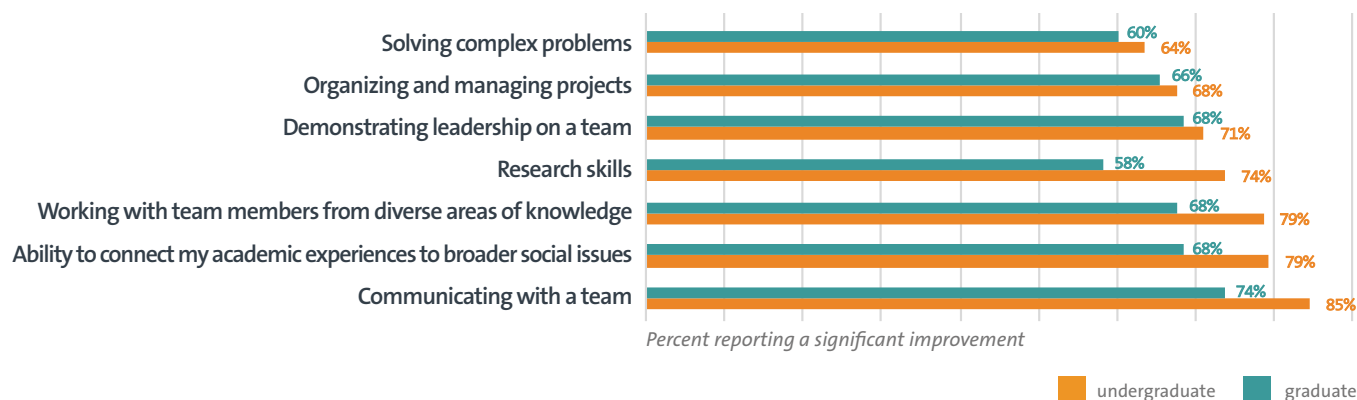
### SKILL DEVELOPMENT

Students report that their experience in the program improves their abilities in a range of arenas, many of which are skills highly sought after by employers across all industries.

*[The most valuable part was] engagement with every aspect of the scientific method. I was able to work on asking questions, generating hypotheses, collecting data, analyzing data, and then drawing conclusions. I also gained presentation experience at a local conference and learned from the different members on the team.*

UNDERGRADUATE STUDENT

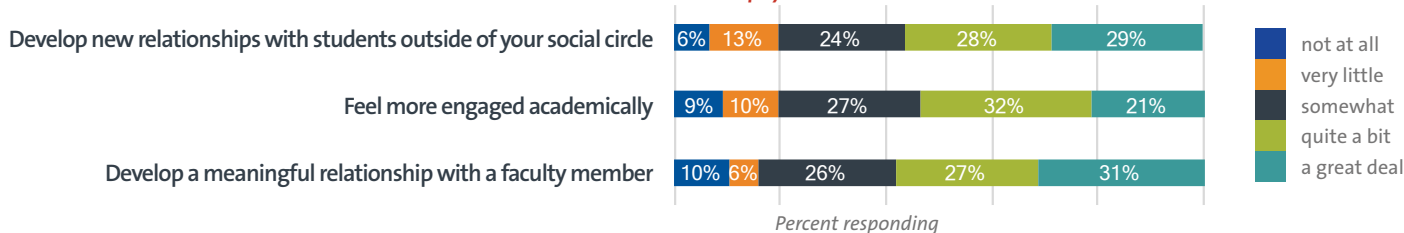
As a result of Bass Connections, to what extent do you believe you have improved in the following areas?



### DEEPENING ENGAGEMENT

For some students, Bass Connections is an avenue to help them find, or grow, academic passions while also developing new relationships outside of their existing communities.

UNDERGRADUATES - To what extent did Bass Connections help you...



### MENTORING

Year after year, the annual evaluation underscores the value of Bass Connections' layered mentoring model. For graduate students, who often mentor the undergraduates on their teams, 65% report that their experience in the program led to significant improvements in their ability to mentor others.

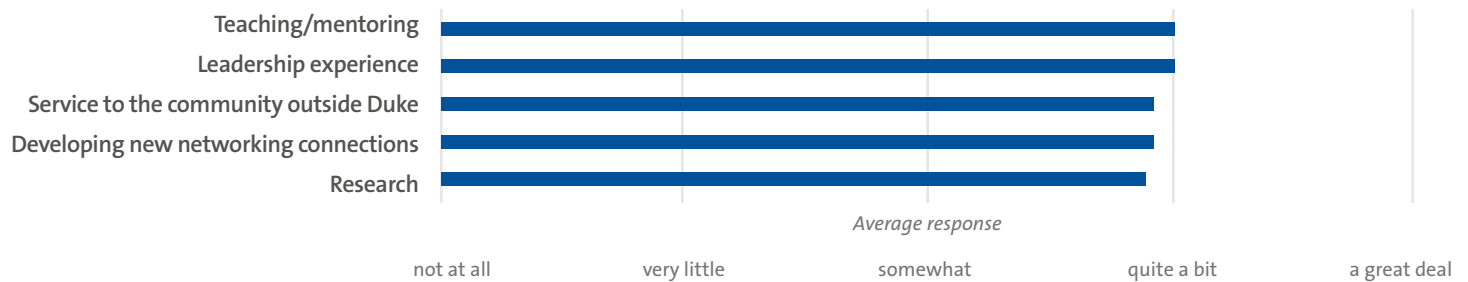
*The year-long project offered me a chance to mentor undergraduates in a way that TAships do not provide. I became close with some of my students and feel invested in them as scholars and as people. It was incredibly rewarding to see their work come to fruition and to hear them reflect on what they had learned from the process.* - GRADUATE STUDENT

*[My most meaningful experience was] having the opportunity to mentor students across disciplines and across multiple learning levels, and training/leading them to train/lead each other — both up and down the learning levels (e.g., seniors teaching sophomores and vice versa, juniors teaching master's students and vice versa).* - TEAM LEADER

## INTEGRATING RESEARCH AND TEACHING FOR FACULTY

Faculty participate in Bass Connections for a variety of reasons – to mentor students in a different way, to explore a new research area, to further existing research. Similarly, faculty report that the program benefits them in a number of ways, straddling their teaching and research roles.

**FACULTY** - To what extent has participating in Bass Connections helped you professionally in the following areas?



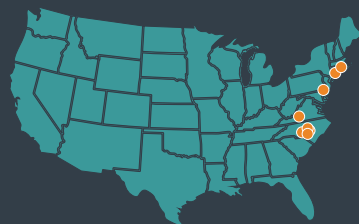
### Over the years, we've learned about the value of reflection and presentation as fundamental elements of the student experience.

An indispensable part of the learning process, critical reflection helps students consolidate what they've learned. We encourage all teams to incorporate reflective practices into their plan of work, and many embrace the opportunity. Some reflections remain internal, while others are intended for wider audiences.

This year, students shared their Bass Connections experiences on National Geographic, LinkedIn, Medium, WomenNC, and a variety of Duke outlets. Others took part in interviews aired on WUNC's "The State of Things" and WNCU's "The Measure of Everyday Life." Concisely articulating the problem that students tackled and explaining what they did – and why it matters – is an important skill for interviews with future employers, essays for graduate school, and applications for research funding. It's also key to translating research into action.

We also encourage teams to seek and create opportunities for students to give talks about their work, whether at Duke or further afield. This year, students engaged with a wide variety of audiences across campus, at TEDxDuke, at stakeholder meetings and conferences, and even at a music club.

### Selected student presentations in 2018-2019 beyond Duke



**International Conference on Family Planning**  
KIGALI, RWANDA  
*Big Data for Reproductive Health*



**Women Deliver Global Conference**  
VANCOUVER, CANADA  
*Big Data for Reproductive Health*

**Motorco Music Hall | DURHAM, NC**  
*DECIPHER: Case Studies in Drinking Water Quality*

**University of North Carolina | CHAPEL HILL, NC**  
*Oculomotor Response as an Objective Assessment for Mild TBI in the Pediatric Population*  
*ACRE-Duke Partnership to Improve Sanitation Access in Lowndes County, Alabama*

**All Things Open | RALEIGH, NC**  
*Open Source Pedagogy, Research + Innovation (OSPRI) Lab*

**CSNAP | FAYETTEVILLE, NC**  
*Open Source Pedagogy, Research + Innovation (OSPRI) Lab*

**IMPACT National Conference | CHARLOTTESVILLE, VA**  
*Open Source Pedagogy, Research + Innovation (OSPRI) Lab*

**University of Connecticut | STORRS, CT**  
*How to Cure Political Polarization by Asking Questions*

**International Genetically Engineered Machine (iGEM) Competition**  
BOSTON, MA  
*Duke iGEM Team*

**Demographic and Health Surveys Program**  
ROCKVILLE, MD  
*Big Data for Reproductive Health*

## Spurring Interdisciplinary Research on Pressing Global Challenges

As of June 30, 2019, Bass Connections raised \$94.8M toward its goal of \$100M. Generous support from donors has created 86 funds to support project teams, educational programming, faculty engagement, and connections between Bass Connections and other university programs.

### New Bass Connections Professorships

Through the generosity of donors and the Bass Connections Challenge Fund, Duke announced seven newly-appointed named faculty professorships in three Duke schools.

Bass Connections professorships recognize faculty whose scholarship and teaching align with the interdisciplinary and collaborative nature of the program, while also recognizing the contributions of Duke's schools to this university-wide effort.

*The Haley Family Professorship, affiliated with the Brain & Society theme of Bass Connections, was critical for our recruitment of Professor Staci Bilbo. Bilbo is not only a renowned neuroscientist whose laboratory generates fundamental insights into the links between the immune system and brain function, but also is a broad-minded scholar whose approach to research spans traditional disciplines. Her presence at Duke will spark new (and unexpected!) collaborations throughout campus, helping create a community of scholars and students who take an interdisciplinary approach to the study of the brain.*

**SCOTT HUETTEL** | Professor and Department Chair, Psychology & Neuroscience

**ELIKA BERGELSON** | Crandall Family Assistant Professor of Psychology and Neuroscience

**STACI BILBO** | Haley Family Professor of Psychology and Neuroscience

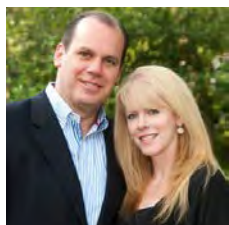
**ANNA GASSMAN-PINES** | WLF Bass Connections Associate Professor of Public Policy

**AMANDA RANGLES** | Alfred Winborne Mordecai and Victoria Stover Mordecai Assistant Professor of Biomedical Engineering

**STEVE SEXTON** | Mark and Lynne Florian Assistant Professor of Public Policy

**STACY TANTUM** | Bell-Rhodes Associate Professor of the Practice of Electrical and Computer Engineering

**VAHID TAROKH** | Rhodes Family Professor of Electrical and Computer Engineering



### Duke's Hub for Data and Quantitative Sciences

Duke's landmark "big data" initiative has been named in honor of longtime supporters Michael and Maureen Rhodes.

The Rhodes Information Initiative at Duke (iiD) was officially named by the Duke Board of Trustees in November 2018. Matched by the Bass Connections Challenge Fund, the Rhodes gifts provide fundamental support for Data+, a Bass Connections summer program in the Information, Society & Culture theme, as well as graduate student and faculty engagement in that theme and more broadly at the Rhodes iiD.

*Duke's interdisciplinary strengths give it a strong position from which to take creative approaches to analyzing and applying data to tackle the world's problems, whether it's improving health care or developing more sustainable energy systems.*

**MICHAEL RHODES E'87**

### Fueling Program Growth and Innovation

As Bass Connections has continued to grow, program leadership has committed to continuous improvement and innovation – introducing new summer programs, creating opportunities for student-driven research, and cultivating innovative courses that move the model further into the curriculum. In 2018-2019, this focus led to the creation of Bass Connections Open – a channel to support projects that fit the Bass Connections model and approach but that fall outside of the existing themes – and a new opportunity for students to propose collaborative, student-driven research projects.

General program support gifts, like a \$1 million commitment from the Mary Alice Fortin Foundation, matched by \$500,000 from the Bass Connections Challenge Fund, enable Bass Connections to expand to meet student and faculty demand while also continuing to innovate and invest in strategic priorities.

*I had the opportunity to attend the Bass Connections Showcase and what struck me most was the faculty engagement with students. They talked about how the program introduced both of them to new ways of tackling complex societal challenges.*

**DANIELLE (DANI) MOORE T'85** | President, Mary Alice Fortin Foundation

# BASS CONNECTIONS SHOWCASE AND AWARDS

On April 17, 2019, undergraduate and graduate students shared their research highlights with the community at the third annual Bass Connections Showcase.

More than 650 people – including Duke faculty, staff, students, and donors as well as representatives from the National Science Foundation, Durham City Council, Durham County Board of Commissioners, Durham Public Schools Board of Education, UNC Chapel Hill, NC State, Durham Tech, and NC School of Science and Math – took part in the celebration.

*With broad engagement from all corners of the university, this program is building bridges across disciplines and schools – bringing out the best of Duke when we work together, and helping us redefine and enhance higher education.*

**VALERIE ASHBY**  
Dean, Trinity College of Arts & Sciences

## Talks

*Help Desk: A Student Initiative to Address the Social Determinants of Health*

SAHIL SANDHU '20 AND VERONICA SOTELO MUNOZ, Master of Public Policy '19

*Wired for Learning: Supporting Thinking Skills in the K-2 Classroom*

CALEB COOKE '21 AND KARINA HEATON '21

*Improving Neurosurgery Outcomes in Uganda*

CHINEMEREM NWOSU '19 AND SAM SADLER '19

*Chronicling the Economic and Social History of Coal in Central Appalachia*

MERLE NYE '21, MARY HELEN WOOD '21, AND ALEX YOSHIKUMI, Master of Environmental Management '19

*Quantifying Gerrymandering*

SAMUEL EURE '19 AND NIMA MOHAMMADI '20

## Grants and Awards

### OUTSTANDING MENTORSHIP

KATHLEEN BURNS, Ph.D. in English '22 | *DECIPHER: Case Studies in Drinking Water Quality*

JAMES HERRERA, Postdoc, Evolutionary Anthropology | *How Do People Affect Zoonotic Disease Dynamics in Madagascar?*

### STUDENT RESEARCH AWARDS FOR 2019-2020

» ALICE CHUNG '21, ABHI JADHAV '21, ROHIN MAGNATI '21, AND KAMYAR YAZDANI '20

» MELANIE CAMEJO COFFIGNY '20

» JESSICA COLEMAN, Ph.D. in Clinical Psychology '24; GODFREY KISIGO, M.S. in Global Health '21; AND SAUMYA SAO '20

» ALEXANDRA DIGIACOMO '20

» COURTNI FRANCE, M.A. in Bioethics & Science Policy '21

» IRENE KOC '20

» JASON KWAK '21 AND NEELESH PANDEY '21

» MELISSA MARCHESI '21

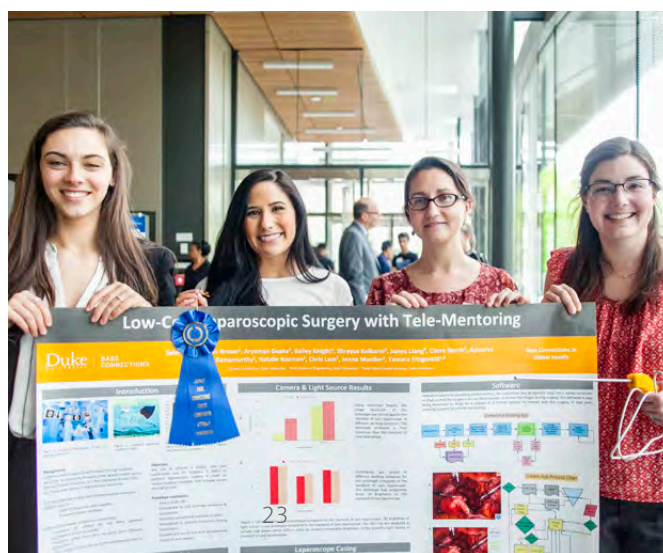
» KATHERINE MCCUSKER, Ph.D. in Art, Art History & Visual Studies '21

» ANNA NORDSETH, Ph.D. in Ecology '25; and Alina Xiao '21

## Posters

**JUDGES' SELECTION** *Big Data for Reproductive Health*

**AUDIENCE CHOICE** *Low-cost Laparoscopic Surgery with Tele-mentoring*



2024 W. Main Street | Durham, NC 27705  
BASSCONNECTIONS.DUKE.EDU  
bassconnections@duke.edu  
919-684-9021

