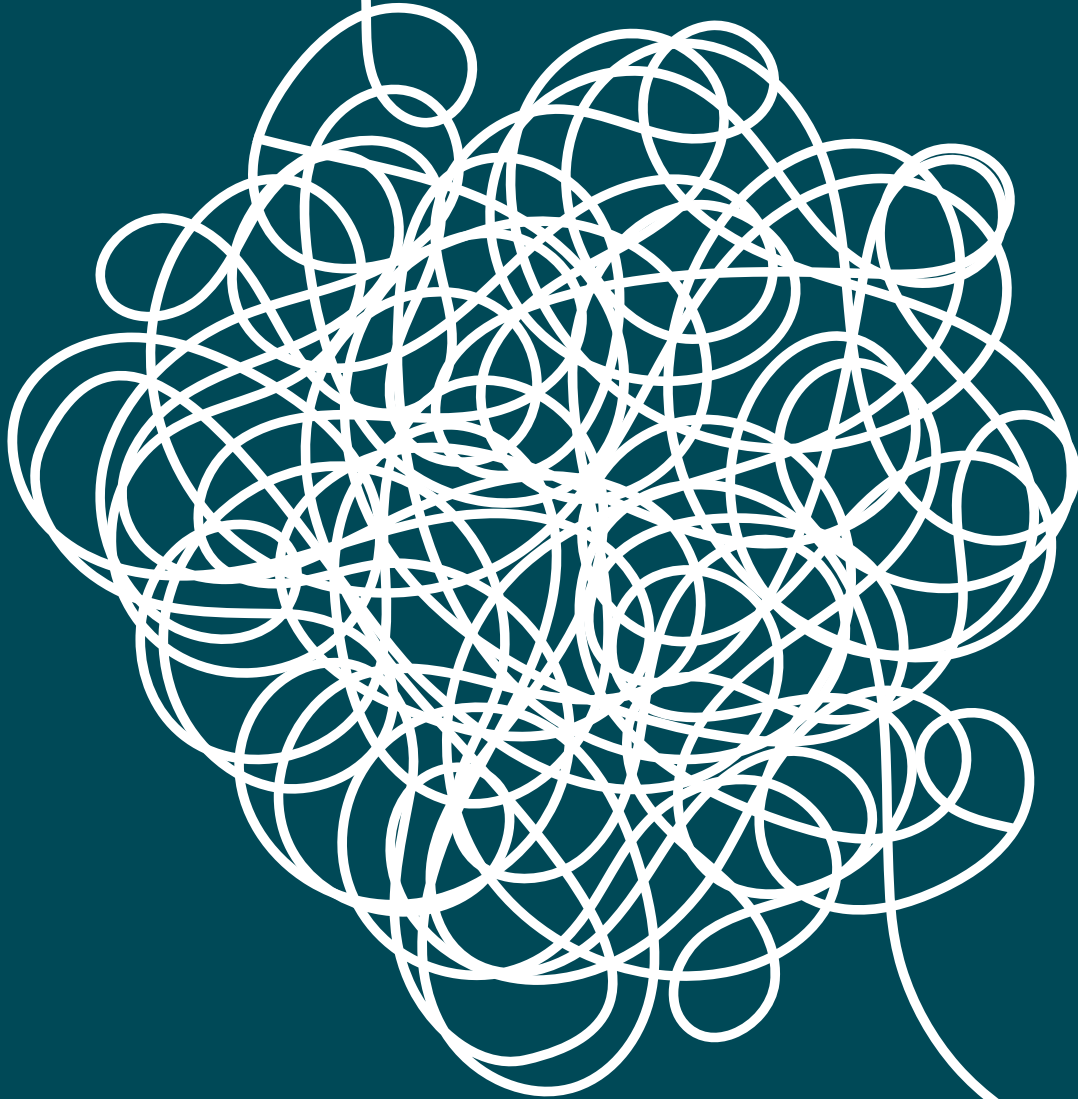


BOSTON UNIVERSITY

2020



ANNUAL REPORT

2021

A FEW WORDS FROM THE PRESIDENT

I think we can all agree that FY2021 was a year like no other.

A pandemic that claimed millions of lives worldwide. Racial strife that laid bare profound social inequities. Political upheaval that divided us. And economic turmoil that brought untold suffering. A lifetime of challenges packed into mere months.

Boston University, like the rest of the world, was undoubtedly tested. But thanks to a solid foundation, built over many decades, and the profound cooperation and dedication of our faculty, students, and staff, we not only kept the University standing but continued to make the significant contributions to the common good that we as a leading residential research institution always strive for.

A VIBRANT
ACADEMIC
EXPERIENCE
PAGE 2

RESEARCH
THAT
MATTERS
PAGE 10

DIVERSITY,
EQUITY &
INCLUSION
PAGE 20

FORTIFYING
OUR
COMMUNITY
PAGE 26

OUR
FINANCIALS
PAGE 38



Within days of the pandemic shutdown, School of Medicine faculty and students rushed to the front lines while hundreds of our researchers pivoted to COVID-19 work—notably at our National Emerging Infectious Diseases Laboratories, where scientists quickly began work on live samples of the novel coronavirus, proving the facility's mission; within weeks, we developed the infrastructure to support a remote/hybrid teaching and learning system and allow our staff to carry on work from home; and within months, we developed our own PCR testing lab, launched a contact-tracing program, and established quarantine and isolation housing, all of which ensured the successful continuation of in-person and residential education.

At the same time, we were able to keep the rest of our enterprise moving. We established and filled the post of senior diversity officer, complementing ongoing diversity, equity, and inclusion efforts at the University. Our Center for Antiracist Research, led by renowned scholar Ibram

X. Kendi, struck a chord across the world, resulting in more than 4,400 donations to the center's research, including several eight-figure gifts.

As the fiscal year ended, we began our successful transition back to the dynamic and collaborative in-person learning and research that defines us and continues to attract bright minds. This past year, our application numbers went up by nearly 25%. The Class of 2025, one of our largest in recent history, is talented and diverse. And for those who are the first in their families to attend college, we opened a new center for first-generation students.

But none of this would have been possible without two fundamental things: a clear vision—as expressed in our most recent Strategic Plan—and a community dedicated to realizing it.

A handwritten signature in black ink that reads "Robert A. Brown".

ROBERT A. BROWN

A VIBRANT ACADEMIC EXPERIENCE

As a leading residential research university that is home to nearly 34,000 students, the academic experience is our top priority. Even when life is upended by a global pandemic. While we temporarily pivoted to remote teaching and learning, a solid pedagogical foundation, continually developed over time, allowed us to easily transition back to where we belong—in the classrooms, in the labs, on campus, interacting, collaborating, discovering, growing, and thriving.



LEARN FROM ANYWHERE: BRIDGING THE GAP

From the moment the pandemic forced us to pause campus life and conduct operations virtually, our goal was to reunite students and faculty in the classrooms, labs, and studios, as soon as was safely possible. And in 2020, we did just that.

But getting there was no small task.

Within days of asking community members to depopulate campus, students, faculty, and staff were taking crash courses in Zoom. Meanwhile, technicians at Information Services & Technology were rapidly developing the infrastructure to support a remote/hybrid learning system that would safely allow limited in-person teaching in fall of 2020. To that end, the University installed new technology in hundreds of classrooms across all campuses, reconfigured learning spaces for safety, trained remote teaching coordinators, and developed at-home lab kits for remote hands-on learning.

Called **LEARN FROM ANYWHERE** (LfA), our teaching system accommodated public health

requirements and addressed other challenges faced by BU students during the pandemic. But most crucially, LfA delivered the same academic content to all students, whether they were in a BU classroom, at their home, or in another country, allowing everyone to take part in the same classroom discussions.

Without a doubt, LfA helped meet the moment and allowed students to connect in new and different ways, but it was never viewed as a substitute or significant complement for in-person learning. We're grateful, of course, for the monumental effort it required to launch and operate, but as the fiscal year ended, we readily, and smoothly, transitioned back to in-person classrooms, studios, and labs.

And judging by the roar of more than 4,000 new Terriers at fall 2021 Matriculation, and the familiar fall bustle up and down Comm Ave, we'd say students and faculty alike are once again thrilled by the unique energy our large and diverse residential learning community creates.



JEAN MORRISON,
UNIVERSITY PROVOST
AND CHIEF ACADEMIC
OFFICER OF BOSTON
UNIVERSITY, OVERSAW
THE RAPID TRANSI-
TION FROM IN-PERSON
CLASSROOMS TO THE
REMOTE/HYBRID
LEARN FROM
ANYWHERE MODEL.

CLASS OF 2025: SMART, PASSIONATE & DRIVEN

They represent 47 states and 71 countries and regions. Nearly 18% of them are the first in their families to attend college. With an average SAT of 1442 and an average GPA of 3.8, the Class of 2025 is a force to be reckoned with.

Beyond their stats, these newly minted Terriers are a driven bunch. One has performed on Broadway. Another designed an inexpensive filtration system to remove arsenic from drinking water. Yet another wrote a Python code to calculate the orbital elements of a Mars-crossing asteroid—just for fun! We can't wait to see where their smarts—and passions—take them next!

- **75,778** applications received (24% increase from previous year and a new record)
- **4,011** enrolled freshmen
- **44.2%** admitted Early Decision
- **18.6%** admit rate, compared with 20.1% in 2020
- **1442** average SAT*
- **33** average ACT*
- **47** states represented
- **71** countries and regions represented
- **23%** are international students
- **3.8** grade point average of entering freshmen
- **17.3%** of domestic freshmen are under-represented minorities
- **22.9%** of domestic freshmen are Pell Grant-eligible

*For those who submitted scores: not required for admission

READ MORE
ABOUT BU'S
COVID-19
HEALTH PROGRAM
ON PAGE 31

ACADEMIC PIONEERS TURN THEIR TASSELS

In fall of 2018, BU's freshman class embarked on an academic journey that has fundamentally altered the type of student and citizen we send out into the world. In the spring of 2022, these pioneers will be the first to earn their degrees while fulfilling requirements of the **BU HUB**, the University-wide general education program.

The Hub is designed to encourage students to explore a broad array of disciplines and ways of thinking. Through a variety of courses and innovative and cross-disciplinary learning experiences, students develop a core set of essential intellectual capacities—knowledge, skills, and habits of mind—that equip them to thrive in their personal, professional, and civic lives.

"In this 21st-century job market, where there are careers that will be some of the top professions a decade from now that we don't even know about, having skills that are transferable in communication and thinking and teamwork is really important," says **DAVID CARBALLO**, assistant provost for general education and professor of anthropology.

The program is also stimulating faculty to think about teaching in new and multidisciplinary ways. **FELICE AMATO**, a College of Fine Arts assistant professor of art education, teamed up with **JESSICA BOZEK**, a senior lecturer in the College of Arts & Sciences Writing Program. Together, they led a class called Thinking Through Puppets and Performing Objects, where undergraduates are paired with master's and PhD students from across BU to communicate abstract research concepts to an audience without any scientific training. "It's all about crafting metaphor," Amato says.

The topics included civil forfeiture, anthropomorphism in 20th-century literature, protein folding and its relation to disease, American Sign Language learning for deaf and hard-of-hearing babies, and reentry employment counseling for people who were incarcerated. The final pieces were performed over Zoom to an audience of friends, parents, researchers, and professionals in the puppetry scene.

"Making a show beautiful and magical takes a lot of effort," says **SHANARA MAHAARACHCHI** (CGS'20, CAS'22). "At first I'd assumed that puppetry would be a childish thing, but it can be so thought-provoking."



AS PART OF THE BU HUB'S CROSS-COLLEGE CHALLENGE, **ANNA JENSEN** (CAS'23, PARDEE'23) AND **SHANARA MAHAARACHCHI** (CGS'20, CAS'22) WORKED WITH RESEARCHER **AHMED YOUSSEF** (ENG'25, '25) TO COMMUNICATE SCIENTIFIC FINDINGS THROUGH ART.

Rankings: How We Stacked Up

#17

Best private university in the US, QS

#27

In the US for graduate employability, QS

#42

In national university rankings, *U.S. News & World Report*

#57

In best global university rankings, *U.S. News & World Report*

#14

In the US for employability, *Times Higher Education*

#10

Biomedical Engineering Programs*

#4

Healthcare Law*

*Graduate Program Rankings, *U.S. News & World Report*

CALLING ALL VISIONARIES! DATA SCIENCE NOW A MAJOR

There are already more than 300 areas of study available at Boston University, and in the fall of 2021, we added another to the mix.

The latest addition is designed to equip students with the analytical and computational skills necessary to succeed in almost every field these days, from science and engineering to arts and humanities.

Say hello to the BS in data science, offered by the **FACULTY OF COMPUTING & DATA SCIENCES (CDS)**. Drawing on topics in traditional STEM disciplines, the new degree program provides students with the foundational knowledge and practical training in algorithmic and statistical data analysis, machine learning, and software engineering—crucial competencies in a world increasingly defined by computation, big data, and artificial intelligence.

CDS was founded in 2019 and will be housed in the iconic 19-story Center for Computing & Data Sciences, scheduled to be completed

in 2022. CDS complements and connects various academic disciplines through the language of computation and data. Free from the limits of traditional academic structure, it is a truly interdisciplinary academic unit.

In addition to the new major, plans are underway to launch an undergraduate minor in data science. And at the graduate level, students have been accepted in the PhD program in CDS, with an inaugural group of students starting in September 2021. And a master's degree program in data science is in the offing.

BU's investment in the world of computing and data sciences comes at a time when companies large and small are gobbling up unfathomable amounts of data every day and finding new ways to study, analyze, and use it.

"The program puts students in front of real data and big questions," says **AZER BESTAVROS**, associate provost for computing and data sciences and a College of Arts & Sciences professor of computer science. "The major is really about students gaining the tools to make a bigger impact in whatever career they choose to pursue."



SCHOOL OF MEDICINE ADDS NEW TEACHING HOSPITAL

In July of 2021, **ST. ELIZABETH'S MEDICAL CENTER** in Brighton became a Boston University teaching hospital, joining its primary affiliate Boston Medical Center. The five-year partnership expands an existing relationship between BU and St. Elizabeth's and brings more opportunities for medical clerkships and clinical rotations. For faculty, the partnership is expected to lead to more collaboration on clinical research. The 308-bed hospital is located about five miles west of our School of Medicine.

QUESTROM'S ONLINE MBA A HIT

Launched in 2020 in partnership with the global online education platform edX, Questrom School of Business' **ONLINE MBA** has found success from the get-go. The program allows working professionals to complete coursework online without disrupting jobs or family life, and it costs about a quarter of a residential degree. A benefit, students say, is partnering with others who may be equally accomplished but come from different industries around the world. Demand prompted the school to increase the fall 2020 cohort from 200 to nearly 400, with that number jumping to almost 500 in fall of 2021.



27%.
Increase in applications to the School of Medicine in 2021



25%.
Increase in enrollment in Questrom's Online MBA program



EDGY STUDENT CAMPAIGN TURNS HEADS AT THE CDC

With a well-placed f-bomb, a group of students made sure their peers were paying attention to the University's health and safety protocols on campus last fall.

Provocatively titled "**F*CK IT WON'T CUT IT**," which plays off a common student expression, the awareness campaign sought to convey an urgent reality: if the entire student body did not take social distancing, masking, and other COVID-19 preventive measures seriously when they returned, campus life would cease to exist.

Through TikTok videos, Instagram posts, and infographics, the campaign also dispelled misconceptions and answered questions about responsible partying and dating. The goal was to cut through the barrage of standard safety messages and appeal to young people to take seriously the risk posed by the novel coronavirus.

The project was the first large-scale collaboration between students in COM's **ADLAB** and **PRLAB**. "We knew it was a bold approach. We knew it was different," said cocreator **HAILEY MCKEE** (COM'21). "But it's a dialogue we needed to have. We needed to take care of ourselves, our fellow students, and the faculty and staff who were graciously helping us during a COVID-19 world."

Not only did the campaign turn heads on campus and in newsrooms across the country, it caught the attention of the Centers for Disease Control and Prevention. In December 2020, they invited the student-organizers to present the award-winning campaign to their COVID-19 emergency response team, with some 1,500 medical and marketing experts on the call.

Now, that's some high-level f-bombing.



DOUG GOULD, A COM PROFESSOR OF THE PRACTICE, HELPED GUIDE AND ADVISE A TEAM OF BU ADVERTISING AND PUBLIC RELATIONS STUDENTS, INCLUDING **HANNAH SCHWEITZER** (COM'21) AND **HAILEY MCKEE** (COM'21), ON THEIR DEVELOPMENT AND EXECUTION OF A PROVOCATIVE HEALTH-AWARENESS CAMPAIGN.



**F*CK IT
WON'T CUT IT**

1,500
Medical and marketing experts across the country tuned in to the campaign's CDC presentation



SLEEP RESEARCHER EARNS NATIONAL NOTICE

Laura Lewis, a College of Engineering assistant professor of biomedical engineering and faculty member at the Center for Systems Neuroscience, is developing groundbreaking methods for peering into the human brain during sleep. Revealing the first-ever images of cerebrospinal fluid washing in and out of the brain while in a sleep state, Lewis' research may lead to insights about the health of memory. And her work has been turning heads, including at the prestigious Pew Charitable Trusts, which in June of 2021 announced Lewis as one of their newest biomedical scholars. Lewis also earned a Sloan Research Fellowship earlier in the year. She is one of many BU faculty to see their hard work recognized beyond the University.

ACCOLADES. APLENTY.

The challenge of the past pandemic-infused months didn't slow our faculty researchers down. And their work was noticed in some impressive corners, from the Guggenheim Foundation to the American Institute for Medical and Biological Engineering to the National Science Foundation. Below are just a few.

- Three Boston University researchers were named American Association for the Advancement of Science fellows: **CATHERINE KLAPPERICH**, professor of biomedical engineering, materials science and engineering, and mechanical engineering; **UDAY PAL**, professor of mechanical engineering and materials science and engineering; and **STEFAN HOFMANN**, professor of psychological and brain sciences.

- A number of Boston University researchers have received Faculty Early Career Development Program (CAREER) awards from the National Science Foundation, a respected program that recognizes exceptional early-career scientists. They include: BU economist **SAMUEL BAZZI**, assistant professor of economics; **WANZHENG HU**, assistant professor of physics and materials science and engineering; **GIANLUCA STRINGHINI**, assistant professor of electrical and computer engineering; **XI LING**,

assistant professor of chemistry and materials science and engineering; **MANUEL EGELE**, associate professor of electrical and computer engineering; and **JENNIFER BALAKRISHNAN**, associate professor of mathematics and statistics.

- WILLIAM GERALDI** (GRS'03), College of Arts & Sciences Writing Program master lecturer, and **JOSEPHINE HALVORSON**, chair and professor in the School of Visual Arts' graduate studies in painting program, are the latest BU faculty to earn the prestigious Guggenheim Fellowship.

- In October 2020, three BU professors were named to the "Extraordinary Year, Extraordinary People: *Boston Business Journal's* Power 50" list: **IBRAM X. KENDI**, the founding director of BU's Center for Antiracist Research, Andrew W. Mellon Professor in the Humanities, and professor of history; **CATHERINE KLAPPERICH**, director of BU's Precision Diagnostics Center and

professor of biomedical engineering, materials science and engineering, and mechanical engineering; and **KATE WALSH**, president and CEO of Boston Medical Center and adjunct clinical associate professor of health law, policy, and management.

- KAREN ALLEN**, chair and professor of chemistry, was named a fellow by the American Society for Biochemistry and Molecular Biology, as part of their first class of honors, which recognizes meritorious efforts to advance the molecular life sciences.

- In March 2021, **JOYCE WONG**, professor of biomedical engineering and materials science and engineering, was named president-elect of the American Institute for Medical and Biological Engineering, a group of the nation's most accomplished biomedical engineers.

- RICHARD SAITZ**, chair and professor of community health sciences, received two awards for his influential leadership and contributions to the field of addiction medicine. The board of directors of the American Society of Addiction Medicine (ASAM) nominated him for the 2020 James H. Tharp Award, which he won in November of that year. And in January 2021, ASAM named him Educator of the Year.

BU LAW STUDENTS STEP INTO THE FRAY

Whether it was helping represent women in a class-action lawsuit against US Immigration and Customs Enforcement regarding accusations of unwanted gynecological procedures or assisting South American mothers fleeing violence in their home countries obtain asylum in the United States, BU law students have been stepping out of the classroom and into the fray.

The Boston University School of Law **IMMIGRANTS' RIGHTS & HUMAN TRAFFICKING PROGRAM** teaches students practical legal skills, while providing pro bono representation to vulnerable noncitizens facing deportation and survivors of human trafficking. **SARAH SHERMAN-STOKES**, a BU clinical associate professor of law and associate director of the program, helps teach students how to be immigration lawyers by being immigration lawyers.

One of the main goals of the program is to have students apply their classroom experience to the courtroom with real clients, real judges, and real stakes. "We don't want students to just hold the flashlight," says Sherman-Stokes, who won the 2020 Metcalf Cup and Prize for Excellence in Teaching. "We want them to fix the car."

Under her supervision, students represent immigrants in front of a judge and visit detained clients in jail. And when there is an immigration crisis, they jump in. In 2018, when migrant children were being forcibly separated from their parents at the US-Mexico border, Sherman-Stokes took her students to Arizona to advise families of their rights. Her students went to Tijuana to help refugees who were traveling in a caravan from Central America and being villainized by the Trump administration.

Students and program faculty also work to increase protections available to vulnerable populations and contribute to the national policy landscape by providing new models that address emerging challenges related to immigrants' rights and human trafficking.

"It's important for students to know that lawyers have to show up when there is something we don't agree with," says Sherman-Stokes. "We should be there and we should get in the way and we should bear witness to what's happening and try to do good. A law degree is a very powerful tool. The goal is to use that tool to do good."



SARAH SHERMAN-STOKES, A LAW CLINICAL ASSOCIATE PROFESSOR AND ASSOCIATE DIRECTOR OF THE IMMIGRANTS' RIGHTS & HUMAN TRAFFICKING PROGRAM

RESEARCH THAT MATTERS

If ever there was a test for a research enterprise, 2020 was it. At BU, aside from maintaining ongoing projects and collaborations in a variety of fields, hundreds of scientists and researchers pivoted to COVID-19 research, from engineers developing new protective medical equipment and more secure endotracheal tubes to virologists exploring novel ways to activate the immune system and regenerative medicine scientists developing diagnostics for the infection caused by SARS-CoV-2. All of them demonstrated that where there's a will, there's a way.



NEIDL: RIGHT PLACE, RIGHT TIME

When news broke that an unknown and dangerous virus had reached US shores and was rapidly spreading, researchers at BU didn't blink. By mid-March 2020, they were already working with live samples of the novel coronavirus at the **NATIONAL EMERGING INFECTIOUS DISEASES LABORATORIES** (NEIDL).

"NEIDL was built to be able to study emerging infectious diseases and respond to national emergencies," says Director **RONALD CORLEY**, chair and professor of microbiology at the School of Medicine. "This pandemic has demonstrated the value of having a facility like NEIDL and all the expertise that we've brought into it."

Built in 2008, NEIDL is a state-of-the-art research facility that supports the work of investigators who focus on infectious diseases that are—or have the potential to become—major public health concerns. It is one of only a handful of facilities in the United States that houses biosafety level 2 (BSL-2), BSL-3, and BSL-4 laboratories, which are designed to permit investigators to work safely with these emerging pathogens. NEIDL is owned and operated by Boston University but is also one component of a national network of secure facilities that studies emerging infectious diseases.

Since the COVID-19 outbreak, NEIDL scientists dropped nearly every other research project to focus on understanding and combating the novel coronavirus. BU researchers quickly received **\$1.6 MILLION** in new funding through Harvard from the Massachusetts Consortium on Pathogen Readiness to further advance coronavirus research, from modeling infections in lung organoids to developing better and faster testing to screening thousands of drug compounds in search of new treatments.

During the pandemic, global vaccine development focused heavily on activating immune cells—B cells—which are responsible for creating antibodies.



But with the mutating variants, NEIDL researchers are now looking at other ways human cells activate the immune system in response to SARS-CoV-2 infection, specifically T cells, considered the body's killers as they are sent out to destroy infected cells.

Along with colleagues from the Broad Institute of MIT and Harvard, BU researchers have been studying the types of "red flags" the human body uses to enlist the help of T cells. Their findings, published in *Cell* in June 2021, could open the door to even more effective and powerful vaccines against the coronavirus and its rapidly emerging variants.

"We swung into full action right away because my laboratory had already generated human cell lines that could be readily infected with SARS-CoV-2," says **MOHSAN SAEED**, a NEIDL virologist and a co-corresponding author of the paper. "This virus wants to go undetected by the immune system for as long as possible. Once it's noticed by the immune system, it's going to be eliminated, and it doesn't want that."

MICROBIOLOGIST **ROBERT DAVEY**'S ONGOING NOVEL CORONAVIRUS RESEARCH WAS BOOSTED WITH \$400,000 THROUGH HARVARD FROM THE MASSACHUSETTS CONSORTIUM ON PATHOGEN READINESS, PART OF \$1.6 MILLION IN FUNDING THAT BU RESEARCHERS RECEIVED.

NEW CENTER BUILDS PANDEMIC RESILIENCY

Back in January 2020, when a strange, fast-spreading, deadly virus emerged from China and threatened to become a global health crisis, the public began asking questions about masks, handwashing, contaminated surfaces, and tests. Information was scarce and public health experts began researching answers.

A new center at Boston University will ensure communities have the fact-based recommendations they need regarding infectious diseases. The **CENTER FOR EMERGING INFECTIOUS DISEASES POLICY & RESEARCH (CEID)**, which opened in June 2021, combines technical expertise in diseases such as COVID-19, Zika, and Ebola with policy research. CEID (pronounced “seed”) will advise governments, communities, and academic institutions to help them prepare for, and respond to, epidemics and pandemics at local, national, and global levels.

“I think this type of multidisciplinary center would have helped in early 2020,” says founding director **DR. NAHID BHADELIA**, an associate professor of medicine and associate director at BU’s National Emerging Infectious Diseases Laboratories. “It would have been there to create just-in-time policy for legislators, to say, hey, here is a two-page brief that can help you understand the science behind the big topics and their policy implications. It would have been a place for the public to go to get evolving scientific information, and a place where multidisciplinary researchers can determine best practices for responding to this crisis from a healthcare perspective.”

DR. NAHID BHADELIA
ASSOCIATE
PROFESSOR OF
MEDICINE AND
BOARD-CERTIFIED
INFECTIOUS
DISEASES PHYSICIAN.
FOUNDED A NEW
CENTER AT BU DED-
ICATED TO POLICY,
RESEARCH, AND
COMMUNICATIONS
SURROUNDING
EMERGING INFEC-
TIOUS DISEASES.



200
Components go
into vaccine pro-
duction, but few
companies create
them all, limiting
global resiliency



NORTHERN EXPOSURE

**FOREST
FIRES IN THE
FAR NORTH
COULD SPEED
UP CLIMATE
CHANGE**

Long a bulwark in the battle against climate change, northern forests absorb a significant amount of the world’s carbon dioxide. But research out of Boston University suggests that current computer-based models used to predict the Earth’s changing climate have underestimated the impact forest fires and timber harvests have on the world’s northernmost forests to capture and store atmospheric carbon.

MARK FRIEDL, an environmental Earth scientist and professor at the College of Arts & Sciences, along with PhD student **JONATHAN WANG**, arrived at this finding by studying 30 years of data on the world’s forests with the help of cutting-edge satellite imaging. “Current Earth systems models appear to be misrepresenting a big chunk of the global biosphere,” says Friedl, who also directs BU’s **CENTER FOR REMOTE SENSING**.

Friedl and Wang developed a method to glean richer information through NASA’s ICESat mission, a satellite carrying laser technology that can detect the height of vegetation within a forest, not just the cover. The researchers saw that northernmost forests have been losing more biomass than expected due to increasingly frequent and extensive forest fires, and that the hardwoods replacing the lost conifers were less resilient. Their study, published in *Nature Climate Change* in April 2021, underscores the threat that the global climate crisis poses for the far north—home to the largest forest biome on the planet—and makes efforts to reduce carbon emissions all the more urgent.

“When big chunks of real estate in places like California go up in flames, that gets our attention,” Friedl says. “But northern forests, which hold some of the largest stocks of carbon in the world, are being impacted by fires more than we realized until now.”



FOR STUDENTS, MENTAL HEALTH IS TOP OF MIND

The pandemic wasn’t just a physical threat on college campuses in 2020 but a mental one, too.

In a nationwide survey developed in part by Boston University mental health researcher **SARAH KETCHEN LIPSON**, nearly 33,000 college students reported increased mental health challenges amid the coronavirus pandemic, political unrest, and systemic racism and inequality. “Half of students in fall 2020 screened positive for depression and/or anxiety,” says Lipson, a principal investigator of the nationwide survey, which was administered online during the fall 2020 semester.

The survey further revealed that 83% of students said their mental health had negatively impacted their academic performance, and that two-thirds of college students are struggling with loneliness and feeling isolated—an all-time high that reflects the toll of the pandemic

and the social distancing necessary to control it.

Lipson, a School of Public Health assistant professor of health law, policy, and management, says the survey’s findings underscore the need for university teaching staff and faculty to put mechanisms in place that can accommodate students’ mental health needs. “Faculty need to be flexible with deadlines and remind students that their talent is not solely demonstrated by their ability to get a top grade during one challenging semester.”

One potential bright spot from the survey was that the stigma around mental health continues to fade, with 94% of students saying that they wouldn’t judge someone for seeking help.

“We’re harsher on ourselves and more critical of ourselves than we are with other people,” Lipson says. “Students need to realize, your peers are not judging you.”

BU PHYSICISTS HELP REVEAL THE UNKNOWN

Right now, as you're reading this sentence, mysterious subatomic forces are passing through you.

At least that's the suggestion from findings, published in April 2021, of a massive experiment conducted at the US Department of Energy's Fermi National Accelerator Laboratory (Fermilab) in Illinois.

"Over the last 50 years, our understanding of the subatomic world has become really amazing," says BU Professor of Physics **LEE ROBERTS**, cofounder of the experiment and a coauthor on the analysis of the Fermilab results. "But there are a number of questions we still don't understand."

The Fermilab experiment, called Muon g-2, detected particles called muons behaving slightly differently than currently accepted physics theories—known altogether as the Standard Model of physics—would predict. That slight deviation indicates that other particles or forces not accounted for by the Standard Model are influencing the muons' magnetism,

suggesting an invisible presence that exists beyond the current reaches of science.

At Fermilab, a huge donut-shaped machine—embedded with electronics and circuitry custom-built in the BU Electronics Design Facility by Postdoctoral Research Associate **JAMES MOTT** and engineers **ERIC HAZEN** and **DAN GASTLER**—uses strong magnetic fields to trap the muons in a magnetic racetrack as the particles travel at close to the speed of light. Muons are about 200 times heavier than electrons and can be detected and measured very precisely.

The experiment's findings were analyzed with the help of more than 200 scientists from 35 institutions in seven countries, including Roberts as well as BU Professors of Physics **ROBERT CAREY** and **JAMES MILLER**; Postdoctoral Research Associates **NAM TRAN** and **ANDY EDMONDS**; and provided the data for graduate student **NICK KINNAIRD**'s PhD dissertation. It's a breakthrough moment for the field, which has spent decades developing increasingly sensitive detectors and technologies to investigate the unseen particles and forces that make up our material world and beings.

This new finding, Roberts says, "reveals strong evidence for something new beyond what we currently know."

Cindy Arnold, Fermilab

←
200+
Scientists
from seven
countries
analyzed
results from
Fermilab's
experiment



1,400
Light-years
separate
Earth and
the Serpens
South star
cluster



A STAR IS BORN. BUT HOW?

To make a star, the universe needs three ingredients: gravity, turbulence, and a magnetic field.

The combination of these forces—along with a mixture of gas and dust—creates the necessary conditions for those twinkling, bright balls of light to take hold in the sky. For years, astronomers have been probing the galaxy to understand the role each factor plays when a star is born.

Now, one piece of the puzzle just became a bit clearer.

In a paper published in *Nature Astronomy* in August 2020, BU astronomer **THUSHARA PILLAI** found that magnetic fields within molecular clouds—formations made of cosmic dust and gas—help feed young, growing stars. A College of Arts & Sciences senior research scientist at BU's **INSTITUTE FOR ASTROPHYSICAL RESEARCH**, Pillai made the discovery by observing star formation in Serpens South, a nearby cluster of about 60 young stars, some 1,400 light-years away from Earth. By using high-resolution telescope images of polarized infrared light, Pillai was able to pinpoint where the magnetic field surrounding the group of stars becomes weaker, changes direction, and is pulled back toward the cluster along with the surrounding particles and dust.

Pillai's research helps solve some of the mysteries about how stars come to be and to what extent molecular clouds in interstellar space play a role. "The change in direction of the magnetic field," she says, "that is what is new about this science."



BU RESEARCH
SCIENTIST
THUSHARA PILLAI
SUGGESTS THAT
MAGNETIC FIELDS
MAY INFLUENCE
THE WAY STARS
FORM.

WHERE THE STUDENT BECOMES THE TEACHER

STEVE RAMIREZ's students may think that when they come to his class, they are the ones learning and he is the one teaching. After all, the College of Arts & Sciences assistant professor of psychological and brain sciences is a renowned neuroscience researcher and a leading expert on the science of memory.

"Wisdom is a two-way street when it comes to age," says Ramirez (CAS'10). "We have to learn from our students as well. When we remind ourselves that students are people too, we listen."

That listen-first approach is what helped earn Ramirez BU's top teaching award in 2021, the Metcalf Cup and Prize for Excellence in Teaching. It's also made him a popular mentor at the **UNDERGRADUATE RESEARCH OPPORTUNITIES PROGRAM (UROP)**. Just ask **MICHELLE SURETS** (CAS'23), who is assisting Ramirez with several memory-related endeavors in his lab, including a novel approach to modeling Alzheimer's disease, which she presented at the UROP symposium in the fall of 2021. "Instead of using the standard transgenic model, we aim to create a more realistic progression through the chronic hyperactivation of a neuron population, which mimics the early stages of Alzheimer's," she says.

But her work in the lab went far beyond engrams, Surets says. "I was able to witness firsthand how much of themselves researchers pour into their projects, putting countless hours into refining their experiments. Steve has been an invaluable role model to myself and the other students. His endless enthusiasm and the ease with which he can find common ground with anybody is something I seek to emulate in my conversations with others."

Not surprisingly, that admiration goes both ways.

"Michelle is basically an honorary graduate student in the lab, given her range of expertise in hands-on systems neuroscience, and is also a social nexus who brings the lab together under a healthy and positive vibe," Ramirez says. "The lab, and by extension neuroscience, is unbelievably lucky to have her in it. Perhaps above all, I've learned just how sturdy the shoulders are of this generation's neuroscientists, on which we all are very lucky to stand."



STEVE RAMIREZ (CAS'10), AN ASSISTANT PROFESSOR OF PSYCHOLOGICAL AND BRAIN SCIENCES IN THE COLLEGE OF ARTS & SCIENCES, WORKS CLOSELY WITH STUDENT RESEARCHERS LIKE **MICHELLE SURETS** (CAS'23), WHO IS ASSISTING RAMIREZ WITH SEVERAL MEMORY-RELATED ENDEAVORS IN HIS LAB, INCLUDING A NOVEL APPROACH TO MODELING ALZHEIMER'S DISEASE.

IT'S NEVER TOO SOON TO MAKE AN IMPACT

The University's Undergraduate Research Opportunities Program means even first-year students can team up with accomplished researchers and help make a difference in their labs. More than 750 undergraduates participated in the program last year. Below are just a few examples.

- During summer 2020, **LAUREL CLARK** (CAS'23), **MARION CASSIDY** (CAS'23), and **SABINE OLLIVIER-YAMIN** (CAS'23) developed six virtual tours of Boston's Museum of Fine Arts to be used by students in CAS Core Curriculum Ancient Worlds classes who couldn't visit galleries in person due to the pandemic. (Funded through Humanities Scholars Awards)
- **MICHAEL D'ARRIGO** (CFA'22) worked on identifying systemic racism in music education with faculty mentor Michael Reynolds.
- **HELEN GANLEY** (Questrom'23) studied how student demographics affect learning

and self-perception in an experimental class connecting the creativity of hip-hop to STEM and computational science skills.

- **GLORIA GRANDPIERRE** (CAS'21) worked on a research project investigating how the history of mass extinctions can inform us about the present and future.
- **ANTHONY KHOUDARY** (CAS'22, GRS'22) conducted research with Jeff Gavornik on predictive processing in the primary visual cortex.
- **JONATHAN YE** (ENG'23) worked with advisor Sheila Russo on developing surgical robotics to assist in minimally invasive surgery.

BU AND RED HAT EXTEND PARTNERSHIP FOR CLOUD RESEARCH

In a medical emergency, the speed with which images are processed and shared could mean the difference between a positive outcome or a tragedy. That's why technology experts at Boston Children's Hospital, working with the **RED HAT COLLABORATORY** at Boston University, developed ChRIS Research Integration System, a web-based medical image platform that enables real-time collaboration between clinicians and radiologists around the world.

The platform, powered by **MASS OPEN CLOUD**, is one of several projects made possible by a partnership between BU and Red Hat, the world's leading provider of open source solutions.

The Collaboratory, which has played a key role in securing tens of millions of dollars in federal research grants, was originally funded in 2017 by a \$5 million grant from Red Hat. It has supported the research of 11 BU faculty, involving more than 22 different graduate students and close to 50 undergraduate students, and has led several dozen BU graduates to careers at Red Hat.

Those rewards, for both BU and Red Hat, persuaded each partner in 2021 to extend the relationship for five years. The renewal includes a donation by Red Hat of software subscriptions—with a retail value of \$551.9 million—that spans from 2020–2023, and a commitment of \$20 million to support research and deepen



\$551.9M

Retail value
of software
subscriptions
donated by
Red Hat

collaboration aimed at advancing research and education in open source and emerging technologies.

ERIC KOLACZYK, director of the Rafik B. Hariri Institute for Computing and Computational Science & Engineering, where the Collaboratory is housed, says the extension means the Collaboratory can increase the scale and scope of what they do and that all projects in an open research cloud initiative now hosted at the Hariri Institute will benefit. This includes the recently formed **NEW ENGLAND RESEARCH CLOUD**, a professionally operated cloud framework, run jointly by research computing organizations at BU and Harvard University.

"Now we can go after really ambitious team projects with high risk and high reward," Kolaczyk says.

READ ABOUT
BU'S NEW DEGREE
IN DATA SCIENCE
ON PAGE 5

BU TECHNOLOGY LEADS TO RAPID CANCER TEST

Lung cancer is the deadliest form of cancer, annually accounting for more than 20% of all cancer deaths in the United States. Lung nodules are often the first sign of lung cancer, yet most are benign. Now, a simple nasal swab test could help clinicians avoid performing invasive biopsies unnecessarily—and detect lung cancer in patients faster. Thanks to technology developed at BU, biological markers linked to lung cancer can now be detected from swabs of the respiratory tract. Genomic diagnostic company Veracyte—which in 2014 acquired rights to technology invented by BU researchers Dr. Avrum Spira (ENG'02) and Marc Lenburg—reported new clinical data in June 2021 showing that their Percepta Nasal Swab test, based on Spira and Lenburg's research, could correctly classify patients with potentially harmful lung nodules. Clinical data revealed the test could accurately distinguish patients who were at high risk of lung cancer from those at low risk, enabling more timely treatment. The company plans to make the Percepta Nasal Swab test available at select clinical sites by the end of 2021.

←
20%
of all cancer
deaths in
the US are
driven by
lung cancer

→
**\$502.6
MILLION**
Total
research
awards to
BU in
FY2021

GRANTS OF NOTE: POWERING IDEAS AND IMPACT

- College of Arts & Sciences Computer Science Assistant Professor **MARK BUN**, Associate Professor **MARCO GABOARDI**, and Professor **ADAM SMITH** received a new award from the **US CENSUS BUREAU**. The multi-institution project, backed by a total award of \$3.7 million (the BU portion is \$1.5 million), seeks to develop methods for providing formal privacy guarantees for data collected through complex sample surveys, and involves BU (as the lead institution), Harvard University, Georgetown University, and the University of Maryland.

- Barbara E. Corkey Professor of Medicine **KATYA RAVID** was awarded nearly \$3 million from the **AMERICAN HEART ASSOCIATION** to lead a multidisciplinary team studying which cancers are linked to the development of blood clots and what causes the clots, using experimental models and data from the Veterans Health Administration and Boston Medical Center. They will also study how

factors such as a patient's diet, race, and living conditions impact clotting.

- JI-XIN CHENG**, professor of biomedical, electrical, and computer engineering, has a five-year \$2.8 million grant to continue his groundbreaking research into sensing vulnerable plaque in vivo using an all-optical intra-vascular ultrasound and photoacoustic catheter. This grant, provided by the **NATIONAL HEART, LUNG, AND BLOOD INSTITUTE OF THE NATIONAL INSTITUTES OF HEALTH**, will help Cheng and his team find new mechanisms for the detection of lipids.



- Researchers from BU's Wheelock College of Education & Human Development, including **NATHAN JONES**, associate professor of special education, received \$1.6 million from the **NATIONAL SCIENCE FOUNDATION** for a \$3 million collaborative study, with colleagues at the University of Virginia, to investigate whether teaching simulations can improve mathematics education for students with disabilities.

- JENNIFER WEUVE**, an associate professor of epidemiology, was awarded two grants from the **NATIONAL INSTITUTE ON AGING**, totaling more than \$6 million, to fund a four-year study on air pollution and community noise exposure as risk factors for Alzheimer's disease and related dementias, as well as a five-year study on whether the olfactory system acts as a pathway for environmental toxicants to reach the brain and cause dementia.

- DEBORAH CARR**, chair and professor of sociology, is the lead researcher on an interdisciplinary team awarded a **TEMPLETON WORLD CHARITY FOUNDATION** grant, worth \$100,000 and part of a \$40 million global initiative, to explore the idea of human flourishing. The researchers will study people living under conditions of extreme physical, economic, and social adversity. The BU team brings together faculty from across the University, including the College of Arts & Sciences, the Rafik B. Hariri Institute for Computing and Computational Science & Engineering, and the School of Theology, among several others.

DIVERSITY, EQUITY & INCLUSION

As in much of the country—and the world—Boston University has been reckoning with issues of diversity, inclusion, and racial justice on campus and beyond, but the events of 2020 imparted new urgency to our task. Our efforts to deepen diversity and ensure equity at BU include the ongoing work of our associate provost for community and inclusion and the appointment of a senior diversity officer to probe systemic issues within University operations. We also opened a center for first-generation college students in 2021 and saw our Center for Antiracist Research track racial inequities during the COVID-19 pandemic and team up with the *Boston Globe* to launch an online antiracist multimedia platform.

ANTIRACISM CENTER'S BOLD MOVES

Andrew W. Mellon Professor in the Humanities **IBRAM X. KENDI**, one of the nation's leading scholars of racism and a professor of history in the College of Arts & Sciences, last spring teamed up with the *Boston Globe* to publish **THE EMANCIPATOR**, an independent antiracist multimedia platform inspired by Boston's 19th-century antislavery broadsheets.

"[*The Emancipator*] is a periodical that will marry the best of scholarship and the best of journalism to really comment on, report on, analyze, and find the truth about the racial problems of our time," Kendi says.

The move is one of many since Kendi joined the University faculty in the summer of 2020 and opened the **BU CENTER FOR ANTIRACIST RESEARCH**. In December 2020, together with the Faculty of Computing & Data Sciences, he launched the **RACIAL DATA LAB**, a national online database of racial inequality (see sidebar), and started a narrative effort to collect videos, photos, and essays from people of color about how COVID-19 has affected their lives and loved ones.

Kendi was named one of *Time* magazine's **100**

MOST INFLUENTIAL PEOPLE in the world for 2020 and is the author of the 2019 best-selling book *How to Be an Antiracist* and the National Book Award-winning *Stamped from the Beginning: The Definitive History of Racist Ideas in America*. He said BU's multidisciplinary culture, where faculty are encouraged to collaborate across schools and disciplines—social workers teaming up with artists, doctors working with engineers, educators sitting with data scientists—has served the center well.

The center has already built multidisciplinary problem-centered research teams; assisted faculty from all corners of BU with converting racial research into media pitches and books; collected, organized, and utilized data on racial inequity; and organized public events, including the National Antiracist Book Festival. Kendi says his goal is to build a premier center for researchers and practitioners to confront and solve some of the most difficult problems concerning race.

"Not only will the center seek to make that level of impact but it will also transform how racial research is done," he says.

IBRAM X. KENDI,
ANTIRACISM
SCHOLAR AND
FOUNDING DIRECTOR
OF BU'S CENTER
FOR ANTIRACIST
RESEARCH,
RECEIVED A 2021
MACARTHUR
"GENIUS" GRANT.



DATA SCIENTISTS JOIN ANTI- RACIST RESEARCHERS TO EXPOSE RACIAL INEQUITIES

Antiracism scholar Ibram X. Kendi had a vision: establish Boston University as the nation's leading academic institution for data-driven antiracist research. Fortunately, he found a partner in Azer Bestavros, associate provost for computing and data sciences. Together, the pair launched the **RACIAL DATA LAB**, which brings together experts from two of the University's newest powerhouses—the Center for Antiracist Research and the Faculty of Computing & Data Sciences. At the heart of the lab is a data tracker that collects, visualizes, and analyzes racial inequities in real time across multiple sectors of society, including criminal justice, economics, health, and education.

"THE TIME HAS COME"

AS THE UNIVERSITY'S FIRST SENIOR DIVERSITY OFFICER, FORMER TRUSTEE **ANDREA TAYLOR** (COM'68) IS LEADING THE DRIVE FOR FAIRNESS AND INCLUSION WITHIN THE STUDENT BODY, FACULTY, AND STAFF.

ANDREA TAYLOR's parents attended Boston University because a segregated West Virginia kept them from enrolling in graduate school.

Later, Andrea attended BU herself and, in 1968, joined other African American students who occupied the administration building, protesting the assassination of **DR. MARTIN LUTHER KING, JR.** (GRS'55, Hon.'59). By 2009, she was a Microsoft executive—and a University Trustee.

But it's her latest role that may offer the biggest potential impact—and challenge. Taylor (COM'68) is leading BU's drive for fairness and inclusion as the University's first senior diversity officer.

Her mission in broad strokes? Continue to extend our work toward removing systemic racism and bias at all levels of the University.

"I know the community, and I'm aware of its history and also its challenges," says Taylor, who is one of nine BU alumni in her family. "And clearly, at this particular moment in the history of humankind, we are at an inflection point in that, maybe, this time we might get it right, in terms of how we need to engage in self-examination and self-reflection."

Taylor relinquished her seat on the Board of Trustees and started her new post in August 2020, reporting directly to President Robert A. Brown. The move comes amid a number of important diversity and inclusion initiatives already underway across different parts of BU. Across the University, groups such as the Dean of Students office, Enrollment & Student Administration, the Diversity & Inclusion office, and the Center for Antiracist Research—as well as the deans of schools and colleges—have all devoted attention to these issues.

In her role, Taylor's first task was to form and chair an **ANTIRACISM WORKING GROUP**, comprising leaders from across BU. The group will examine processes and policies that may inhibit diversity, equity, and inclusion within the student body, faculty, and staff; make recommendations for modifying those policies and practices; and develop metrics for monitoring progress. She will also work with University leadership to focus on increasing the diversity of staff and students.

"It's not easy to bring about such a shift as is being proposed in Boston University and the greater society," she says. "But I think the time has come and there seems to be a willingness and a recognition that there's no time like the present, that we really need to get on this."



TRUSTEES FORM COMMITTEE TO ELIMINATE SYSTEMIC RACISM

In September 2020, our Board of Trustees formed the **DIVERSITY, EQUITY & INCLUSION COMMITTEE** and charged it with overseeing BU's efforts to identify and eliminate systemic racism on campus, and to improve the University's culture in diversity, equity, and inclusion.

The disproportionate impact that the COVID-19 pandemic has had on people of color, and the demonstrations and outcry for social justice that took place after the killings of George Floyd, Ahmaud Arbery, Breonna Taylor, and others drove BU's decision. Diversity was already a core priority in the University's 2030 Strategic Plan, but the events of 2020 escalated the desire among BU leaders to acknowledge the University's role in identifying and eliminating institutional racism and to move swiftly and decisively to enact change.



BU ADOPTED JUNETEENTH, which marks the announcement of emancipation to the last African American enslaved persons, as an official paid holiday. The event has been celebrated in parts of the United States since 1865, and President Joe Biden made it a federal holiday in June 2021.



1.4X

The rate at which Black people have died from COVID-19 compared to white people

COVIDTRACKING.COM/RACE



NEW THEOLOGY DEAN A CHAMPION OF INCLUSIVITY

In January 2021, the University named **Sujin Pak**, a Protestant Reformation scholar and advocate of modern inclusiveness, the new dean of the School of Theology. Pak arrived by way of Duke University's Divinity School, her alma mater, where she started bold, new curricular initiatives and made welcoming LGBTQIA+ students, faculty, and staff a priority. STH is BU's oldest school, with roots dating back to 1839.

ADVISORY GROUP SEEKS STRONGER RELATIONS BETWEEN BUPD AND COMMUNITY

In the wake of multiple high-profile murders of Black Americans by police officers and others in 2020, Boston University President Brown launched an advisory group tasked with strengthening the bonds between the **BOSTON UNIVERSITY POLICE DEPARTMENT** and the BU community, as well as making recommendations about the department's procedures and policies. The Community Safety Advisory Group, which includes diverse student representation, is determining ways the BUPD can improve campus life and help guarantee the physical and psychological safety and security of the community, "including students and employees of color, and other underrepresented, nontraditional, and marginalized communities on campus," Brown says.



REP. PRESSLEY, SEN. WARREN HEADLINE BU ANTIRACISM FORUM

US Senator **ELIZABETH WARREN** (D-Mass.) and US Representative **AYANNA PRESSLEY** (Hon.'21) (D-Mass.) joined Boston University's School of Public Health and Center for Antiracist Research during a three-day program in April 2021 to explore the role of race in shaping health in the United States. Titled **ANTIRACISM AS HEALTH POLICY: RACE, COVID-19, AND POLICY REFORM**, the forum examined the deep-rooted racial disparities that have been exposed and exacerbated by the pandemic and discussed how to best address racial inequities through research, policy, and action.

FINANCIAL AID BOOSTED TO 100% WITH AFFORDABLEBU

In a continuing effort to make a BU education affordable, and to create a more socioeconomically diverse campus, the University expanded its financial aid program to meet the full need for all domestic students who qualify for financial aid, starting with the freshman class entering in fall 2020. "With affordableBU, we can continue to compete for excellent students," says Jean Morrison, University provost. "It demonstrates our commitment to access and affordability for students from all socioeconomic backgrounds."

→
19%
of BU
undergrads
are the first
in their
family to go
to college

EASING THE BURDEN FOR FIRST-GEN STUDENTS

Boston University President **ROBERT A. BROWN** knows that first-generation students are a remarkable bunch—motivated, resilient, high-achieving. After all, he was the first in his family to attend college, too. But he also knows their experience at BU is different from that of peers whose parents went to college.

"They don't have the same resources that are available to continuing-generation students," Brown says, "resources that will make their experiences at the University more similar and more rewarding."

A new center aims to change all that.

In January 2021, the University opened the **NEWBURY CENTER**, a support hub for first-generation students—undergraduate, graduate, professional, and nontraditional students—from matriculation through graduation.

Located in the heart of the Charles River Campus, the center offers mentoring, engagement, and family outreach, and it helps students connect with paid internships and study abroad programs—all aimed at strengthening academic, social, and postgraduation success.

The center is named for—and endowed by—a \$6 million contribution from Newbury College, a private liberal arts institution that closed its doors in 2019 after more than half a century of serving students from all backgrounds—70% of whom were the first in their family to go to college.

At BU, roughly 19% of BU undergraduates, and nearly 18% of the freshman class, are the first in their families to go to college. Over 50% of first-generation students are Pell Grant-eligible and a significant proportion are from underrepresented racial and ethnic groups, including 8% who identify as African American and 24% who identify as Hispanic or Latinx, according to University data.

CRYSTAL WILLIAMS, vice president and associate provost for community and inclusion, oversees the center, and BU appointed **MARIA DYKEMA ERB** as its inaugural director. Erb, who grew up on a dairy farm in Vermont and was the first in her family to attend college, arrives with more than 29 years of experience in higher education and student affairs and has won national recognition for her work with first-generation students.

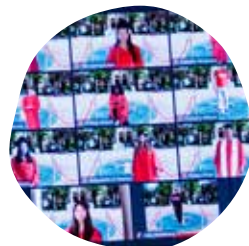
"My philosophy is that we can't keep adding to the burden of marginalized students by expecting them to do everything for themselves," Erb says, "but rather ask, how can we provide support, professional development, and social networks for students so they can thrive."



MARIA DYKEMA ERB, WHO GREW UP ON A VERMONT DAIRY FARM AND WAS THE FIRST IN HER FAMILY TO ATTEND COLLEGE, WAS NAMED THE INAUGURAL DIRECTOR OF THE NEWBURY CENTER, WHICH OFFERS SUPPORT AND RESOURCES TO BU'S FIRST-GENERATION STUDENTS.

FORTIFYING OUR COMMUNITY

Boston University is dedicated to fostering a campus environment that is vibrant, innovative, and supported. From standing up our own COVID-19 testing lab to developing the technology for a remote/hybrid teaching and learning system that allowed classrooms to reopen to witnessing the creative ways students bonded from afar and once again on campus. But none of this would have been possible without the cooperation, dedication, and most importantly, the resilience of our community.



36K+
Number
of times
Commence-
ment 2021
was streamed
online



THE PERSISTENCE OF CONNECTION

From a Terrier dance party that lit up laptops around the world to remote Orientation to everything in between, BU's appetite for community and connection was undoubtedly fed despite restrictions created by the pandemic.

In fact, almost as soon as the 2020 spring semester switched to remote teaching and learning, many BU student-run clubs and organizations stayed in touch via Zoom, holding meetings, planning for the following semester, or just checking in to see how everyone was holding up while social distancing. Whether it was Stage Troupe doing a staged reading of a Greek tragedy or the women's synchronized skating team holding a vigorous remote workout or a series of Terrier-organized Pride events,

students, staff, and club advisors found ingenious ways to stay connected.

"I was able to see our membership come together when they were all isolated and back home and doing this thing that they love," says Stage Troupe's **NATALIE ACKERMAN** (CAS'22, COM'22), the group's vice president of special projects at the time. "People in Stage Troupe love doing theater, and we were able to do it, even if it was behind our computer screens."

That virtual connection, of course, extended to our Commencement ceremonies. Because of the COVID-19 pandemic, no family members or other guests were admitted for the May 2021 event. Many parents watched the livestream from wherever they were, in

Boston or around the world, from side-walks, restaurants, living-room couches, backyard decks, even from their cars. In the days following the ceremony, some 36,352 plays had been recorded.

Praising the Class of 2021 as "masters of Zoom," President Robert A. Brown noted the drastic changes to campus life since early 2020. "I am proud of how well our students have adjusted and adapted, sometimes on short notice, to remote and hybrid learning, to our testing and distancing protocols, and to the restrictions on cocurricular activities or the options for internships or study abroad. We recognize that the senior year for our undergraduate students has been very different from what they likely envisioned when they entered Boston University."

OUR CAMPUS LIVING ROOM

The **HOWARD THURMAN CENTER FOR COMMON GROUND** (HTC) has long been a vibrant hub for our campus community, bringing students from across the University together to exchange ideas and explore differences. The HTC had recently moved to a bigger, more centrally located space at historic 808 Commonwealth Avenue, formerly known as the Fuller Cadillac Building. When the pandemic struck, it had to close its doors.

Many of the HTC's new spaces were repurposed, with the 180-seat event venue doubling as a classroom. One of its most popular events, Coffee & Conversation, quickly went virtual, as did the book club. Its podcast became a vital way to stay connected. And *Charcoal* magazine, a publication supported by the center that creates space for student artists of color to find community, continued to publish online.

As our vibrant residential campus regains some normalcy, the HTC resumes its role as a place where people meet, discuss, debate, and connect. But the HTC has always been more of a philosophical gathering place than a brick-and-mortar one.

Just ask **AMOS MWAURA** (CAS'22), an HTC student ambassador and coordinator for Brothers United, a fellowship program for BU's men of color based at the center. Mwaura leads discussions that explore the myriad experiences of underrepresented male students. "We have many centers at BU," the biology major says. "The Fitness & Recreation Center is a place to strengthen the body. The Center for Career Development is a place to strengthen one's occupational aspirations. The Howard Thurman Center is a place to strengthen the soul."

AMOS MWAURA (CAS'22) IS AN AMBASSADOR AT THE HOWARD THURMAN CENTER AND COORDINATOR FOR BROTHERS UNITED, A FELLOWSHIP PROGRAM FOR BOSTON UNIVERSITY'S MEN OF COLOR BASED AT THE CENTER.

A MILLION TESTS. SEVEN ROBOTS. ONE DETERMINED COMMUNITY.

GLORIA WATERS. VICE PRESIDENT AND ASSOCIATE PROVOST FOR RESEARCH. LED THE UNIVERSITY'S RESEARCH ENTERPRISE THROUGH THIS YEAR'S CHALLENGES AND PIVOTS.

→
1,100
The amount of tests BU's liquid-handling robots can process in two hours

After the Commonwealth of Massachusetts issued stay-at-home orders in the early days of the COVID-19 pandemic, forcing all nonessential University operations to go remote, we knew that to bring people back to campus we'd have to create our own system to prevent outbreaks in our close-knit, urban research University.

So President Robert A. Brown asked Gloria Waters, vice president and associate provost for research, to investigate what it would take for BU not only to perform thousands of tests a day but to deliver results within 24 hours.

Waters knew exactly who to turn to: **CATHERINE KLAPPERICH**, director of BU's Precision Diagnostics Center and vice chair and professor of biomedical engineering, and **DOUGLAS DENSMORE**, associate professor of electrical and computer engineering, who had experience using liquid-handling robots in his synthetic biology research. The pair determined the machinery needed and operational costs of processing more than 6,000 tests a day. The project would be expensive, but the necessary funds were allocated.

"There was buy-in from BU leadership from the start," Waters says. "President Brown is an engineer. He wanted BU to develop solutions."

Led by Klapperich and Densmore, a group of engineering faculty, staff, and graduate students raced against the clock to assemble a one-of-a-kind COVID-19 testing facility inside the **RAJEN KILACHAND CENTER FOR INTEGRATED LIFE SCIENCES & ENGINEERING**, featuring seven robots to automate testing. Those machines enabled the lab to process more than 1,100 tests in two hours as opposed to the 96 tests possible in four hours when processed by hand.

Meanwhile, Eric Kolaczyk, director of the Rafik B. Hariri Institute for Computing and Computational Science & Engineering and professor of mathematics and statistics, led an intensive modeling effort to make sure individuals were screened at frequent enough intervals to prevent infected people from going undetected. Nasal swab sampling sites were set up around BU and a digital appointment tool was developed to control the flow of traffic to sampling sites.

By August 2020, the first pilot tests had been performed, and by September, the **BU CLINICAL TESTING LABORATORY**

was up and running, with more than 150 people working at five collection sites across our campuses and thousands of tests being performed daily. As the fall 2020 semester progressed, remarkably, there were no widespread clusters, no known transmissions in classrooms, and minimal virus spread throughout residence halls.

BU hired and trained contact tracers who worked tirelessly to identify and isolate close contacts of people at BU who had tested positive. And for those who had been exposed or infected, we set up designated quarantine housing and isolation housing.

By the end of FY2021, the University had conducted more than a million tests, recorded a campus positivity rate below 0.2%—well below the state average—and saw no major COVID-19 outbreaks on campus.

"This was the most challenging thing I've done in my career, even though, scientifically, these are all things scientists can do, things that I've done routinely," says Klapperich. "However, we were doing this on a scale and within a time period that was unprecedented."

CATHERINE KLAPPERICH. A PROFESSOR OF BIOMEDICAL ENGINEERING, AND **DOUGLAS DENSMORE.** AN ASSOCIATE PROFESSOR OF ELECTRICAL AND COMPUTER ENGINEERING. HELPED LEAD THE UNIVERSITY'S EFFORT TO STAND UP ITS OWN COVID-19 TESTING FACILITY.



30+
contact tracers were hired to help prevent transmissions on campus





TRACY SCHROEDER, CHIEF DATA OFFICER AND VICE PRESIDENT OF INFORMATION SERVICES & TECHNOLOGY, AND **DR. JUDY PLATT**, CHIEF HEALTH OFFICER AND EXECUTIVE DIRECTOR OF STUDENT HEALTH SERVICES, JOINED FORCES TO HELP KEEP THE COMMUNITY SAFE AND OPERATIONAL DURING THE PANDEMIC.

BU'S HEALTH PROTOCOLS:
BY THE NUMBERS

→
98.8%
of students are
vaccination
compliant—
including 1.2%
with waivers
(AS OF 10/5/2021)

→
96.5%
of faculty and
staff are
vaccination
compliant—
including 2%
with waivers
(AS OF 10/5/2021)

“WE ARE FOREVER IN THEIR DEBT”

Before we could administer and process our first COVID-19 test, we had to understand the magnitude of the problem, how to measure potential transmission on campus, what safety protocols were required, and how to collect samples and conduct tracing.

To tackle such critical questions, we established the **MEDICAL ADVISORY GROUP (MAG)**, a team of medical and public health experts.

“In April 2020, we were talking about what our public health and testing protocols would look like,” says MAG leader **DR. JUDY PLATT**, chief health officer and executive director of Student Health Services (SHS). “We had guidance from the Centers for Disease Control, the Commonwealth of Massachusetts, and various public health departments, but how we actually do this on a college campus was something no one knew. We decided to create our own polymerase chain reaction (PCR) clinical testing laboratory and hire a staff dedicated to essentially creating a public health agency at BU.”

Platt’s team of senior leaders from Student Health Services, together with those from Occupational Health, along with **TRACY SCHROEDER**, chief data officer and vice president of Information Services & Technology (IS&T), helped develop and establish **HEALTHWAY**, a website initially designed as a central source of information and a place for BU community members to complete daily health attestations and schedule COVID-19 tests.

But Healthway grew to be so much more. It became a unified University health service dedicated to reducing the transmission of COVID-19 on BU’s campuses.

They devised a layered approach to promoting awareness, monitoring viral transmission, and adaptive testing to identify clusters. Meanwhile, IS&T and SHS staffers developed communications, scheduling, workflow, and data-management tools to support the testing along with data models and a public dashboard to monitor results and infection rates.

By the time testing began in August of 2020, the Healthway team had assembled a case-investigation and contact-tracing program, led by **HANNAH LANDSBERG** (Sargent’13, SPH’13), staffed by BU alumni, School of Law and School of Public Health students, as well as journalists, research assistants, and data analysts to track down close contacts and advise on quarantining and isolating.

And once vaccines became available in the spring of 2021, the Occupational Health and Student Health Services teams set up clinics and trained medical and dental students to administer shots. (Eventually, we made vaccines mandatory for all members of the BU community.)

At this year’s Commencement, President Robert A. Brown honored the hard work that went into reopening campus and keeping the University safe, singling out Platt and the Healthway team, whom he described as “200 patient and splendidly conscientious individuals. We are forever in their debt.”

BU'S COVID-19 DATA OFFERS LESSONS FOR OTHERS

Boston University leaders and scientists have written a case study documenting the lengths it took, in fall 2020, to safely reopen a residential university in one of the country's most bustling urban centers.

Published in the June 25, 2021, edition of the peer-reviewed journal *JAMA Network Open*, the case study serves as a potential road map for other institutions and corporations, weary of remote functioning, that seek a path to bring people back together in person.

Almost as soon as BU drastically reduced campus operations in March 2020, University leadership began building coronavirus response teams—educators, scientists, engineers, clinicians, and laboratory technicians. Based on computer modeling of how the virus could spread on campus and the impact of intervention strategies, they put a reopening plan into action, which included an integrated digital medical record and appointment system, its own clinical testing lab capable of screening thousands of nasal-swab tests per day, a team of trained contact tracers, and designated quarantine and isolation housing.

DAVIDSON HAMER, a faculty member at BU's Schools of Public Health and Medicine and at the **NATIONAL EMERGING INFECTIOUS DISEASES LABORATORIES**, was the lead author on the study.

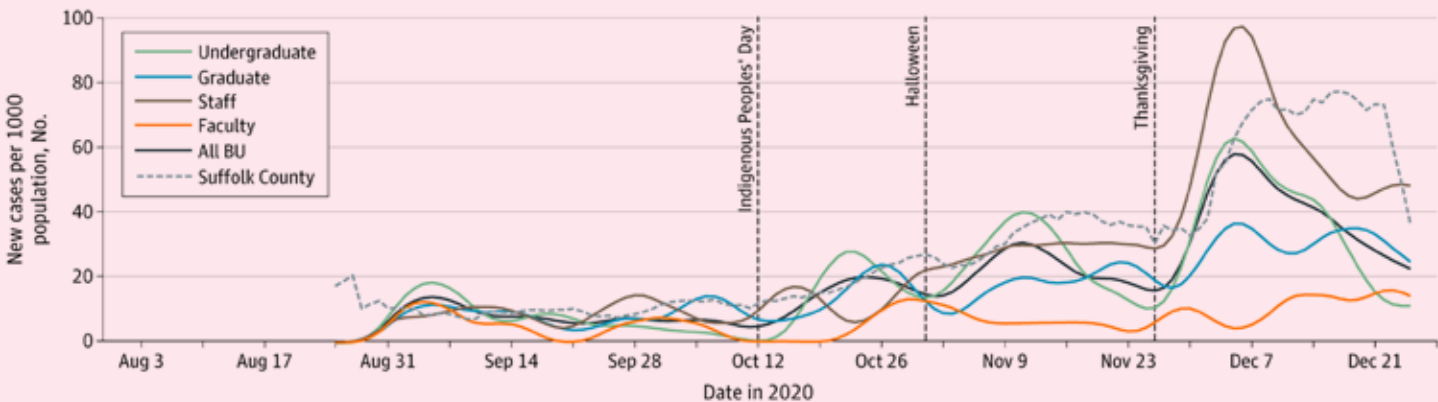
"I'm an epidemiologist and Eric is a mathematician—we'd never even met before the pandemic hit," Hamer says, referring to **ERIC KOLACZYK**, a statistician and the director of BU's **RAFIK B. HARIRI INSTITUTE FOR COMPUTING AND COMPUTATIONAL SCIENCE & ENGINEERING**, who coordinated the team that developed and maintains operation of BU's computer simulation of its campuses and community. Kolaczyk points out that while BU was uniquely challenged given its size and location, by the same token it was singularly equipped with a deep and diverse set of experts.

Hamer agrees. "BU's infrastructure played an important role in this—for leadership to buy into a reopening plan, for BU to have the right financial resources, and, most importantly, for BU's intellectual resources to bring together the right expertise."



DAVIDSON HAMER, A FACULTY MEMBER AT BU'S SCHOOLS OF PUBLIC HEALTH AND MEDICINE AND AT THE NATIONAL EMERGING INFECTIOUS DISEASES LABORATORIES, WAS THE LEAD AUTHOR ON A STUDY THAT ANALYZED THE UNIVERSITY'S COVID-19 SURVEILLANCE PROGRAM.

C COVID-19 incidence per 1000 population



BU'S HEALTH PROTOCOLS: BY THE NUMBERS

←
1.4M
COVID-19 tests—and counting

→
0.18%
Positivity rate
(7/29/2020–7/31/2021)
(2.84%
positivity rate on molecular tests in local counties)
(8/1/2020–7/31/2021)

RUSHING TO THE FRONT LINES

Throughout the pandemic, faculty, staff, and students at Boston University's School of Medicine rushed to the front lines, most notably at **BOSTON MEDICAL CENTER (BMC)**, a teaching hospital for the School of Medicine that treats some of the city's most vulnerable populations. Hundreds of BU's healthcare workers came off their shifts emotionally and physically drained, bearing witness to pain and heartbreak, as well as moments of inspiration and hope.

Take **DR. THEA JAMES**, School of Medicine associate professor of emergency medicine, vice president of mission, and associate chief medical officer at BMC. She recalls thinking during her first shift under the surge that "as a provider, this is like swimming in water and trying not to get wet." But James says her mission never faltered and remains the same today as it was before March 2020, "because they are the same patients with the same life risks we have been committed to partnering with pre-pandemic, for decades."

DR. KATHERINE GERGEN BARNETT, a School of Medicine clinical associate professor of family medicine and BMC vice chair of primary care

innovation and transformation, says that despite her years of experience, so much was unknown in the beginning and she grappled with panic—for example, fearing that she wasn't donning her PPE correctly and might inadvertently get others or herself sick. "But I also felt incredibly grateful," she says. "Grateful that I could serve in some way that was helpful, grateful for my colleagues at BMC, grateful for this incredible patient population who teaches me every day."

Then there was **DR. JOSHUA BAROCAS**, a BMC infectious diseases physician and School of Medicine assistant professor of medicine. He says that during the height of the pandemic, the range of emotions could be dizzying, from pride to sadness, from energized to lonely, from overwhelmed to tranquil. "I am extremely proud to have worked on the front lines. Outside of being a loving parent and spouse, it is the proudest I have been in my entire life. And while I missed terribly seeing my family and tucking my children in at night, I found solace in the fact that I was helping my community and doing something that my children and wife were proud of."

READ ABOUT OUR COVID-19 RESEARCH ON PAGE 10

WIND FARM MOVES BU CLOSER TO NET ZERO

In December 2020, we began buying clean energy from the South Dakota wind farm that the University helped get off the ground, fulfilling a key goal of our **CLIMATE ACTION PLAN** (CAP) and earning recognition from the U.S. Environmental Protection Agency.

BU has committed to buying 205 million kilowatt-hours of electricity annually for 15 years from wind farm developer, builder, and operator ENGIE North America. By reselling that clean power to Midwest consumers and helping decarbonize that region's power grid, the University earns legal credits, called renewable energy certificates (RECs), against its own carbon emissions in Boston.

"We will receive the RECs from the project and retire them so they can't be used by a fossil fuel-based power plant to emit more greenhouse gases," says **DENNIS CARLBERG**, associate vice president for **BOSTON UNIVERSITY SUSTAINABILITY**. "RECs are the currency of renewable energy. They are the market mechanism used to drive the development of renewable energy projects in the United States."

READ ABOUT
OTHER GREEN
PROJECTS AT
[BU.EDU/
SUSTAINABILITY](https://bu.edu/sustainability)

40%.
Amount of
carbon
emissions
BU has cut
since 2006



BU's power purchase agreement is the largest by any of the colleges and universities in EPA's Green Power Partnership and resulted in a 2021 Green Power Leadership Award.

The 205 million kilowatt hours BU buys equals the amount of electricity the University used in 2016, which in turn was responsible for more than half of its carbon dioxide emissions. The University has already cut its carbon emissions by 40% since 2006, and the CAP calls for spending \$141 million over a decade on capital projects to achieve further reductions.

"The development of this **WIND FARM**, and our purchase of wind energy from it, is a major milestone in our journey to reduce Boston University's net carbon emissions to zero by 2040," says President Robert A. Brown. "Our Climate Action Plan is ambitious, and this purchase of renewable energy moves us closer to realizing those goals."

DENNIS CARLBERG,
ASSISTANT PROFESSOR
OF EARTH &
ENVIRONMENT AND
BU'S ASSOCIATE
VICE PRESIDENT FOR
SUSTAINABILITY,
OVERSEES INITIATIVES
THAT SUPPORT OUR
CLIMATE ACTION
PLAN—LIKE THE
PURCHASE OF CLEAN
ENERGY.

52%.
of BU's
heating
and cooling
energy use
could become
electric,
prizewinners
suggest



ANTHONY JANETOS CLIMATE ACTION PRIZE

In 2020, **GAYATRI SUNDAR RAJAN** (ENG'22) and **KEELEY BOMBARD** (CAS'22) researched strategies to significantly reduce the University's greenhouse gas emissions. Their work laid out a strategy to shift 52% of the University's heating and cooling from fossil fuels to using the air and ground to source the energy and enable a shift to renewable energy. The pair's efforts and dedication earned them the inaugural Anthony Janetos Climate Action Prize, awarded by BU's Campus Climate Lab.

TURNING A CHALLENGING YEAR INTO A BANNER YEAR

While the past year undoubtedly tested the BU community on many levels, it also saw us come together, from near and far. Incredible support by our 352,000 alumni worldwide translated into several historic firsts. In 2021, we had our best-ever year for cash revenue: more than \$225 million, a 26% increase over the prior year, contributed by alumni, students, corporate and foundation supporters, and other friends. In fact, another record broken last year was the sheer number of donors: 50,409.

Driving that momentum, in part, were increased opportunities for engagement with the University, notably through webinars, presentations, and virtual town halls with deans and senior leaders, allowing us to meet—over Zoom—with alumni where they were.

“The University’s new Strategic Plan played a big part,” says **KAREN ANN ENGELBOURG**, senior vice president for development and alumni relations. “Along with statements made by the president and provost, the plan clearly articulates BU’s top priorities and that resonated with alumni and other donors.”

One of those strategic priorities is diversity, equity, and inclusion, and generous support went toward the Center for Antiracist Research, founded in the summer of 2020 by renowned scholar and activist **IBRAM X. KENDI**, the Andrew

W. Mellon Professor in the Humanities. The center was the recipient of multiple generous gifts to support its work in confronting and dismantling racist policies and systems.

But even without those particular gifts, Engelbourg says, giving was still well ahead of the University’s initial target for FY2021. Access and affordability remained strong motivators. This past year, more than 15 donors took part in the Century Challenge, where donors establish an endowed undergraduate scholarship of \$100,000 or more and BU matches the income from that fund for 100 years.

“Donors want to support something that is compelling and where their investment truly makes a difference,” says Engelbourg. “That’s what really gives me encouragement that this year has set the pace for years to come.”

PILLARS OF SUPPORT

4,448 GIFTS

Thousands of gifts—sent from 49 states and 18 countries—were made to fund BU’s **CENTER FOR ANTIRACIST RESEARCH** following its launch in the summer of 2020. Vertex Pharmaceuticals, led by **RESHMA KEWALRAMANI** (CAS’98, MED’98), made the inaugural gift, \$1.5 million through its Vertex Foundation, and several other organizations, including the TJX Companies, Inc., followed suit with significant gifts and commitments. Twitter and Square CEO Jack Dorsey gave \$10 million through his Start Small Foundation, and his Twitter cofounder, Biz Stone, along with his wife, Livia Stone, gave \$1 million.

\$3M

RYAN ROTH GALLO (LAW’99), vice chair of BU’s Board of Trustees, and her husband, **ERNEST J. GALLO**, endowed the Ryan Roth Gallo and Ernest J. Gallo Professorship. The inaugural professor is School of Law Dean **ANGELA ONWUACHI-WILLIG**, a renowned scholar in critical race theory and an expert in racial and gender inequality, as well as antidiscrimination law.

\$8.25M

A bequest by **LAURENCE A. BLOOM** (DGE’66, CAS’68), who died in 2019, puts him among the ranks of BU’s most generous donors and enabled the University to create a new endowed professorship in economics (Professor Kevin Lang was recently appointed to this chair), a need-based scholarship for undergraduates, and a fellowship fund for PhD candidates in the humanities and social sciences. The gift was also used to fund a portion of the **WETHERILL-BLOOM CAREER DEVELOPMENT PROFESSORSHIP IN THE HUMANITIES**, recently awarded to **KATE LINDSEY**, a CAS assistant professor of linguistics.

AND THEN SOME!

Supported by a generous gift, the Shibulal Family Career Development Professorships, named for BU Trustee **S. D. SHIBULAL** (MET’88) and **GAURAV MANCHANDA** (Questrom’12), support research by rising faculty within the Faculty of Computing & Data Sciences (CDS). **KRZYSZTOF ONAK**, and **KIRA GOLDNER**, both assistant professors of computing & data sciences, are the first recipients. Additionally, **MASSMUTUAL** donated \$1 million to create, in part, the Mass-Mutual Professor of the Practice Fund at CDS, to bring industry expertise to classroom teaching.



THE UNIVERSITY’S NEW VICE PRESIDENT FOR ALUMNI ENGAGEMENT, **ERIKA JORDAN**, COMES TO BOSTON AFTER SIX YEARS AT THE UNIVERSITY OF CALIFORNIA AT IRVINE, MOST RECENTLY AS ASSISTANT VICE CHANCELLOR FOR ALUMNI RELATIONS AND CONSTITUENT ENGAGEMENT.

TAKING ALUMNI ENGAGEMENT UP A NOTCH

Boston University’s new vice president for alumni engagement, **Erika Jordan**, arrived here in the wake of a historic fundraising campaign but also as BU and the country map their way back from the ongoing COVID-19 pandemic. “While the pandemic has been hard fiscally, it is clear that the alumni community has come together and engaged with BU with their time, talent, and treasure,” Jordan says. “As we look forward to a post-COVID world, alumni will play a significant role, more than ever, in rallying around current students, volunteering, and giving back in the ways that are meaningful to them.”

ALL IN IT TOGETHER

During the challenge of the COVID-19 pandemic, our financial operation was served well by a number of factors—deep scientific and public health expertise, data-driven decision-making, and clear institutional focus on teaching, research, and the well-being of our students, faculty, and staff. But perhaps none was as important as the dedication and shared sacrifice of our community members.

When we were forced to depopulate campus in March of 2020, we knew we would be facing significant budget uncertainties in the approaching fiscal year. Through the spring, the University modeled rapidly changing enrollment and operating scenarios resulting in the need to solve a \$243 million total revenue shortfall.

\$243M

The pandemic-caused revenue shortfall the University had to find a way to mitigate in FY2021



By early summer, we introduced expense mitigation measures—including freezing hiring and pay increases, cutting senior leadership salaries, slowing capital expenditures, reducing discretionary spending, and suspending University contributions to employee retirement accounts for one year. These significant measures allowed us to offset the majority of the projected FY2021 revenue shortfall.

As a result of better-than-expected enrollment, federal pandemic relief funding, and the hard work of faculty and staff to reduce expenses, the University realized an operating surplus of \$143 million for FY2021, and saw our endowment grow to \$3.4 billion, up \$956 million (39 percent) over FY2020. Our AA-/Aa3 credit ratings held steady, too.

Despite the extraordinarily trying circumstances, our institutional character, the resiliency of our community, and our commitment to providing a residential teaching and research experience allowed us to control our destiny, financially and otherwise.

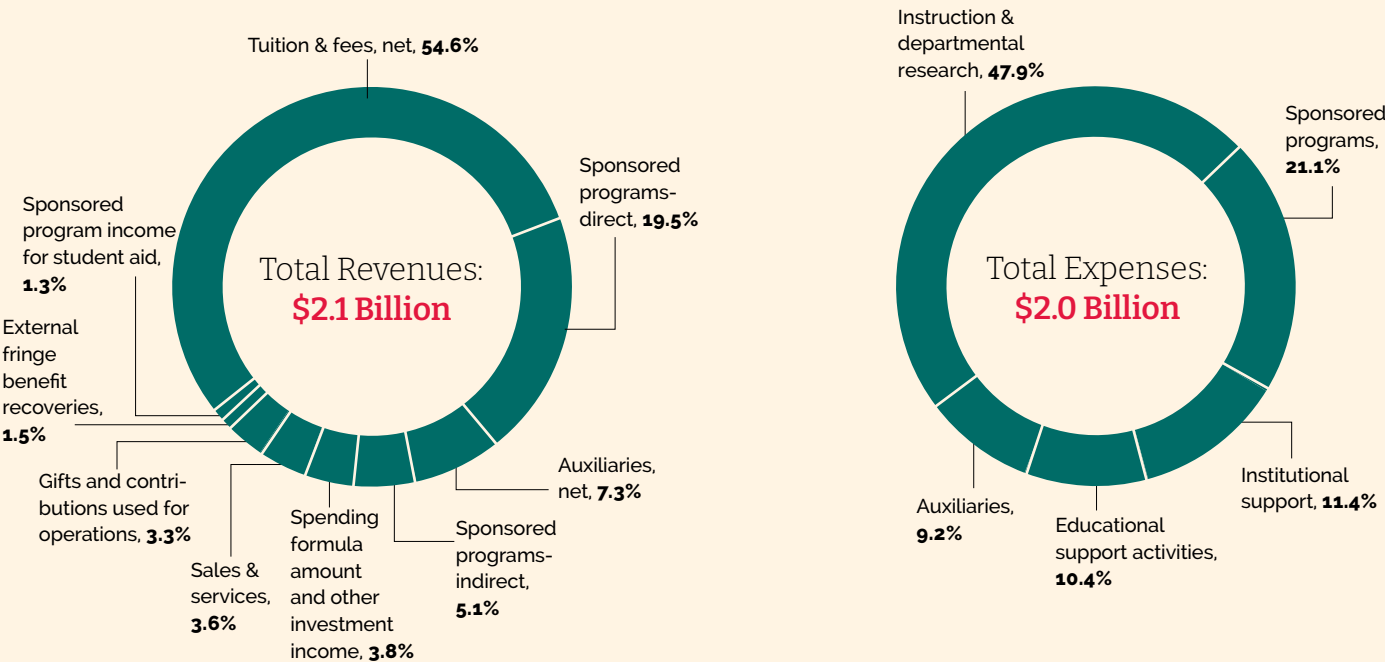
READ MORE ABOUT OUR FINANCIALS AT BU.EDU/AR/2021

AUDITED FINANCIAL SUMMARY

\$ THOUSANDS

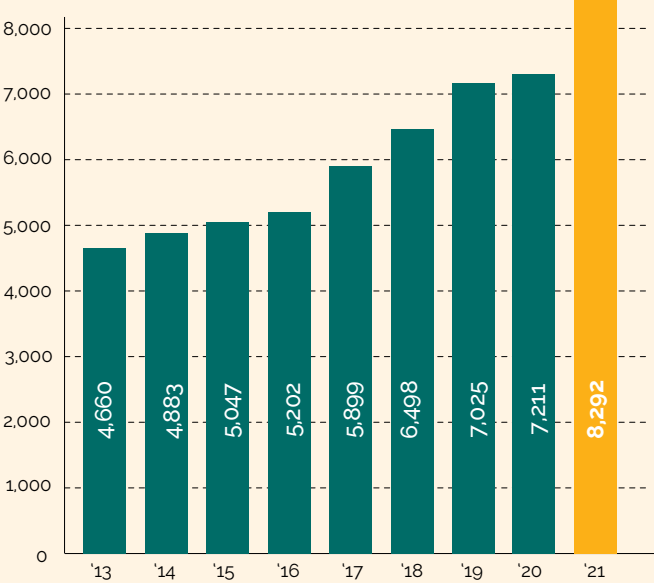
	2017	2018	2019	2020	2021
Operating revenues					
Student tuition and fees, net	\$ 1,046,018	\$ 1,099,682	\$ 1,164,242	\$ 1,168,192	\$ 1,152,579
Auxiliaries, net	266,419	273,623	288,576	224,480	153,911
Sponsored programs-direct	234,665	263,159	304,614	333,773	411,472
Sponsored programs-indirect	82,737	89,070	97,854	105,695	108,054
External fringe benefit recoveries	39,542	38,251	39,951	44,457	32,511
Sales and services	105,320	114,009	107,415	89,399	76,848
Endowment spending formula amount & other investment income	58,226	72,671	97,786	92,044	80,607
Gifts and contributions used for operations	48,401	53,072	53,870	59,767	68,822
Sponsored program income for student aid	13,707	14,793	16,345	31,038	28,163
Total operating revenues	\$ 1,895,035	\$ 2,018,330	\$ 2,170,653	\$ 2,148,845	\$ 2,112,967
Operating expenses					
Instruction and departmental research	\$ 922,041	\$ 997,903	\$ 1,050,772	\$ 1,040,427	\$ 942,859
Educational support activities	189,372	197,390	203,858	213,724	204,947
Sponsored programs	235,449	260,832	307,291	337,926	414,621
Auxiliaries	199,267	212,134	222,658	209,701	181,964
Institutional support	198,974	206,974	228,225	248,510	225,087
Total operating expenses	\$ 1,745,103	\$ 1,875,233	\$ 2,012,804	\$ 2,050,288	\$ 1,969,478
Change in net assets from operating activities	\$ 149,932	\$ 143,097	\$ 157,849	\$ 98,557	\$ 143,489
Nonoperating activities					
Contributions, net	\$ 137,428	\$ 72,724	\$ 33,491	\$ 21,165	\$ 42,141
Reinvested endowment and other investment income	34,958	31,166	32,863	31,688	27,209
Net realized and unrealized gains (losses) on investment and other assets	195,396	148,030	161,386	144,960	959,240
Spending formula amount	(64,464)	(71,033)	(79,333)	(84,918)	(91,151)
Other	54,099	190,610	(91,056)	(147,055)	68,045
Total nonoperating activities	\$ 357,417	\$ 371,497	\$ 57,351	\$ (34,160)	\$ 1,005,484
Change in net assets	\$ 507,349	\$ 514,594	\$ 215,200	\$ 64,397	\$ 1,148,973

OPERATING REVENUES & EXPENSES FY2021



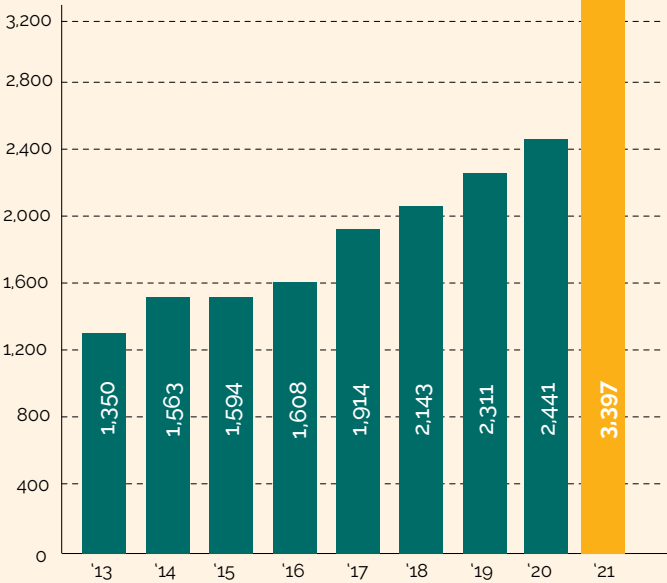
TOTAL ASSETS

\$ millions ➔ \$8,292M in 2021



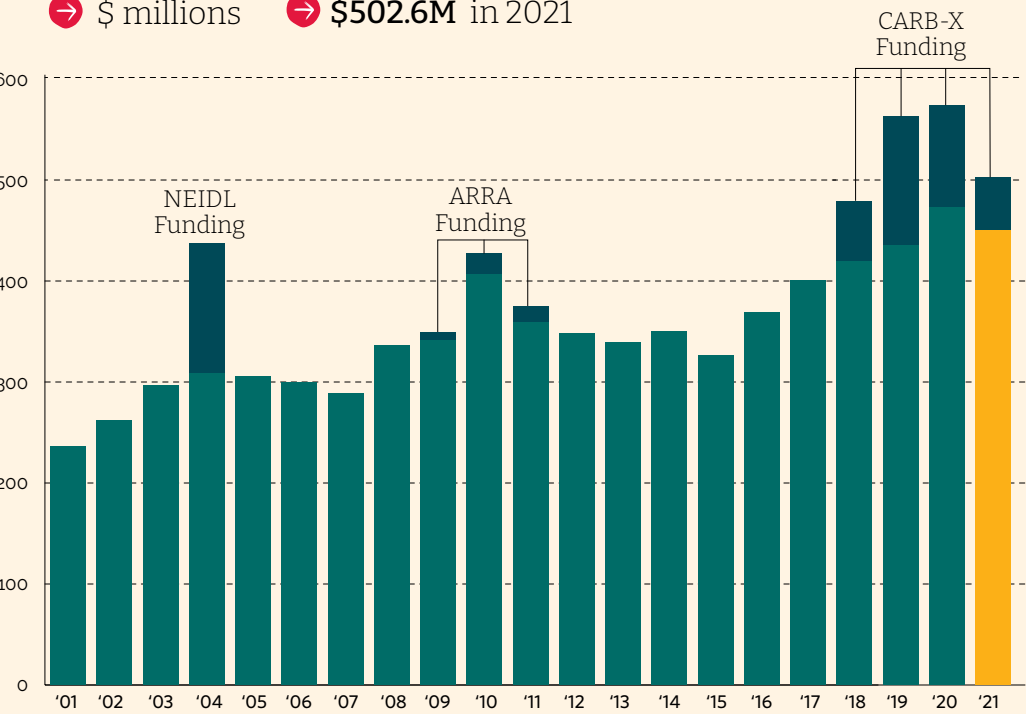
TOTAL ENDOWMENT

\$ millions ➔ \$3,397M in 2021



SPONSORED PROGRAM AWARDS FY2001–FY2021*

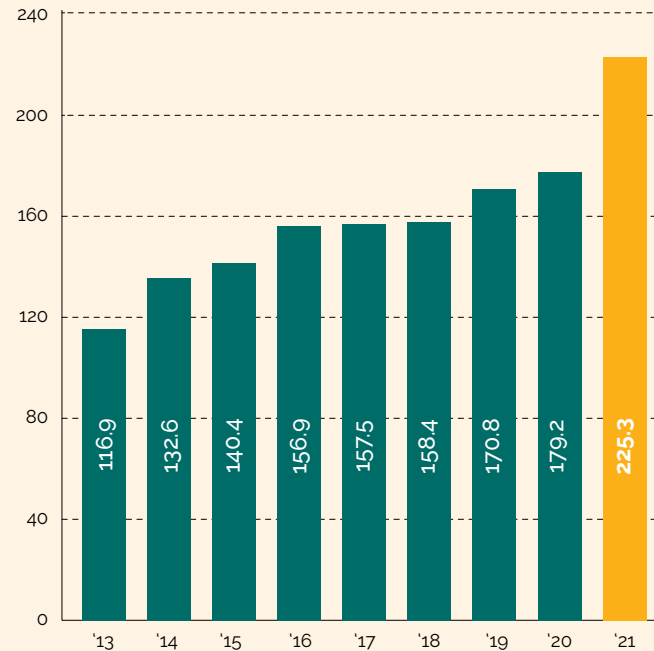
\$ millions ➔ \$502.6M in 2021



* Excluding Financial Aid. FY2004 includes \$128.0 million for the construction of the National Emerging Infectious Diseases Laboratories (NEIDL). Awards in FY2009–FY2011 reflect funding from the American Recovery and Reinvestment Act of 2009 (ARRA). Awards in FY2018–FY2021 reflect CARB-X funding, which is awarded by outside agencies and administered by a team at the Boston University School of Law to support product developers advancing accelerated antibacterial research.

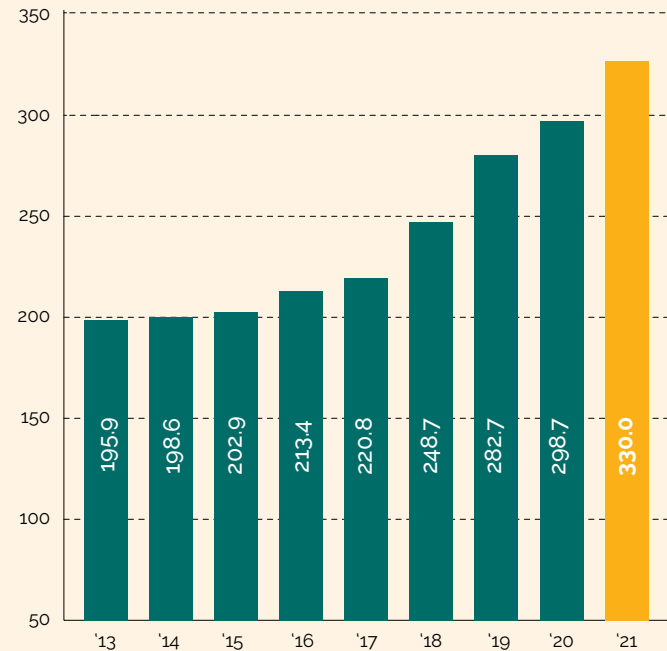
CASH GIVING

\$ millions ➔ \$225.3M in 2021



UNDERGRADUATE FINANCIAL AID

\$ millions ➔ \$330.0M in 2021





OFFICE OF THE PRESIDENT

BOSTON UNIVERSITY

One Silber Way

Boston, Massachusetts 02215

Copyright © 2021 by the
Trustees of Boston University.

All rights reserved. Boston University's policies
provide for equal opportunity and affirmative
action in employment and admission to all
programs of the University.

In keeping with Boston University's
commitment to sustainability, this publication
is printed on FSC-certified paper containing
10% postconsumer waste.

**BOSTON
UNIVERSITY**