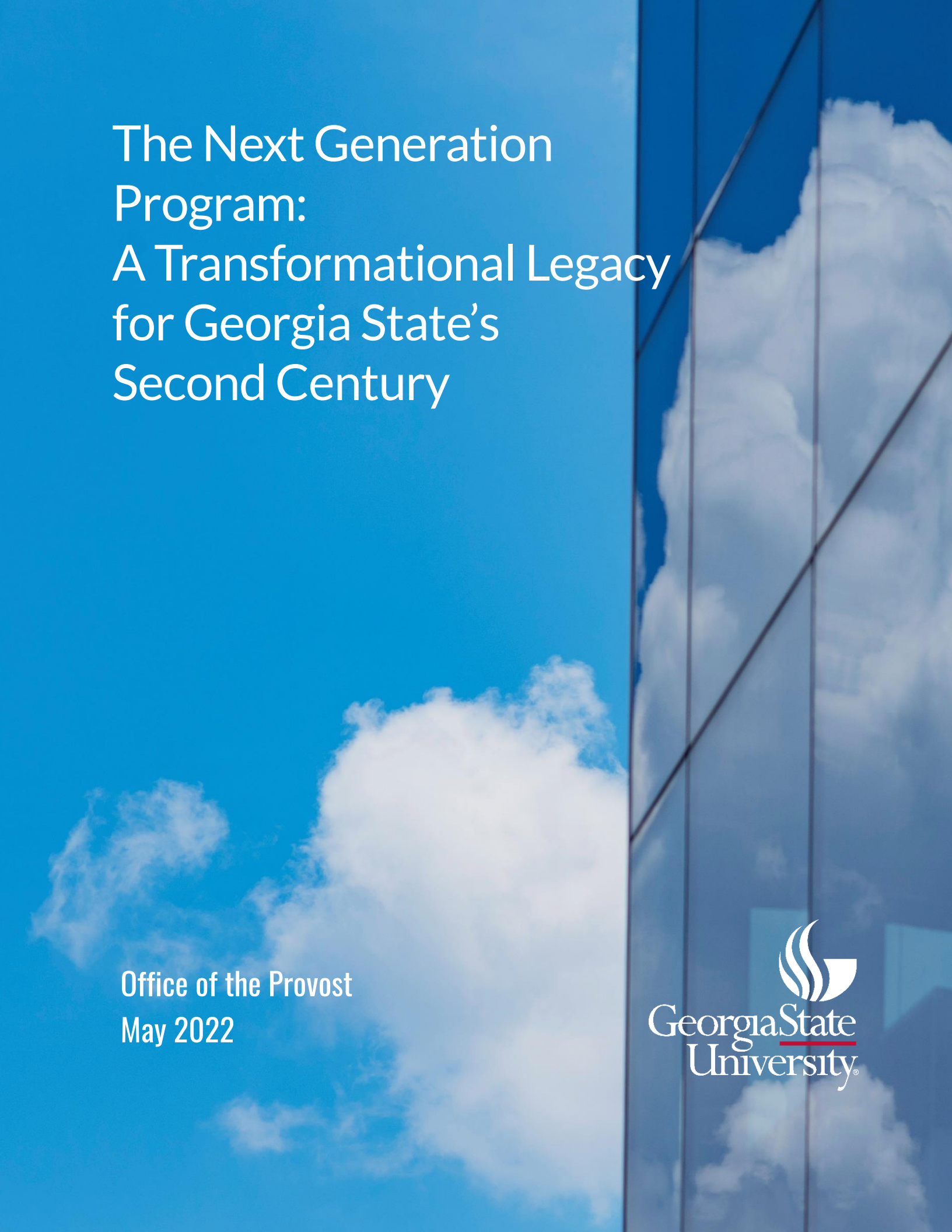
The Next Generation Program: A Transformational Legacy for Georgia State's Second Century



Office of the Provost
May 2022

Georgia State University

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A Word About Nomenclature: The Next Generation *Program* vs. The Next Generation of *Faculty*

The Next Generation Program [Next Gen] should not be confused with the Commission for the Next Generation of *Faculty*, or the Next Generation of *Faculty* initiative. The Next Generation of *Faculty* is aimed at faculty diversity, equity, and inclusion in recruitment, retention, and engagement.

The name of this *commission* and its initiative was determined by the official letter by university administration establishing the body, charging members with their investigatory tasks.

The Next Generation *Program* began in 2015; the Next Generation of *Faculty* commission was formed in 2017. **Mentions of *"Next Gen"* in this article will always refer to the strategic cluster hiring program**.

Information Sources

Information sources include the Office of Faculty Affairs, Office of the Provost, University Research Services & Administration, academic databases via University Library, and the Georgia State Scholars information system via the Office of Institutional Effectiveness. Other sources are as indicated in footnotes of this document.

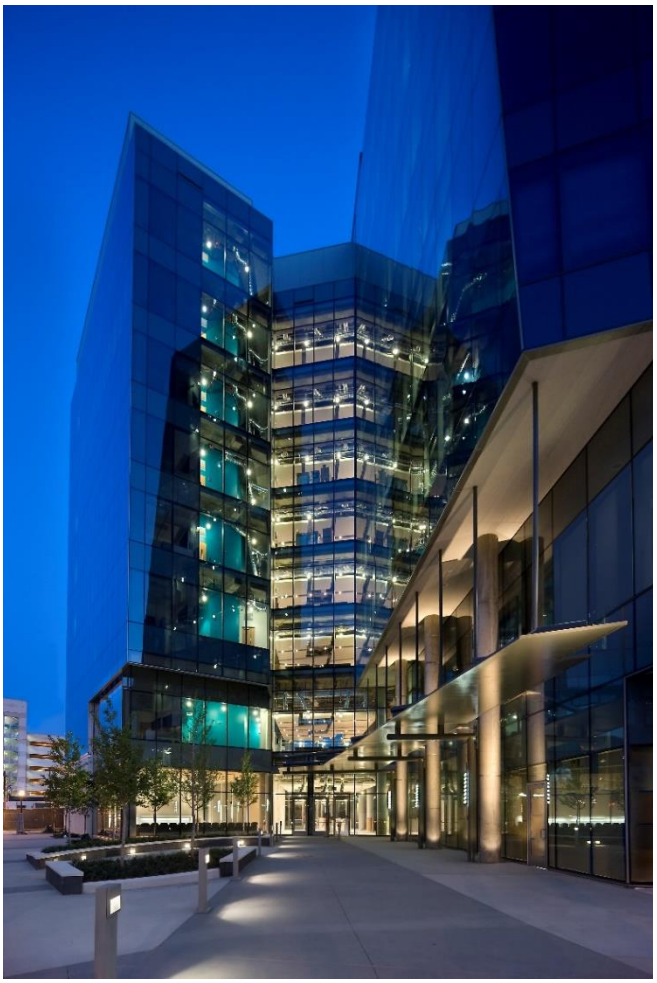
Author

Written by Jeremy Craig, Communications Manager for the Office of the Provost. Photos courtesy of Meg Buscema, Steve Thackston and Carolyn Richardson, Department of Public Relations & Marketing Communications.

INTRODUCTION

Maintaining the Trajectory

In 2009, Georgia State University looked toward to its 2013 centennial year and laid forth an ambitious program, the Second Century Initiative (2CI), to bring 100 top researchers and scholars in their fields to the university. The initiative focused on the creation of interdisciplinary research clusters to address the complex problems of the 21st century that could not be solved by research in one subject alone. Financial support for faculty hiring lines in each approved cluster brought 86 recruits to Georgia State over the 5-year span of the program.



Petit Science Center

It was clear by the end of the 5 years of 2CI that this interdisciplinary focus was a worthy investment in the future of the university. The proposed clusters brought top faculty to the university, and those faculty both engaged in significant research productivity and built some of the university's major centers for research and scholarly excellence (More information is in Appendix C available on page 21). Add-on programs like the 2CI Fellowship program helped propel Georgia State's reputation for excellence, helping to speed time to dissertation completion.

The Next Generation Program was created to keep the trajectory going. During the latter half of the 2010s, faculty were challenged to develop innovative hubs to produce relevant and high-impact research and scholarship – while requiring proposals to consider how they will help Georgia State graduates to be prepared for rapidly changing job markets. Next Gen also allowed more flexibility in its faculty ranks and infrastructure support.

Closely scrutinizing each cluster for its potential, the university approved clusters over 4 years. Next Gen provided funds for departments, colleges, schools, and institutes to attract the best faculty in their fields to Georgia State. (Lists of Next Gen clusters as originally approved are located in Appendix A on page 11.)

Stewardship

It is noteworthy that these programs were both highly successful despite state budget cuts in the late 2000s, and through an ongoing lack of increase in state appropriations during much of the 2010s. In fact, 2CI was launched at the nadir of the Great Recession. Few public universities launched such aggressive hiring plans at that time.

This made a strong statement about how Georgia State intended to invest in its future.

A critical factor in ensuring success was – and is, as Next Gen cluster faculty hiring continues as of the time of this report (late Spring 2022) – a careful measure of close stewardship for funding.

Impact and action are imperative whenever funding is granted for a program or research – regardless of whether the grant is from an entity like the National Institutes of Health, or from a civic organization. 2CI and Next Gen were, and are, no exception.

Georgia State is a data-driven institution, from its student success initiatives to its research and scholarly impact. Clusters were subject to continued review by the Office of the Provost for progress in achieving outlined objectives in original proposals. If it was determined that progress was not made, or that faculty hiring lines were not utilized, funding was reallocated to other areas. Even with economic recovery during the span of the Next Gen Program, the same practice continued. The university will continue to be a careful steward of funding and maximize it to further propel its momentum.

CENTERS

Collins Airhihenbuwa leads the Global Research Against Non-Communicable Disease (GRAND) Initiative.

Faculty from Next Gen, as well as existing Georgia State faculty who had previously proposed clusters that were accepted by the university, have been instrumental in continuing existing centers of excellence in research and scholarship, and/or were key to the founding of several important university- or college-level centers and institutes. They include but are not limited to:

Center	Lead(s)	Description
Center for Neuroinflammation and Cardiometabolic Diseases (CNCD)	Javier Stern	CNCD promotes interdisciplinary research in neuroinflammation, which is recognized as a common factor in the development of diseases ranging from hypertension and obesity to Alzheimer's disease and depression.

Center	Lead(s)	Description
Center for Research on Interpersonal Violence (CRIV)	Dominic Parrot	CRIV aims to establish collaborative and interdisciplinary scholarship that will ultimately prevent or reduce interpersonal violence.
Evidence-Based Cybersecurity Group (EBCS)	David Maimon	EBCS seeks to produce new and review existing empirical research that examines the potential effect of existing cyber-security policies and tools that can prevent or halt the progression of cybercrimes.
Global Research Against Non-Communicable Disease (GRAND) Initiative	Collins Airhihenbuwa	The GRAND Initiative addresses the growing global threat of non-communicable diseases (NCDs), such as heart disease, stroke, cancer, chronic respiratory diseases, diabetes, obesity, drug and alcohol abuse, and mental illness – which are among the leading causes of mortality worldwide.
Legal Analytics Lab and the Legal Analytics & Innovation Initiative	Charlotte Alexander and Anne Tucker	These two groups work with one another at the intersection of data science and law to solve intractable problems and create a more just society, exploring the use of natural language processing, machine and deep learning, network analysis, and other methodologies.
Center for the Quantitative and Statistical Sciences (QUEST)	Katherine Masyn	Quantitative and statistical sciences are the bedrock of scientific inquiry and are the glue of interdisciplinary research – interdisciplinary research including work by other Next Gen and 2CI faculty. That requires places like Georgia State to innovate and refine quantitative research methods – something that is at the core of QUEST's mission.
Research on the Challenges to Acquiring Language and Literacy (RCALL)	Rose Sevcik and Daphne Greenberg	RCALL emphasizes research, student training, and dissemination of knowledge focused on improving the outcomes of children and adults who face challenges in acquiring language and literacy skills.
Urban Drivers of Resilient Youth (ResY)	Gabriel Kuperminc	Resilience is the process by which people are able to overcome adversity in their lives. ResY faculty are building interdisciplinary scholarship using resilience as a framework to address health disparities among urban youth.

Center	Lead(s)	Description
Transcultural Conflict and Violent Extremism (TCVE)	John Horgan	TCVE scholars work on research to address the problems of terrorism and violent extremism, and how to counter it using evidence-based strategies to inoculate communities from radicalization, and to provide communities with tools needed to resist the allure of violent extremism.
National Center for Sexual Violence Prevention (NCSVP)	Amanda Gilmore & Shannon Self-Brown	This center within the Mark Chaffin Center for Healthy Development works on sexual violence prevention research, working on a proof-of-concept for training and credentialing a prevention workforce within the United States military.
Urban Studies Institute	Johannes Nijman	An outgrowth of faculty hired under the Future of Cities cluster in year 1 of Next Gen, the institute has developed into a hub for interdisciplinary research into the problems of cities, including economic resilience and inclusive development, sustainability, diversity, inequality, life-chances, social/spatial integration, access to public goods, and urban health disparities.

Javier Stern is the director of the Center for Neuroinflammation and Cardiometabolic Diseases (CNCD).

RESEARCH & SCHOLARLY PRODUCTIVITY

The 27 faculty of the Next Generation Program have more than 150 peer-reviewed journal citations during their time at Georgia State, and the number is only growing.

The university's Georgia State Scholars system provides faculty with a way to list their research and scholarly activities, including books, papers, presentations, and more. The system is publicly accessible and also cross references colleagues.

Georgia State Scholars is available at https://gsu.discovery.academicanalytics.com/dashboard.

GRANT FUNDING

Grant funding supports the work and research productivity of Georgia State University, expanding the return on investment of the Next Generation Program, and its predecessor program, 2CI.

As of mid-April 2022, faculty at Georgia State who were hired under the Next Generation Program and were still actively employed at the university were directly awarded more than $15.5 million in grants from various sources while at the institution. This figure does not include preexisting funding that the faculty members had gained through grants brought with them to Georgia State.

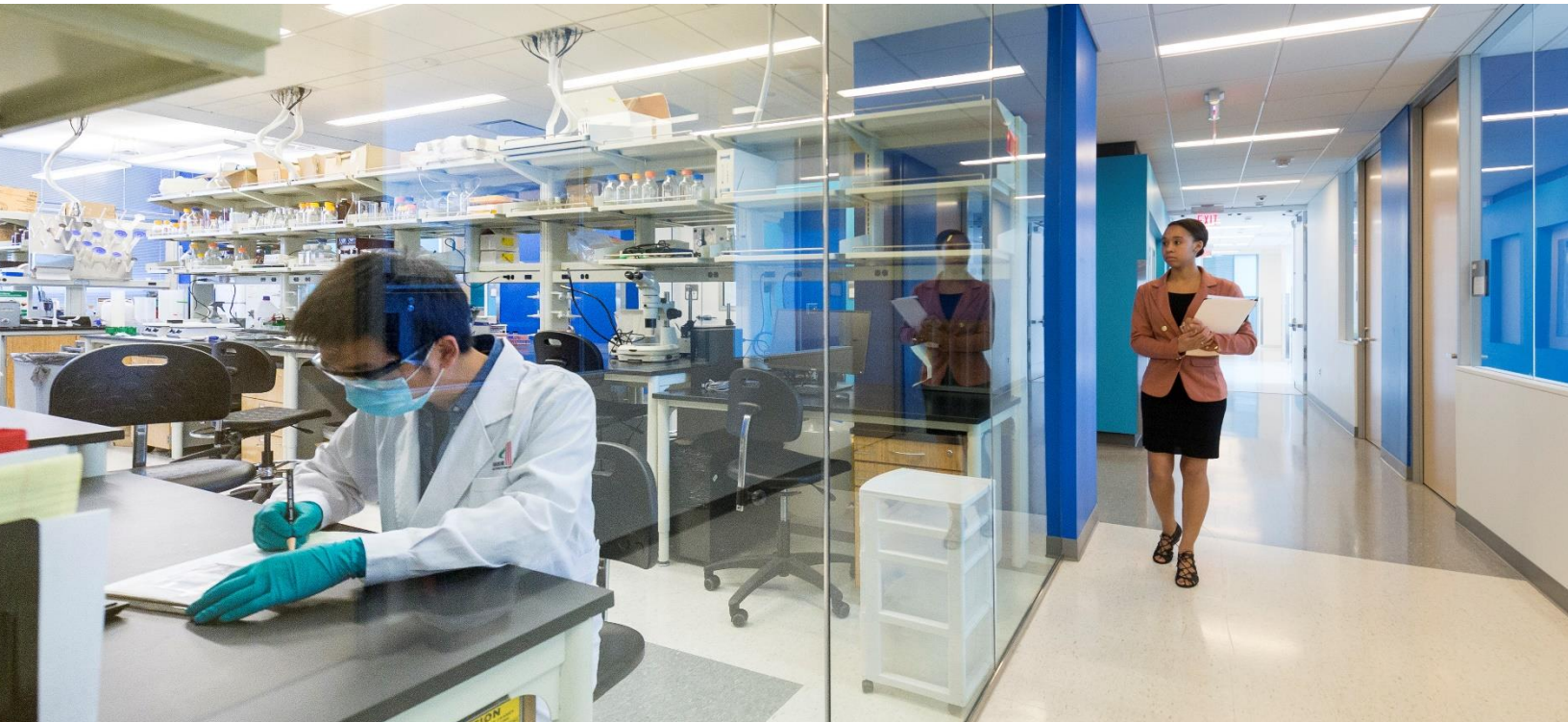
Some high-profile grants include, but are definitely not limited to, the following:

- A $1.14 million grant from the National Cancer Institute allows Next Gen faculty member Jun Kong to develop cutting-edge artificial intelligence computer vision and big data technologies to advance cancer research.

- A $1.4 million grant from the federal Minerva Research Initiative to the Evidence-Based Cybersecurity Research Group, led by Next Gen faculty member David Maimon, is being used to examine the growing threat of conspiracy theories and how they lead to radicalization and acts of violence. (Learn more here.)

- Next Gen faculty member Terri Pigott is coordinating a research institute supported by a $1 million National Science Foundation grant, designed to support early career STEM educators.

Research Science Center



FOUNDATION FOR THE FUTURE: THE COMBINED LEGACY OF THE SECOND CENTURY INITIATIVE AND THE NEXT GENERATION PROGRAM

With 86 2CI hires and 27 Next Gen hires, the combined initiatives are a solid foundation of the university's invigorated, energetic research and scholarly portfolio. Faculty hires under the initiatives – and the collaborations built with other Georgia State faculty – have helped Georgia State to rank highly in several dimensions among American universities according to the National Science Foundation[1]:

- Since FY 2010 – roughly the beginning of 2CI – Georgia State's research expenditure growth of 150 percent made the university the fifth fastest-growing institution in the nation.

- For the past five years, Georgia State has been the highest-ranked institution without a medical, engineering or agriculture school – significant, as medical schools account for a quarter of all research expenditures nationally.

- The NSF ranked Georgia State highly for expenditures in several research disciplines, including:
    - 11th for education
    - 13th for social work
    - 18th for visual and performing arts
    - 22nd for law
    - 31st for social sciences
    - 34th for sociology, demography and population studies
    - 36th in astronomy
    - 53rd in psychology

Analysis by university administration in 2018[2] found that faculty hired under 2CI and Next Gen up to that time had been principal investigators on over $107 million in new grants and contracts combined. With additional Next Gen faculty hires and new grants secured by 2CI faculty since then, this number has only grown as the university's total research awards have exceeded a record $150.2 million (FY 2020, the most recent year for which data is available), with research expenditures of more than $200 million[3].

RISE to the Future

As the university moves into its strategic planning for another decade of advancement, research and innovation remain a firm pillar of the university's outlook and identity.

The interdisciplinary legacy continues in 2022 with the Research Innovation and Scholarly Excellence (RISE) challenge, marshaling the unique strengths of the university's research community – many of whom are 2CI and Next Gen faculty. Faculty were challenged to propose interdisciplinary areas that the university is now positioned to establish itself as a national and international leader, addressing our

[1] Higher Education Research & Development Survey (HERD). https://www.nsf.gov/statistics/srvyherd/
[2] Armistead, L.P., de Vries, G., & Walker, M.B. (June 2018). *Return for the Future: The Return on Investment of the Second Century Initiative and Next Generation Program Faculty Hiring Efforts*. Internal report, Office of the Provost, Georgia State University. Available upon request from the Provost's Office (jcraig@gsu.edu).
[3] Marquez, J.R. (2022). Georgia State Research Expenditures Reach $202.4 Million, Setting University Record. *Georgia State News Hub*, Jan. 12, 2022. https://news.gsu.edu/2022/01/12/georgia-state-research-expenditures-reach-202-4-million-setting-a-university-record/

society's most pressing problems. Five teams of Georgia State faculty will receive one-time seed funding for non-recurring costs. Winning proposals are expected to be announced in May 2022.

Appendices

Appendix A – NEXT GEN CLUSTERS AS ORIGINALLY AWARDED, BY ROUND

The following list includes the titles of clusters that were originally approved and shared in university communications. Full communications and press releases that were distributed for each round, which include principal investigators and co-PIs on the proposed clusters, are available at https://nextgen.gsu.edu/.

Year 1

Cluster Name	Summary Description
Astroinformatics: The Solar/Stellar Connection Research Cluster	The proposal aims to build an interdisciplinary center for studying Space Weather and Space Climate using solar and stellar observations along with big data analytics to understand the impact of solar activity on the Earth. It forms a unique center for space weather forecasting, a national priority aimed at predicting solar activity and mitigating its impact on the Earth. The plan is to position Georgia State as a leader in the relatively new, interdisciplinary and dynamically growing field of data-driven space weather prediction. The proposal furthers the globalization of the university by strengthening and adding international collaborations in research and education in big data, space weather and astroinformatics.
Future of Cities Research Institute	Georgia State's strategic plan commits to becoming a leader in understanding and solving the complex challenges of cities and urbanization. With urbanization comes a host of issues and complex challenges that span housing, economy, health, infrastructure, education and governance. Population composition and density, the economic base, technology, global warming, transportation, the transmission of communicable diseases, public finances and the provision of education and other social services (among other issues) will continue to change in predictable and unpredictable ways. This proposal calls for the creation of the Future of Cities Research Institute (specific name to be determined) that will leverage strengths in multidisciplinary collaboration across the university with a focus on challenges and solutions for cities and promote engagement among various units in the university and cities represented by government and organizations that address the challenges cities face.
Global Research Against Non-Communicable Disease (GRAND) Initiative	The GRAND Initiative will address the growing global threat of non-communicable diseases (NCDs), such as heart disease, stroke, cancer, chronic respiratory diseases, diabetes, obesity, drug and alcohol abuse, and mental illness. NCDs, also referred

Cluster Name	Summary Description
	to as chronic diseases, are the leading cause of mortality around the globe, according to the World Health Organization. These health problems have long been the major cause of death and disease in high-income countries and are growing at alarming rates in low- and middle-income countries. The Centers for Disease Control and Prevention note that NCD deaths now exceed all communicable, maternal and perinatal nutrition-related deaths combined. By 2020, NCDs are expected to account for seven of every 10 deaths worldwide. This initiative will extend Georgia State's interdisciplinary expertise in the risk factors of tobacco use, obesity, asthma, diabetes, metabolic syndrome, mental health and alcohol, as well as cross-cutting intervention methods of epidemiology, disease modeling, behavior change, health economics and health policy. The GRAND Initiative will hire new faculty who will collaborate with current faculty to develop strategies to reduce the global burden of these diseases, help more people enjoy longer, healthier, more productive lives and reduce overall healthcare costs.
Innovative Research at the Interface of Social Neuroscience and Physiological Regulation*	This proposal seeks to extend the interdisciplinary component of Georgia State's research by stimulating new research projects across existing units. It proposes collaborative research linking social neuroscience with research in regulatory neuroscience, physiology and genomics, areas central to the research programs in the Center for Inflammation, Immunity, and Infection, the Center for Obesity Reversal, the Center for Neuromics, and the Neurogenomics 2CI. The cluster will stimulate new cross-cutting research in an area of rapidly growing interest and important translational implications: the mechanisms underlying the mutual interaction of social behavior and the body's regulatory systems. Research at the intersection of social neuroscience and these fundamental regulatory processes of the brain, body and genome represents a new and exciting direction with important basic and translational implications.
Neuroinflammation	It is proposed to develop a center of excellence in neuroinflammation. It takes advantage of already existing strengths in neuroscience, immunology / inflammation research and medicinal chemistry at Georgia State. A center of neuroinflammation allows for the development of innovative approaches for studying brain function, which will ultimately

Cluster Name	Summary Description
	strengthen translational (clinically relevant) neuroscience research at the university.
Unstructured Data Analytics	This proposal focuses on developing Georgia State's unstructured data analytic capabilities. The proposal builds on the existing strengths of the university in spatiotemporal analysis, data mining and machine learning, graph data management and mining, business analytics and the study of digital innovation in business and society. Unstructured data (social media interactions, online activity, sensor data, emails, reports, presentations, voice mail, chat records, phone notes, photographs, video and so on) increasingly represent the vast majority of data in organizations. Computer World says unstructured information might account for more than 70-80 percent of data in organizations. Unstructured data hold enormous information about a company's customers, employees, products, suppliers and competitors and great promise for developing better products, processes and customer relationships.
Research on the Challenges to Acquiring Language and Literacy (RCALL)	Language and literacy are essential foundational skills for developing relationships, participating in education, obtaining employment and ultimately making a contribution to society. Georgia State's area of focus on Research on the Challenges of Acquiring Language and Literacy (RCALL) emphasizes research, graduate and undergraduate student training, and dissemination of knowledge focused on improving the outcomes of children and adults who face challenges acquiring adequate language and literacy skills. This includes focus on adult literacy, reading and learning disabilities, children and adults speaking multiple languages or dialects, children with autism, intellectual and developmental disabilities and hearing loss. There is particular interest in recruiting experience in cutting-edge technology (such as adaptive technologies, conversational agents, neuro-imaging, virtual reality) and methodology (such as complex longitudinal data, ecological momentary assessment, adaptive interventions, integrative data analysis and single-case designs).

Year 2

Cluster Name	Summary Description
Center for the Quantitative and Statistical Sciences (QUEST)	This proposal establishes the Georgia State Center for the Quantitative and Statistical Sciences (Quest). Quantitative and statistical sciences form the bedrock of scientific inquiry and are the glue of transdisciplinary research endeavors. The elevation of Georgia State to a highly competitive and productive 21st century research university compels an evolution of its quantitative science research program and institution-wide methodological infrastructure. Quest will leverage and expand existing strengths in data science and research computing at Georgia State by providing a complementary and innovative core in quantitative research methodology, including study design, sampling, measurement, and data analysis. Quest will accelerate the generation and refinement of state-of-the-art quantitative methods, promote interdisciplinary collaborations, and supply critical support for the large-scale research enterprises of Georgia State faculty across the social, behavioral, educational, policy, health, biomedical, communication, and learning sciences.
Transcultural Conflict and Violent Extremism (TCVE)	Transnational security threats continue to pose extraordinary social and political challenges at home and abroad. In response, Georgia State has attracted some of the best and brightest minds working on the problems of terrorism and violent extremism. Building on this foundation, this proposal sees the expansion of that mission into countering violent extremism and cyber-security. Countering violent extremism means developing evidence-led strategies to inoculate our communities from radicalization, and to provide communities with the tools to resist the allure of online predators targeting young people for recruitment into terrorist groups. Additionally, as more and more terrorist groups shift key operations and activities into the online sphere, knowledge of the capacity, intentions and tactics of state and non-state terrorist actors (including hackers) to cause damage to our critical infrastructure and democratic processes is essential for strengthening the integrity of our national security. Under the leadership of Georgia State's Dr. John Horgan and working with faculty across multiple disciplines at Georgia State, these new hires, in addition to dedicated administrative positions, will consolidate Georgia State's growing national and international reputation as a center of excellence for producing actionable research to tackle today's pressing security issues. This proposal will also result in the creation of a center (specific name to be determined) that will be at the forefront of research,

Cluster Name	Summary Description
	teaching and training of today's (and tomorrow's) researchers, analysts and practitioners.
Cybersecurity and Public Policy – Focus on Financial and Health Information Technology	Georgia State University announces a new interdisciplinary initiative to address the challenges of cybersecurity and public policy in two strategically important sectors of the U.S. economy – the financial technology and health information industries. The new initiative builds on the international reputation Georgia State enjoys in the study of the adoption of information technologies, especially in the area of human compliance with security regulations and policies. It also takes advantage of Georgia State's research expertise in the areas of criminal decision-making and crime prevention policy. By wedding the human elements of cybersecurity to computer science research on technological strategies for the protection of cyberspace, the new initiative will provide national and international level leadership in research on cybersecurity. This path-breaking initiative combines the research talent housed in three colleges – the J. Mack Robinson College of Business, the Andrew Young School of Policy Studies, and the College of Arts and Sciences – to develop a comprehensive understanding of the interface between the human and technical challenges of cybersecurity. Georgia State University is ideally suited to launch this initiative: Atlanta is a top 3 market for cybersecurity businesses; the world's unrivalled financial transaction capital; and the center of the nation's Health Information Technology industry.
Urban Drivers of Resilient Youth (ResY): Culturally Informed Research to Reduce Health Disparities Among Urban Youth	Resilience is the process by which people are able to overcome adversity in their lives. The Resilient Youth (ResY) initiative seeks to build interdisciplinary scholarship that uses the concept of resilience as a framework for addressing health disparities among urban youth. ResY scholars will focus on understanding and intervening to improve young people's personal capacities, their relationships with parents, peers, and teachers, and positive connections to their community and culture as the key factors to promote resilient youth. ResY scholars will also address the features of neighborhoods, schools, and communities that can either promote or hinder resilient outcomes. The ResY initiative will extend GSU's expertise in disparities faced by urban youth, especially those from ethnic/cultural minority groups, living in poverty, experiencing homelessness, or with marginalized identities (e.g., LGBTQ). The proposal builds on existing strengths among current senior and supporting GSU faculty in Psychology, Public Health, and Sociology that have established, externally

Cluster Name	Summary Description
	funded, and nationally/internationally recognized research programs. The initiative will attract new faculty and seed a new postdoctoral fellowship program that will collaborate with current faculty to build an internationally recognized Center of Excellence focused on scholarship focused specifically on urban drivers among youth in Atlanta and other major urban centers in the U.S. and across the globe.
Building Advanced Translational Imaging Facility (ATIF)	The goal of the Center for Diagnostics and Therapeutics (CDT)'s proposal entitled "Advanced Translational Imaging Facility (ATIF)" is to build an Advanced Translational Imaging Facility to achieve the mission of the Next Generation Faculty Program. The development of ATIF will meet the urgent needs to support 55 research projects (17 group projects) from Center for Molecular and Translational Medicine, Center for Obesity and Reversal, Center for Brain and Neurosciences, Center for Inflammation, Immunity & Infection, Center for Nano-Optics, Center for Obesity Reversal, Language Acquisition and Resource Center, Institute for Biomedical Sciences, Neurosciences Institute, Departments of Chemistry, Biology, Nutrition, Physics, Computer Science, and Mathematics & Statistics. It will significantly accelerate our research and scholarly profile by overcoming major barriers in the development of translational biomedical and life sciences research, assist the GSU research team to achieve national and international recognition as a leading institution, and effectively attract and recruit leading scientists to join us at GSU. The university-wide commitment from various research centers, institutes and departments has also clearly demonstrated the strong impact that it will bring to the funded research.

Year 3

Cluster Name	Summary Description
Harnessing Modern Biotechnologies and Bioinformatics to Improve Public Health	This cluster will be dedicated to the improvement of health and well-being through innovative applications of big data analysis to further collaborative biomedical research by biologists, public health researchers and computer scientists. The team will include faculty across the departments of Computer Science and Biology, the School of Public Health and the Institute for Biomedical

Cluster Name	Summary Description
	Sciences. The project will apply analytics to public health and therapeutics, promote the development of methods for the control and prevention of epidemics and pandemics, and improve institutional support for commercialization of new therapeutics.
Interpersonal Violence Initiative	This area will bring together policy evaluation, research into biobehavioral causes and outcomes, and research into prevention science methodology. Interpersonal violence has significant negative outcomes for victims, including a wide range of health, behavioral and social problems, along with economic challenges. Researchers will seek to understand the causes and consequences of interpersonal violence, inform public policy and emphasize the development, refinement and evaluation of interventions to reduce or prevent interpersonal violence. The Department of Psychology, the School of Public Health and the Andrew Young School of Policy Studies will collaborate in this initiative.
Population Health and Precision Medicine	This program will combine multiple fields of research and scholarship to address how precision medicine, which is the application of modern genomic and data science techniques to tailor health care to individual variation in human disease, can advance the health of the population. There have been legal, ethical and economic concerns raised about precision medicine, but there is no integrated approach in the field. Georgia State's efforts to develop such an approach will involve the Institute for Biomedical Science, the Department of Biology, the School of Public Health, the College of Law's Center for Law, Health and Society, and the Andrew Young School of Policy Studies.
Legal Analytics	This area will take the university's new Legal Analytics Lab, a project of the J. Mack Robinson College of Business and the College of Law and help expand the lab's innovative research at the junction of law and data science. Advances in data science now allow for the extraction of information from massive amounts of legal documents quickly and efficiently. These tools can also be used to build predictive models to forecast the filing and outcome of litigation, predict judges' decisions given the facts of a case, identify terms likely to lead to contract disputes and predict patent challenges.

Year 4

Cluster Name	Summary Description
Artificial Intelligence Augmented Systems: Design and Application	This initiative will help to build Georgia State as a center of excellence in the design of artificial intelligence (AI) systems that augment human decision-making, while also leading in scholarship considering the pragmatic, ethical and societal implications of these systems. The initiative will focus on the design and application of AI in augmenting education, information technology, healthcare, financial technology and logistics. Departments involved include Computer Information Systems, Computer Science, Psychology and Philosophy.
Quantum Science, Quantum Materials and Quantum Information	This initiative will expand upon Georgia State's existing capabilities and achievements in quantum science, including inventions such as a quantum optical nano-generator called a spaser, and research that has resulted in innovations in ultrafast optics, quantum materials, infrared dyes and super-resolution microscopy. The cluster proposal will support faculty whose expertise is in the ultrafast optics of quantum materials, electron spectroscopies of two-dimensional and topological materials, and inorganic or colloidal chemistry who will develop technologies and further applications of spasers in theranostics and sensing. Departments and existing centers involved include Physics and Astronomy, Chemistry and the Center for Nano-Optics.
Shared Vision: A Georgia State Imaging Innovation Hub	As imaging technology plays an increasing role in society and research, it is driving significant advances in nearly every technical field, including astronomy, medicine and security. The hub brings together existing research faculty exploring a wide range of digital imaging research, including imaging at the nano-particle level, remote sensing for biophysics and space sciences, digital pathology, brain imaging using magnetic resonance imaging and other tools. The hub will help Georgia State become home to high-profile, leading research with new approaches to acquire, process and characterize imaging data from the smallest to the largest scales. Departments involved in this hub include Chemistry, Computer Science, Mathematics and Statistics, Physics and Astronomy, Psychology and the Center for High Angular Resolution Astronomy (CHARA).

Appendix B – ACTIVE NEXT GENERATION PROGRAM FACULTY AT GEORGIA STATE AS OF APRIL 25, 2022

The following is a list of faculty hired under the Next Generation Program who were employed at Georgia State as of April 25, 2022 and who have indicated that they will remain with Georgia State next academic/fiscal year. Faculty who were hired under the program but departed Georgia State are not included in this list, nor are postdoctoral fellows funded through the program.

Round/Year	Cluster Name	Faculty Name	Department/Unit
1	Future of Cities[4]	Johannes Nijman	Urban Studies
1	Astroinformatics	Juan Banda	Computer Science
1	Astroinformatics	Berkay Aydin	Computer Science
1	Neuroinflammation	Javier Stern	Neuroscience
1	Unstructured Data	Yu-Kai Lin	Computer Information Systems
1	Unstructured Data	Shihao Ji	Computer Science
1	Unstructured Data	Alireza Aghasi	Institute for Insight
1	Unstructured Data	Kai Zhao	Institute for Insight
1	GRAND	Nida Shaikh	Nutrition
1	GRAND	Collins Airhihenbuwa	Health Management & Policy
1	Infectious Disease	Jun Kong	Mathematics & Statistics
2	ResY	Jun Zhao	Sociology
2	ResY	Sierra Carter	Psychology
2	QUEST	Therese Pigott	Population Health Sciences

[4] Two new hires are slated to begin in August 2022. With these two hires, the total number of faculty for AY 2022-23 is 27.

2	Financial Tech & Cybersecurity	Daniel Takabi	Computer Science
2	Financial Tech & Cybersecurity	David Maimon	Criminal Justice & Criminology
3	Biotech & Bioinformatics	Alexander Kirpich	Population Health Sciences
3	Biotech & Bioinformatics	Murray Patterson	Computer Science
3	Interpersonal Violence	Cynthia Stappenbeck	Psychology
3	Interpersonal Violence	Amanda Gilmore	Health Policy & Behavioral Sciences
3	Interpersonal Violence	Callie Burt	Criminal Justice & Criminology
3	Legal Analytics	Susan Smelcer	Law
3	Legal Analytics	Yangqing Wang	Institute for Insight
3	Precision Medicine & Population Health	Susan Snyder	Social Work
3	Precision Medicine & Population Health	Jalayne Arias	Health Policy & Behavioral Sciences

Appendix C – SECOND CENTURY INITIATIVE

When addressing the Next Generation Program, it is impossible to do so without mentioning the Second Century Initiative, or 2CI, which brought more than 80 faculty across disciplines to the university during cluster proposal rounds from 2009 through 2014.

An archive of clusters and cluster descriptions as they were originally approved is available via the Document Library of the Provost's Office website at the following web link:
https://provost.gsu.edu/document/2ci-cluster-descriptions/

Appendix D – ON THE WEB

- Find the home of the **Next Generation Program** at Georgia State by visiting https://nextgen.gsu.edu/.
- Learn more about the **RISE Challenge** at https://ursa.research.gsu.edu/rise/.
- Learn more about **Georgia State's university-level research** centers and other research activities at https://research.gsu.edu/.
- For a list of **college- and school-level research centers**, visit the website of the Provost's Office at https://provost.gsu.edu/programs-initiatives/research-scholarship/university-and-college-research-centers/.[5]
- Learn more about Georgia State's **strategic planning** at https://strategic.gsu.edu/.
- Keep up to date with the latest university news via the **Georgia State News Hub** at https://news.gsu.edu and the **Provost's Office news feed** at https://provost.gsu.edu/news/.

[5] These lists are extensive, and every effort is made to keep these lists up to date as best as possible. If a center no longer exists and needs to be removed, or if there is a new center to be added, please contact your college- or unit-level communications director. Their contacts are available through https://pr.gsu.edu/.

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