

Abstract

Establishing an Interdisciplinary Climate Science Degree Program at Hampton University seeks to increase Hampton University's Carnegie Research Classification to R2 by increasing the Research Doctoral Degree production. The strategy to increase the Research Doctoral production performance through degree conferral is undergirded by establishing an Interdisciplinary Climate Science Research MS to PhD program embedded in a National Center for Climate Modeling Research. This program will target broadening participation of individuals historically marginalized in STEM. According to the National Survey of Earned Doctorates, in 2021, a total of 7 doctoral degrees were awarded to Blacks/African Americans in Environmental science, Atmospheric sciences and meteorology, Climatology, atmospheric chemistry and physics, and Oceanography, chemical and physical. These are the disciplines to be integrated into the Interdisciplinary Climate Science Doctoral program to be established through this project. From those previously reported doctoral recipients, Hampton University by itself produced 14.3% of them.

Additionally, 11% of all HBCUs are located in coastal communities impacted by natural disasters like flooding and hurricanes caused by environmental extremes. These communities in which the HBCUs are located are also overwhelmingly Black and Brown less resourced communities where natural disasters can be devastating. Yet, only three HBCUs have Research Centers dedicated to Climate Resilience, Environmental Equity for climate impact, or Environmental Sustainability to support the maintenance of ecological balance in the planet's natural environment. Increasing the number of Climate Science Research Centers located at HBCUs can further engage minoritized communities in the work of equity-centered climate science research.

To meet the goal of this project, there are three core objectives: (1) Increase the national percentage of Black/African American doctoral recipients in Climate Science by 20% by 2028, (2) Increase the number of Climate Science Research Centers at HBCUs by 25% by 2028, and (3) Increase Hampton University's research facilities by upgrading current facilities for computational environmental science research by 2026. Anticipated outcomes for these objectives are both operational and performance based. The operational outcomes include (1) establishing an interdisciplinary climate science doctoral curriculum between the HU Atmospheric and Planetary Sciences (APS) Department, the Center for Atmospheric Sciences, the Severe Weather Research Laboratory (SWRL), and the Marine and Environmental Sciences (MES) Department; (2) hiring 2 full-time research faculty to teach courses in the program; (3) recruiting a cohort of 7 graduate students; and (4) having a fully renovated Climate Modeling Research Center to engage the community, faculty and graduate researchers. The performance outcomes include (1) awarding 3 doctoral degrees in Climate Science by the end of the grant program; (2) generating 2-3 funded research projects through the Center annually to grow its graduate recruitment; and attaining 75% of funding needed to sustain the program beyond the lifetime of the Department of Education's award. Overall, 54% of the requested funding is dedicated to support students with rigorous curriculum and research opportunities and their enrollment in the program.

Southern University, a public historically black college and university (HBCU) system, seeks support to become the nation's first HBCU designated as a top-tier R1 research institution. This historic accomplishment would dismantle systemic barriers facing minority-serving institutions in reaching research excellence. Southern University has already made significant strides by recently achieving R2 classification through diligent efforts to expand research expenditures and doctoral conferrals. Nevertheless, disparities persist in critical areas like infrastructure, instrumentation, and productivity compared to eminent R1 universities.

This comprehensive proposal outlines Southern University's visionary five-part plan, meticulously designed to usher in transformative enhancements that will propel the institution into the elite R1 stratum. The strategic initiatives include: *First*, Southern University will establish multidisciplinary research centers focused on advanced manufacturing and biological sciences to concentrate resources fostering high-impact research; *Second*, Southern University will execute ambitious faculty hiring and development efforts; *Third*, Southern will reduce teaching loads to increase research time, and provide seed funding to catalyze innovation; *Fourth*, Southern University will expand Ph.D. program offerings in high-demand STEM fields; *Fifth*, Southern will implement efficient grant administration processes to expand its capacity to secure external funding.

Together, these multifaceted strategies will exponentially increase research activity, funding, productivity, and doctoral conferral to surpass R1 thresholds, cementing Southern University as a world-class research powerhouse. This historic milestone will demonstrate the immense potential of minority-serving institutions as drivers of discovery when systemic barriers are dismantled. Southern University's ascent will create a more diverse and equitable academic research ecosystem benefitting all of society.

Abstract: Futures Institute (PI: Dr Sandeep Gopalan)

The University of Maryland Eastern Shore (UMES) is seeking funding for the establishment of a **Futures Institute** to elevate its position in the Carnegie Classification from an R2 to an R1 institution. The planned work program of the Institute will yield outputs and outcomes that are directly related to the criteria for a university to attain the R1 designation. Specifically, the Futures Institute will recruit 8 PhD students, 4 assistant professors (research track), a proficient grant writer, and world-leading scientists as research mentors for UMES faculty and students. Together, these activities are likely to result in a minimum of 8 new research PhD graduates, 40+ academic journal articles, over \$10 million in new research income, over 400 new citations, testimony in Congress/state legislatures/regulatory bodies, dozens of media mentions, development of AI chatbots and an App, a substantial increase in student retention and graduation rates, and a system change at the national and institutional levels.

A critical feature of the Futures Institute proposal is that it perfectly matches the Department of Education's RDI program's underlying philosophy in pith and substance. Aside from yielding quantitative outcomes required to attain R1 status in 5 years, our proposal makes a meaningful and substantive contribution for system change. The Institute will undertake research on future grand challenges under three pillars: climate change, AI, and healthcare. Critically, the research will generate new knowledge from an African-American perspective in areas where there are documented gaps in data and research on African-Americans. Research on questions including how climate change impacts African-Americans, how racially biased AI tools perpetuate structural racism, and how healthcare and medical treatments need to be inclusive, will produce diverse, innovative, and inclusive solutions and create transformational change whilst building capacity.

ABSTRACT: Despite Historically Black Colleges and Universities (HBCUs) producing 20% of African American (AA) scientists and 50% of the teachers, engineers, and lawyers in the US¹, significant gaps exist in research funding compared to most institutions, in fact, no HBCU currently has the R1 “very high research” activity status according to the Carnegie classification². Achieving R1 status attracts world-renowned scientists, new businesses, and talented students to create novel scientific discoveries that address our society’s needs from cancer to cybersecurity. Texas Southern University (TSU), one of the largest HBCUs in the nation, has established strong partnerships with industrial and community partners, health systems, and research institutions at the largest medical complex in the world, the Texas Medical Center. Our accredited programs are number 1 in producing high-quality AA health and doctoral professionals in Texas and our research expenditures have increased by 32.8% in FY2022. TSU is proposing to create the “**Path to R1^{TSU}**” project to move TSU from R2 to R1 status by leveraging multi-disciplinary expertise and existing infrastructure and technologies to implement **6 specific goals:** (1) increase research productivity and innovation, (2) expand graduate programs, (3) recruit faculty expertise, (4) physical research infrastructure, (5) support human capital development, and (6) establish academic and industrial partnerships. This will be achieved by hiring research faculty, expanding doctoral programs, increasing research support, and research training. The Path to R1^{TSU} project’s **outcomes** include research expenditures, research faculty and staff positions, and doctoral conferrals. The project’s success will be rigorously monitored and evaluated for continuous improvement, with full commitment by the TSU administration for long-term sustainability to accelerate, achieve, and maintain the R1 status at TSU in the future.

ABSTRACT

Absolute Priority 1: Funding for Historically Black Colleges and Universities' Research and Development Infrastructure.

Tennessee State University (TSU) is the only R2 Carnegie designated Historically Black College and University in the state, where this past fiscal year over \$100M in total grant awards were procured, the highest in the institution's history. To sustain and grow the TSU research enterprise, the Center of Biomedical Sciences (CBS) will be established as part of the institution's strategic approach for pursuing and achieving the R1 Carnegie classification. More importantly, the CBS will play a critical role in strengthening biomedical and behavioral research capacity and capabilities at an institution that serves a student population that is greater than African-American, who are disproportionately affected by higher diagnosis rates and death of health conditions such as diabetes, hypertension, obesity, heart disease, and cancer when compared to their majority Caucasian counterparts. As a complement to the expansion of the biomedical sciences and behavioral research space, and overall growth of the TSU research ecosystem, research administration logistical processes and policies will be enhanced and strengthened. This will be accomplished by using needs assessments and best practices to inform action plans for continuous improvement. Additionally, a novel collaborative, accountable, progressive, and sustainable model (CAPS) will be employed for institutional integration of the CBS. Consequently, programmatic structures and activities of the CBS and research administration assessments will lead to outcomes and increases in the following Carnegie classification criteria 1) research funding and expenditures 2) doctoral student output and 3) the number of non-faculty Ph.D. researchers.

The Research DEN (Dakota Equipment Nexus) at United Tribes Technical College
*Bridging the Gap – Addressing the Disparities in Research Access in West-Central North Dakota
and South Dakota and Among Tribal Nations and Tribal Colleges*

Rapid technological advancements and growing interdisciplinary collaborations make access to state-of-the-art research equipment crucial for scientific innovation and community development. Yet, some areas of the country lack equitable access to research facilities and a framework for building meaningful research collaborations. United Tribes Technical College (UTTC) aims to harness the research potential of a region that lacks access to shared research infrastructure but has a wealth of shared opportunity and potential.

The Research DEN (Dakota Equipment Nexus) at UTTC will reach the goals of (1) expanding and building new research infrastructure at UTTC, (2) increasing STEM research and research collaborations in the region, including at tribal colleges and with tribal nations, and (3) achieving sustainable research excellence that contributes to innovation, workforce development, and the economy of the region. By ensuring equitable access, engaged professional development opportunities, and authentic partnerships, the project will promote interdisciplinary research that accelerates the pace of discovery and bolsters the research ecosystem and regional economy.

Short-term outcomes include establishing four research equipment hubs at UTTC, increasing use of research equipment, enhancing collaborative research projects in the region, and improving faculty and student research skills. Long-term goals include increasing research productivity and quality, growing a research community and culture, and strengthening partnerships with industry that spur innovation. The Research DEN at UTTC will be a transformative initiative that will result in deeper confidence in data and science to address issues in the region, engaged authentic collaborations among researchers while attracting new researchers to the region, and direct contributions to society and economic development through research and innovation.

ABSTRACT

The Blackfeet Community College-BFCC Access to Lifelong Educational Opportunities is being developed as the institution is moving toward capacity building into a 4-year academic institution. The project is designed to support BFCC Faculty and Staff by increasing expertise and human capital development to provide programs and services that are reflective of the needs of the Blackfeet Nation and the College's service district. BFCC is completing a 5 years strategic plan to be implemented in Spring 2024.

As BFCC transforms, this project proposes to support the faculty and staff in personal transformation, by designing their own professional development plans that support learner designed goals specific to accomplishing BFCC Vision, Mission/Core Themes and Core Values under three areas identified in our strategic plan:

- 1) Engaging students, faculty and staff
- 2) Connecting success with wellness
- 3) 4-year program development

The program will expand, enhance, improve and strengthen all education aspects of the Blackfeet Community College as well as the Blackfeet Nation. By incorporate both historical and contemporary content of education with an emphasis on Blackfeet Ways of Knowing in their educational goals and plan development. Blackfeet Community College is proposing to invest in the advancement of skills and knowledge for staff and faculty by ensuring successful completion, application, design and integration to support expansion of 4-year institutional capacity. The project will also provide staff and faculty mentoring opportunities to develop masters and doctoral pathways with mentoring and experiential support.

The project will also promote the use of Piikani Centered resources. The richness of the local knowledge bodies is proposed to be a valuable resource in Piikani research and staff and faculty professional development.

The City College of New York (CCNY)—the flagship institution of the City University of New York (CUNY), the largest urban public university system in the US—is ideally positioned as an R2 candidate Hispanic and Minority-Serving Institution (HSI/MSI) for progressing to a doctoral university with Very High Research Activity, R1, under the Carnegie classification. CCNY is a major driver of social mobility in the NYC region, with 66% of our first-time degree-seeking undergraduates receiving Pell grants, and is the only R2 HSI in New York State. We have undergone a revolution in the past decade in terms of research productivity, with a 33% increase in research expenditures over just the last 4 years, making our institution a strong candidate to become the 17th R1 HSI nationally and the first R1 HSI or MSI in New York State. Our current challenge as an institution is to increase the size of our PhD student population in order to continue movement along this upwards trajectory. Therefore, we are applying under Absolute Priority 3 -- Funding for Minority-Serving Institutions' Research and Development Infrastructure.

The overarching hypothesis of the **Translational Research Excellence Across Disciplines (TREAD)** project is that by growing the number of PhD graduates, our overall research activity will increase. TREAD will implement four transformative strategies: (1) building an ecosystem of support for PhD student recruitment and success, (2) fundraising to create sustainable fellowship programs, (3) germinating translational research and training foci in partnership with industry and government, and (4) developing a training and research program in convergence science. We have identified three areas of research excellence (green energy, cybersecurity, and nanobiotechnology) at CCNY that demand a convergent and translational approach to solve major global problems and will serve as organizing themes for the program. Parallel to, and in partnership with these efforts, TREAD proposes specific programming to increase the accessibility and inclusivity of our programs in collaboration with faculty from CCNY's School of Education.

Abstract

This project, entitled “*Target 2030: The University of Texas Rio Grande Valley (UTRGV) Research Strategic Plan to Reach R1 Status,*” is a 4-year (FY25, 9/1/2024 through FY28, 8/31/2028) \$5M grant proposal submitted to the Research and Development Infrastructure (RDI) program of the US Department of Education (DoE) under the *Absolute Priority-3 (Funding for Minority-Serving Institutions’ Research and Development Infrastructure)*.

91% of our student population is Hispanic, 95% are from the region, 66% are first generation, and 65% are Pell grant recipients. UTRGV is committed not only to make a significant impact in terms of student success, but also to better serving the region in terms of applied research and development. Hence, UTRGV is committed to the research mission of becoming a Carnegie R1 institution.

This DoE RDI project is part of a broader strategic plan for research at UTRGV, namely “***Target 2030,***” which is built on seven Research Pathways and six Operational Pillars. ***Target 2030*** is focused on Carnegie’s three primary metrics, which are total research expenditures, doctoral degrees conferred, and research staff, with the goal of becoming an R1 institution in the Carnegie 2030 cycle.

The requested DoE RDI funding (under Absolute Priority – 3) is key to launching our ***Target 2030*** plan, providing foundational funding in its first four years while we increase the number of successful grant proposals, increase expenditures, support more doctoral students and postdocs, while we target expanding our faculty base and building a stronger doctoral student pipeline.

Project Abstract

The overarching goal of the “Investing Now to Expand Faculty Research through Capacity Building Program” is to increase opportunities and capacity for faculty research at California State University, Fullerton (CSUF). Having recently achieved R2 status, CSUF aims to increase faculty research activity, moving towards R1 status in the near future. To do this will necessitate long-term large-scale strategic investment in research infrastructure, human capital, technological and physical infrastructure, and faculty development and research opportunities. This project will address *Absolute Priority 3, Funding for Minority Serving Institutions’ Research and Development Infrastructure*.

With a total enrollment of more than 42,000, California State University, Fullerton has the largest student body of the 23-campus California State University system. It is one of twenty-one other CSU campuses (91%) classified as a Hispanic Serving Institution (HSI), with a total Hispanic student enrollment of >50% as of Fall 2022. The student financial need is great. As of FY 21, 66.1% of all undergraduate students received financial aid, 47% receiving Pell Grants. For Full-time, first-time, degree/certificate-seeking undergraduate students who received financial aid, the number of Pell recipients rose to 51%. The Pell grant recipient level fluctuation trend is on par with that seen in state and national numbers post COVID.

There are many research development approaches and variations in research infrastructure in the CSU system, including organizational structure, human capital, technological support, and operational processes and practices within the research enterprise. Support for this project will help to enhance the ability for CSUF to scale the research enterprise, streamline systems and reduce administrative barriers for faculty to access research development resources and increase proposal competitiveness. Enhancing the research ecosystem will increase the ability to financially support robust research activity, implement best practices and cultivate a rich research culture for faculty and students. To reach this goal, we are proposing the following three Specific Objectives:

1) Increase Human Capital: Recruit additional Research Development and Research Communications staff to more accurately align with current research activity levels and expected future growth and to increase research support, visibility, collaboration and campus reputation.

2) Invest in Technology Infrastructure: Increase research information tracking and data management through investment in the university’s Research Information System. Streamline and reduce inefficiencies in the research development, proposal submission and award process, increase research collaboration potential, centralize, integrate, analyze, report and promote data across the university research enterprise while reducing administrative burden.

3) Increase Faculty and Faculty-Mentored Student Research Opportunities: Enhance the university research culture through increased internal funding opportunities for large-scale interdisciplinary collaboration, faculty research and faculty-mentored undergraduate and graduate student research, providing direct financial assistance to ensure equitable student participation.

A formative and summative evaluation will be conducted of all project activities. The program will have highly qualified staff, a budget that is reasonable and allocable and builds on existing campus investment of resources to augment and enhance the proposed activities. Project objectives will be goals that relate to GPRA Goal 4, and the required annual project performance report. By achieving the above aims, CSUF will be on the path to increasing research activity and expenditures, expanding faculty research development opportunities, and increasing graduate student enrollment and conferrals, benefiting the faculty, campus, and the CSU system as a whole and providing students with immersive learning experiences that extend beyond the classroom.

PROJECT ABSTRACT

Roosevelt University (RU), a private, diverse, liberal arts institution, proposes ***RU PRIME: Producing Research and Innovation through a Mentoring Ecosystem***. With strong programs, engaged students and faculty, and a history and mission of social justice, RU is redefining what educational access and rigor mean for diverse students in the 21st century. Through the initiation of **research clusters**, addition and/or modification of two **STEM graduate programs** (Information Technology and Integrated Biomedical Sciences), and development of a **vertically integrated research ecosystem** supporting underrepresented STEM students from entry into RU through graduation (either with baccalaureate or advanced degrees), RU PRIME will positively impact the human capital at RU and beyond as students, faculty, staff, alumni, and external communities are incorporated in the project design. The achievement of each high-quality and transformative investment in infrastructure, faculty research clusters, and faculty and student capital, will increase and allow for a reclassification of RU from a Doctoral and Professional University to a Doctoral University with High Research Activity (in alignment with the Carnegie Classification designations). At the end of the RU PRIME project, the investments made will be self-sustaining and integrated into the existing portfolio of RU academic programs which support underserved student populations.

RU seeks a 48-month Research and Development Infrastructure (RDI) grant from the US Department of Education to support the RU PRIME project. RU will match this request 1:1 as required per the grant announcement (CFDA #84.116H).

Total Projected Costs: \$9,983,008

Amount requested from U.S. Department of Education for 48 months: \$ 4,991,504

Amount of RU match for 48 months: \$4,991,504