UTRGV RESEARCH

2025

ANNUAL REPORT

Celebrating 10 Years of Research Impact

2025 UTRGV Research Annual Report

Photograph by Paul Chouy

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Photograph by Jesús Alférez

Welcome to the third edition of The University of Texas Rio Grande Valley Annual Research Report for Fiscal Year 2025 (FY25). This year marks a historic moment. In FY25, on UTRGV's tenth anniversary, we surpassed $100 million in annual research expenditures for the first time in our institutional history. But before we celebrate the milestone, let me tell you what really matters about this achievement.

Over the past three years, I have witnessed something profound: the Rio Grande Valley is no longer waiting for someone else to solve its problems. Our researchers are solving them. Our students are becoming the leaders who will transform this region. Our community is believing that rigorous, intentional, community-empowering research is not a luxury for wealthy universities elsewhere. It is essential for communities like ours that dare to imagine a different future.

When I arrived in August 2022, I had a vision: a young research university in an economically underserved region could compete with and surpass institutions with decades more history and vastly greater resources. But vision alone does not generate proposals, secure federal funding, or complete dissertations.

We transformed that vision into a strategic framework I.M.P.A.C.T. with six integrated pillars (Infrastructure, Metrics, Programs, Alignment, Collaboration, and Targets) that work synergistically to drive research excellence. The results are striking:

- Federal research expenditures increased 132% from $18.3M in FY22 to $42.4M in FY25
- Faculty participation in proposals grew 37% from 343 to 470 faculty members
- Secured National Research Support Fund (NRSF) eligibility, bringing $10.5M annually
- Awarded 74 research doctoral degrees in the most recent IPEDS cycle (48% increase over two years)

These numbers represent faculty and students working on research critical to quality of life, health, and economic development in the Rio Grande Valley. The growth is real. The impact is tangible.

Perhaps most importantly, research transforms students from passive learners into active creators of knowledge. When a first-generation college student from the Rio Grande Valley completes a doctoral dissertation, publishes in a top-tier journal, or presents findings at a national conference, they are not just advancing their own future. They are proving to thousands of younger students that they too can aspire to become researchers and scholars. This is how we break cycles. This is how we build generational change. These graduates will carry the Valley's story and their own stories of perseverance, innovation, and excellence wherever their careers take them.

Over the past three years, we aligned our research around seven strategic pathways: Societal Transformations, Living on the US-Mexico Border, Human Health, Technology and Innovation, Environment and Sustainability, Space Sciences, and Data Sciences. These pathways leverage our regional context and competitive advantages. Research is no longer scattered. It is strategic. It is focused. It is ours.

Research excellence does not happen in isolation. We formalized 20 centers and institutes as Organized Research Units (ORUs) based on stringent performance metrics, built internal governance structures, and established external partnerships that amplify UTRGV's capabilities far beyond what we could achieve independently.

The $100 million milestone is meaningful, but it is not a finish line; it is a launching pad. We are now positioned to achieve Carnegie R1 status in the 2028 classification cycle, joining fewer than 150 universities nationwide in the highest tier of research activity. This will signal to the Rio Grande Valley, to Texas, and to the nation that young institutions in economically underserved regions can achieve excellence when they combine strategic vision with relentless execution.

But I want to ask a deeper question: What will we do with the R1 designation? Will we rest on our achievement, or will we use our research excellence to solve the Valley's most pressing problems? Will we create economic opportunities for our students and communities, or will success simply move talented people away? Will we be a research university that serves and empowers the Rio Grande Valley, or will we be a research university that just happens to be located here?

I think you know the answer. The research is just beginning. The real impact is yet to come. It will be written by all of us, together.

So let's get to work.

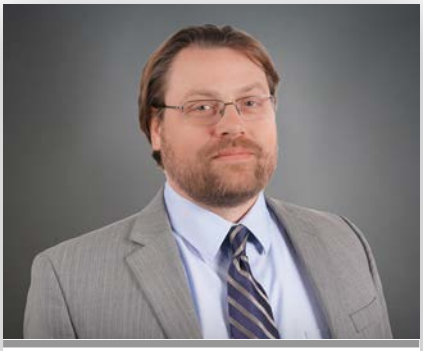
Dr. Can Saygin
Senior Vice President for Research
Dean of the Graduate College

RESEARCH

Eric Allen

Director of Research Compliance

Eric Allen has more than 20 years of experience in research compliance, with expertise in IRB, IACUC, IBC, COI, QA/QI, RCR, misconduct, and risk assessment. He holds CHRC, CIP, and CPIA certifications and supports ethical and regulatory standards across the university through compliance oversight, training, and guidance in all research compliance program areas and operations.



Preston O. Broadfoot, JD

Director of Research Integrity and Export Compliance

Preston O. Broadfoot, J.D., has over 20 years of experience in research administration, IT, and compliance. He oversees research integrity, export control, and conflict of interest programs and brings expertise in planning, risk management, and compliance. He previously spent 12 years with the UT System and holds certifications in export compliance and IT service management.

Staci Eaton, MSN, RN, CCRP

Director of Clinical Research

Staci Eaton has more than 15 years of clinical research experience. She began her career in oncology research nursing and later supported clinical trials development in Austin. She joined UTRGV in 2022 to help expand clinical research infrastructure and is committed to improving access to clinical trials for underserved communities in the region.

Suelema Gonzalez, MA

Director of Grants & Contracts

Suelema Gonzalez oversees post-award financial and nonfinancial activities for externally funded projects and has more than 30 years of experience at the university. She manages grant administration, compliance, and project oversight and holds a Master of Arts in Higher Education Administration. She is committed to supporting research through strong grants and contracts management.

Alicia Moreno, CPA, CRA, CFRA

Director of Grants Accounting

Alicia Moreno has served as Director of Grants Accounting since 2019 and has been with the university since 2006. She leads financial compliance and reporting for sponsored projects and contributes to key institutional reports. She holds a CPA, CRA, CFRA, and a master's in educational administration and supports the university's research mission through accurate financial oversight.

Jessica Pleitez, MRA

Director of Contracts & Industry Agreements

Jessica Pleitez oversees research contracts and industry agreements, providing strategic guidance and negotiation for complex projects. She has more than a decade of experience in clinical research, compliance, data management, and contract review in academic and industry settings. She holds a master's degree in research administration.

DIRECTORS

Cordelia Rasa

Director of Animal Care Programs

Cordelia Rasa has more than 25 years of experience in laboratory animal science and oversees animal care programs that support biomedical and field research. She holds CMAR, SRS, and LATG certifications and two graduate degrees. Her work focuses on animal welfare, regulatory compliance, model development, mentoring research teams, and strengthening humane animal care practices across the university.

Lizette Gonzales, MA

Associate Director of Sponsored Programs

Lizette Gonzales joined the Division of Research in 2023 and became Associate Director of Sponsored Programs in 2025. She previously spent ten years in pre-award and proposal development at Texas A&M University–Kingsville. She is active in NCURA, serving on regional and national committees, and supports research development through training and proposal guidance.

Gisela Garza, MBA

Assistant Director of Grants & Contracts

Gisela Garza supports grants and contracts administration with experience in compliance, management, and funding oversight. She previously spent ten years in the banking industry, gaining skills in financial operations and client services. She holds an MBA from UTRGV and is recognized for building strong partnerships that support effective grant management across the university.

Lindsey Simon, CCRP

Assistant Director of Regulatory Clinical Research

Lindsey Simon has 18 years of clinical research experience across private practice, hospital systems, and academia. She became a Certified Clinical Research Professional in 2013 and has supported oncology programs for phases I–IV. Her work spans industry-funded, federal, investigator-initiated, and grant-supported studies.

Mirayda Torres-Avila, PhD

Assistant Director for Post Approval Monitoring /Training

Mirayda Torres-Avila oversees post-approval monitoring for IRB, IACUC, and IBC activities and brings more than a decade of experience in research compliance, teaching, research, and program development. She holds a PhD in agronomy and an MA in higher education administration and supports mentoring, outreach, and ethical research environments throughout the Valley region.

Photograph by Jesús Alférez

Excellence and Impact Through Service

The Division of Research (DoR) at The University of Texas Rio Grande Valley reported strong customer satisfaction results for Fiscal Year 2025, with respondents noting consistent experiences across the division's core research support services. FY25 ratings remained in the mid-90 percent range across professionalism, communication, knowledge, timely response, problem resolution, and overall experience. These results reflect the level of service the division provides as part of the university's larger research mission.

This performance aligns with the division receiving the Bravo Vaqueros Spirit Award for the second consecutive year. The award recognizes the UTRGV division with the highest percentage of eligible employees receiving nominations in the Bravo Vaqueros peer recognition program. The recognition highlights participation in the VAQUEROS Culture of Service Excellence, which emphasizes professionalism, responsiveness, and consistency. Together, the Spirit Award and the FY25 survey results indicate a shared emphasis on service quality across the research enterprise.

The customer satisfaction survey is sent to individuals who interacted with DoR offices during the year. Respondents rate six areas: staff professionalism, timely response, staff knowledge, clear communication, problem resolution, and overall experience.

In FY25, staff professionalism received 96 percent positive responses, timely response received 95 percent, staff knowledge received 96 percent, clear communication received 96 percent, and problem resolution received 94 percent. Overall, 95 percent of respondents reported a positive experience. FY25 results matched FY24 levels and remained above those reported in FY22 and FY23.

The survey findings align with the improvements reported over the past four years. Earlier surveys identified communication, response times, and problem resolution as areas needing attention. In response, the division focused on actions that allowed these categories to improve and remain stable in the mid-90 percent range. The sustained ratings in FY25 indicate that users continued to experience the changes reflected throughout the division's service functions.

The survey reflects the range of support provided by division offices. Staff assist faculty with proposal development, including budget preparation, limited submissions, and final submission to agencies. They support project setup, award management, financial reporting, sub-awards, closeout, and milestone tracking. Compliance offices oversee the Institutional Review Board, Institutional Animal Care and Use Committee, Institutional Biosafety Committee, export controls, biosafety level 3 facilities, and the vivarium. Technology transfer services drive impact and entrepreneurship with invention disclosures, technology licensing, and patent and copyright documentation.

High ratings in professionalism and knowledge indicate that users value the guidance they receive when navigating sponsor requirements and internal processes. Timely response and clear communication remain central for faculty preparing proposals, addressing sponsor questions, or managing award timelines. Positive ratings in problem resolution and overall experience show that users report reliable assistance even when support requires coordination across multiple offices.

The FY25 data also provide insight into how users experienced services during a year of increased research activity and uncertainty. Offices monitored service inquiries, contract routing, award setup, and compliance reviews to identify patterns and adjust processes accordingly. Changes implemented in FY24 carried into FY25, allowing teams to refine workflows rather than implement major new procedures. The results suggest that users experienced stable service across most functions as research activity continued to expand.

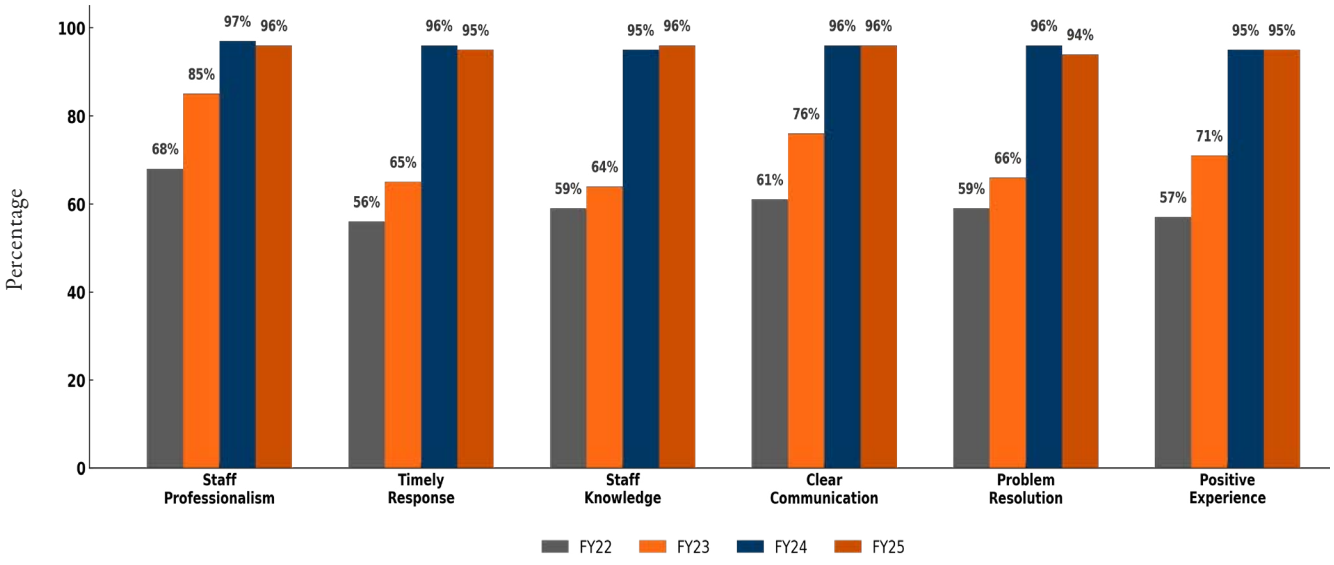
FY25 continued the strong momentum as UTRGV surpassed $100 million in research expenditures during its 10th anniversary year. As activity increased, division staff remained committed to reducing administrative burden and improving efficiency for researchers.

This year, teams refined workflows to keep pace with rising submissions, awards, and expenses to ensure high-quality service. Standard templates and new electronic systems helped streamline communication and reduce back-and-forth exchanges. New intake tools, including the START form, helped strengthen proposal submissions and reduce review times. These efforts supported faster processing and more predictable timelines.

Dr. Thomas B. Spencer, Senior Associate Vice President for Research Operations, said, "Our surveys are reviewed weekly and each positive survey result stems from an action taken by a member of the DoR team. The surveys reflect an active culture of customer service dedicated to the missions of UTRGV. Knowing that our faculty are happy with the partnership and the service provided is meaningful and empowers us to strive to not only maintain but improve year over year."

Spencer said, "The FY25 survey results are more than numbers, they are a real-world, one-to-one reflection of actions taken by Division of Research staff and the commitment to providing excellent service and outcomes." The FY25 results underscore how day-to-day actions across the division shape the user experience. Two consecutive years of mid-90 percent positive ratings reflect steady responsiveness and consistency during a period of growing research activity. As The University of Texas Rio Grande Valley marks its 10th year, the survey offers a data-driven view of how service operations support the research conducted across the university. Together, these patterns show how consistent service practices contribute to a stable research environment during a period of rapid institutional growth. ■ Written by María González

Customer Satisfaction Levels Across Fiscal Years



Survey results from FY22–FY25 show increasing satisfaction across the Division of Research. FY25 ratings ranging from 94% to 96% reflect strong professionalism, responsive communication, timely support, and reliable problem resolution as research activity continued to grow.

Division of Research staff join Dr. Can Saygin and Dr. Thomas B. Spencer on stage at the UTRGV PlainsCapital Bank Theater in Edinburg during the 2025 Employee Service Recognition ceremony on April 29. The event celebrated Years of Service and included the presentation of the Team Excellence Award and the Bravo Vaqueros Spirit Award, which Dr. Spencer is pictured holding. Photograph by Paul Chouy

Dr. Thomas B. Spencer, senior associate vice president for research operations. Photograph by Jesús Alférez

FY25 Research Performance by the Numbers

UTRGV Research Momentum

The University of Texas Rio Grande Valley reported $86.9 million in total research expenditures for Fiscal Year 2024 (FY24) and $103.7 million for Fiscal Year 2025 (FY25), a 19% increase that marks the first time the university surpassed the $100 million threshold. These expenditures are reported annually to the National Science Foundation through the Higher Education Research and Development (HERD) survey.

Growth in FY25 was driven by several academic units, including the School of Medicine, the College of Sciences, and the College of Engineering and Computer Science, with additional contributions from liberal arts, business, health professions, education, and fine arts programs.

Federal research expenditures increased from $35 million in FY24 to $42.4 million in FY25. Restricted research expenditures rose from $42.6 million to $52.5 million, reflecting continued support from federal, state, private, and other external sponsors.

Sponsored project activity remained consistent across both years. Proposal submissions totaled $776.3 million in FY24 and $520.9 million in FY25. Total sponsored project awards were $97.3 million in FY24 and $73.5 million in FY25, including both research and non-research awards.

In FY24, the U.S. Department of Health and Human Services was UTRGV's top sponsor by award amount. In FY25, the U.S. Army awarded the largest amount among all sponsors. Funding across both years supported multidisciplinary work in medicine, engineering, science, public health, education, and related fields.

Across FY24 and FY25, UTRGV's research totals, federal expenditures and sponsored project activity show continued activity across academic and administrative units as the university prepares its annual HERD survey submission and continues tracking metrics related to research growth and institutional development

Research by the Numbers	FY25	FY24
Total Research Expanditures	$103,670,667	$86,902,473
Federal Research Expenditures	$42,417,597	$35,014,075
Restricted Research Expenditures	$52,532,825	$42,640,123
Unrestricted Research Expenditures	$51,137,842	$44,262,350
Number of Proposals Submitted	671	613
Total Budget of Proposals Submitted	$520,891,662	$776,298,190
Total Awards Received	$73,460,899	$199,651,228
Total Research Awards Received	$57,886,003	$97,310,068
Total Non-research Awards Received	$15,574,896	$102,341,159

FY24

$86.9M Total Research Expenditures

613 Proposals Submitted

Top Sponsor: U.S. Department of Health & Human Services

FY25

$103.7M Total Research Expenditures

671 Proposals Submitted

Top Sponsor: U.S. Army

Sponsored Project Awards by Top 10 Sponsors

	Amount
U.S. Army	$17,500,000
U.S. National Science Foundation	$8,256,606
Texas Department of Transportation	$4,477,705
U.S. Department of Health and Human Services	$3,696,590
Bill & Melinda Gates Foundation	$3,027,550
Texas Higher Education Coordinating Board	$2,974,394
Cancer Prevention & Research Institute of Texas	$2,799,601
U.S. Department of Energy	$1,971,000
U.S. Department of Homeland Security Federal Emergency Management Agency	$1,878,750
U.S. Department of Education	$1,809,610

Total Research Expenditures

	FY25	FY24
College of Education & P-16 Integration	$2,733,083	$2,632,798
College of Engineering & Computer Science	$18,653,537	$14,997,499
College of Fine Arts	$1,913,168	$1,814,135
College of Health Professions	$4,205,514	$3,963,360
College of Liberal Arts	$7,845,197	$7,603,384
College of Sciences	$21,254,581	$18,139,300
Honor College	$92,241	$127,830
Robert C. Vackar College of Business & Entrepreneurship	$6,966,073	$6,093,146
School of Medicine	$29,225,049	$23,376,429
School of Nursing	$672,825	$419,749
School of Podiatric Medicine	$428,154	$460,868
School of Social Work	$601,198	$597,684
Other VP Level Divisions	$9,080,047	$6,676,292
Total	**$103,670,667**	**$86,902,473**

Restricted Research Expenditures by Unit	FY25	FY24
College of Education & P-16 Integration	$1,010,425	$873,314
College of Engineering & Computer Science	$12,081,351	$10,644,892
College of Fine Arts	$291,514	$191,117
College of Health Professions	$1,593,304	$1,937,453
College of Liberal Arts	$1,806,570	$2,118,777
College of Sciences	$11,608,436	$9,835,994
Honor College	$92,241	$127,830
Robert C. Vackar College of Business & Entrepreneurship	$279,756	$145,241
School of Medicine	$21,544,977	$16,334,709
School of Nursing	$127,571	$59,442
School of Podiatric Medicine	$75,049	$24,634
School of Social Work	$237,763	$105,058
Other VP Level Divisions	$1,783,867	$241,664
Total	**$52,532,825**	**$42,640,123**

Unrestricted Research Expenditures by Unit	FY25	FY24
College of Education & P-16 Integration	$1,722,658	$1,759,484
College of Engineering & Computer Science	$6,572,186	$4,352,606
College of Fine Arts	$1,621,654	$1,623,018
College of Health Professions	$2,612,210	$2,025,907
College of Liberal Arts	$6,038,627	$5,484,608
College of Sciences	$9,646,145	$8,303,306
Honor College	-	-
Robert C. Vackar College of Business & Entrepreneurship	$6,686,317	$5,947,905
School of Medicine	$7,680,071	$7,041,720
School of Nursing	$545,254	$360,307
School of Podiatric Medicine	$353,104	$436,234
School of Social Work	$363,435	$492,626
Other VP Level Divisions	$7,296,180	$6,434,628
Total	**$51,137,842**	**$44,262,350**

Proposals by Unit	FY25	FY24
College of Education & P-16 Integration	$22,850,285	$28,525,767
College of Engineering & Computer Science	$51,619,099	$147,202,257
College of Fine Arts	$3,447,854	$3,047,782
College of Health Professions	$33,813,564	$22,652,152
College of Liberal Arts	$20,957,373	$13,516,689
College of Sciences	$99,000,608	$95,252,456
Honor College	$153,433	$7,500
Robert C. Vackar College of Business & Entrepreneurship	$4,997,211	$81,723,164
School of Medicine	$116,556,011	$151,964,153
School of Nursing	$5,255,926	$6,134,427
School of Podiatric Medicine	$3,879,611	$3,586,298
School of Social Work	$8,268,560	$8,550,228
Other VP Level Divisions	$150,092,126	$214,135,316
Total	**$520,891,662**	**$776,298,190**

Awards by Unit	FY25	FY24
College of Education & P-16 Integration	$4,908,547	$21,419,197
College of Engineering & Computer Science	$27,600,679	$14,135,672
College of Fine Arts	$911,698	$336,088
College of Health Professions	$1,900,105	$2,455,277
College of Liberal Arts	$1,710,458	$2,451,211
College of Sciences	$12,032,931	$19,801,684
Honor College	-	$34,688
Robert C. Vackar College of Business & Entrepreneurship	$664,834	$846,705
School of Medicine	$11,629,209	$75,559,555
School of Nursing	$1,289,901	$376,983
School of Podiatric Medicine	$637,501	-
School of Social Work	$725,248	$829,170
Other VP Level Divisions	$9,449,790	$61,404,999
Total	**$73,460,899**	**$199,651,228**


Solar Eclipses
NASA
UTRGV

Over $1 Million in Sponsored Project Expenditures

Dr. Hilda Medrano
Human Development and School Services
College of Education & P-16 Integration
$7,902,078

Dr. Jianzhi (James) Li
Manufacturing & Industrial Engineering
College of Engineering & Computer Science
$3,468,750

Dr. Gladys E. Maestre
NBHISU Neuroscience
School of Medicine
$3,289,257

Dr. Constantine M. Tarawneh
Mechanical Engineering
College of Engineering & Computer Science
$2,901,325

Dr. John Blangero
Human Genetics & STDOI
School of Medicine
$2,100,932

Dr. Nancy Peña Razo
Human Development & School Services
College of Education & P-16 Integration
$2,047,882

Dr. Everardo Cobos
Medicine and Oncology ISU
School of Medicine
$1,536,600

Dr. Sarah A. Blangero
Human Genetics & STDOI
School of Medicine
$1,336,887

Dr. Wayne Burleson Wilson
PCCISU Women's & Children's Health
School of Medicine
$1,190,087

Dr. Joanne E. Curran
Human Genetics & STDOI
School of Medicine
$1,099,467

Dr. Noe Ramos
Human Development & School Services
College of Education & P-16 Integration
$1,035,199

Dr. Deepu Varughese George
PCCISU Primary & Preventive Care
School of Medicine
$1,035,005

Dr. Subhash C. Chauhan
MDOISU Cancer Research
School of Medicine
$1,001,214


UTRGV


UTRGV

Photograph by Jesús Alférez

REFLECTING ON A DECADE OF RESEARCH GROWTH

PRESIDENT BAILEY AND DR. SAYGIN IN CONVERSATION

UTRGV President Guy Bailey and Dr. Can Saygin, senior vice president for Research and dean of the Graduate College, met at the UTRGV Rio Bank Building in McAllen for a conversation reflecting on the university's first decade and its progress in research and academic growth. The discussion centered on the milestones that shaped UTRGV since 2015, the challenges of establishing a new institution, and the expanding research capacity that is defining the university's next chapter.

Bailey began by revisiting the university's creation in 2013, a moment he described as transformational for the Rio Grande Valley and for higher education in Texas. "The creation of UTRGV marked a bold investment in the Rio Grande Valley's future, affirming that our region deserved a comprehensive public university that combines access, affordability and academic ambition," he said. "It represented a turning point for higher education in Texas: a commitment to serving a growing, diverse population and to lifting an entire region through education."

Saygin noted that the university's first decade established a strong academic foundation that positioned UTRGV for accelerated research growth. When he arrived in August 2022, he stepped into an institution with significant groundwork already in place. "Many of the fundamentals that defined the university's early trajectory in terms of academic programs and research directions were already in place," he said. "You could see the impact of that early investment and strategic thinking in academic programs, infrastructure and a community-centered mission. Those efforts contributed to the momentum and the research portfolio we are building today."

As Bailey spoke about the university's early years, Saygin added that the ability to build on that momentum has allowed UTRGV to move quickly. "The first decade gave us an institutional framework," he said. "Our responsibility now is to take that framework and operationalize it in ways that produce measurable outcomes for the region."

Bailey highlighted several defining milestones that shaped the university's evolution. "There are too many to name them all, but key milestones include achieving full accreditation, launching our medical school and school of podiatric medicine, crossing the $100 million research expenditure mark, surpassing $300 million in fundraising, being ranked the No. 1 university in Texas by Washington Monthly for three straight years, launching Division I football and deepening our regional impact," he said. "Each of these affirmed that UTRGV is not just new but essential."

As the conversation moved to the challenges of establishing a new university, Bailey reflected on the work required to unify two legacy institutions into a single mission. "In the early years the biggest challenges were unifying two legacy institutions into one vision, building new infrastructure, recruiting research active faculty, and shifting culture toward bold ambitions," he said. "Those hurdles forced us to be agile, to build partnerships, and to embed a culture of innovation and inclusiveness, traits that now define our direction."

Saygin agreed, noting that those early efforts shaped the university's identity in ways still visible today. "Those foundational years defined the culture we have now," he said. "What we see today is a campus that values collaboration, research can directly serve the community."

Both leaders emphasized that UTRGV's rise in research remains aligned with its mission of access and affordability.

Bailey described this connection as part of the university's core identity. "We began as a mission driven institution focused on access, and as we've grown our academic and research capabilities we've never lost that foundation," he said. "In fact, we see access and affordability as the gateway to excellence. By enabling students from the Valley to engage in high level research and scholarship, we prove that excellence and equity go hand in hand."

Saygin added that this mission alignment is central to UTRGV's distinctive model. "Research does not sit apart from who we serve," he said. "Our growth is tied to expanding opportunity for local students and building research programs that respond to regional needs."

The university's milestone of surpassing one hundred million dollars in research expenditures in Fiscal Year 2025 reflects this balance of access and ambition. Bailey called the achievement a historic marker for South Texas. "Crossing $100 million is more than a number, it is a declaration that UTRGV is a serious research university with meaningful impact," he said. "For South Texas, it means that globally relevant knowledge is being generated here, in our region, addressing our own challenges and informing broader solutions. This milestone signals that the Valley is no longer just a recipient of research, it is a generator."

As he spoke, Saygin listened closely, agreeing that the milestone signaled a turning point for both the institution and the region. Saygin followed by noting that the achievement did not happen by chance but through coordinated work across academic units and research-support offices. Drawing from the university's I.M.P.A.C.T. framework, which focuses on Infrastructure, Metrics, Programs, Alignment, Collaboration and Targets, he emphasized how planned investments have accelerated the university's trajectory. "The 71 percent increase in total research expenditures over the last three years shows a fundamental transformation in research culture, operational capacity and institutional positioning," he said.

Saygin expanded on this point, citing improvements in process, systems and research operations. "We strengthened workflow systems, standardized proposal development, modernized data tracking and aligned processes across colleges," he said. "Those changes allowed faculty to spend more time on research and less on administrative barriers."

He added that the milestone reflects a broader cultural shift. "The research community at UTRGV is highly engaged," he said. "Faculty, staff and students understand that research excellence is a shared responsibility. That mindset is what will carry us into the next decade."

Bailey underscored the important role of people in this growth. "Our faculty bring vision and grit; our students bring curiosity and fresh perspectives; and our community partnerships bring local wisdom and real-world relevance," he said. "Together they shape a research identity rooted in regionally anchored questions with global implications. It's this triangular dynamic—faculty, students, and community—that gives our research its voice and its purpose."

As the discussion continued, Bailey highlighted areas where UTRGV's research has already made visible differences. "Research in health and medical education, environmental resilience, bilingual education and workforce development have been particularly visible," he said. "Whether improving access to care, addressing climate related challenges, or enhancing student success, our work is showing up in the daily lives of people here and creating models that others can follow."

Saygin noted that these outcomes reflect cross-disciplinary efforts. "Interdisciplinary work is one of our strongest assets," he said. "The university's multi-campus structure allows teams to collaborate naturally, share resources and connect expertise."

Bailey added the importance of that environment. "When our engineers, health professionals, educators and social scientists cross paths, new ideas emerge," he said. "Our multi campus structure allows us to share resources, talent and perspectives, fostering interdisciplinary work that elevates our research enterprise and helps tackle complex, real world problems."

Looking ahead, Bailey outlined key priorities for the university's second decade. "Our priorities include deepening investment in signature areas of strength, expanding undergraduate and graduate research opportunities, recruiting and retaining world class faculty, and strengthening infrastructure, such as labs, data systems, and partnerships," he said. "At the same time, we'll ensure our growth remains anchored in the community we serve."

Saygin expanded on these priorities by discussing how the university plans to build on its current momentum. "Sustaining growth requires consistent investment," he said. "That means continuing to modernize our core systems, supporting faculty recruitment and expanding opportunities for student engagement in research."

He added that much of the progress depends on strengthening support structures. "A research university grows from the inside out," he said. "If our systems, processes and partnerships are strong, our research output naturally expands."

Bailey noted that expanding opportunity for students remains central to the institution's mission. "We will expand opportunity by equipping more students, especially first generation and underrepresented students, for research leadership," he said. "In doing so, we strengthen UTRGV's role not just locally but as a contributor to national and global knowledge."

Saygin added that student research pathways will continue to expand in the years ahead. "Students are central to our mission," he said. "We are working to ensure they have access to research experiences as early as possible, including undergraduate research mentoring, hands-on projects and graduate-level research opportunities."

When the discussion turned to UTRGV's pursuit of Carnegie R1 status, Bailey emphasized its significance. "The pursuit of R1 status is both a goal and a north star," he said. "Achieving R1 will elevate our institutional reputation and through that, elevate the Rio Grande Valley."

Saygin added that the pursuit of R1 is already shaping internal processes. "Every improvement we make strengthens our readiness for R1," he said. "It is not just about classification. It is about building a university that can sustain high-impact research for the long term."

As the meeting drew to a close, Bailey reflected on the significance of leading UTRGV through its first decade. "What is most rewarding is witnessing students from the Valley stepping into roles they once thought were out of reach," he said. "Leading UTRGV through this transformation has been a privilege because it is about hope in action."

He sent a message to faculty, staff and students. "Thank you. To our faculty, staff and students: your dedication, your creativity and your belief in this institution make every success possible. Let's stay ambitious, stay collaborative, practice boldness rooted in service and keep uplifting the Valley together."

Bailey ended with a message to the region. "To the community of the Rio Grande Valley: this moment is yours," he said. "What defines us now is not just that we are growing but that we are doing so with purpose, anchored in place, and committed to the people we serve. The next decade is full of promise, and we will embrace it together."

The conversation underscored how UTRGV's first decade laid the groundwork for its research enterprise. Through reflective dialogue and shared insight, Saygin and Bailey emphasized UTRGV's progress reflects sustained investment and a shared vision for the region's future. ■ Written by María González

"The creation of UTRGV marked a bold investment in the Rio Grande Valley's future."

UTRGV President Guy Bailey

Photograph by Jesús Alférez

"The first decade gave us an institutional framework.
Our responsibility now is to take that framework and operationalize it."

Dr. Can Saygin
Senior Vice President for Research and Dean of the Graduate College

Photograph by Jesús Alférez


UTRGV


GET YOUR ORAN

UTRGV History

The University of Texas Rio Grande Valley (UTRGV) was created by the Texas Legislature in 2013 by combining the resources of The University of Texas–Pan American and The University of Texas at Brownsville. This historic action made it possible for the Rio Grande Valley to benefit from the Permanent University Fund for the first time and set the groundwork for a new public university that would expand educational opportunity in the region. UTRGV enrolled its inaugural class in fall 2015, and the School of Medicine opened the following year.

The university's creation followed a long history of higher education development in South Texas. Early foundations were established when Texas Southmost College and Edinburg College first received accreditation to offer associate degrees in the 1930s. Edinburg College later became Pan American College and expanded its academic programs as it grew in enrollment and mission. Over time, the institution advanced to become Pan American University, reflecting its transition into a comprehensive university serving the growing population of the Rio Grande Valley.

Parallel developments took place in Brownsville, where higher education offerings expanded through evolving partnerships and institutional changes. Pan American University at Brownsville became separately accredited in the late 1980s, and both Brownsville and Edinburg campuses became part of The University of Texas System shortly thereafter. The Brownsville campus was later renamed The University of Texas at Brownsville in 1991, and its partnership with Texas Southmost College was accredited as a single institution in the mid-1990s, strengthening access to academic programs in the region.

As both institutions evolved, each played a significant role in expanding access to degree programs and strengthening educational pathways in the Valley. Faculty and staff across the legacy campuses developed academic offerings that later formed part of UTRGV's foundation, including programs in science, education, business and health-related fields. Community partnerships, outreach activities and student support initiatives helped build a framework that carried into the new university after consolidation. Throughout this period, the UT System supported planning for long-term regional growth, including discussions related to medical education, campus expansion and shared services. These efforts contributed to the conditions that made the creation of UTRGV possible and informed the development of its early direction. The groundwork set during these years positioned the region for broader academic growth once consolidation moved forward.

Momentum continued as interest in expanding medical education grew, building on earlier regional efforts to pursue a medical school. In 2012, the UT System Board of Regents approved a plan to establish a new university in South Texas with an integrated School of Medicine. The following year, state legislation formally created UTRGV, unifying the legacy institutions into a single regional university with expanded academic, research and healthcare missions.

When UTRGV opened its doors in 2015, it welcomed more than 29,000 students across its campuses from Brownsville to Edinburg. The transition included the official closure of UT Brownsville in 2016 while UTRGV continued forward as the consolidated institution. That same year, the UTRGV School of Medicine welcomed its inaugural class, marking a significant step in expanding medical education in the Rio Grande Valley.

This historical foundation provides the context for UTRGV's first decade and the university's continued progress across academics, research, healthcare and regional engagement. The evolution of the legacy institutions and the creation of UTRGV reflect long-term efforts to expand opportunity in South Texas and support the region through a unified public university. These developments formed the basis for The University of Texas Rio Grande Valley's early identity and its future institutional direction and regional impact. ■ Written by María González

UTRGV 10th Anniversary Research Milestones

2015

UTRGV Opens their Doors

UTRGV opened in Fall 2015, combining the resources of UT Brownsville and UT Pan American to create a multi-campus university serving the Rio Grande Valley.

DOD Funds Fluid Dynamics Expansion

UTRGV strengthened its early research infrastructure with a DOD-funded Tomo-PIV system, supporting fluid-dynamics studies and hands-on training for STEM students.

2016

2017

Avocado Seed Husk Discovery

UTRGV chemistry researchers identified more than 100 natural compounds in the avocado seed husk, drawing national and international media attention.

2018

NIH Grant Advances Liver Disease Research

NIH awarded STDOI $3.6M to examine environmental risk factors for fatty liver disease in South Texas.

2019

South Texas Center of Excellence in Cancer Research Established

The UTRGV School of Medicine launched the South Texas Center of Excellence in Cancer Research to address cancer related health issues in the region.

2021

Institute of Neuroscience Opens

UTRGV opened the 30,000-sq-ft Institute of Neuroscience, creating a center for brain and behavioral health research, clinical services and interdisciplinary training.

UTRGV Launches COVID-19 Research and Testing Initiative

UTRGV's Clinical Lab became a regional leader in COVID-19 testing, completing 230,000 tests with the fastest turnaround time in Texas and establishing long-term clinical capacity.

2020

Railcar Safety Technology Licensed

UTRGV licensed its railcar-bearing monitoring system to Hum Industrial Technology, Inc., its first patent license to generate royalties advancing rail-safety innovation driven by student research.

2022

2023

Vector-Borne Disease Mapping Expands

UTRGV researchers advanced a multi-institutional project to map climate-driven vector-borne disease risks in South Texas and Northern Mexico through a Wellcome Trust sub-award.

2024

AI-Based Age Estimation Advances

UTRGV received its first prime NIJ grant to develop an AI-based forensic tool using the world's largest cementochronology collection, advancing age-at-death and season-of-death estimation.

2025

UTRGV's First Cottrell Scholar

UTRGV received its first Cottrell Scholar Award, supporting research on stellar interactions and expanding astronomy education.

Decade of Growth

From 2015 to 2025, The University of Texas Rio Grande Valley progressed through its first decade, building on the foundations described in the pre-history section and advancing its academic, research and regional missions. The university opened in fall 2015 with more than 29,000 students, and over the next ten years expanded programs, infrastructure and services across the Rio Grande Valley. This decade reflects sustained institutional development supported by state and UT System investments, community partnerships and planning aligned with regional needs that continued shaping UTRGV's direction and long-term priorities.

Research activity expanded significantly during this period. UTRGV reported $103.7 million in total research expenditures in FY25, a 71% increase from FY22 and the first time the university surpassed the $100 million mark. These results confirmed progress toward Carnegie R1 status and reflected growth supported through the I.M.P.A.C.T. framework, which emphasizes Infrastructure, Metrics, Programs, Alignment, Collaboration and Targets. The increase was strengthened by new research initiatives, expanded facilities, interdisciplinary programs and the continued development of research culture across the institution. Additional growth also came from expanded faculty recruitment, increased student research participation and strengthened operational support systems that improved processing timelines and overall efficiency across units.

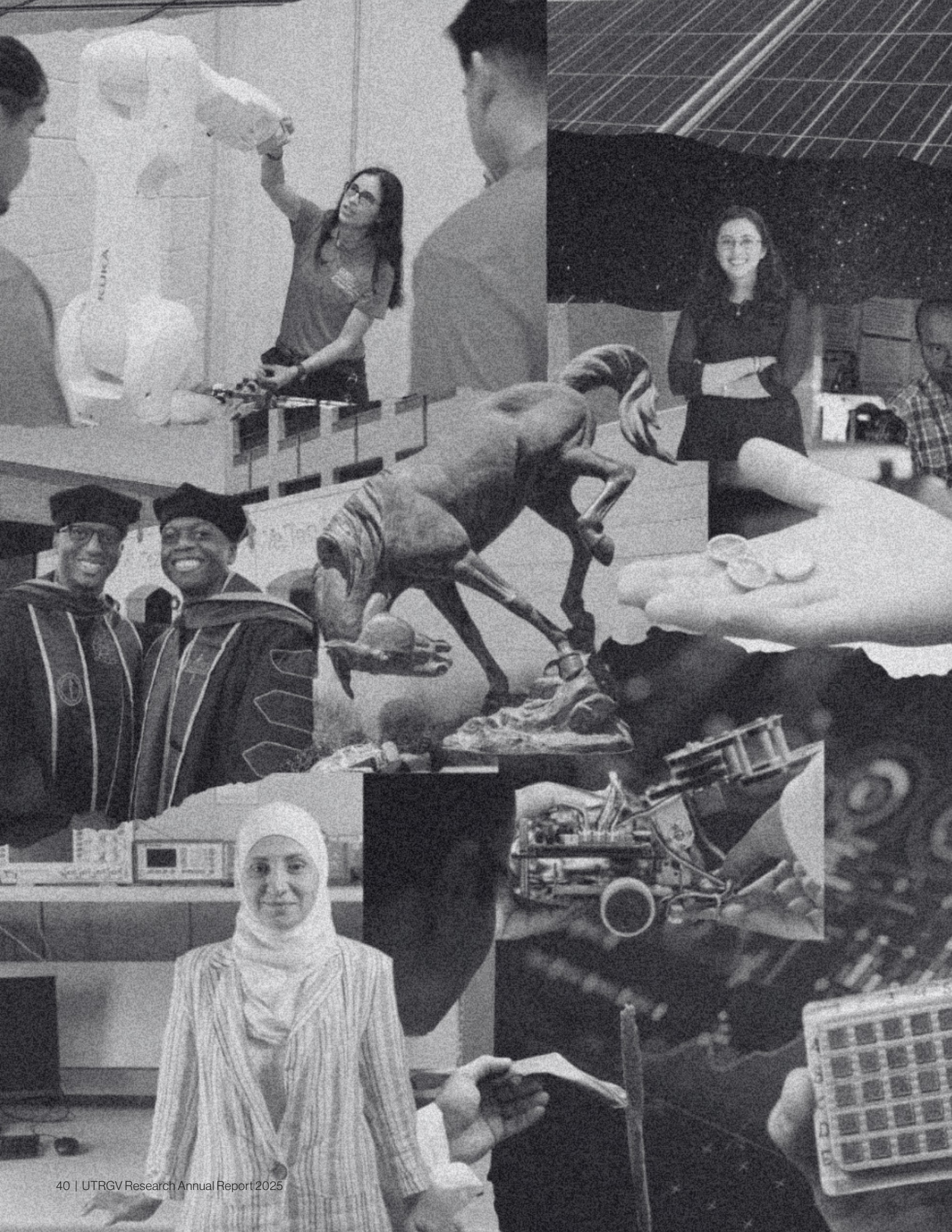
Student success indicators also strengthened over the decade. In fall 2025, UTRGV recorded its sixth consecutive first-day enrollment record, welcoming 35,812 students. More than 7,200 incoming freshmen formed the largest freshman class in university history, and doctoral enrollment exceeded 680 students, increasing 176% from the university's first year. First-year retention remained above 80% for a third consecutive year. During this period, UTRGV maintained one of the lowest tuition rates in the nation and expanded access through the UTRGV Tuition Advantage, which covers tuition and mandatory fees for qualifying Texas residents.

Healthcare expansion marked another core area of development. UTRGV opened the School of Medicine in 2016 and later added the School of Podiatric Medicine and the School of Optometry. The university broadened its clinical network through regional clinics, specialty practices and student-run care sites. The establishment of the UTRGV Cancer and Surgery Center in McAllen further advanced healthcare access and research capacity in the Rio Grande Valley. These developments strengthened medical education and supported expanded training, service and clinical research opportunities.

UTRGV's regional footprint grew as new locations, teaching sites and specialized centers were developed throughout South Texas. Facilities expanded in Edinburg, Brownsville, Rio Grande City, McAllen, Weslaco, Harlingen, Laredo, Port Isabel and South Padre Island. Investments included academic buildings, science and engineering infrastructure and strategic property acquisitions to support the arts, health professions and community-serving programs. Collegiate high school partnerships grew as well, including collaborations with Harlingen CISD, Edinburg CISD and McAllen ISD to increase dual-credit pathways and early college opportunities.

The decade also reflected broader institutional momentum. Rankings recognized UTRGV's progress in social mobility, value and student outcomes, including national placements from Washington Monthly and the Wall Street Journal. Enrollment growth, expanded doctoral offerings, increased graduation totals and rising research activity underscored the university's continued development as a major public institution. Philanthropic support also grew, strengthening student scholarships, academic programs and long-term institutional initiatives.

As UTRGV reached its 10th anniversary, these developments illustrated the university's progress across academics, research, healthcare and regional service. The first decade positioned the institution to enter its next phase with a strengthened foundation, expanded capacity and growing research infrastructure. The progress from 2015 to 2025 provides context for continued advancement as the university moves into its second decade with a focus on expanding research activity, supporting student opportunity and advancing institutional impact. ■ Written by María González




UTRGV


UTRGV

2015 - 2019

2015

UTRGV students enter the Main Courtyard on the first day of class on Monday, Aug. 31, 2015 in Brownsville, Texas. Photograph by Paul Chouy

UTRGV Opens Its Doors

The University of Texas Rio Grande Valley was created by the Texas Legislature in 2013 as the first major public university of the 21st century in Texas. This initiative expanded educational opportunity in the Rio Grande Valley, including the development of a new School of Medicine and the UTRGV School of Podiatric Medicine, and provided the region with access to the Permanent University Fund for the first time. The university enrolled its first class in fall 2015 and began operating as a comprehensive academic institution with campuses and teaching sites in Brownsville, Edinburg, Harlingen, Weslaco, McAllen, Port Isabel, Rio Grande City and South Padre Island.

UT Rio Grande Valley opened in fall 2015 in a historic move that combined the resources and academic assets of UT Brownsville and UT Pan American. The institution enrolled its first class on Aug. 31, 2015, marking the beginning of a new public university with a mission tied to access, academic strength and long-term research growth.

About 29,000 students attended classes on both the Brownsville and Edinburg campuses on the first official day. More than 5,000 course sections were offered across multiple locations. The launch of the university created a multi-site structure that served a large and diverse student population across the region.

The opening months also established many of the traditions that remain part of the institution today. UTRGV held its first commencement ceremonies that fall. In December on the Brownsville Campus, 633 legacy graduates participated in a ceremony on the Student Union Lawn, followed by two ceremonies in Edinburg with 1,456 legacy graduates. These events recognized students from the legacy institutions and marked the beginning of UTRGV's commencement history.

During its first year, the university also finalized the Vaquero brand. The UT System Board of Regents had approved the Vaquero mascot in November 2014 and athletic imagery in 2015, with final branding elements implemented during the university's first year. This established a consistent identity for athletics and student life across campuses.

Several early indicators reflected the university's initial progress. The preliminary freshman retention rate was 81.6 percent, above the national average of 78.6 percent and the third highest in the UT System behind UT Austin and UT Dallas. Student applications increased by 21 percent, from 11,030 for fall 2015 to 13,332 for fall 2016. The freshman class also included more valedictorians, salutatorians and students ranked in the top 10 percent of their high school class compared to the previous year.

Private giving played an important role during this period. Philanthropy increased from $4.3 million in fiscal year 2015 to $23 million in fiscal year 2016. That total included a $15 million gift that established the Robert C. Vackar College of Business and Entrepreneurship. Early donor support strengthened academic programs and contributed to the university's ability to develop new initiatives.

The opening year included significant planning and construction aligned with the university's academic and research goals. UTRGV opened its first School of Medicine building on the Edinburg Campus. Construction continued on an academic building in Brownsville and the Science Research Building in Edinburg. Planning was completed for two Tuition Revenue Bond projects: a multipurpose academic facility in Brownsville and an interdisciplinary engineering building in Edinburg. These efforts expanded instructional and research capacity as the university prepared to grow its academic and scientific programs.

Work connected to the university's research direction also began during this period. The School of Medicine, which welcomed its inaugural class of 55 medical students in 2016, supported the institution's goals to address regional health needs and build future research capacity.

By the end of 2015, UTRGV had established its identity as a comprehensive academic institution with campuses and teaching sites across the Rio Grande Valley. The year marked the beginning of a decade defined by steady expansion in enrollment, academic programs and research activity. The foundation set in 2015 supported the growth that would follow, shaping the university's trajectory as it advanced its mission in the years ahead. ■ Written by María González

2016

Dr. Isaac M. Choutapalli, professor of mechanical engineering and director of the UTRGV Center for Aerospace Research, led UTRGV's acquisition of a DOD-funded Tomo-PIV system, expanding the university's fluid dynamics and biomedical research capabilities. Photograph by Jesús Alférez

DOD Grant Expands UTRGV's Research in Fluid Dynamics

In 2016, The University of Texas Rio Grande Valley advanced its research capabilities through a federal award supporting the acquisition of specialized instrumentation for engineering and biomedical investigations. The U.S. Department of Defense awarded UTRGV $499,519 to purchase a Tomographic Particle Image Velocimetry (Tomo-PIV) system, a state-of-the-art tool used to measure three-dimensional flow structures and turbulence in fluids. The funded equipment expanded laboratory capacity across multiple academic units and supported efforts to enhance research training for undergraduate and graduate students in science, technology, engineering and mathematics fields. The investment also marked one of the earliest major equipment acquisitions of the newly formed university, strengthening its foundation for future large-scale research projects.

The project was led by Dr. Isaac M. Choutapalli, principal investigator, who at the time was an assistant professor of mechanical engineering and now serves as a professor in the department. Dr. Robert Freeman served as co-principal investigator; he was then a professor and chair of mechanical engineering and now serves as dean of the College of Engineering and Computer Science. The equipment was designated as a shared resource supporting research in mechanical engineering, civil engineering, physics, geology and the School of Medicine. Its shared structure allowed faculty and students across disciplines to access the same advanced measurement capabilities, supporting collaborative work in both engineering and biomedical research.

The Tomo-PIV system provides three-dimensional velocity measurements and visualization of fluid behavior, including air and liquid flow patterns. The equipment expanded the capabilities of UTRGV's Aerodynamics and Propulsion Laboratory, where Choutapalli oversees research on drag and noise reduction, fuel efficiency and thrust enhancement. The system enabled improved analysis of fluid dynamics relevant to aerodynamics, propulsion systems and biomedical flows. These capabilities supported studies connected to national defense priorities and created opportunities for faculty and students to conduct research aligned with emerging engineering applications. Its ability to measure detailed flow structures supported research related to military and commercial aircraft performance and contributed to applied investigations in aerodynamics.

The Tomo-PIV system also contributed to research efforts within the UTRGV School of Medicine. The equipment supports studies on biological flows, including airflow through the lungs and blood flow characteristics in large arteries. Collaborative projects using the system include research on cerebral aneurysms and evaluations of fluid flow diverters used in endovascular treatment. The ability to visualize and quantify blood flow patterns provided researchers with tools to support clinical investigations and contributed to biomedical research efforts across the institution.

Student engagement was a central component of the project. Undergraduate and graduate students in mechanical engineering worked with the Tomo-PIV system as part of research projects in the Aerodynamics and Propulsion Laboratory. Students contributed to the design and testing of aerodynamic structures, including senior design studies focused on improving lift and drag performance. The instrumentation allowed students to conduct analyses and reinforced research training that supported pathways to advanced study and STEM careers. These experiences helped build a student pipeline equipped with hands-on skills in measurement techniques and experimental design, strengthening preparation for competitive graduate programs.

Additionally, the equipment expanded opportunities for outreach and STEM engagement. Faculty and students planned demonstrations at regional events, including university programs promoting science and engineering participation. The system enhanced demonstrations in aerodynamics by allowing participants to observe flow patterns and learn about measurement techniques used in fluid dynamics research.

The Tomo-PIV system also strengthened UTRGV's ability to build academic programs connected to aerospace and engineering. Mechanical engineering faculty explored technical electives and potential offerings related to aerospace studies. The instrumentation provided capacity for courses and projects requiring advanced flow measurement techniques and complemented efforts to expand student training in engineering fields tied to regional and national workforce needs.

The award supported UTRGV's research priorities by expanding facility capabilities, enabling applied investigations in aerodynamics and biomedical engineering and providing training opportunities for students. The Tomo-PIV system became a shared research tool across disciplines and contributed to UTRGV's efforts to enhance laboratory infrastructure during its early years as a consolidated institution. The 2016 investment strengthened UTRGV's capacity to participate in defense-aligned research and supported the development of student researchers preparing for advanced studies and STEM careers. ■ Written by Jesús Alférez

2017

Dr. Debasish Bandyopadhyay, associate professor in the UTRGV School of Integrative Biological and Chemical Sciences. Photograph by Jesús Alférez

Avocado Seed Husk Research Gains International Attention

In 2017, research conducted in the Department of Chemistry at The University of Texas Rio Grande Valley drew national and international attention for findings related to the avocado seed husk. Dr. Debasish Bandyopadhyay, associate professor in the UTRGV School of Integrative Biological and Chemical Sciences, and his student research team identified medicinally privileged and industrially significant chemical compounds in the husk, normally discarded as waste, that showed potential relevance to disease treatment and industrial applications.

The project began when Bandyopadhyay reviewed a scientific article on food waste and noted that a large portion of fruits and vegetables is routinely discarded, creating environmental hazards. He questioned whether some of that material could contain useful natural compounds. The avocado seed husk became a focus because it is the thin protective layer that surrounds the seed. He often describes it as a barrier that helps shield the seed from insects and environmental stress, suggesting it could also contain defensive chemical compounds.

With support from technical-support coordinator Thomas Eubanks and a team of students (Valerie Cano, Orlando Castillo, Alex Velasco, and Daniel Villicana), Bandyopadhyay collected roughly 300 avocado seeds from local sources. The group dried the seeds, removed the husks, processed them into powder, and separated the material into oil and wax for laboratory analysis. From those samples, the team identified more than 100 compounds in the oil and additional compounds in the wax. Several of the molecules had been studied elsewhere for antiviral, cholesterol-related, or cancer-related properties. Others are used in food, cosmetic, and plastic industries.

Bandyopadhyay highlights the work as an example of natural product chemistry, a field that draws on chemical compounds found in plants, microbes, marine organisms, and animals. He often tells students that many widely used medicines originate from natural sources, noting that a significant share of commercial drugs is based on natural products or their derivatives. He also emphasizes that patience and time are required for this type of research. Students might isolate many known compounds before finding something new, but a single discovery can reshape the direction of a project.

The avocado seed husk analysis was selected by the American Chemical Society for a press release out of nearly 9,400 presentations on a wide range of science topics at its national meeting in Washington, D.C. The ACS also included the work in an official press briefing, which led to broad media coverage. News organizations in the United States and abroad reported on the findings, and video coverage of the press conference was posted on the ACS YouTube channel. The attention extended to invitations for Bandyopadhyay to speak at meetings hosted by the World Avocado Organization and the Peruvian Avocado Association.

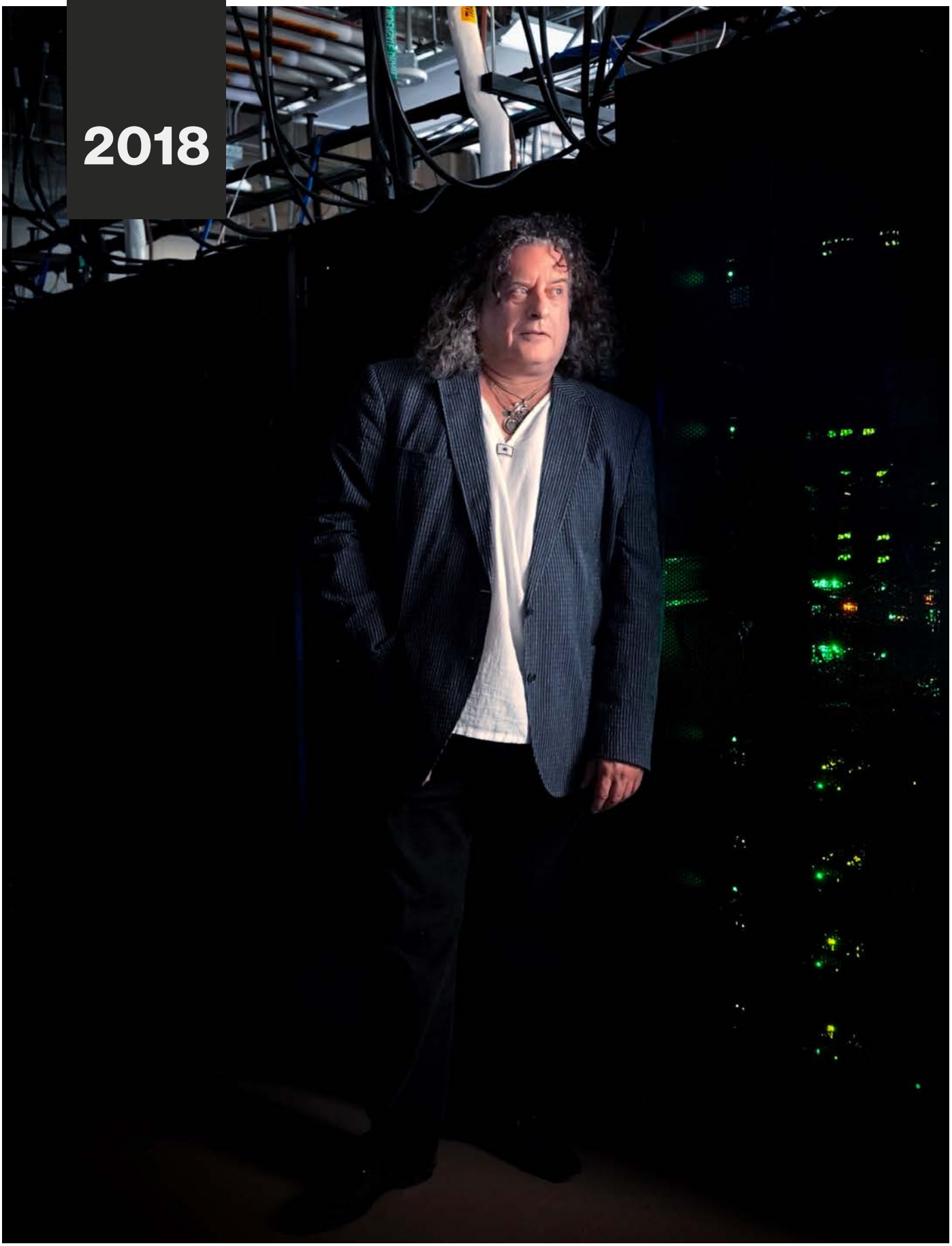
The project involved undergraduate and graduate students who participated throughout the research process. They prepared samples, ran instruments, reviewed data, and maintained laboratory procedures. Many worked outside regular class hours to ensure experiments continued on schedule. Several students later described the experience as their first sustained exposure to a research environment, noting that it differed from traditional teaching labs because of the ongoing nature of the work and the level of collaboration required.

Students also said the project helped build confidence in their scientific skills. Some noted that they did not fully understand the scale of the research until they saw how widely the findings were reported. Others said the lab work prepared them for future academic programs by giving them direct experience with research methods, data collection, and problem-solving.

The project received support from then College of Sciences Dean Parwinder Grewal and internal funding programs that allowed the team to continue isolating and studying specific compounds after the initial findings. The research remains ongoing as the group works to better understand the properties and potential applications of the molecules found in the husk.

By the end of 2017, the avocado seed husk project had become one of the most visible research efforts at the university. It demonstrated how a regional agricultural product could lead to scientific discovery and provided students with opportunities to develop skills in natural product chemistry. The work also contributed to broader conversations about reducing food waste, identifying valuable compounds in overlooked materials, and exploring natural sources for future medical and industrial research. ■ Written by Jesús Alférez

2018



Dr. John Blangero, professor in the Department of Human Genetics (then located in the UTRGV School of Medicine) and director of the Genomics Computing Center at STDOI. Photograph by Jesús Alférez

UTRGV Launches NIH-Funded Study on Fatty Liver Disease

In 2018, The University of Texas Rio Grande Valley received a major federal research award through the South Texas Diabetes and Obesity Institute (STDOI). That year, the National Institutes of Health's National Institute on Minority Health and Health Disparities awarded STDOI a five-year, $3.6 million grant to investigate the environmental determinants of fatty liver disease in Mexican Americans, a population shown to experience disproportionate rates of fatty liver disease and related complications. The grant expanded UTRGV's capacity to address chronic disease in the Rio Grande Valley and strengthened the university's role in national research efforts.

The project was led by Dr. John Blangero, professor in the Department of Human Genetics (then located in the UTRGV School of Medicine) and director of the Genomics Computing Center at STDOI. As principal investigator, Blangero designed the study to examine how environmental exposures shape risk for fatty liver disease, which is characterized by excess liver fat and can progress to steatohepatitis, liver fibrosis, cirrhosis and hepatocellular carcinoma. Fatty liver disease has been documented at elevated prevalence among Mexican Americans, especially in South Texas.

The study used magnetic resonance imaging to measure liver fat and stiffness, both clinical indicators associated with fatty liver disease. STDOI partnered with UT Health San Antonio's Research Imaging Institute under a subcontract led by Dr. Geoff Clarke, who served as co-principal investigator. MRI scans provided detailed information that allowed researchers to assess early signs of disease and identify patterns linked to environmental exposures.

Blangero's unique approach involved controlling for genetic factors to isolate environmental effects, a method that he developed. Because the human genome is constant across short time spans, the rise in fatty liver disease and liver cancer over recent decades has pointed toward environmental, behavioral and lifestyle influences. The project used a statistical design incorporating whole-genome sequencing data to distinguish environmental risk factors from inherited variation, allowing researchers to focus directly on the exposome, or the wide range of environmental and behavioral elements that shape disease risk.

The research focused on 1,000 Mexican American participants from large families across South Texas whom the institute has studied for more than three decades through the San Antonio Mexican American Family Study. These participants had already been genetically characterized, giving the team a foundation for identifying environmental contributions to fatty liver disease. By pairing MRI-based assessments with high-dimensional biological measurements, including exposomic, metabolomic, lipidomic, epigenomic and transcriptomic data, the project evaluated thousands of biomarkers that may reflect environmental influences on liver health.

Researchers examined these biomarkers to identify patterns associated with fatty liver disease and linked them to broader environmental domains. Variables included diet, physical activity, alcohol intake, socioeconomic context, exposure to pollutants, microbiome variability and other environmental or behavioral stressors. The study also incorporated analyses designed to identify gene-environment interactions, which may explain why individuals respond differently to similar exposures.

The NIH award aligned with the mission of the UTRGV School of Medicine, which emphasizes advancing research in conditions that disproportionately affect Hispanic populations. Because Mexican Americans experience some of the highest documented rates of nonalcoholic fatty liver disease and elevated risk for cirrhosis, the project's findings are expected to remain highly relevant to communities in South Texas and beyond.

The research team aimed to identify environmental factors that could inform future treatments, medications or prevention strategies. By focusing on a population with high disease burden, the project sought to accelerate the development of targeted interventions that may reduce progression to severe liver disease and improve long-term health outcomes.

The grant remains one of the most significant awards supporting chronic disease research at UTRGV. It strengthened collaborative ties with UT Health San Antonio and expanded opportunities for interdisciplinary investigation involving genetics, imaging and environmental health. The project led to additional funded projects on the human disease-relevant exposome including studies in major depression and Alzheimer's disease. Additionally, there are now multiple graduate students working on PhD dissertation projects that have been spun off of this path-breaking research in genotype-by-environment interaction. The work also contributes to a growing portfolio of research at STDOI focused on understanding and reducing chronic disease risk in Hispanic communities.

As UTRGV continues its research growth, the project illustrates how large-scale federal investments support scientific discovery and produce insights relevant to the Rio Grande Valley. By studying environmental drivers of fatty liver disease in Mexican American families, the university contributed evidence that may guide future prevention, treatment and public health strategies for one of the region's most pressing health challenges. ■ Written by María González

2019

Dr. Subhash C. Chauhan, professor in the UTRGV School of Medicine and director of the South Texas Center of Excellence in Cancer Research. Photograph by Jesús Alférez

UTRGV Establishes the South Texas Center of Excellence in Cancer Research

In 2019, The University of Texas Rio Grande Valley established the South Texas Center of Excellence in Cancer Research within the UTRGV School of Medicine. The Center was created to address cancer-related health needs in the Rio Grande Valley and to build a facility capable of supporting advanced scientific investigation. It is housed in an 80,000 square foot Biomedical Research Building in McAllen with core facilities designed to strengthen cancer research, training, and collaboration across disciplines.

From the beginning, the Center focused on reducing cancer health disparities affecting the region. Research programs were developed to study tumor biology, the tumor microenvironment, cancer immunology, nanomedicine, drug delivery, biomarkers, and cancer-associated co-morbidities. New technologies were added to support this work, including flow cytometry, CyTOF, imaging systems, droplet digital PCR, and molecular and microPET CT resources. These tools created the foundation for future growth in preclinical and translational research.

Under the direction of Dr. Subhash C. Chauhan, Professor and Director of the Center, the program expanded significantly over the following years, attracting federal, state, and private support. The Center contributed to securing nearly $30 million in external funding through competitive grants and contracts that strengthened cancer research capacity at UTRGV.

The Center supported multiple awards from the National Institutes of Health. These included two SC1 grants totaling $3.1 million, one R16 award for $1.5 million, two R01 awards totaling $3 million, and three RCMI project grants amounting to $18.4 million. These awards advanced studies in cancer biology, health disparities, immuno-oncology, and translational medicine.

State funding played an important role. Awards from the Cancer Prevention and Research Institute of Texas (CPRIT) included the ICRC award for $2.5 million, the TREC award for $6 million, and the DDNC Core award for $2.8 million. These projects strengthened drug delivery, nanomedicine, and community outreach efforts.

Support from the National Science Foundation added to these efforts. Two NSF awards, including an instrumentation grant and a CAREER award, expanded imaging and analytical capabilities for interdisciplinary research. Additional funding from the Valley Baptist Foundation, SSA Foundation, and Good Days Foundation supported studies focused on patient outcomes, community health, and therapeutic development.

Scientific contributions grew steadily. Since its establishment, the Center's investigators have produced more than 110 peer-reviewed research articles, 10 book chapters, and 2 scientific books. Faculty presented research findings in more than 150 national and international conferences, including invited presentations at prominent cancer research meetings. Work from the Center has appeared on the cover pages of more than 15 scientific journals. Two faculty members, Dr. Chauhan and Dr. Murali M. Yallapu, were recognized among the top 2 percent of researchers worldwide in their respective fields.

Investments in facilities and equipment strengthened research outcomes. The Center established the Integrated Cancer Research Core, the Drug Delivery and Nanomedicine Core, and the Research Capacity Core to support collaboration across disciplines. More than 20 major instruments were acquired to expand molecular, imaging, and analytical capabilities. These facilities provided training opportunities for junior scientists, student researchers, fellows, medical students, and residents across the School of Medicine and the broader university.

The Center advanced several translational outcomes. Research teams identified novel cancer biomarkers and developed nanoparticle-based drug formulations that moved toward preclinical validation. Studies on microbiome-based therapeutic approaches and combinational treatment strategies provided insight into reducing cancer health disparities. Through RCMI behavioral and community health initiatives, the Center established partnerships with regional healthcare organizations. These efforts supported cancer outreach, patient navigation, public health education, and data-driven research on community needs.

Engagement activities became part of the Center's annual work. The Cancer Health Disparities Symposium brought together investigators, trainees, and community partners. Collaborative workshops and open house events supported mentoring and broadened participation in cancer research across the Rio Grande Valley.

By the end of its early operational period, the Center had developed into a leading research contributor focused on cancer science and health equity. Its work strengthened UTRGV's research portfolio and contributed to the university's long-term goal of expanding scientific capacity in South Texas. The progress made during these first years established the foundation for continued growth in cancer discovery, translational research, and community impact. ■ Written by María González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2020 - 2025

2020

Dr. John M. Thomas III, associate professor of human genetics and laboratory director of the South Texas Human Genomics Lab, led UTRGV's COVID-19 testing operations in 2020. Photograph by Jesús Alférez

UTRGV Clinical Lab Advances COVID-19 Testing and Research

In 2020, the UT Health RGV Clinical Lab led UTRGV's COVID-19 testing and research efforts as part of the university's broader response to the pandemic. The year marked the beginning of large-scale testing operations and public health initiatives that supported the Rio Grande Valley during a period of intense need.

The Clinical Lab, led at the time by Dr. John M. Thomas III, then director of COVID-19 operations and now an associate professor of human genetics and director of the South Texas Human Genomics Lab, became a key testing site for the region. During the pandemic, the lab completed an estimated 230,000 tests. This represented 26 percent of all genetic testing conducted in the Rio Grande Valley and 13 percent of genetic testing statewide. The lab maintained a turnaround time of 22.2 hours, the fastest in Texas and among the fastest nationally.

At peak demand, the lab ran 20 hours per day and processed about 25,000 samples per week during the 2019–2020 year. As part of the state-assembled STRAC task force, UTRGV processed more testing volume than any other UT System institution involved in the effort, including UTMB and UT Southwestern.

These operations built on earlier efforts. By fall 2020, UT Health RGV had already tested more than 65,000 samples through its drive-thru testing sites, which were capable of processing up to 2,200 samples per day. The Clinical Lab became the central testing point for South Texas as regional needs increased.

The work also led to federal support. The Clinical Lab contributed to a National Institutes of Health project titled "Understanding and Addressing COVID-19 Testing Disparities in Vulnerable Populations: A Multilevel and Multi-method Approach." The project totaled $5 million to UTHealth Houston, with $581,257 subcontracted to UTRGV for its testing responsibilities. In 2023, the lab also served as a consultant to Hidalgo County as the county established its own diagnostic testing capacity.

Alongside laboratory operations, UTRGV launched vaccine administration training for medical and physician assistant students as doses became available. Students were trained by UT Health RGV clinical teams to administer vaccines and supported call centers and registration sites. This work provided staffing support to UT Health RGV's vaccination efforts and gave students firsthand clinical experience during a major public health event.

The scale of testing during the pandemic resulted in permanent institutional developments. The UT Health RGV Clinical Laboratory, founded through the COVID-19 response and directed by Thomas, became the first UTRGV clinical entity to earn CLIA certification as a high-complexity laboratory. It was also the first to receive accreditation from the College of American Pathology. The lab continues to support testing for the UTRGV Cancer Center and serves as an anchor within the university's research and clinical infrastructure.

The effort also contributed to workforce development. Many student staff who worked in the Clinical Lab during the pandemic continued into doctoral programs, medical school, or leadership positions in regional health systems such as South Texas Health System and DHR Health. The experience gave students training in laboratory workflows, quality control procedures, and clinical operations at a scale rarely available in an academic setting.

Thomas later became director of the South Texas Human Genomics Lab, a whole-genome sequencing facility within the Department of Human Genetics in the College of Sciences. The lab supports research across multiple disciplines and builds on the capabilities developed during the COVID-19 response.

By the end of 2020, UTRGV's work in testing, research participation, and vaccine support reflected the university's role in addressing regional needs during the pandemic. The operations created long-term clinical and research capacity that continues to support the institution and the communities it serves. ■ Written by Jesús Alférez

2021

Dr. Ihsan M. Salloum, director of the UTRGV Institute of Neuroscience (ION), inside the institute in Harlingen, Texas, where interdisciplinary brain and behavioral health research is conducted. Photograph by Jesús Alférez

Institute of Neuroscience Opens to Advance Brain Health Research

In 2021, The University of Texas Rio Grande Valley marked a major step in advancing brain and behavioral health research with the opening of the Institute of Neuroscience (ION) in Harlingen. Led by Dr. Ihsan M. Salloum, the facility, developed with support from the South Texas Medical Foundation, the City of Harlingen and the Valley Baptist Legacy Foundation, established dedicated space for interdisciplinary research, clinical services and education focused on neurological and psychiatric conditions in the Rio Grande Valley. The institute opened to expand access to specialized care, strengthen neuroscience research capacity and support workforce development in brain health.

The more than 30,000-square-foot facility houses clinical services in neurology and neuropsychiatry, provides research infrastructure for faculty and trainees and supports educational activities for medical students and residents. Early priorities included establishing specialized laboratories and preparing the site for clinical research programs.

Since its opening, ION has established a clinical research unit and the infrastructure needed to conduct studies in psychiatry, neurology and brain health. The institute recruited neuroscience faculty with complementary expertise, growing from three core faculty members to 10 within two years. New laboratories were developed to support work in cognitive neuroscience, neuropsychiatry, computational analysis and experimental studies in brain and nerve function. This expansion strengthened UTRGV's capacity to conduct studies aligned with regional and national priorities in neurological and psychiatric health.

Several research accomplishments have emerged under the Institute of Neuroscience. Investigators completed a clinical trial supported by the National Institutes of Health (NIH) focused on treatment development for individuals with bipolar disorder and alcohol use disorder. The study identified compounds that reduced alcohol consumption in this population, and a scientific publication is in preparation. The project was conducted with collaborators at UT Southwestern.

ION also contributed to multiple NIH-funded collaborative applications, including the NIH/P30 South Texas Alzheimer's Disease Research Center and the NIH/U54 RGV Cancer Health Disparity Research Center. Within the U54, ION faculty lead the Investigator Development Core, which will support pilot studies for early-career investigators. Faculty also participated in an NIH/U19 project examining the interactions between SARS-CoV-2 infection, genetic variation and the risk of cognitive decline and Alzheimer's disease. Additional progress includes development of a potential compound for neuropathic pain tested in experimental models and work evaluating continuous blood pressure measurement and its implications for cardiovascular disease and dementia.

ION's growth has been supported by a broad network of collaborators, including UT Southwestern, UT Health San Antonio, the UT McGovern School of Medicine, Massachusetts General Hospital and Harvard Medical School, the UT Dell School of Medicine and Baylor College of Medicine. International collaborations extend to the International College of Person-Centered Medicine, the World Medical Association, the World Psychiatric Association and the Icelandic Alzheimer Society.

ION has also expanded opportunities for faculty and students. Over the past three years, more than 200 students have been mentored or trained at the institute, including undergraduate, graduate and medical students. Psychiatry residents complete research electives at ION, and two senior residents were selected for year-long mentorships through the American Psychiatric Association's Research Colloquium. Faculty members have received support to pursue additional training and develop collaborations that strengthen the institute's research environment.

ION has contributed to community engagement by participating in and organizing regional events focused on brain and behavioral health. Activities include health fairs, community conferences, innovation expos and educational programs addressing neurological and psychiatric conditions.

Looking ahead, ION plans to expand its research infrastructure through development of a Computational Neuroscience Core to support machine learning and artificial intelligence applications. Priorities include participating in statewide initiatives to evaluate ibogaine for treating addictive and psychiatric disorders, supporting dementia research aligned with state goals, strengthening research training through RCMI mechanisms and developing federally funded collaborative projects with partners across Texas and the nation. Additional plans include translating basic science discoveries, such as compounds identified for neuropathic pain, into potential clinical applications and contributing to the development of future doctoral programs.

The Institute of Neuroscience's establishment in 2021 and its rapid growth since then reflect UTRGV's commitment to advancing brain health research, expanding clinical services and strengthening educational pathways in the Rio Grande Valley. The institute continues to build capacity for discovery, clinical impact and interdisciplinary collaboration while supporting the university's broader goals for research development. ■ Written by María González

2022

Dr. Heinrich Foltz (left), professor of electrical engineering; Dr. Constantine Tarawneh (center), professor of mechanical engineering and director of the University Transportation Center for Railway Safety (UTCRS); and Dr. Robert Jones (right), professor of mechanical engineering. Photograph by Jesús Alférez

UTRGV Railcar Safety Research Moves Forward After First Patent License.

In 2022, UTRGV Mechanical Engineering Professor and Director of the University Transportation Center for Railway Safety (UTCRS) Constantine Tarawneh and his student collaborators licensed their railcar bearing monitoring system to Hum Industrial Technology, Inc. The agreement marked the first fully executed patent license to generate royalty payments to UTRGV and its inventors. The technology included wireless sensors and diagnostic code designed to help rail companies identify bearing and wheel issues before they lead to equipment failure. Several UTRGV students and faculty contributed to the invention through years of research, prototyping, and laboratory testing.

Four students are named as inventors on the patents: Harry Siegel, an undergraduate student who began working with the University Transportation Center for Railway Safety while still in high school through the Howard Hughes Medical Institute Internship program; Anthony Villarreal and Joseph Montalvo, who graduated in 2019 with master's degrees in mechanical engineering and now work for Raytheon; and Jonas Cuanang, who graduated in 2020 with a master's degree in mechanical engineering and now works for the ENSCO Rail Division. Faculty collaborators listed as co-inventors include Dr. Heinrich Foltz, Dr. Stephen Crown, and Dr. Robert Jones.

Since the licensing announcement, the project has advanced through field testing and new partnerships. Seven pilot tests have been completed in North America and in India and Australia, with 45 railcars outfitted with the licensed technology. Pilot test results have been shared with customers and are expected to support broader adoption by multiple railroads. A local pilot test is underway in the Rio Grande Valley through a partnership with Ironhorse Resources, which manages the Rio Valley Switching Company short line, helping refine the newly deployed load sensor technology.

Pilot test results have increased awareness of the onboard system within the rail industry and helped build confidence in the sensors and diagnostic components as a reliable health monitoring option for rolling stock. Several companies have expressed interest in working with UTRGV's University Transportation Center for Railway Safety and Hum Industrial Technology, Inc. to integrate the system into their operations. Laboratory datasets generated through UTRGV testing have been made publicly available, and multiple companies have requested access to use these datasets.

The project expanded through a partnership with the Brotherhood of Railroad Signalmen on a $10 million Federal Railroad Administration CRISI grant awarded to integrate the UTRGV–Hum technology with Positive Train Control systems used throughout the U.S. rail network. The work will automate the process of stopping a train when severe bearing or wheel issues are detected and is expected to strengthen safety by reducing the likelihood of derailments caused by mechanical failures.

Student involvement remains a core part of the project. Students interact with rail industry professionals, federal staff, and engineers, gaining workforce development experience that prepares them for industry and graduate study. Many participate in internships and research experiences at national testing facilities and rail companies. Students also contribute to field installations and gain hands-on practice with equipment used in active rail environments. Their academic development is supported through co-authorship of journal papers, conference publications, technical reports, and presentations at national meetings. Students can continue their work from the undergraduate level into doctoral studies with full financial support.

New partnerships have strengthened the scope of the research. Collaborators now include the Federal Railroad Administration, Brotherhood of Railroad Signalmen, Transportation Technology Center (ENSCO–TTC), MxV Rail, and Signal Training Solutions. These partnerships support testing, implementation, training, and evaluation activities that advance the system's development.

The research team is preparing the next phases of the project. Through the FRA effort, UTRGV and Hum Industrial Technology, Inc. will integrate the technology with PTC systems used across North America. Professional workshops and training sessions are planned for students, staff, and rail workers across the country. Engineering work continues on updates to the devices, including energy harvesting components designed to extend the operating life of the onboard units. Expansion to rail networks in Australia and India is moving forward through UTRGV's partnership with Hum Industrial Technology, Inc.

By 2025, the project that began with early laboratory prototypes had expanded into a multi-site effort involving industry partners, federal agencies, and UTRGV students. Field testing, federal support, and continued development show how research conducted at the university is being applied in active rail systems and evaluated for wider use. ■ Written by Jesús Alférez

2023

Dr. Tamer Oraby (left), associate professor of statistics, and Dr. Teresa Patricia Feria-Arroyo, professor of biology and director of the School of Integrative Biological and Chemical Sciences, outside the Science Building on the Edinburg Campus. Photograph by Jesús Alférez

Vector-Borne Disease Mapping Advances at UTRGV

In 2023, researchers at The University of Texas Rio Grande Valley expanded a multi-institutional project to model climate-related impacts on vector-borne diseases in South Texas and Northern Mexico. The work is led by Dr. Teresa Patricia Feria-Arroyo, professor of biology and director of the School of Integrative Biological and Chemical Sciences, and co-principal investigator Dr. Tamer Oraby, associate professor of statistics in the School of Mathematics and Statistical Science. The UTRGV team received a $197,000 sub-award from the Wellcome Trust Digital Technology Development Award to support its role in "FloDisMod: A Framework for Flood and Disease Modeling."

The project examines how flooding, climate change, and the presence of vectors such as mosquitoes, ticks, and kissing bugs influence disease risk in the border region. Researchers integrate climate variables, environmental data, and vector information to build fine-scale maps that identify areas with conditions that may support vector-borne disease transmission. Updated information through 2025 reflects continued progress in model development and community engagement.

One major outcome has been the creation of risk models showing projected habitat suitability for vector species under future climate conditions. Public outreach has been a central component of the project. The team produced fliers, short videos, magnetic calendars, and 3-D keychains in English and Spanish that explain how to prevent infections carried by insects. These materials are available through the project's online platforms, including the FloDisMod Linktree and the FeriaLab YouTube channel.

Training and educational activities have continued across South Texas. Recent presentations include a South Texas Promotores de Salud session; a School of Medicine Research Seminar Series talk on flooding and disease outbreaks; an AHEC Scholars student presentation; and invited talks such as "Clima Extremo y Salud" at Universidad Nacional Autónoma de México. These sessions highlight the intersections of climate, environment, and disease transmission.

The project has expanded through new collaborations with the Texas Department of State Health Services and South Texas Promotores de Salud. Partnerships with Mexican institutions have continued, including CENAPRECE, the National Institute of Public Health, and the Mexican Institute of Social Security. These collaborations support binational data-sharing and research on disease prevention in border communities.

Project outcomes through 2025 include several peer-reviewed publications related to vector-borne disease risk and climate impacts. These include a 2025 PLOS One article comparing predictive modeling approaches; a 2025 study on tick-borne disease knowledge accepted in Vector-Borne and Zoonotic Diseases; and a 2023 study on climate change and tick distribution published in Sustainability.

Student participation has been a significant part of the project. High school, undergraduate, and graduate students have contributed through research assistantships, internships, and outreach activities. Their work includes calendar designs, visual communication products, spatial data support, and participation in community engagement events.

Surveys conducted through the project have helped the team assess public understanding of vector-borne diseases. One survey showed that many participants were unaware that kissing bugs are found in the Rio Grande Valley, guiding development of focused outreach materials on Chagas disease and other risks. Additional models of vector distribution have supported planning efforts for educational strategies and disease prevention programs.

Community partnerships remain central to the project's mission. Key partners include South Texas Promotores de Salud, the Texas Department of State Health Services, the UTRGV School of Medicine, UT Austin, CENAPRECE, the National Institute of Public Health in Mexico, and the Mexican Institute of Social Security. Together, these groups have co-developed bilingual outreach materials, training sessions, and an informational website available in English and Spanish.

By 2025, UTRGV's work on FloDisMod positioned the university as a contributor to regional and binational research on climate and disease. Future steps focus on expanding collaborations with academic units, strengthening student involvement, and pursuing external funding to sustain long-term work on vector-borne disease risk in South Texas and Northern Mexico.

■ Written by Jesús Alférez

2024

Dr. Carina Marques, associate professor in the Department of Anthropology and the School of Integrative Biological and Chemical Sciences, in the Forensic Anthropology Research Lab (FAR-Lab). Photograph by Jesús Alférez

Advancing Forensic Research Through AI-Based Age Estimation

In 2024, UTRGV was awarded its first prime research grant from the National Institute of Justice (NIJ) to support a multi-year forensic science project focused on improving age-at-death and season-of-death estimation. The $467,325 award supports a research initiative led by Dr. Carina Marques, associate professor in the Department of Anthropology and the School of Integrative Biological and Chemical Sciences.

A key component of the project is the analysis of more than 700 teeth—the largest cementochronology collection assembled globally. The sample will generate more than 3,500 micrographs for machine learning models. The team will examine dental tissue to assess how climate, geography, health conditions, and population differences influence cementum deposition and age accuracy. The project will also evaluate the feasibility of estimating season of death based on cementum layers, a technique documented in nonhuman mammals but not yet validated for human forensic use.

The study includes an international network of collaborators. Marques serves as principal investigator and works with co-principal investigators at the University of Lille in France, including experts in cementochronology and AI modeling. The project's PI in France, Dr. Benoit Bertrand, provided training to UTRGV students in May on histological preparation of teeth and micrograph analysis. Additional partners include the University of Arkansas for Medical Sciences, Texas State University, the University of Coimbra in Portugal, and research contributors in Mexico, Brazil, Argentina, and Colombia.

In addition to the scientific goals, the project strengthens UTRGV's role as a collaborative site for global forensic research. The network of partner institutions allows the team to test cementochronology methods across a wide range of climates, populations, and environmental conditions, expanding the applicability of the analytical models. These collaborations also broaden opportunities for UTRGV students and faculty to participate in international research initiatives that enhance the university's growing footprint in forensic science.

The project will deliver an open-source, AI-based web application allowing forensic practitioners to upload dental micrographs and receive age-at-death and season-of-death estimates. A public website, cementochronology.com, will host standardized guidelines and provide a cost-free resource for agencies lacking specialized laboratory capacity. The grant also contributes to UTRGV's research infrastructure. Funding will support equipment needed to establish a permanent platform for cementochronology analysis at the university, allowing UTRGV to assist medical examiners and forensic centers that lack this capability.

Student participation is a core component of the initiative. Undergraduate and graduate students receive training from visiting experts in cementochronology and AI applications in forensic science. The project provides opportunities for students to complete internships at partner laboratories in Europe and offers scholarships supporting involvement in STEM and forensic science disciplines.

Recent achievements include master's student Olga Ibarra-Sanchez winning first place for a master's presentation at the Texas Association of Biological Anthropology on Nov. 8, 2025. A team presentation has also been accepted for the 2026 American Academy of Forensic Sciences meeting in New Orleans, titled "An Evaluation of Microscopic Techniques in Cementochronology for Forensic Age-at-Death Estimation," authored by Amando Montalvo, Benoit Bertrand and Carina Marques.

The research has direct relevance to South Texas. Improved age-at-death estimation methods can assist forensic agencies working to identify undocumented migrant remains recovered along the Texas–Mexico border. The standardized analytical tools developed through this project provide agencies with cost-free resources that reduce processing barriers for understaffed or underfunded offices. The ability to generate more accurate age estimates may also support ongoing regional efforts to address unidentified remains and improve case resolution for families.

The NIJ-funded project began in January 2024 and is scheduled to run through December 2026. The multi-year timeline allows the team to continue data collection, test the analytical models, and validate findings with partner institutions. The initiative reflects ongoing work at UTRGV to develop tools that improve forensic methods and address scientific and community needs.

For UTRGV, the award marks its first successful prime NIJ grant and supports the growth of the Forensic Anthropology Research Lab (FAR-Lab). The project strengthens the university's capacity to pursue future NIJ applications and expands collaborative opportunities with law enforcement agencies, medical examiners and forensic laboratories in Texas and internationally. ■ Written by María González

2025

Dr. Liliana Rivera Sandoval, assistant professor in the Department of Physics and Astronomy, is UTRGV's first Cottrell Scholar and the second recipient in Texas. Photograph by Jesús Alférez

UTRGV's First Cottrell Scholar in Astronomy and Space Sciences

In 2025, The University of Texas Rio Grande Valley reached a research milestone when Dr. Liliana Rivera Sandoval, assistant professor in the Department of Physics and Astronomy, was selected as the institution's first Cottrell Scholar. The award, granted by the Research Corporation for Science Advancement (RCSA), recognizes 16 early-career scientists in astronomy, chemistry and physics across the United States and Canada and provides $120,000 to support research and science education. UTRGV is one of only two universities in Texas to receive this distinction in astronomy, placing the institution among a limited group of campuses with faculty represented in the Cottrell Scholar community.

Rivera Sandoval's award-supported project examines stellar interactions in dense stellar environments, with a focus on compact binary populations in globular clusters. Her current research involves identifying binary systems composed of two white dwarfs, the stellar remnants of low-mass stars. These systems are important for understanding how compact objects evolve and how high-density environments influence their formation and long-term behavior. The project integrates observational data across wavelengths from X-rays to radio waves, combined with models that evaluate how stellar dynamics contribute to the development and disruption of compact binaries in clustered environments.

The research contributes to broader astrophysical efforts to study stellar remnants and the influence of dynamical interactions in crowded stellar systems. Rivera Sandoval's work supports long-term objectives within the field to clarify how compact binaries originate and evolve and how they reflect the physical conditions within globular clusters. The award strengthens these efforts by supporting tools, datasets and modeling approaches used to analyze stellar systems in high-density regions and contributes to national scientific priorities in the study of stellar evolution.

The educational component of the award supports student learning in astronomy at UTRGV. Funding expands research engagement through the South Texas Space Science Institute, including observational work, modeling exercises and research-based instruction tied to stellar dynamics and astrophysics. Undergraduate and graduate students participate in project activities, gaining experience with analytical methods used in astronomy. One undergraduate student is supported directly by the award and contributes to the analysis of compact binary systems, reinforcing UTRGV's efforts to increase student involvement in STEM research.

The award also supports outreach efforts designed to extend astronomy education beyond the university. On December 5, Rivera Sandoval's group will host an event at Proyecto Juan Diego, a community center in Brownsville, where participants will engage with hands-on demonstrations, including telescope observations using eight-inch telescopes. The program will include a presentation by graduate student Wendy Mendoza and will be open to members of the organization.

Professional collaborations strengthened during the year reflect another component of the award's impact. Rivera Sandoval met researchers from multiple universities through activities associated with the program and shared her work during a visit to the University of California, Santa Cruz, over the summer. Additional invited talks are scheduled for spring 2026 at Northwestern University, the University of Denver and the University of Northern Colorado. These engagements broaden the visibility of UTRGV's research efforts in stellar dynamics and support continued collaboration with institutions involved in astrophysics research.

The award also advances ongoing work on stellar interactions within compact binary populations. The project examines how stellar remnants form and evolve in dense cluster environments and uses observational data and modeling approaches to study the physical mechanisms that shape these systems. The research contributes to broader efforts to understand stellar evolution, dynamical interactions and the behavior of compact objects in high-density regions.

The recognition marks an institutional milestone for UTRGV. As the university's first Cottrell Scholar, Rivera Sandoval joins a national community of early-career researchers whose work integrates science education and scientific inquiry. Her selection reflects the university's participation in competitive research programs and contributes to its development in space sciences. The award also provides opportunities for expanded student involvement, supports curriculum development and strengthens partnerships across institutions engaged in astrophysics research.

Rivera Sandoval's Cottrell Scholar project highlights UTRGV's progress in developing research capacity in astronomy and contributes to the university's broader 10-year trajectory of expanding competitive research programs. The work illustrates how faculty-led research initiatives continue to build the institution's profile in space sciences while supporting student engagement, community outreach and long-term academic development. ■ Written by Jesús Alférez


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This 10-Year Research Annual Report reflects a decade of work that has shaped the research portfolio of The University of Texas Rio Grande Valley. It documents how faculty, students, and staff built a foundation that now supports a growing and diverse body of research with impact across South Texas.

The report highlights research centers, institutes, and projects that advanced scientific discovery, expanded student training, and contributed to the region's economic and workforce development. It also recognizes work taking place in classrooms, laboratories, and clinical settings throughout the Rio Grande Valley. The university carries an extensive range of research activity, and while only a small portion can be featured in a report of this length, each project across the institution holds value and contributes to long-term progress.

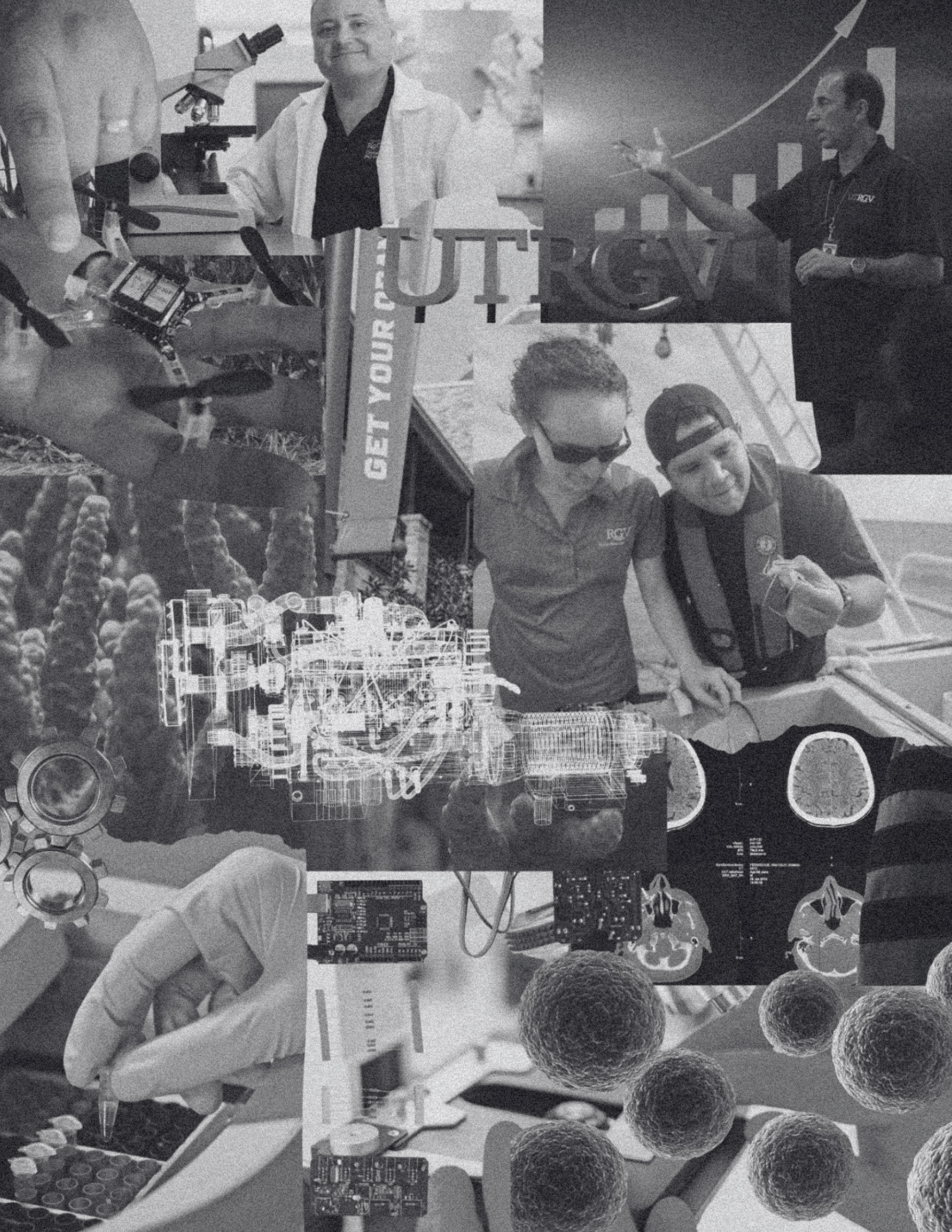
The past decade brought significant milestones. Research expenditures increased, new facilities were established across the region, and externally funded projects grew in scale and complexity. Faculty received awards from federal agencies including the National Science Foundation, the National Institutes of Health, the U.S. Department of Defense, and the U.S. Department of Energy. These accomplishments reflect the dedication of principal investigators and research teams working to advance their fields.

The report also underscores the university's commitment to preparing future researchers. Students at all levels are contributing to publications, presenting at conferences, and gaining experience through fellowships, internships, and undergraduate research opportunities. Their participation supports long-term institutional growth and strengthens opportunities in the region.

The stories included demonstrate how research responds to needs in practical ways. Work in health, education, marine science, energy, advanced manufacturing, agriculture, and data science provides direct value to communities and aligns with national research priorities. Many centers, institutes, and research projects featured here were established to address regional issues and continue to build partnerships that support this mission.

As the university enters its second decade, its research efforts are positioned for continued growth. New facilities such as the Marine Ecosystems Research Facility in Port Isabel and the Advanced Manufacturing and Robotics Facility in Edinburg will expand capacity and support new collaborations. Faculty recruitment, research development programs, and strategic partnerships will continue to strengthen this trajectory.

This report serves as a record of progress and a reflection of the work ahead. The achievements of the past decade represent the coordinated work of faculty, students, staff, and leadership who share a commitment to expanding knowledge and serving the Rio Grande Valley. Their efforts continue to define the university's path forward.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