WHAT IS A GREAT PUBLIC RESEARCH UNIVERSITY?

The UTSA Journey

JoAnn Browning, Interim Vice President for Research
Heather Shipley, Interim Provost and Senior Vice President for Academic Affairs
Steve Wilkerson, Associate Vice Provost for Institutional Research and Analysis
Taylor Eighmy, President

August 16, 2023
Jonathan R. Cole is the John Mitchell Mason Professor of the University at Columbia University and was Provost and Dean of Faculties from 1989 to 2003. He has been a Fellow of the American Academy of Arts and Sciences since 1992.

When most educated Americans think about great universities, they probably don’t think about the origins of science, the birth of modern medicine, shaping global economic models, or the impact of today’s technological advancements. For example, the first antibiotic, penicillin, was discovered by Alexander Fleming; the cotton gin, a major breakthrough in agriculture, was invented by Eli Whitney; the discovery of the double helix and the structure of DNA opened the door to medical and technological advancements; and the development of the Google algorithm has had a profound impact on search engine technology.

In The Great American University, I tell the story of how American universities became the envy of the world. During the past century, the United States has produced an abundance of creative scientists and scholars who have contributed to new knowledge through the discoveries that change our lives and the world.

Contrary to what most people think, the American research university is a relatively young institution. For example, the University of Virginia was founded in 1819, Harvard University in 1636, and Yale University in 1701. Despite its youth, the American research university has been a major driving force for innovation and discovery.

What has made our universities the greatest in the world is not the quality of our undergraduate education—though that is important as that is—but our ability to fulfill one of the central missions of leading universities: the production of new knowledge through discoveries that change our lives and the world.

"But what has made our universities the greatest in the world is not the quality of our undergraduate education—though that is important as that is—but our ability to fulfill one of the central missions of leading universities: the production of new knowledge through discoveries that change our lives and the world."

DESIGNATIONS OF EXCELLENCE

Tier One Research Classification
Recognizes UTSA as one of USA’s top 4% research institutions

Excelencia in Education Seal of Excelencia
Recognizes UTSA’s leadership in advancing Latino student success

Community Engagement Classification
Highlights UTSA’s commitment to serving the San Antonio region

Innovation & Economic Prosperity University
Recognizes UTSA’s leadership in fostering economic growth, prosperity and innovation.
$2.5 Billion
Direct Economic Impact FY 2021
(Total revenues or output)

- $1.3 Billion
  Gross Regional Product
- 17,620
  Jobs Supported in the Area
- $814.3 Million
  Salaries and Wages to Workers
- $33.2 Million
  State Government Revenues
- $33.7 Million
  Local Government Revenues
NATIONAL ACADEMY MEMBERS

Rena Bizios
Sergio Alcocer
Randall Poston
Michael Yaszemski
Rena Bizios
Rena Bizios
Coming 2023
NATIONAL ACADEMY OF INVENTORS

Taylor Eighmy
Ravi Sandhu
Anson Ong

Rena Bizios
David Akopian
Michael Yaszemski
Various Measures For Research Quality

NSF HERD
CARNEGIE R1
CMUP
AAU
NSF HERD

METRICS:

• Total Research Expenditures
• Federal Research Expenditures
• By Major Agency (NSF, NIH, DOD, DOE, etc.)
• State and Local Expenditures
• Institutional Expenditures
• Business Expenditures
• Non-Profit Expenditures
• All Other Sources
CARNEGIE R1

METRICS:

- Total Research Expenditures
- STEM Research Expenditures
  - By Major Agency (NSF, NIH, DOD, DOE, etc.)
- Non-STEM Expenditures
- Research Staff (Post-docs)
- Number of Faculty
- Total PhDs
- STEM PhDs
- Humanities PhDs
- Social Sciences PhDs
- Other PhDs
CMUP

METRICS:

- Total Research Expenditures
- Federal Research Expenditures
  - By Major Agency (NSF, NIH, DOD, DOE, etc.)
- Research by Major Discipline
- Endowment Assets
- Annual Giving
- National Academy Memberships
- Faculty Awards
- Doctorates Awarded
- Postdoctoral Appointees
- SAT Scores
- National Merit Scholars
AAU

PHASE 1 METRICS:
- Federal Research Expenditures
  - By Major Agency (NSF, NIH, DOD, DOE, etc.)
- Faculty Awards, Fellowships, Memberships including National Academies
- Thomas Reuters InCites Citations
- Books (esp Arts, Humanities, Social Sciences)

PHASE 2 METRICS:
- USDA, State, Industrial Expenditures
- Doctorates graduated
- Postdoctoral Appointees

OTHER CONSIDERATIONS:
- Pell
- Undergraduate Graduation Rates
- Pell Recipient Graduation Rates
- Graduation Rate Gap
<table>
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<th>Institution</th>
<th>Age</th>
<th>Total Enrollment</th>
<th>Grants a Medical Degree</th>
<th>Land Grant Institution</th>
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TEXAS PEER INSTITUTIONS
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*TEXAS PEERS*
NSF HERD: SOME DATA

2022 Higher Education Research and Development (HERD) Report: 2021 Data

METRICS:
• Total Research Expenditures
• Federal Research Expenditures
• NSF Expenditures
• NIH Expenditures
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<td>University California, Irvine</td>
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<td>University Houston</td>
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<td>Institution</td>
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2022 Report, Showing 2021 Data

METRICS:
• Total Research Expenditures
• STEM Research Expenditures
  • By Major Agency (NSF, NIH, DOD, DOE, etc.)
• Non-STEM Expenditures
• Research Staff (Post-docs)
• Number of Faculty
• Total PhDs
• STEM PhDs
• Humanities PhDs
• Social Sciences PhDs
• Other PhDs
Texas State University
Rank 180

Carnegie Classification

Carnegie R1 Classification

Per-Capita Research Activity Index

Aggregate Research Activity Index

UTSA
R1
R2
NATIONAL ASPIRANT PEERS
Humanities PhDs

2020 IPEDS

- University of Texas, Austin: 76.00
- George Mason University: 74.00
- Arizona State University: 55.00
- Texas A&M University, College Station: 52.00
- University of California, Irvine: 44.00
- University of South Florida: 42.00
- Georgia State University: 40.00
- University of Illinois, Chicago: 39.00
- Florida International University: 35.00
- University of North Texas, Denton: 29.00
- University of California, Riverside: 28.00
- University of Texas, Dallas: 25.00
- Texas Tech University: 24.00
- University of Texas, San Antonio: 23.00
- University of Central Florida: 18.00
- University of Houston: 18.00
- University of California, Santa Cruz: 16.00
- University of Texas, El Paso: 11.00
- Texas State University: 10.00
- University of Texas, Arlington: 3.00
Social Science PhDs

- Peer Models of Excellence
- Texas Research University
- UTSA

University Texas, Austin: 138.00
Arizona State University: 96.00
University North Texas, Denton: 75.00
Texas Tech University: 63.00
University California, Riverside: 35.00
University California, Irvine: 34.00
University South Florida: 33.00
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University Texas, San Antonio: 8.00
Florida International University: 7.00
University Central Florida: 5.00
Texas State University: 5.00

2020 IPEDS
CMUP
SOME DATA

2020 Report, Showing 2019 Data

METRICS:

• Faculty Awards

• Doctorates Awarded
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<th>Doctorates Awarded</th>
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AAU SOME DATA

PHASE 1 METRICS:
• Thompson Reuters InCites Citations
• Books

OTHER CONSIDERATIONS:
• Pell
• Undergraduate Graduation Rates
• Pell Recipient Graduation Rates
• Graduation Rate Gap
% of Web of Science Documents Cited

2018-2022 Clarivate InCites

- University California, Santa Cruz: 76.11%
- University Texas, Dallas: 74.57%
- University California, Riverside: 73.67%
- University Texas, San Antonio: 73.27%
- Texas A&M University, College Station: 72.80%
- University Texas, Austin: 72.44%
- University Texas, Arlington: 72.18%
- Arizona State University: 71.86%
- Florida International University: 70.69%
- University Houston: 70.09%
- University California, Irvine: 69.95%
- University North Texas, Denton: 69.63%
- Georgia State University: 69.62%
- University Texas, El Paso: 68.62%
- University Central Florida: 68.33%
- George Mason University: 66.86%
- Texas Tech University: 66.28%
- University South Florida: 66.18%
- Texas State University: 65.10%
- University Illinois, Chicago: 64.73%
Count of Books Published

- Peer Models of Excellence
- Texas Research University
- UTSA

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<th>University Name</th>
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FEDERAL AWARDS:
KNOWLEDGE & INFLUENCE
UTSA RESEARCH METABOLISM

TOTAL RESEARCH DOLLARS
$145 M

FIVE YEAR CHANGE
103%

FEDERAL DOLLARS
$43 M

FIVE YEAR CHANGE
80%
2021 UTSA FEDERAL RESEARCH & DEVELOPMENT EXPENDITURES (HERD)
Strategic Research Development

Early Knowledge of Opportunities
- White House Policies
- Council Strategies
- Agency Implementation

Build on Core Competencies
- Benchmark with Peers
- Analyze Scholarly Work & Funding
- Develop Strategic Research Groups

Align with Strategic Partners
- Foster Awareness/Involvement
- Mutual Interest & Support
- Create Complementary Teams

Capture
- Internal Development & Review
- External Development & Review
- Capture Team Approaches
CORE COMPETENCIES
<table>
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<tr>
<th>Measure</th>
<th>1</th>
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<th>3</th>
<th>4</th>
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<td>InCites Analysis By</td>
<td>WOS Documents</td>
<td>Times Cited</td>
<td>Highly Cited</td>
<td>Corresponding</td>
<td>Hot Papers</td>
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<td>Random Oracle Model</td>
<td>Metal-Organic Frameworks</td>
<td>PTSD</td>
<td>Malware</td>
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<td>Object Tracking</td>
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<td>Malware</td>
<td>Corporate Governance</td>
<td>Crime</td>
<td>Language Policy</td>
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<td>X-Rays: Binaries</td>
<td>Alzheimer’s Disease</td>
<td>Metal-Organic Frameworks</td>
<td>Differential Privacy</td>
<td>Radio Astronomy</td>
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</table>

**Computer-Data**
- Random Oracle Model
- Blockchain
- Malware
- Object Tracking
- Deep Learning

**Energy-Materials**
- MOF

**Space-Physics**
- Radio Astronomy
- X-Rays: Binaries
- Magnetosphere

**Health**
- Alzheimer’s
- PTSD

**Other**
- Corporate Gov
- Crime
- Unmanned Aerial Vehicles
- Language Policy
Computer and Information Sciences Expenditures

2021 Higher Education Research and Development (HERD)

Peer Models of Excellence • Texas Research University • UTSA

- University Texas, Austin: 87.6M
- University Central Florida: 32.2M
- George Mason University: 24.4M
- University California, Irvine: 23.4M
- Arizona State University: 22.5M
- University Texas, San Antonio: 19.2M
- Texas A&M University, College Station: 19.2M
- Florida International University: 16.7M
- University Illinois, Chicago: 12.1M
- University South Florida: 11.6M
- University Texas, Dallas: 8.9M
- University California, Riverside: 8.3M
- University North Texas, Denton: 7.3M
- University Texas, Arlington: 6.9M
- University Texas, El Paso: 6.2M
- University California, Santa Cruz: 5.1M
- Georgia State University: 4.9M
- University Houston: 4.4M
- Texas Tech University: 4.3M
- Texas State University: 1.2M
<table>
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<th>Total Funding 2018-2023</th>
<th>Number</th>
<th>Agencies</th>
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<td>Security Systems</td>
<td>$108M</td>
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<td>DoE, DoD, DHS</td>
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<tr>
<td>Internet Of Things</td>
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<tr>
<td>Software Engineering</td>
<td>$88M</td>
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<td>DoE, DoD</td>
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<tr>
<td>Data Structures, Algorithms &amp; Complexity</td>
<td>$70M</td>
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<td>DoE</td>
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<tr>
<td>Clinical &amp; Life Sciences</td>
<td>$37M</td>
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<tr>
<td>Education</td>
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<td>NSF, ED, USDA, DHS</td>
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<tr>
<td>Artificial Intelligence &amp; Machine Learning</td>
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<td>DoE, DoD</td>
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<tr>
<td>Distributed &amp; Real Time Computing</td>
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<tr>
<td>Psychiatry &amp; Psychology</td>
<td>$7M</td>
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<td>ED and NIH</td>
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<tr>
<td>Space Sciences</td>
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<tr>
<td>Astronomy &amp; Astrophysics</td>
<td>$6.5M</td>
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<td>NASA</td>
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<tr>
<td>Meteorological &amp; Atmospheric Sciences</td>
<td>$5M</td>
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<tr>
<td>Civil Engineering</td>
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<td>federal pass through</td>
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<td>Unmanned Aerial Vehicles</td>
<td>$1.2M</td>
<td>1</td>
<td>federal pass through</td>
</tr>
<tr>
<td>Power Systems &amp; Electric Vehicles</td>
<td>$1.2M</td>
<td>1</td>
<td>federal pass through</td>
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*$2M+ for Federal & $1M+ for Federal pass through from 2018-2023
SUCCESS IN FEDERAL FUNDING

UTSA Federal Research Expenditures

$0, $10,000,000, $20,000,000, $30,000,000, $40,000,000, $50,000,000, $60,000,000
SUCCESS IN FEDERAL FUNDING
Key Take-Aways

UTSA R1 Culture – To Reach our Next Goals in our Journey

• Produce new knowledge that changes our lives and the world
• Seek recognition for faculty and bring recognized faculty onto our Teams
• Graduate next generation of experts (PhD)
• Increase position in federally-funded research
• Increase position in NSF and NIH funding
Imagine it's 2035 and UTSA has just been named the 85th member of the Association of American Universities (AAU), a designation that is reserved for North America's leading research universities. UTSA achieved this designation for its track record for securing federal grants, interdisciplinary research centers targeting some of society's most pressing challenges, housing some of the nation's top researchers, including a Nobel Laureate. Admission into UTSA's undergraduate and graduate programs is increasingly competitive as students seek to launch their research careers at an institution that is distinguished by its productivity, its location in the bustling "Austintonio" metroplex, and its international reputation for excellence in mentoring. The research infrastructure boasts some of the most unique facilities, equipment, and computing resources in the nation.

Think about all the attributes of this UTSA Future and make two lists (choose a Recorder):

1. What are 100 things researchers will need help with in this "evolved" UTSA?
2. What are 100 ways researchers could help each other in this "evolved" UTSA?

Report the number of ideas you generated, and the 5 most innovative.

There will be PRIZES for the most complete and innovative responses!
UTSA
CREATING
BOLD
FUTURES