

**Research Expenditures Report  
September 1, 2018 –  
August 31, 2019**

**Texas Universities and Health-Related Institutions**

**January 2020**

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### Agency Mission

The mission of the Texas Higher Education Coordinating Board (THECB) is to provide leadership and coordination for Texas higher education and to promote access, affordability, quality, success, and cost efficiency through *60x30TX*, resulting in a globally competitive workforce that positions Texas as an international leader.

### Agency Vision

The THECB will be recognized as an international leader in developing and implementing innovative higher education policy to accomplish our mission.

### Agency Philosophy

The THECB will promote access to and success in quality higher education across the state with the conviction that access and success without quality is mediocrity and that quality without access and success is unacceptable.

The THECB's core values are:

**Accountability:** We hold ourselves responsible for our actions and welcome every opportunity to educate stakeholders about our policies, decisions, and aspirations.

**Efficiency:** We accomplish our work using resources in the most effective manner.

**Collaboration:** We develop partnerships that result in student success and a highly qualified, globally competent workforce.

**Excellence:** We strive for excellence in all our endeavors.

The Texas Higher Education Coordinating Board does not discriminate on the basis of race, color, national origin, gender, religion, age or disability in employment or the provision of services.

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## Executive Summary

The Texas Higher Education Coordinating Board's (THECB's) annual Research Expenditures Report summarizes data submitted to the agency, as required by Section 61.0662 of the Texas Education Code.

Data presented in this report were submitted by Texas public and independent universities and health-related institutions for Fiscal Year (FY) 2019 (September 1, 2018 through August 31, 2019). When comparing research expenditures from multiple fiscal years, THECB staff reported dollar amounts in constant 2019 Dollar Terms, as calculated by the Bureau of Labor Statistics Consumer Price Index (2019), unless otherwise noted. This is the second Research Expenditure Report to use constant dollar terms when comparing multiple fiscal years. The data presented in this report are available through the THECB's [Sources and Uses Survey](https://www.highered.texas.gov/institutional-resources-programs/funding-facilities/sources-and-uses/) online at <https://www.highered.texas.gov/institutional-resources-programs/funding-facilities/sources-and-uses/>.<sup>1</sup>

Highlights for Fiscal Year 2019 include:

- **All institutions.** Institutions reported research expenditures that totaled \$5,642,644,378 in FY 2019, an increase of 4.23% from the previous year, but an increase of 16.84% since FY 2010 in constant dollars.
- **Public institutions.** Research expenditures at public universities and health-related institutions totaled \$4,760,366,359 in FY 2019, an increase of 4.25% from the previous year in constant dollars. The expenditures increased by \$137,319,115 at public universities (5.77%) and increased by \$56,956,690 at public health-related institutions (2.61%).
- **Independent institutions.** Research expenditures at independent universities and health-related institutions totaled \$882,278,019 in FY 2019, an increase of 4.11% over the previous year in constant dollars. The expenditures increased by \$15,681,554 at independent universities (6.37%) and increased by \$19,151,623 at independent health-related institutions (3.19%).
- **Research fields.** Research expenditures were greatest in these fields for FY 2019:
  - o Medical Sciences: \$1,886,488,673
  - o Biological and Other Life Sciences: \$1,194,552,472
  - o Engineering: \$852,125,599
  - o Physical Sciences: \$279,052,586
  - o Agricultural Sciences: \$263,972,176
- **Funding source.** The federal government, through the National Institutes of Health, the National Science Foundation, and other federal agencies, provided \$2,388,605,981 (42.3%) of the research funds expended. Expenditures from federal sources increased by \$71.4 million (3.08%) in constant dollars compared with FY 2018.
- According to data provided by the **National Science Foundation** for FY 2018:
  - o Texas ranked third among all states in total research expenditures in all fields.
  - o Texas institutions of higher education ranked sixth in federal obligations for research and development in science and engineering and ranked sixth in federally financed research and development expenditures in all fields, after California, New York, Maryland, Pennsylvania, and Massachusetts.

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<sup>1</sup> Note, financial data presented in the Online Report System are as reported by the institutions and are not presented in constant dollars.

## Overview

The annual Research Expenditures Report summarizes data submitted to the Texas Higher Education Coordinating Board (THECB), as required by Section 61.0662 of the Texas Education Code:

“The board shall maintain an inventory of all institutional and programmatic research activities being conducted by the various institutions of higher education, whether state-financed or not. Once a year, on dates prescribed by the board, each institution of higher education shall report to the board all research conducted at that institution during the preceding year. Each institution's report must include the amounts spent by the institution on human embryonic stem cell research and adult stem cell research during the year covered by the report and the source of the funding for that research. All reports required by this section shall be made subject to the limitations imposed by security regulations governing defense contracts for research.”

This report presents expenditure information, rather than award information, as expenditures more accurately reflect the current level of research activities. Research awards tend to fluctuate from year to year, which make them a less stable indicator for year-to-year comparisons. Institutions submit certified expenditure data in their Annual Financial Reports.

Definitions are provided in the research expenditures survey sent to the institutions. This approach ensures consistent reporting by institutions. However, even with these safeguards, institutions have some latitude in how they break out discipline-level expenditures.

Collection of research expenditure data is a challenging task for institutions. Administrators face many difficulties as they detail research expenditures at their institutions. For that reason, information reported by the institutions and the THECB's Research Expenditures Report should be considered indicative rather than definitive.

A copy of the instructions and definitions for the survey completed by each institution is provided in the [Appendix](#).

The data presented in this report are available through the THECB's [Sources and Uses Survey](#) online at <https://www.highered.texas.gov/institutional-resources-programs/funding-facilities/sources-and-uses/>.



## Major Findings

Total research expenditures at Texas public and independent universities and health-related institutions increased 4.26 %, from \$5,413,535,396 in Fiscal Year (FY) 2018 to \$5,642,644,378 in FY 2019 in constant dollars.<sup>2</sup> Research expenditures at public universities and health-related institutions increased 4.25 %, from \$4,566,090,554 in FY 2018 to \$4,760,366,359 in FY 2019 in constant dollars. The expenditures increased by \$137,319,115 at public universities (5.77%) and increased by \$56,959,690 at public health-related institutions (2.61%). Research expenditures at independent universities and health-related institutions increased 4.11 % from \$847,444,842 in FY 2018 to \$882,278,019 in FY 2019 in constant dollars. The expenditures increased by \$15,681,554 at independent universities (6.37%) and increased by \$19,151,623 at independent health-related institutions (3.19%). An increase of \$144,807,614 (14.53%) in institution funding accounts for the majority of the increase in total research expenditures from the previous year.

### Research and Development Expenditures

Table 1 lists the top-ranked institutions based on the total amount of research and development (R&D) expenditures from all sources of funding. A complete list of funding by institution is provided in [Table 9](#). The top five institutions in research and development expenditures accounted for 60.8 % of total research expenditures. The top 10 institutions in research and development expenditures accounted for 77.9 % of the total research expenditures. Five of the state’s health-related institutions ranked among the top 10 Texas public institutions in research and development expenditures.

The first six institutions in Table 1 also appear in the top 100 rankings of the National Science Foundation’s list of institutions reporting the largest FY 2018 research and development expenditures in all fields (National Science Foundation, 2019).

**Table 1. Research and Development Expenditures Rankings, FY 2015-19**

Institution	2015	2016	2017	2018	2019
The University of Texas M.D. Anderson Cancer Center	1	1	1	1	1
Texas A&M University (including Texas A&M Services)	2	2	2	2	2
The University of Texas at Austin	3	3	3	3	3
Baylor College of Medicine	4	4	4	4	4
The University of Texas Southwestern Medical Center	5	5	5	5	5
The University of Texas Health Science Center at Houston	6	6	6	6	6
Texas Tech University	7	8	7	7	7
Rice University	8	9	9	9	8
The University of Texas Health Science Center at San Antonio	9	7	8	8	9
University of Houston	11	11	11	10	10

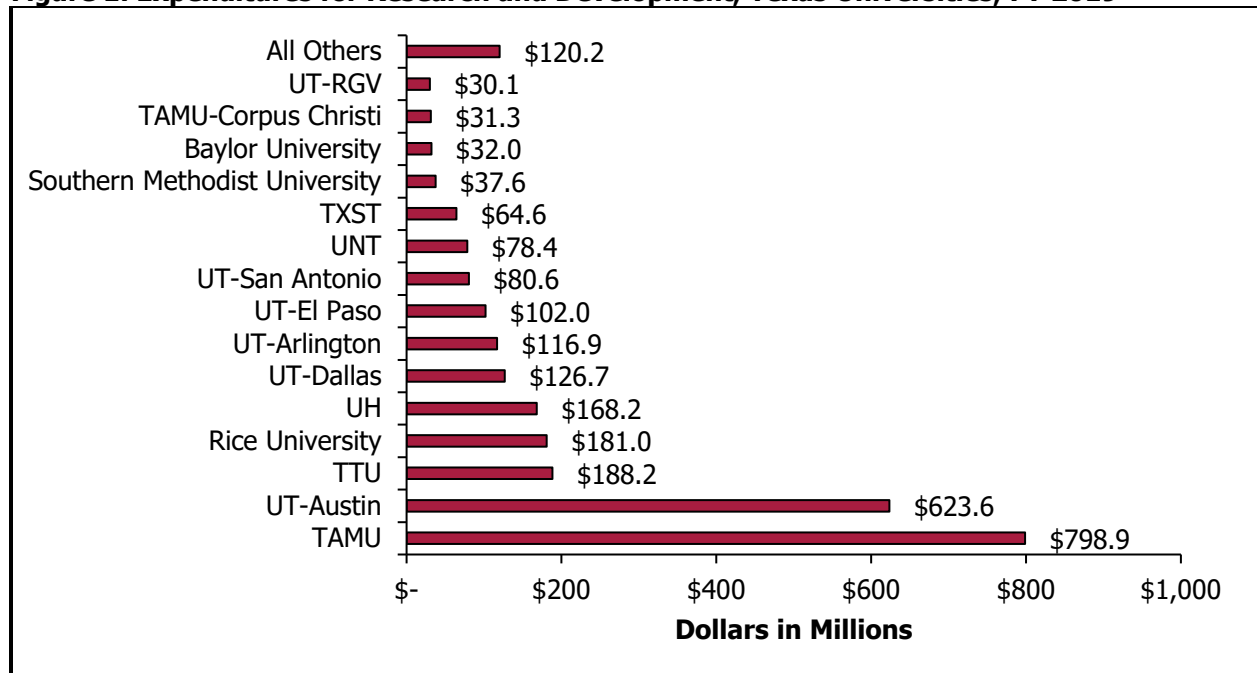
*Source: Texas Higher Education Coordinating Board*

*Note: Research and development expenditures at institutions are ranked on the total amount of research from all sources of funding and include federal funds, state appropriations, state and local contracts and grants, institution sources, and private funds.*

<sup>2</sup> Dollar amounts in Constant 2019 Dollar Terms are calculated based on the CPI-U Original Data Value for August of each year, as calculated by the Bureau of Labor Statistics Consumer Price Index.

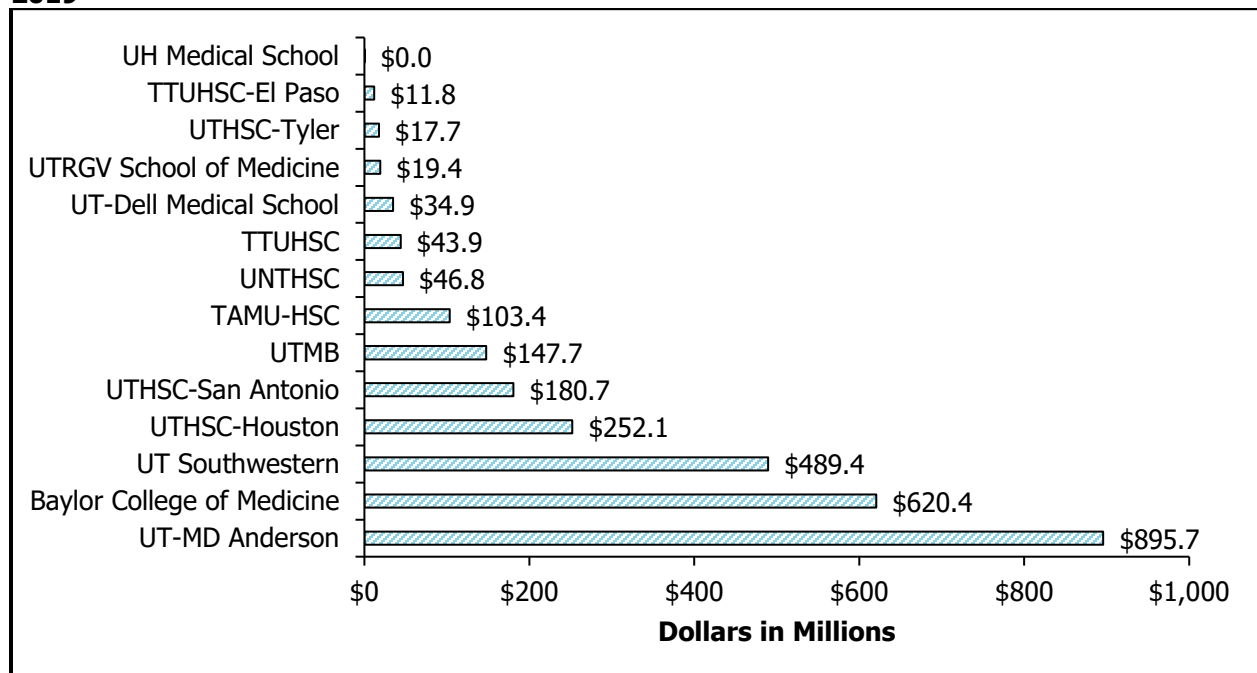
Figure 1 and Figure 2 provide separate summaries of total research expenditures for public and private universities and health-related institutions.

**Figure 1. Expenditures for Research and Development, Texas Universities, FY 2019**



Source: Texas Higher Education Coordinating Board  
 \*TAMU includes Texas A&M University System Services

**Figure 2. Expenditures for Research and Development, Texas Health-Related Institutions, FY 2019**



Source: Texas Higher Education Coordinating Board  
 \*The University of Houston Medical School reported \$5,280 in research expenditures in FY 2019.

Table 2 shows the ratio of federal to state research and development expenditures for public and independent universities and health-related institutions that were in the top 10 institutions included in Table 1 based on the total amount of expenditures. The University of Texas M.D. Anderson Cancer Center had the highest research and development rank. Rice University had the highest federal-to-state expenditure ratio.

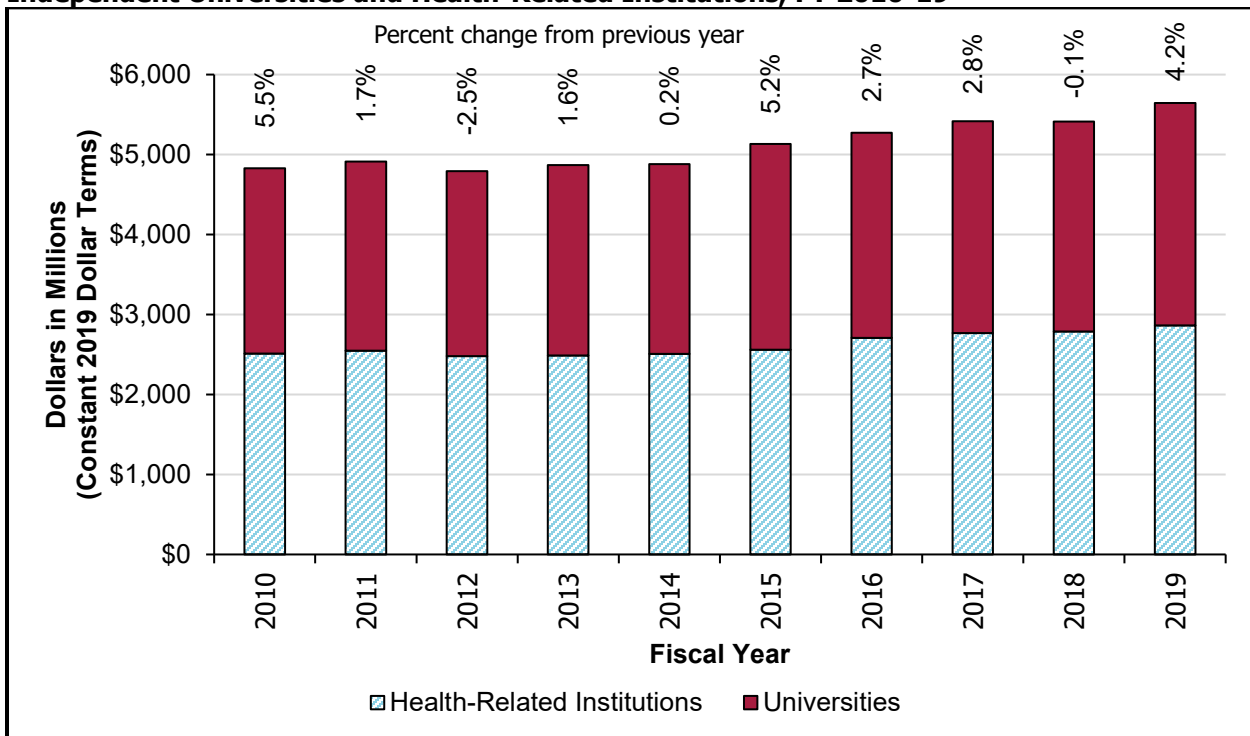
**Table 2. Ratio of Federal to State Research and Development Expenditures for Institutions with Greatest Research Expenditures, FY 2019**

Institution	R&D Rank	Fed/State Ratio	Ratio Rank
Rice University	8	13.29	1
UT-Austin	3	10.50	2
Baylor College of Medicine	4	9.60	3
UTHSC-San Antonio	9	5.09	4
UTHSC-Houston	6	3.74	5
UT Southwestern	5	2.64	6
UH	10	2.28	7
TAMU*	2	1.88	8
UT-MD Anderson	1	0.70	9
TTU	7	0.39	10

Source: Texas Higher Education Coordinating Board  
 \*TAMU includes Texas A&M University System Services

Figure 3 shows growth rates in research and development expenditures for public and independent universities and health-related institutions. Expenditures were \$813 million more in FY 2019 than in FY 2010 in constant dollars, with increases of \$463 million at universities and \$350 million at health-related institutions. Negative growth from the previous year occurred in FY 2018; previous occurrences of negative growth were in FY 2012 and FY 1971.

**Figure 3. Growth Rates in Research and Development Expenditures at Texas Public and Independent Universities and Health-Related Institutions, FY 2010-19**



Source: Texas Higher Education Coordinating Board

## Statewide Summary Data

Table 3 presents total expenditures and sources of funds for research and development at Texas public and independent universities and health-related institutions in FY 2019. Expenditures from federal sources increased overall by \$71.4 million (3.08%) in constant dollars compared with FY 2018. Expenditures from institution funds increased the most from FY 2018 to FY 2019, by 144.8 million (14.53%) overall in constant dollars. Expenditures from state and local appropriations increased by \$16.6 million (2.47%), and expenditures from state and local contracts and grants decreased by \$7.86 million (2.60%) in constant dollars.

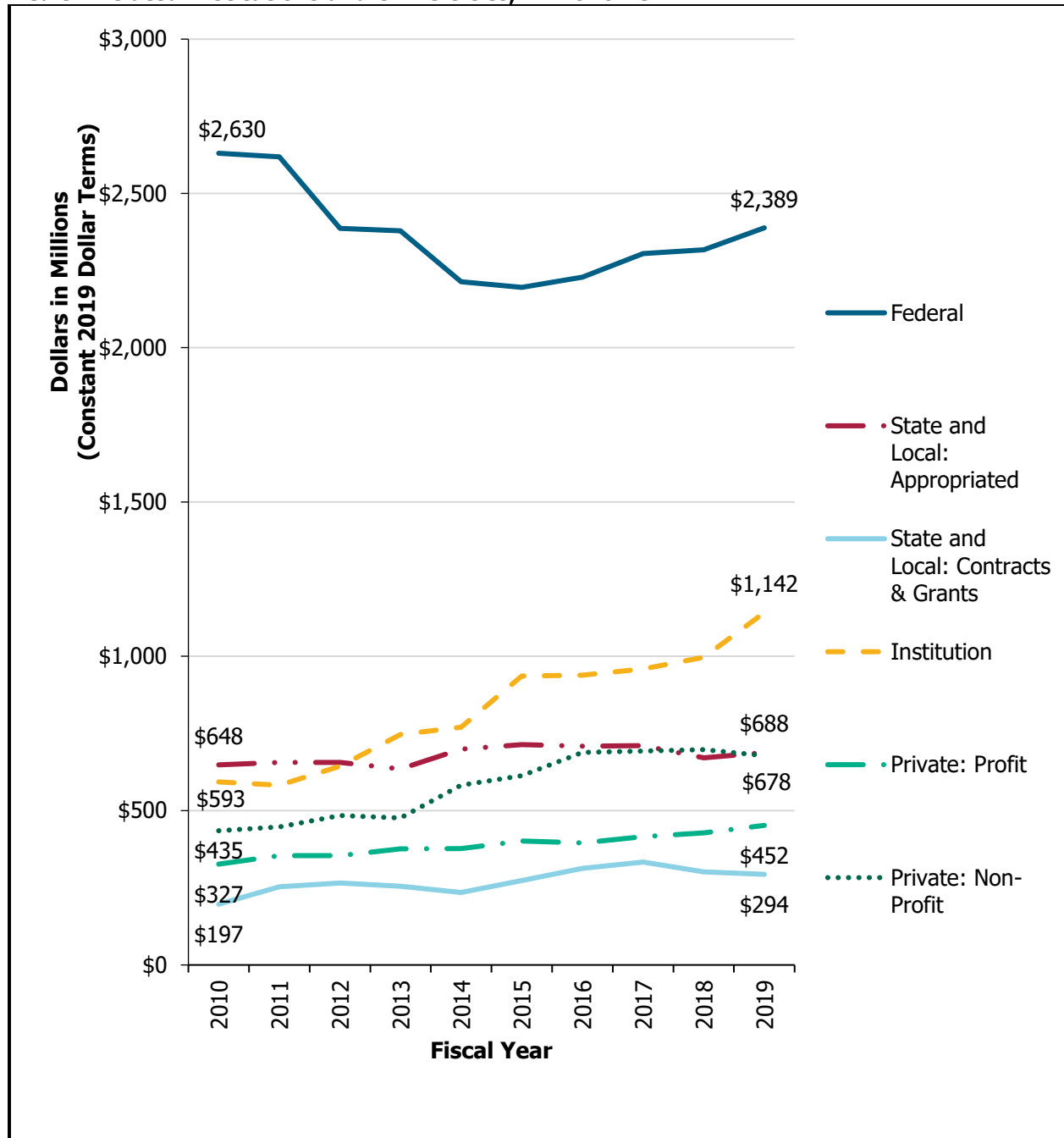
**Table 3. Sources of funds for research and development, FY 2019**

Institution	Federal	State and Local Appropriations	State and Local Contracts & Grants	Institution Resources	Private For-Profit	Private Non-Profit	Total
<b>Public</b>							
Health-Related Institutions	\$846,242,347	\$332,147,395	\$139,149,226	\$296,147,747	\$245,143,832	\$383,110,448	\$2,241,940,995
Universities	\$1,119,382,405	\$352,105,525	\$118,465,678	\$553,483,759	\$160,451,681	\$214,536,316	\$2,518,425,364
<b>Total for Public</b>	<b>\$1,965,624,752</b>	<b>\$684,252,920</b>	<b>\$257,614,904</b>	<b>\$849,631,506</b>	<b>\$405,595,513</b>	<b>\$597,646,764</b>	<b>\$4,760,366,359</b>
<b>Independent</b>							
Health-Related Institutions	\$309,354,252	\$3,916,884	\$28,315,743	\$200,009,808	\$31,148,942	\$47,648,340	\$620,393,969
Universities	\$113,626,977	\$0	\$8,208,530	\$92,070,625	\$15,490,001	\$32,487,917	\$261,884,050
<b>Total for Independent</b>	<b>\$422,981,229</b>	<b>\$3,916,884</b>	<b>\$36,524,273</b>	<b>\$292,080,433</b>	<b>\$46,638,943</b>	<b>\$80,136,257</b>	<b>\$882,278,019</b>
<b>All Institutions</b>							
Health-Related Institutions	\$1,155,596,599	\$336,064,279	\$167,464,969	\$496,157,555	\$276,292,774	\$430,758,788	\$2,862,334,964
Universities	\$1,233,009,382	\$352,105,525	\$126,674,208	\$645,554,384	\$175,941,682	\$247,024,233	\$2,780,309,414
<b>Total for All Institutions</b>	<b>\$2,388,605,981</b>	<b>\$688,169,804</b>	<b>\$294,139,177</b>	<b>\$1,141,711,939</b>	<b>\$452,234,456</b>	<b>\$677,783,021</b>	<b>\$5,642,644,378</b>
	<b>Federal</b> 42.33%	<b>State and Local</b> 17.41%		<b>Institution</b> 20.23%	<b>Private</b> 20.03%		

Source: Texas Higher Education Coordinating Board

Figure 4 shows sources of funds for research and development increased by \$813 million (16.8%) over the past 10 years (FY 2010-19) in constant dollars. Institution funds increased by \$549 million (92.6%), while federal funds decreased by \$242 million (9.2%) in constant dollars from FY 2010 to FY 2019.

**Figure 4. Sources of Funds for Research and Development, Texas Public and Independent Health-Related Institutions and Universities, FY 2010-19**



Source: Texas Higher Education Coordinating Board

Table 4 presents expenditures in 16 different fields, as defined in the Instructions and Definitions for the Survey (see [Appendix](#)). The THECB's instructions directed institutions to assign expenditures to only one field to avoid duplication.

Medical sciences led all other disciplines and accounted for 33.4% of the total research and development expenditures. The top five disciplines (medical sciences, biological and other life sciences, engineering, physical sciences, and agricultural sciences), collectively accounted for 79.3% of all reported research expenditures.

For the most part, research fields in Table 4 reflect expenditures in particular academic disciplines. Some deviation may result as institutions categorize all research as belonging to only one field. For example, a college of agriculture could perform basic research in biological sciences and report expenses in that field rather than in agricultural sciences.

**Table 4. Expenditures for Research and Development by Field, Texas Public and Independent Universities and Health-Related Institutions, FY 2019**

<b>Field</b>	<b>Total</b>	<b>% Total</b>
Medical Sciences	\$1,886,488,673	33.4%
Biological and Other Life Sciences	\$1,194,552,472	21.2%
Engineering	\$852,125,599	15.1%
Physical Sciences	\$279,052,586	4.9%
Agricultural Sciences	\$263,972,176	4.7%
Environmental Sciences	\$239,698,286	4.2%
Computer Science	\$165,484,563	2.9%
Social Sciences	\$130,574,612	2.3%
Other Non-Science Activities	\$128,002,006	2.3%
Other Sciences not classified above	\$103,009,541	1.8%
Education	\$99,214,711	1.8%
Mathematical Sciences	\$75,130,734	1.3%
Psychology	\$72,084,954	1.3%
Business Administration	\$58,593,792	1.0%
Arts and Humanities	\$46,208,373	0.8%
Law	\$31,575,493	0.6%
Undetermined Research Field*	\$16,875,807	0.3%
<b>Total for All Institutions</b>	<b>\$5,642,644,378</b>	<b>100.0%</b>

Source: Texas Higher Education Coordinating Board

\*Baylor College of Medicine and University of the Incarnate Word reported expenditures in this undetermined field.

Table 5 and Table 6 show research expenditures in areas of special interest at universities and health-related institutions. Human Stem Cells-Embryonic and Human Stem Cells-Adult were added to the Areas of Special interest section in Fiscal Year 2013.

**Table 5. Expenditures for Research and Development in Areas of Special Interest, Texas Public and Independent Universities, FY 2019**

<b>Field</b>	<b>Total</b>
Aerospace Technology	\$46,177,620
Biotechnology	\$101,162,372
Cancer Research	\$62,829,836
Energy	\$95,532,895
Human Stem Cell - Adult	\$3,753,903
Human Stem Cell - Embryonic	\$1,205,327
Manufacturing Technology	\$23,386,648
Materials Science	\$94,074,685
Microelectronics and Computer Technology	\$130,485,273
Water Resources	\$25,602,999
<b>Total for All Universities</b>	<b>\$584,211,558</b>

Source: Texas Higher Education Coordinating Board

**Table 6. Expenditures for Research and Development in Areas of Special Interest, Texas Public and Independent Health-Related Institutions, FY 2019**

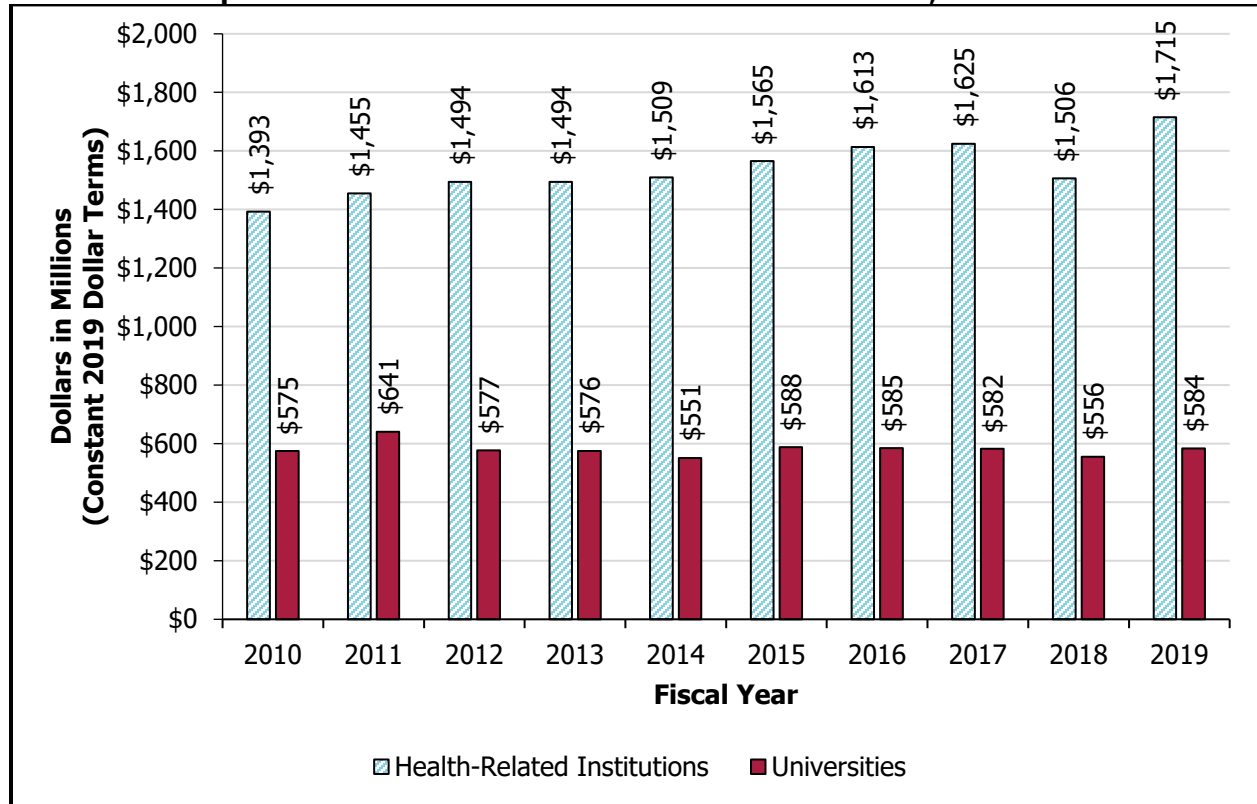
<b>Field</b>	<b>Total</b>
Aerospace Technology*	\$16,815,878
Aging	\$83,739,701
Cancer Research	\$1,284,098,248
Cardiovascular Research	\$80,761,589
Child Health and Human Development	\$138,941,128
Human Stem Cell - Adult	\$11,997,968
Human Stem Cell - Embryonic	\$2,218,700
Mental Health	\$96,320,597
<b>Total</b>	<b>\$1,714,893,809</b>

Source: Texas Higher Education Coordinating Board

\*Aerospace Technology research expenditures reported by Baylor College of Medicine

Figure 5 shows expenditures for research and development in areas of special interest remained relatively stable for universities over the past 10 years (FY 2010-19). Expenditures increased by \$9.2 million for Texas public and independent universities and increased by \$322 million for Texas public and independent health-related institutions in constant dollars from FY 2010 to FY 2019.

**Figure 5. Expenditures for Research and Development in Areas of Special Interest, Texas Public and Independent Health-Related Institutions and Universities, FY 2010-19**



Source: Texas Higher Education Coordinating Board



Table 7 and Table 8 show research expenditures in the area of stem cell research by source of funds, as required by Texas Education Code, Section 61.0662(d). Research expenditures decreased in Human Stem Cells-Adult overall from FY 2018 to FY 2019 by \$1,354,112 (7.9%) in constant dollars. Changes by source of funds included decreases for federal funds (25.9%), private for-profit (34.6%), and private non-profit (22.4%). Research expenditures increased in Human Stem Cells-Embryonic overall from FY 2018 to FY 2019 by \$1,204,439 (54.3%) in constant dollars. Changes by source of funds included increases for federal funds (161.9%), private non-profit (83.7%), and decreases for private for-profit (33.9%).

**Table 7. Expenditures for Stem Cell Research - Adult by Source of Funds, Texas Public and Independent Universities and Health-Related Institutions, FY 2019**

Institution	Federal	State and Local Appropriations	State and Local Contracts & Grants	Institution Resources	Private For-Profit	Private Non-Profit	Total
<b>Independent - Universities</b>							
<b>Total for Independent - Universities</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Public - Universities</b>							
Texas A&M AgriLife Research	\$0	\$0	\$0	\$0	\$19,976	\$0	\$19,976
Texas A&M Engineering Experiment Station	\$972,541	\$0	\$0	\$0	\$0	\$0	\$972,541
TAMU	\$0	\$0	\$0	\$0	\$0	\$26,040	\$26,040
UT-Austin	\$1,411,658	\$0	\$0	\$0	\$0	\$64,928	\$1,476,586
UH	\$289,125	\$0	\$969,635	\$0	\$0	\$0	\$1,258,760
<b>Total for Public - Universities</b>	<b>\$2,673,324</b>	<b>\$0</b>	<b>\$969,635</b>	<b>\$0</b>	<b>\$19,976</b>	<b>\$90,968</b>	<b>\$3,753,903</b>
<b>Independent - Health-Related</b>							
<b>Total for Independent - Health-Related</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Public - Health-Related</b>							
UTHSC-Houston	\$1,375,530	\$0	\$19,049	\$4,420,055	\$752,418	\$1,209,577	\$7,776,629
UTHSC-San Antonio	\$2,389,202	\$0	\$92,774	\$35,317	\$66,327	\$733,132	\$3,316,752
UT-MD Anderson	\$592,477	\$0	\$0	\$0	\$259,517	\$52,593	\$904,587
<b>Total for Public - Health-Related</b>	<b>\$4,357,209</b>	<b>\$0</b>	<b>\$111,823</b>	<b>\$4,455,372</b>	<b>\$1,078,262</b>	<b>\$1,995,302</b>	<b>\$11,997,968</b>
<b>Total for Human Stem Cells - Adult</b>	<b>\$7,030,533</b>	<b>\$0</b>	<b>\$1,081,458</b>	<b>\$4,455,372</b>	<b>\$1,098,238</b>	<b>\$2,086,270</b>	<b>\$15,751,871</b>

Source: Texas Higher Education Coordinating Board

**Table 8. Expenditures for Stem Cell Research - Embryonic by Source of Funds, Texas Public and Independent Universities and Health-Related Institutions, FY 2019**

Institution	Federal	State and Local Appropriations	State and Local Contracts & Grants	Institution Resources	Private For-Profit	Private Non-Profit	Total
<b>Independent - Universities</b>							
Rice University	\$839,178	\$0	\$44,266	\$186,030	\$0	\$135,853	\$1,205,327
<b>Total for Independent - Universities</b>	<b>\$839,178</b>	<b>\$0</b>	<b>\$44,266</b>	<b>\$186,030</b>	<b>\$0</b>	<b>\$135,853</b>	<b>\$1,205,327</b>
<b>Public - Universities</b>							
<b>Total for Public - Universities</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Independent - Health-Related</b>							
Baylor College of Medicine	\$0	\$0	\$0	\$0	\$0	\$54,871	\$54,871
<b>Total for Independent - Health-Related</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$54,871</b>	<b>\$54,871</b>
<b>Public - Health-Related</b>							
TTUHSC	\$39,436	\$0	\$0	\$0	\$0	\$0	\$39,436
UTHSC-Houston	\$522,239	\$0	\$467,142	\$0	\$37,336	\$813,232	\$1,839,949
UTHSC-San Antonio	\$284,444	\$0	\$0	\$0	\$0	\$0	\$284,444
<b>Total for Public - Health-Related</b>	<b>\$846,119</b>	<b>\$0</b>	<b>\$467,142</b>	<b>\$0</b>	<b>\$37,336</b>	<b>\$813,232</b>	<b>\$2,163,829</b>
<b>Total for All Health-Related Institutions</b>	<b>\$846,119</b>	<b>\$0</b>	<b>\$467,142</b>	<b>\$0</b>	<b>\$37,336</b>	<b>\$868,103</b>	<b>\$2,218,700</b>
<b>Total for Human Stem Cells - Embryonic</b>	<b>\$1,685,297</b>	<b>\$0</b>	<b>\$511,408</b>	<b>\$186,030</b>	<b>\$37,336</b>	<b>\$1,003,956</b>	<b>\$3,424,027</b>

Source: Texas Higher Education Coordinating Board

## Institutional Data

Table 9 details information on research expenditures reported by institution. Definitions for sources of funds and research fields are found in the [Appendix](#).

**Table 9. Total Expenditures for Research by Source of Funds, Texas Public and Independent Universities and Health-Related Institutions, FY 2019**

Institution	Federal	State and Local Appropriations	State and Local Contracts & Grants	Institution Resources	Private For-Profit	Private Non-Profit	Total
<b>Independent - Universities</b>							
Abilene Christian University	\$415,692	\$0	\$0	\$176,692	\$0	\$601,719	\$1,194,103
Baylor University <sup>3</sup>	\$6,955,364	\$0	\$683,964	\$19,690,883	\$1,151,778	\$3,527,024	\$32,009,013
Huston-Tillotson University	\$199,072	\$0	\$0	\$0	\$45,913	\$7,353	\$252,338
LeTourneau University	\$57,591	\$0	\$0	\$136,801	\$13,240	\$30,058	\$237,690
McMurry University	\$24,367	\$0	\$12,712	\$0	\$0	\$39,512	\$76,591
Parker University	\$0	\$0	\$0	\$331,000	\$0	\$0	\$331,000
Rice University	\$83,584,276	\$0	\$6,288,328	\$56,220,397	\$10,814,004	\$24,135,554	\$181,042,559
Southern Methodist University	\$17,868,776	\$0	\$1,092,526	\$13,247,768	\$3,343,450	\$2,037,355	\$37,589,875
Southwestern University	\$11,931	\$0	\$0	\$0	\$0	\$93,558	\$105,489
St. Edward's University	\$2,569,700	\$0	\$131,000	\$650,000	\$90,000	\$133,000	\$3,573,700
Texas Lutheran University	\$31,966	\$0	\$0	\$45	\$4,905	\$47,232	\$84,148
Texas Wesleyan University	\$0	\$0	\$0	\$0	\$0	\$47,510	\$47,510
Trinity University	\$924,496	\$0	\$0	\$1,459,342	\$0	\$1,352,490	\$3,736,328
University of Dallas	\$1,785	\$0	\$0	\$0	\$7,997	\$19,113	\$28,895
University of Mary Hardin-Baylor	\$0	\$0	\$0	\$18,456	\$18,714	\$115,194	\$152,364
University of the Incarnate Word	\$981,961	\$0	\$0	\$123,482	\$0	\$276,422	\$1,381,865
Wayland Baptist University	\$0	\$0	\$0	\$15,759	\$0	\$24,823	\$40,582
<b>Total for Independent - Universities</b>	<b>\$113,626,977</b>	<b>\$0</b>	<b>\$8,208,530</b>	<b>\$92,070,625</b>	<b>\$15,490,001</b>	<b>\$32,487,917</b>	<b>\$261,884,050</b>
<b>Public - Universities</b>							
Angelo	\$32,357	\$404,714	\$169,883	\$0	\$91,249	\$107,089	\$805,292
Lamar	\$2,014,868	\$72,072	\$98,900	\$68,504	\$311,250	\$56,939	\$2,622,533
MSU Texas	\$894,076	\$0	\$22,861	\$0	\$0	\$100,390	\$1,017,327
Prairie View	\$9,346,203	\$4,832,127	\$57,320	\$3,386,507	\$180,802	\$147,039	\$17,949,998
SHSU	\$3,269,653	\$0	\$397,632	\$4,939,259	\$295,139	\$129,742	\$9,031,425
SFA	\$1,018,124	\$1,249,710	\$33,156	\$1,333,097	\$20,530	\$472,946	\$4,127,563
Sul Ross	\$344,844	\$269,823	\$18,817	\$316,816	\$52,022	\$727,209	\$1,729,531
Tarleton	\$4,493,003	\$3,436,871	\$1,560,388	\$2,293,483	\$29,577	\$217,261	\$12,030,583
TAM-I	\$1,845,293	\$1,059,268	\$17,126	\$545,618	\$53,549	\$1,529,330	\$5,050,184
TAMU	\$325,287,242	\$116,175,094	\$56,479,539	\$182,150,949	\$42,808,498	\$75,950,216	\$798,851,538
TAMU-Galveston	\$1,789,216	\$1,087,611	\$2,203,448	\$1,294,333	\$171,791	\$2,405,084	\$8,951,483
TAMU-Central TX	\$45,464	\$0	\$249,745	\$491,947	\$0	\$102,587	\$889,743
TAMU-Commerce	\$676,613	\$938,359	\$268,777	\$812,436	\$99,218	\$134,454	\$2,929,857
TAMU-CC	\$14,189,073	\$6,687,617	\$1,516,940	\$2,776,231	\$475,664	\$5,684,566	\$31,330,091

<sup>3</sup> Baylor University reported research expenditures using the university's fiscal year calendar, June 1 to May 31.

**Table 9. Total Expenditures for Research by Source of Funds, Texas Public and Independent Universities and Health-Related Institutions, FY 2019 (cont'd)**

Institution	Federal	State and Local Appropriations	State and Local Contracts & Grants	Institution Resources	Private For-Profit	Private Non-Profit	Total
TAMU-Kingsville	\$8,123,619	\$2,912,421	\$1,318,402	\$1,651,511	\$200,181	\$5,600,676	\$19,806,810
TAMU-San Antonio	\$43,110	\$0	\$0	\$8,545	\$0	\$17,466	\$69,121
TAMU-Tearkana	\$0	\$1,132	\$0	\$4,617	\$0	\$0	\$5,749
TSU	\$3,238,072	\$170,989	\$751,429	\$661,594	\$36,155	\$34,775	\$4,893,014
TXST	\$29,614,339	\$12,652,966	\$4,871,338	\$11,179,264	\$724,806	\$5,511,284	\$64,553,997
TTU	\$35,135,572	\$84,868,603	\$4,608,734	\$33,103,397	\$16,211,108	\$14,242,899	\$188,170,313
TWU	\$1,864,021	\$559,110	\$0	\$1,096,435	\$125,741	\$607,317	\$4,252,624
UT-Arlington	\$40,562,593	\$12,555,794	\$4,414,391	\$46,153,380	\$5,089,108	\$8,127,239	\$116,902,505
UT-Austin	\$411,880,356	\$21,993,469	\$17,239,327	\$66,941,910	\$69,022,299	\$36,536,415	\$623,613,776
UT-Dallas	\$48,465,999	\$8,769,396	\$3,363,802	\$38,469,067	\$4,762,025	\$22,831,074	\$126,661,363
UT-El Paso	\$42,631,235	\$27,859,784	\$3,902,866	\$13,134,971	\$872,115	\$13,574,260	\$101,975,231
UT-San Antonio	\$34,588,199	\$17,048,627	\$3,721,414	\$15,290,579	\$5,754,661	\$4,227,461	\$80,630,941
UT-Tyler	\$906,595	\$61,450	\$237,518	\$731,111	\$93,998	\$322,719	\$2,353,391
UT-Permian Basin	\$595,910	\$0	\$196,705	\$408,634	\$23,899	\$417,229	\$1,642,377
UT-RGV	\$7,611,799	\$1,452,983	\$1,303,710	\$19,077,571	\$82,287	\$562,767	\$30,091,117
UH	\$67,767,298	\$20,774,827	\$8,911,131	\$49,367,094	\$9,703,491	\$11,718,486	\$168,242,327
UH-Clear Lake	\$718,270	\$126,988	\$143,195	\$199,954	\$51,235	\$130,996	\$1,370,638
UH-Downtown	\$1,438,687	\$205,949	\$41,713	\$190,099	\$107,231	\$205,498	\$2,189,177
UH-Victoria	\$21,844	\$0	\$0	\$0	\$0	\$20,679	\$42,523
UNT	\$17,344,938	\$2,321,187	\$200,168	\$54,518,939	\$2,009,929	\$2,019,936	\$78,415,097
UNT-Dallas	\$219	\$0	\$23,181	\$12,095	\$0	\$0	\$35,495
WTAMU	\$1,583,701	\$1,556,584	\$122,122	\$873,812	\$992,123	\$62,288	\$5,190,630
<b>Total for Public - Universities</b>	<b>\$1,119,382,405</b>	<b>\$352,105,525</b>	<b>\$118,465,678</b>	<b>\$553,483,759</b>	<b>\$160,451,681</b>	<b>\$214,536,316</b>	<b>\$2,518,425,364</b>
<b>Total for All Universities</b>	<b>\$1,233,009,382</b>	<b>\$352,105,525</b>	<b>\$126,674,208</b>	<b>\$645,554,384</b>	<b>\$175,941,682</b>	<b>\$247,024,233</b>	<b>\$2,780,309,414</b>
<b>Independent - Health-Related</b>							
Baylor College of Medicine	\$309,354,252	\$3,916,884	\$28,315,743	\$200,009,808	\$31,148,942	\$47,648,340	\$620,393,969
<b>Total for Independent - Health-Related</b>	<b>\$309,354,252</b>	<b>\$3,916,884</b>	<b>\$28,315,743</b>	<b>\$200,009,808</b>	<b>\$31,148,942</b>	<b>\$47,648,340</b>	<b>\$620,393,969</b>
<b>Public - Health-Related</b>							
TAMU-HSC	\$47,702,359	\$15,553,858	\$8,142,995	\$12,800,751	\$8,578,860	\$9,106,240	\$101,885,063
TTUHSC	\$11,345,368	\$15,831,055	\$2,057,773	\$8,532,696	\$549,809	\$5,593,052	\$43,909,753
TTUHSC-El Paso	\$2,278,576	\$4,501,860	\$2,512,267	\$1,719,782	\$363,270	\$423,059	\$11,798,814
UT-DMS	\$8,053,987	\$0	\$2,355,543	\$19,222,766	\$3,993,740	\$1,230,626	\$34,856,662
UTHSC-Houston	\$132,647,393	\$20,278,869	\$15,159,181	\$26,858,469	\$20,759,391	\$36,411,191	\$252,114,494
UTHSC-SA	\$106,008,695	\$13,380,099	\$7,426,513	\$24,699,299	\$15,732,575	\$13,418,254	\$180,665,435
UTHSC-Tyler	\$7,404,694	\$1,558,750	\$5,349,531	\$571,884	\$182,532	\$2,663,128	\$17,730,519
UT-MDACC	\$179,497,413	\$213,866,023	\$44,155,637	\$137,420,189	\$156,234,119	\$164,575,377	\$895,748,758
UTMB	\$109,099,804	\$872,069	\$4,181,514	\$17,913,711	\$4,638,774	\$10,978,092	\$147,683,964
UTRGV School of Medicine	\$6,017,421	\$3,366,120	\$361,531	\$5,783,214	\$242,468	\$3,585,788	\$19,356,542
UTSW	\$208,926,098	\$32,496,448	\$46,722,213	\$35,657,884	\$31,996,459	\$133,618,707	\$489,417,809
UHCM	\$0	\$0	\$0	\$0	\$0	\$5,280	\$5,280
UNTHSC	\$27,260,539	\$10,442,244	\$724,528	\$4,967,102	\$1,871,835	\$1,501,654	\$46,767,902
<b>Total for Public - Health-Related</b>	<b>\$846,242,347</b>	<b>\$332,147,395</b>	<b>\$139,149,226</b>	<b>\$296,147,747</b>	<b>\$245,143,832</b>	<b>\$383,110,448</b>	<b>\$2,241,940,995</b>
<b>Total for All Health-Related Institutions</b>	<b>\$1,155,596,599</b>	<b>\$336,064,279</b>	<b>\$167,464,969</b>	<b>\$496,157,555</b>	<b>\$276,292,774</b>	<b>\$430,758,788</b>	<b>\$2,862,334,964</b>
<b>Grand Total</b>	<b>\$2,388,605,981</b>	<b>\$688,169,804</b>	<b>\$294,139,177</b>	<b>\$1,141,711,939</b>	<b>\$452,234,456</b>	<b>\$677,783,021</b>	<b>\$5,642,644,378</b>

Source: Texas Higher Education Coordinating Board

Table 10 presents the ratio of federal research and development expenditures to the number of full-time-equivalent faculty at Texas public universities. Universities with the greatest ratio in FY 2019 are The University of Texas at Austin, Texas A&M University, and The University of Texas at Dallas.

**Table 10. Federal Research and Development Expenditures/FTE Faculty Ratio, Texas Public Universities, FY 2019**

Institution	Federal R&D Expenditures	FTE Faculty*	Federal R&D Expenditures / FTE
Angelo	\$32,357	192.9	\$168
Lamar	\$2,014,868	301.4	\$6,685
MSU Texas	\$894,076	175.8	\$5,086
Prairie View	\$9,346,203	194.9	\$47,954
SHSU	\$3,269,653	416.6	\$7,848
SFA	\$1,018,124	374.5	\$2,719
Sul Ross	\$344,844	77.7	\$4,438
Tarleton	\$4,493,003	279.7	\$16,046
TAM-I	\$1,845,293	94.4	\$19,548
TAMU**	\$325,287,242	2,073.7	\$156,863
TAMU-Galveston	\$1,789,216	44.8	\$39,938
TAMU-Central Texas	\$45,464	63.3	\$718
TAMU-Commerce	\$676,613	222.5	\$3,041
TAMU-CC	\$14,189,073	194.0	\$73,140
TAMU-Kingsville	\$8,123,619	265.4	\$30,609
TAMU-San Antonio	\$43,110	116.5	\$370
TAMU-Texarkana	\$0	68.3	\$0
TSU	\$3,238,072	245.5	\$13,190
TXST	\$29,614,339	492.9	\$60,082
TTU	\$35,135,572	1,014.3	\$34,640
TWU	\$1,864,021	329.8	\$5,652
UT-Arlington	\$40,562,593	520.6	\$77,915
UT-Austin	\$411,880,356	1,611.4	\$255,604
UT-Dallas	\$48,465,999	488.1	\$99,295
UT-El Paso	\$42,631,235	480.1	\$88,797
UT-San Antonio	\$34,588,199	564.8	\$61,240
UT-Tyler	\$906,595	192.7	\$4,705
UT-Permian Basin	\$595,910	80.5	\$7,403
UT-RGV	\$7,611,799	373.2	\$20,396
UH	\$67,767,298	958.7	\$70,687
UH-Clear Lake	\$718,270	243.6	\$2,949
UH-Downtown	\$1,438,687	230.5	\$6,242
UH-Victoria	\$21,844	101.5	\$215
UNT	\$17,344,938	568.9	\$30,489
UNT-Dallas	\$219	43.6	\$5
WTAMU	\$1,583,701	155.0	\$10,271
<b>Total for Public - Universities</b>	<b>\$1,119,382,405</b>	<b>13,852.1</b>	<b>\$80,810</b>

Source: Texas Higher Education Coordinating Board

\* FTE Faculty indicates number of full-time equivalents (FTE) for tenured and tenure-track faculty with teaching responsibilities based on fall 2018 (FY 2019) THECB Accountability System reports.

\*\* FTE faculty for Texas A&M University is based on its FTE faculty plus faculty from Texas AgriLife Research and the Texas Engineering Experiment Station. Service agency counts come from Legislative Appropriations Requests for FY 2022 and 2023 include 118.7 FTEs from Texas AgriLife Research and 338.7 from Texas Engineering Experiment Station reported as actual FTE for FY 2019.

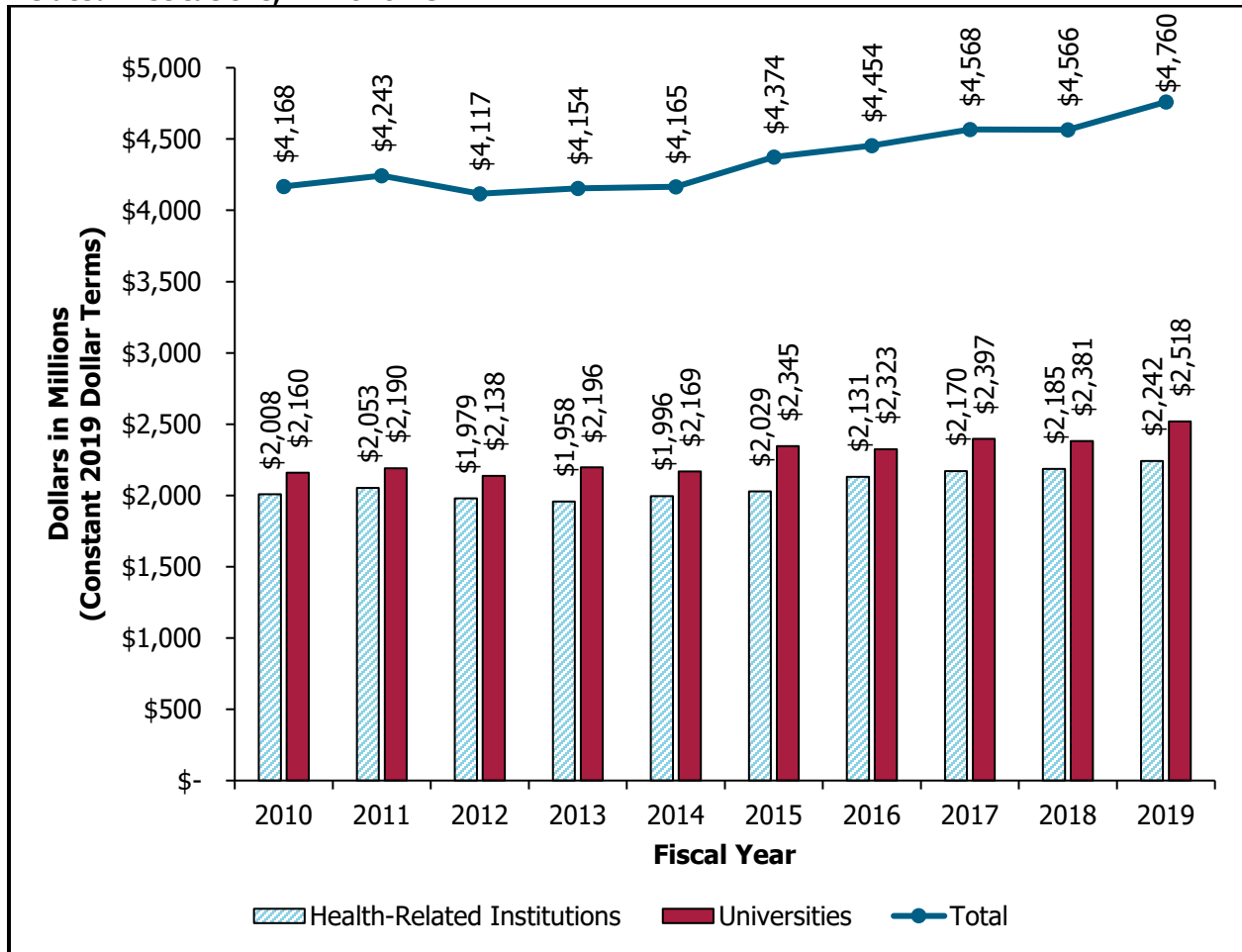
## Historical Data for Public Institutions

Figure 6 presents total research and development expenditures since FY 2010 in constant dollars. From FY 2018 to FY 2019, research expenditures at Texas public institutions increased by \$194.3 million (4.25%) in constant dollars; there was a \$1 million decline from FY 2017 to FY 2018.

By source of funds, the largest %age and dollar amount increases were \$124.5 million (17.2%) in institution funds, \$22.4 million (5.9%) in private-profit funds, and \$61.0 million (3.2%) in federal funds. The largest declines in research expenditures were a decrease of \$23.6 million (3.8%) in private-non-profit funds and \$5.6 million (2.1%) in state contracts and grants.

By sector, expenditures at health-related institutions increased by \$56.96 million (2.6%), while universities increased by \$137.3 million (5.8%).

**Figure 6. Expenditures for Research and Development, Texas Public Universities and Health-Related Institutions, FY 2010-19**



Source: Texas Higher Education Coordinating Board

## National Indicators

National indicators are based on data provided by the National Science Foundation (NSF). Figures are not entirely consistent with data provided in earlier sections of this report because these statistics are based on a previous year and reporting requirements, which differ.

One difference in the reporting requirements is the way the NSF survey allows institutions to calculate unreimbursed indirect costs. The THECB's survey allows only tracked indirect costs as reported in the institution's annual financial report. Thus, the NSF calculation will have a considerably higher total in the institution source of funding (see [NCSES survey data](https://ncesdata.nsf.gov) at <https://ncesdata.nsf.gov> to compare individual institutions with the THECB's reports). NSF may impute data for institutions that do not respond to or fully complete the survey, which is another difference in the reporting requirements.<sup>4</sup>

The NSF publishes several reports on research expenditures and research obligations. In data collected by the NSF's Higher Education Research and Development (HERD) Survey for FY 2018, Texas ranked third among the states in total research expenditures in all fields with \$5.7 billion, behind California (\$10.4 billion) and New York (\$6.8 billion) in constant dollars (National Science Foundation, 2020). For federally financed research and development expenditures in all fields in FY 2018, Texas ranked sixth with \$2.33 billion in constant dollars (Table 11).

**Table 11. State Rank in Federally Financed Research and Development Expenditures in All Fields at Colleges and Universities, FY 2018**

Rank	State	\$
1	California	\$5.29
2	New York	\$3.58
3	Maryland	\$3.34
4	Pennsylvania	\$2.54
5	Massachusetts	\$2.34
<b>6</b>	<b>Texas</b>	<b>\$2.33</b>
7	North Carolina	\$1.90
8	Illinois	\$1.55
9	Ohio	\$1.48
10	Georgia	\$1.44

*Source: National Science Foundation*

*Note: Dollars in billions, Constant 2019 Dollar Terms*

<sup>4</sup> In 2018, the NSF updated the HERD Survey reporting to an interactive report system. Available fiscal year data varies by report while the NSF updates the application. Wherever possible, the most current fiscal year available is presented in Constant 2019 Dollar Terms.

Federal Obligations for Research and Development in Science and Engineering includes only federal funds obligated during a year to support, directly or indirectly, basic and applied research and development in science and engineering disciplines at higher education institutions. Funds obligated in any given year may be expended over several years, so obligations differ from expenditures. The amount of support is reported by federal agencies. In data collected by the National Center for Science and Engineering Statistics Survey of Federal Funds for Research and Development (2019) for FY 2017, Texas ranked sixth among the states in total federal obligations for research and development in science and engineering with \$1.68 billion in constant dollars (Table 12).

**Table 12. State Rank in Federal Obligations for Research and Development in Science and Engineering to Colleges and Universities, FY 2017**

<b>Rank</b>	<b>State</b>	<b>\$</b>
1	California	\$4.28
2	New York	\$2.66
3	Maryland	\$2.19
4	Pennsylvania	\$2.04
5	Massachusetts	\$1.68
<b>6</b>	<b>Texas</b>	<b>\$1.68</b>
7	North Carolina	\$1.27
8	Illinois	\$1.14
9	Georgia	\$1.08
10	Michigan	\$1.00

*Source: National Science Foundation*

*Note: Dollars in billions, Constant 2019 Dollar Terms*



Table 13 shows the ranking of the top 10 states in federal research and development expenditures in selected science and engineering fields for FY 2018. Texas ranked fourth in life sciences, sixth in engineering, eighth in physical sciences, fourth in environmental sciences, fifth in computer and information sciences, and fourth in mathematics and statistics.

**Table 13. Top 10 States in Federal Research and Development Expenditures in Selected Science and Engineering Fields, FY 2018**

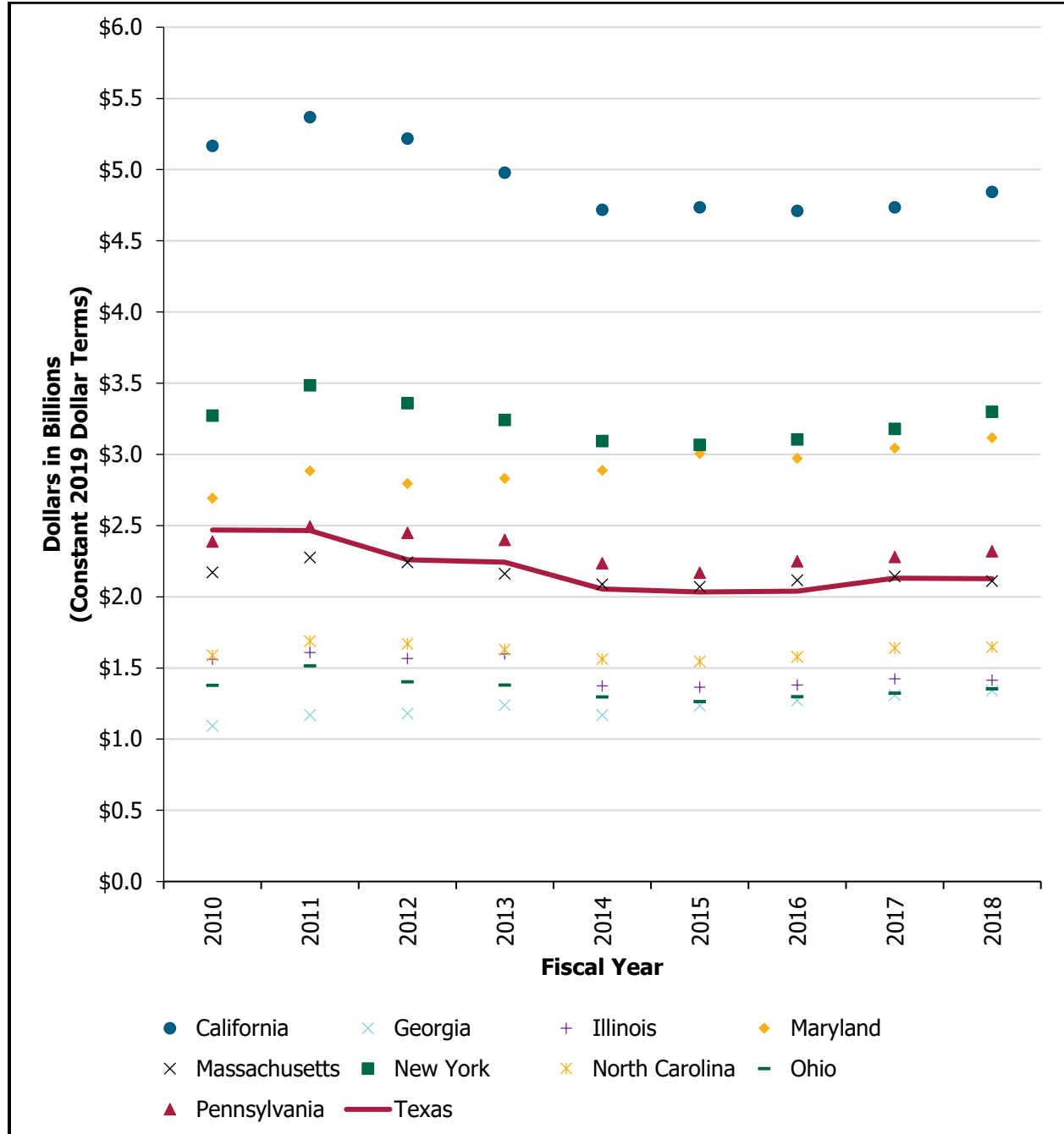
Rank	Life Sciences	\$	Engineering	\$	Physical Sciences	\$	Environmental Sciences*	\$	Computer and Information Sciences	\$	Mathematics and Statistics	\$
1	California	\$3.24	Maryland	\$1.15	California	\$0.57	Colorado	\$0.25	California	\$0.20	Maryland	\$0.08
2	New York	\$2.40	California	\$0.55	Maryland	\$0.33	California	\$0.24	Maryland	\$0.20	California	\$0.05
3	Pennsylvania	\$1.52	Massachusetts	\$0.50	New York	\$0.32	Massachusetts	\$0.19	Pennsylvania	\$0.17	Massachusetts	\$0.04
4	<b>Texas</b>	<b>\$1.32</b>	Georgia	\$0.50	Massachusetts	\$0.27	<b>Texas</b>	<b>\$0.14</b>	Georgia	\$0.13	<b>Texas</b>	<b>\$0.03</b>
5	North Carolina	\$1.28	Pennsylvania	\$0.42	Michigan	\$0.17	New York	\$0.11	<b>Texas</b>	<b>\$0.11</b>	New York	\$0.03
6	Maryland	\$1.25	<b>Texas</b>	<b>\$0.38</b>	Illinois	\$0.16	Washington	\$0.11	Illinois	\$0.10	Pennsylvania	\$0.03
7	Massachusetts	\$1.01	New York	\$0.34	Pennsylvania	\$0.14	Maryland	\$0.10	New York	\$0.10	North Carolina	\$0.03
8	Ohio	\$0.91	Ohio	\$0.34	<b>Texas</b>	<b>\$0.14</b>	Florida	\$0.09	Massachusetts	\$0.10	New Jersey	\$0.02
9	Illinois	\$0.89	Michigan	\$0.24	Florida	\$0.10	Arizona	\$0.07	Florida	\$0.05	Illinois	\$0.02
10	Michigan	\$0.78	Illinois	\$0.22	Colorado	\$0.10	Hawaii	\$0.07	Virginia	\$0.05	Michigan	\$0.01

Source: National Science Foundation

Note: Dollars in billions, Constant 2019 Dollar Terms

Figure 7 shows federal research and development expenditures from FY 2010-18. The overall highest federal research and development expenditures in science and engineering fields were from California.

**Figure 7. Federal Research and Development Expenditures in Science and Engineering Fields, FY 2010-18**



Source: National Science Foundation

Notes: Dollars in billions, Constant 2019 Dollar Terms; Federal R&D Expenditures in Science and Engineering fields include: computer and information sciences; engineering; geosciences, atmospheric sciences, and ocean sciences; life sciences; mathematics and statistics; and physical sciences.

## References

- Bureau of Labor Statistics. (2019). Consumer Price Index. Retrieved from the [Bureau of Labor Statistics inflation calculator](https://www.bls.gov/data/inflation_calculator.htm) at [https://www.bls.gov/data/inflation\\_calculator.htm](https://www.bls.gov/data/inflation_calculator.htm)
- National Science Foundation. (2018). *National Center for Science and Engineering Statistics, Survey of Federal Science and Engineering Support to Universities, Colleges and Nonprofit Institutions, Fiscal Year 2017* [Data file]. Retrieved from the [Survey Fiscal Year 2017](https://ncesdata.nsf.gov/fedsupport/2017/index.html) at <https://ncesdata.nsf.gov/fedsupport/2017/index.html>
- National Science Foundation. (2020). *National Center for Science and Engineering Statistics, Higher Education Research and Development Survey*. Retrieved from the [data file](https://ncesdata.nsf.gov/ids/herd) at <https://ncesdata.nsf.gov/ids/herd>

## **Appendix:** **Texas Higher Education Coordinating Board** **Survey of Research Expenditures at Universities and Health-Related Institutions – Instructions**

### **Background**

The Texas Higher Education Coordinating Board collects data from Texas higher education institutions annually through the Survey of Research Expenditures. Beginning in Fiscal Year 2010, the survey is issued as part of the Academic Sources and Uses Template. The collection of these data is required by law per Texas Education Code, Chapter 61 Subchapter C, Section 61.0662. The data collected are published and accessible in an [online report system](http://www.highered.texas.gov/Research): <http://www.highered.texas.gov/Research>.

The figures from this survey are used by institutions of higher education and other state agencies. In addition, the data provides the basis for public policy and management decisions. Therefore, it is critical that the data reported are accurate and complete.

The information provided in the report should be consistent with an institution's Annual Financial Report. For additional guidance in business operations of higher education institutions, please refer to the National Association of College and University Business Officers.

The data collection form and definitions are modeled after similar forms used by the National Science Foundation. This approach is an effort to provide comparability of data with national data and reduce the data collection efforts of the institutions.

#### **Code of Federal Regulations:**

The Office of Management and Budget (OMB) issued the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, Title 2 Part 200 of the Code of Federal Regulations (CFR) in December 2013. Previous references in this document for the definition of Research and Development to OMB Circular A-110, subpart A, definition A.2dd and to OMB Circular A-21 B.1.b were updated to reference Title 2, CFR 200.87. The full text of 2 CFR Part 200 is available on the [Code of Federal Regulations website](https://www.govinfo.gov/help/cfr) at <https://www.govinfo.gov/help/cfr>.

### **Concepts and Definitions**

#### **A. Research and Development activities are defined as follows (Title 2 CFR 200.87):**

Research is systematic study directed toward fuller scientific knowledge or understanding of the subject studied.

Development is systematic use of knowledge and understanding<sup>5</sup> gained from research, directed toward the production of useful materials, devices, systems, or methods including design and development of prototypes and processes.

Research and Development (R&D) also includes activities involving the training of individuals in research techniques where such activities utilize the same facilities as other research and

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<sup>5</sup> 2019 erratum: "knowledge or understanding" was corrected to "knowledge and understanding".

development activities and where such activities are not included in the instruction function.

Exclusions from research and development:

- Training of scientific manpower
- Mapping and surveys
- Routine product testing
- Quality control
- Experimental production
- Collection of general purpose statistics (statistics not collected as part of a specific R&D project)

NOTE: Certain activities may or may not be classified as research and development depending upon circumstances. Examples of such activities are given below in Reporting Guidelines for R&D versus Non-R&D Activities.

## **B. Selected financial terms**

Expenditures - All amounts of money paid out by the institution to support R&D activities. Include funds "passed through" to other institutions of higher education. Include earned indirect costs and fringe benefits. Do not include non-monetary awards.

Federal Funds - All federal monies used in support of the R&D activities of the institution. These include reimbursements, contracts, grants, and any identifiable amounts spent from federal programs including federal monies passed through state agencies.

Fiscal Year - The 12-month accounting period beginning September 1 and ending August 31 of each year.

Institution Resources - Include expenditures of funds that are locally controlled. This includes Permanent University Funds (PUF) and Available University Funds (AUF), other local funds, etc.

Private - Include expenditures of funds from both for-profit and non-profit corporations and individuals. Also, include in this category funds from agencies from other states.

State Sources - Include all expenditures of funds appropriated by the state of Texas not included in institutionally controlled funds listed under Institution Resources. Included in this category are state appropriated "Special Items" and state research contracts and grants, interagency contracts, contracts with Texas local governments, etc.

## **C. Definitions for specific line items used in the Research Expenditure Survey**

### **Survey Section: Summary of R&D Expenditures**

Total R&D Expenditures - All expenditures except those for R&D plant.

Capital outlay for research equipment - According to the Government Accounting Standards Board, annual financial reports use expenses rather than expenditures. The major difference is that capital outlays for research equipment will be depreciated over the life of the equipment and will not be separately identified as research items in the annual financial reports. This line allows inclusion of expenditures for equipment that are not included in research expenses. The research definition used for this report does not allow inclusion of expenses for R&D plant or construction.

R&D Expenses not meeting the narrow definition of R&D used in the Research Expenditure Survey - Externally-funded activities that cannot be classified as R&D using the definitions

appearing in Section A are included. Do not include projects funded with "development" funds unless they are related to research activities.

*Reporting Guidelines for R&D versus Non-R&D Activities:*

Collection of statistical data - The collection of statistics is an R&D activity only if conducted as part of a specific research or development program. For example, the regular collection and publication of statistics on the incidence of various diseases within a state by a state health department is general purpose data collection and not research or development. The data gathering is not part of a research program and is designed for use by a range of persons, such as practicing physicians, public health officials, and school officials. If the data on incidence of diseases are gathered as part of a project on the origin and nature of particular diseases, however, or to establish generalizations on why certain individuals or groups contract certain diseases, this would be research.

Demonstration - Demonstration activities that are part of research or development (i.e., that are intended to prove or to test whether a technology or method does, in fact, work) should be included. Demonstration intended to make available information about new technologies or methods should not be included. For example, an educational demonstration on new teaching methods should be reported as an R&D activity if the demonstration is established as an experiment to produce new information, is accomplished within a definite time period, and is accompanied by a thorough evaluation. An educational demonstration to apply or exhibit new teaching methods, or a demonstration without a scheduled termination or a thorough evaluation, should not be reported as an R&D activity.

Economic studies - To be classified as research, the activities under this heading should be systematic and intensive. They should not include program planning, implementation, and evaluation unless these activities are designed as a fairly rigorous research effort. For example, a study to determine the impact of proposed tax changes on state revenues or on statewide employment, consumption, or industrial output could be reported as economic research. The collection of economic data on tax revenues, personal income, or industrial output would be reported as economic research only if collected as part of the research project.

Evaluation - Evaluation qualifies as research when it is part of a specific research undertaking. Evaluation conducted separately from a research project is considered research when it involves scientific method and hypothesis testing procedures with fairly rigorous standards. Evaluation activities that do not involve systematic design and testing should not be included.

Satellite information - Photographs and tapes purchased from federal agencies (or others) sponsoring satellite operations are not considered research and development unless they are used primarily in support of a research or development program. Tapes and photographs that are stored in documentation centers or used primarily for the formulation of regulations are excluded from this survey.

Technology transfer - Technology transfer involves the adoption, and perhaps adaptation, of new techniques or products that have already been brought to a usable condition. The adoption and use of a technology is not research and development, but the adaptation of a technology to meet unique regional or local needs could involve R&D activities. For example, a new method of treating water to make it potable is developed

in one state. If another state adopts the same treatment process, the adoption costs for facilities, equipment, personnel, etc., are not R&D expenditures. However, if further systematic, intensive study is required by the second state to modify the treatment process to adapt it to unique local conditions, the costs of modification and adaptation could be R&D expenditures.

### **Survey Section: R&D Expenditures by Funding Source**

Agricultural Sciences deal with the production of food and fiber. They include work in plant sciences, animal sciences, aquaculture, agricultural economics, and other topics related to the agricultural enterprise.

Biological and other Life Sciences are those life sciences (apart from medical sciences and agricultural sciences) that deal with the origin, development, structure, function, and interaction of living things. Examples of biological sciences are anatomy, animal sciences, bacteriology, biochemistry, biogeography, biophysics, ecology, embryology, entomology, evolutionary biology, genetics, immunology, microbiology, molecular biology, nutrition and metabolism, parasitology, pathology, pharmacology, physical anthropology, physiology, plant sciences, radiobiology, and systematics.

Computer Science is concerned with the application of mathematical methods to automated information systems, the development of computer technology, and advanced applications of computers.

Engineering is concerned with studies directed toward developing engineering principles or toward making specific principles usable in engineering practice. Engineering fields include aeronautical, astronautical, chemical, civil, electrical, mechanical, metallurgy and materials, and engineering not elsewhere classified, such as agricultural, bioengineering, biomedical, industrial, nuclear, ocean, and systems.

Environmental Sciences (terrestrial and extraterrestrial) are concerned with the gross, non-biological properties (with one exception) of the areas of the solar system that directly or indirectly affect human survival and welfare. They comprise the fields of atmospheric sciences, geological sciences, and oceanography. The one exception is that expenditures for studies pertaining to life in the sea or other bodies of water are to be reported as support of oceanography and not biology.

Mathematical Sciences employ logical reasoning with the aid of symbols and are concerned with the development of methods of operation employing such symbols.

Medical Sciences are concerned with the causes, effects, prevention, or control of abnormal conditions in humans or their environment as they relate to health. Included are the clinical medical sciences, which are concerned with the study of the origins, diagnosis, or treatment of a particular disease in living human subjects under controlled conditions, and other medical sciences. Examples of the medical sciences are family medicine, internal medicine, neurology, ophthalmology, preventive medicine and public health, psychiatry, radiology, surgery, veterinary medicine, dentistry, physical medicine and rehabilitation, and podiatry.

Physical Sciences are concerned with the understanding of the material universe and its phenomena. They comprise the fields of astronomy, chemistry, physics, and physical sciences not elsewhere classified.

Psychology deals with behavior, mental processes, and individual and group characteristics and abilities. Examples of disciplines within psychology are experimental psychology, animal

behavior, clinical psychology, comparative psychology, ethnology, social psychology, educational personnel, vocational psychology and testing, industrial and engineering psychology, and development and personality.

Social Sciences are directed toward an understanding of the behavior of social institutions and groups and of individuals as members of a group. These include anthropology, economics, history, linguistics, political sciences, and sociology.

Other Sciences not elsewhere classified is a category to be used for multidisciplinary and interdisciplinary projects and cannot be classified within one of the broad fields of science listed above.

Arts and Humanities include topics such as art, music, history, languages, religion, and other aspects of human culture and heritage.

Business Administration deals with the management and operation of business enterprises. It includes work in management, marketing, accounting, and related topics.

Education includes research related to any aspect of education. This includes educational policy, education administration, etc., and elementary, secondary, and higher education.

Law and public administration include research related to legal systems and to public policy at the federal, state, or local levels.

Other Non-Science Activities include all other non-science disciplines.

### **Survey Section: Select Areas of Special Interest**

This section is intended to provide information on expenditures in areas of special interest to the public. The list is not all-inclusive. The totals of the Areas of Special Interest will not normally be equal to the "Total Expenditures for Conduct of R&D." Further, expenditures may overlap two or more categories (e.g., a given project may be reported both as materials science and microelectronics or as aging and mental health). Institutions may need to use ad hoc estimators to come up with these numbers.

Human embryonic stem cell research and adult stem cell research were added to the areas of special interest section beginning in Fiscal Year (FY) 2013 as required by Texas Education Code, Chapter 61 Subchapter C, Section 61.0662 (b).





This document is available on the Texas Higher Education Coordinating Board website,  
[www.highered.texas.gov](http://www.highered.texas.gov).

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