



## Industry Spotlight

# Research and Development in the Physical, Engineering, and Life Sciences

Brazos County, Texas

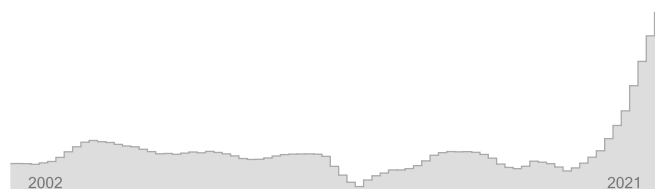


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# Spotlight Summary

Research and Development in the Physical, Engineering, and Life Sciences  
Brazos County, Texas – 2021Q3

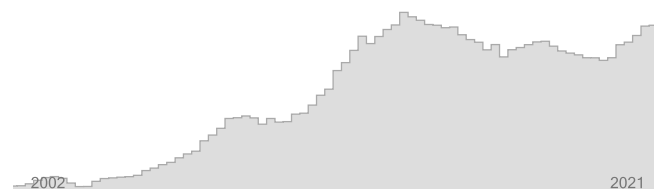
## EMPLOYMENT



**833**

Regional employment / **776,200** in the nation

## WAGES



**\$86,306**

Avg Wages per Worker / **\$161,402** in the nation

**7.0%** ↑

Avg Ann % Change Last 10 Years / **+2.6%** in the U.S.



**0.7%**

% of Total Employment / **0.5%** in the U.S.

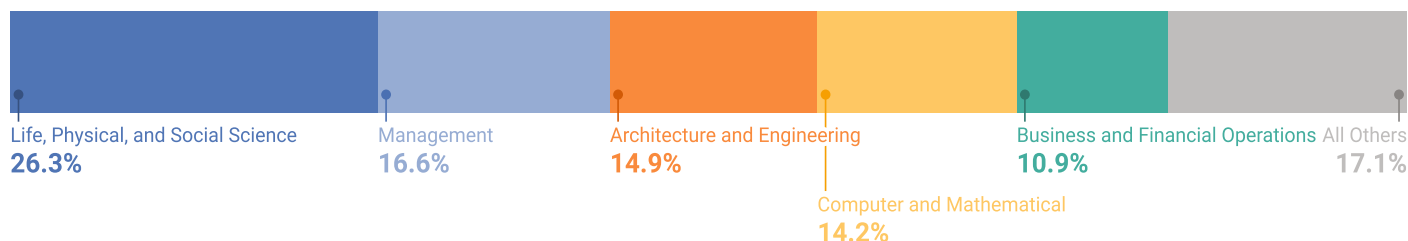


**2.4%** ↑

Avg Ann % Change Last 10 Years / **+4.4%** in the U.S.



## TOP OCCUPATION GROUPS



## TOP INDUSTRIES

Avg Ann % Change in Employment, Last 10 Years

**29.3%** ↑



Research and Development in Biotechnology (except Nanobiotechnology)

**-5.8%** ↓



Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)

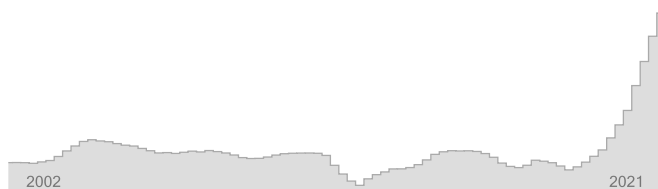
**-6.4%** ↓



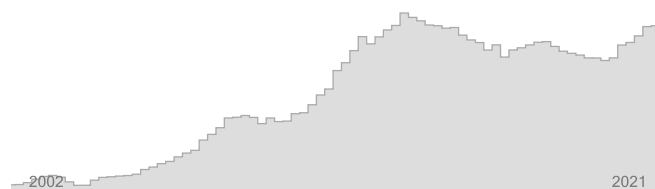
Research and Development in Nanotechnology

# Industry Snapshot

## EMPLOYMENT



## WAGES

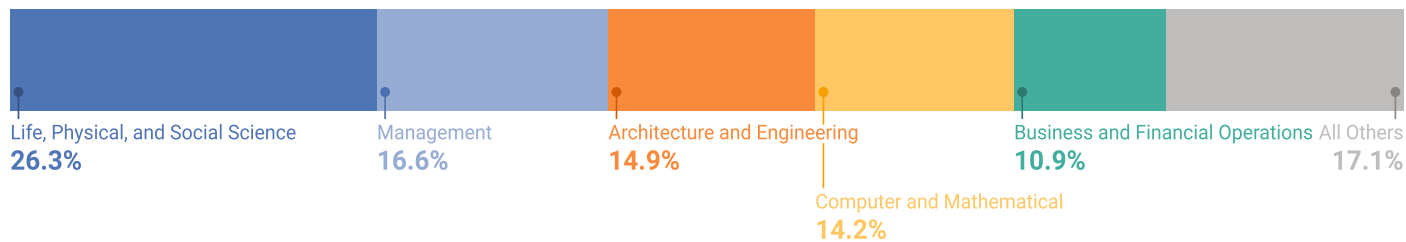


6-Digit Industry	Empl	Avg Ann Wages	LQ	5yr History	Annual Demand	Forecast Ann Growth
Research and Development in Biotechnology (except Nanobiotechnology)	627	\$110,975	3.39		62	1.6%
Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	198	\$70,618	0.54		19	1.4%
Research and Development in Nanotechnology	8	\$48,620	0.41		1	1.0%
<b>Research and Development in the Physical, Engineering, and Life Sciences</b>	<b>833</b>	<b>\$86,306</b>	<b>1.45</b>		<b>82</b>	<b>1.5%</b>

💡 Employment is one of the broadest and most timely measures of a region's economy. Fluctuations in the number of jobs shed light on the health of an industry. A growing employment base creates more opportunities for regional residents and helps a region grow its population.

💡 Since wages and salaries generally compose the majority of a household's income, the annual average wages of a region affect its average household income, housing market, quality of life, and other socioeconomic indicators.

# Staffing Pattern



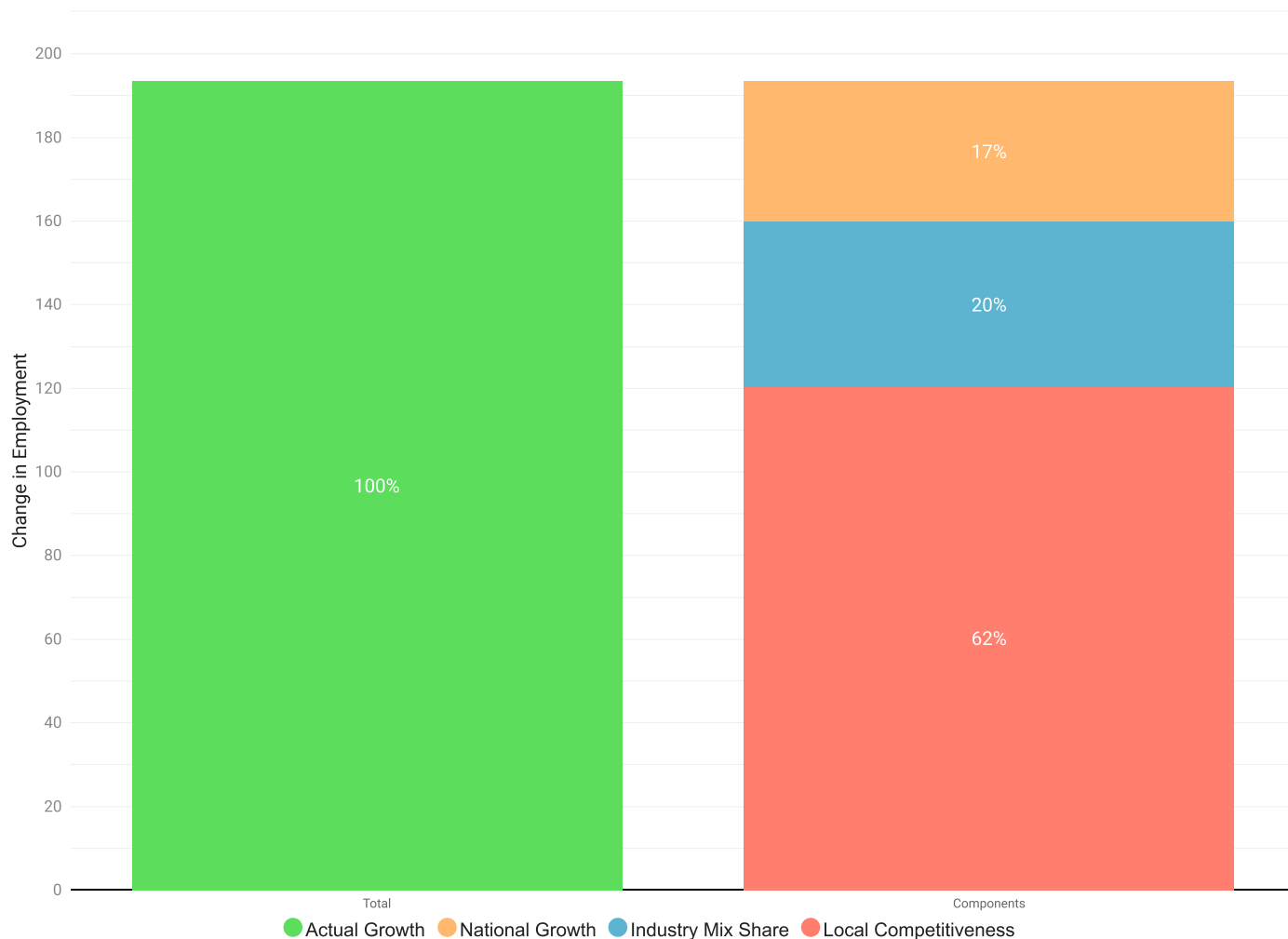
6-digit Occupation	Empl	Avg Ann Wages	Annual Demand
Medical Scientists, Except Epidemiologists	53	\$70,300	7
Software Developers and Software Quality Assurance Analysts and Testers	43	\$101,100	4
Biological Technicians	35	\$31,800	4
Project Management Specialists and Business Operations Specialists, All Other	32	\$81,500	4
Natural Sciences Managers	29	\$112,900	3
Biochemists and Biophysicists	25	\$62,100	3
General and Operations Managers	23	\$162,000	3
Mechanical Engineers	18	\$45,900	2
Biological Scientists, All Other	16	\$68,200	2
Engineers, All Other	15	\$85,200	1
Remaining Component Occupations	512	\$71,400	55
<b>Total</b>	<b>802</b>		

 The mix of occupations points to the ability of a region to support an industry and its flexibility to adapt to future demand. Industry wages are a component of the cost of labor for regional employers.

# Drivers of Employment Growth

Over the ten years ending 2020, employment in Research and Development in the Physical, Engineering, and Life Sciences for Brazos County, Texas added 193 jobs. After adjusting for national growth during this period and industry mix share, the part of this employment change due to local competitiveness was a gain of 120 jobs—meaning this industry was more competitive than its national counterpart during this period.

Drivers of Employment Growth for Brazos County, Texas



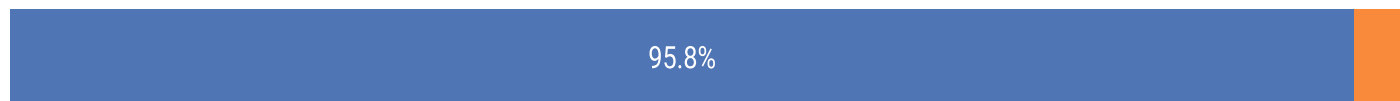
Source: JobsEQ®, Data as of 2020Q4

- Shift-share analysis sheds light on the factors that drive regional employment growth in an industry. A positive change in local competitiveness indicates advantages that may be due to factors such as superior technology, management, and labor pool, etc.
- National growth is due to the overall growth or contraction in the national economy. Industry mix share is the growth attributable to the specific industries examined (based on national industry growth patterns and the industry mix of the region).

# Employment Distribution by Type

The table below shows the employment mix by ownership type for Research and Development in the Physical, Engineering, and Life Sciences for Brazos County, Texas. Four of these ownership types — federal, state, and local government and the private sector — together constitute “Covered Employment” (employment covered by the Unemployment Insurance programs of the United States and reported via the Quarterly Census of Employment and Wages).

“Self-Employment” refers to unincorporated self-employment and represents workers whose primary job is self-employment (that is, these data do not include workers whose primary job is a wage-and-salary position that is supplemented with self-employment).



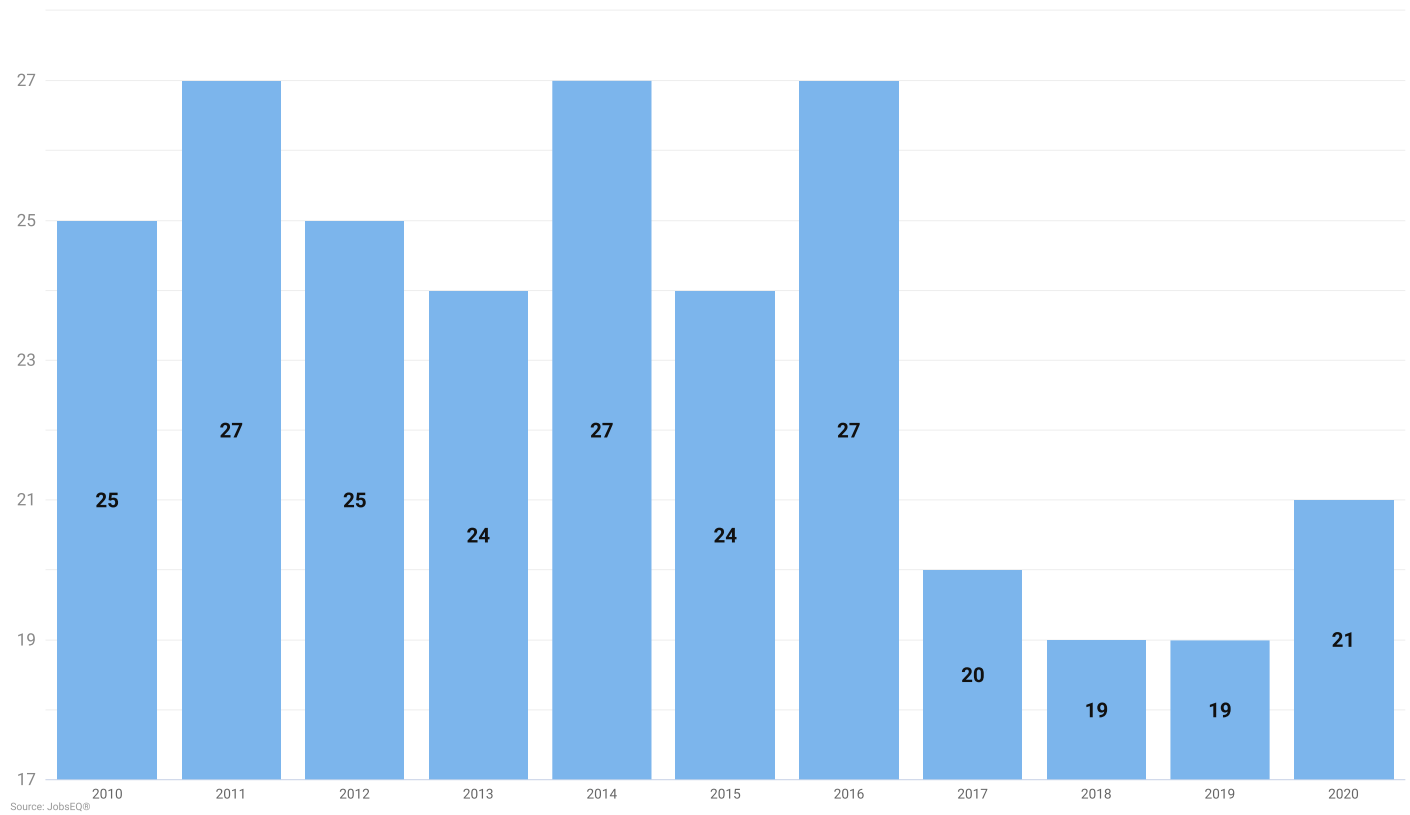
	Empl	%
Private	799	95.8%
Self-Employment	35	4.1%
State Government	0	0.0%
Other Non-Covered	0	0.0%

Source: JobsEQ®

💡 Strong entrepreneurial activity is indicative of growing industries. Using self-employment as a proxy for entrepreneurs, a higher share of self-employed individuals within a regional industry points to future growth.

# Establishments

In 2020, there were 21 Research and Development in the Physical, Engineering, and Life Sciences establishments in Brazos County, Texas (per covered employment establishment counts), a decrease from 25 establishments ten years earlier in 2010.



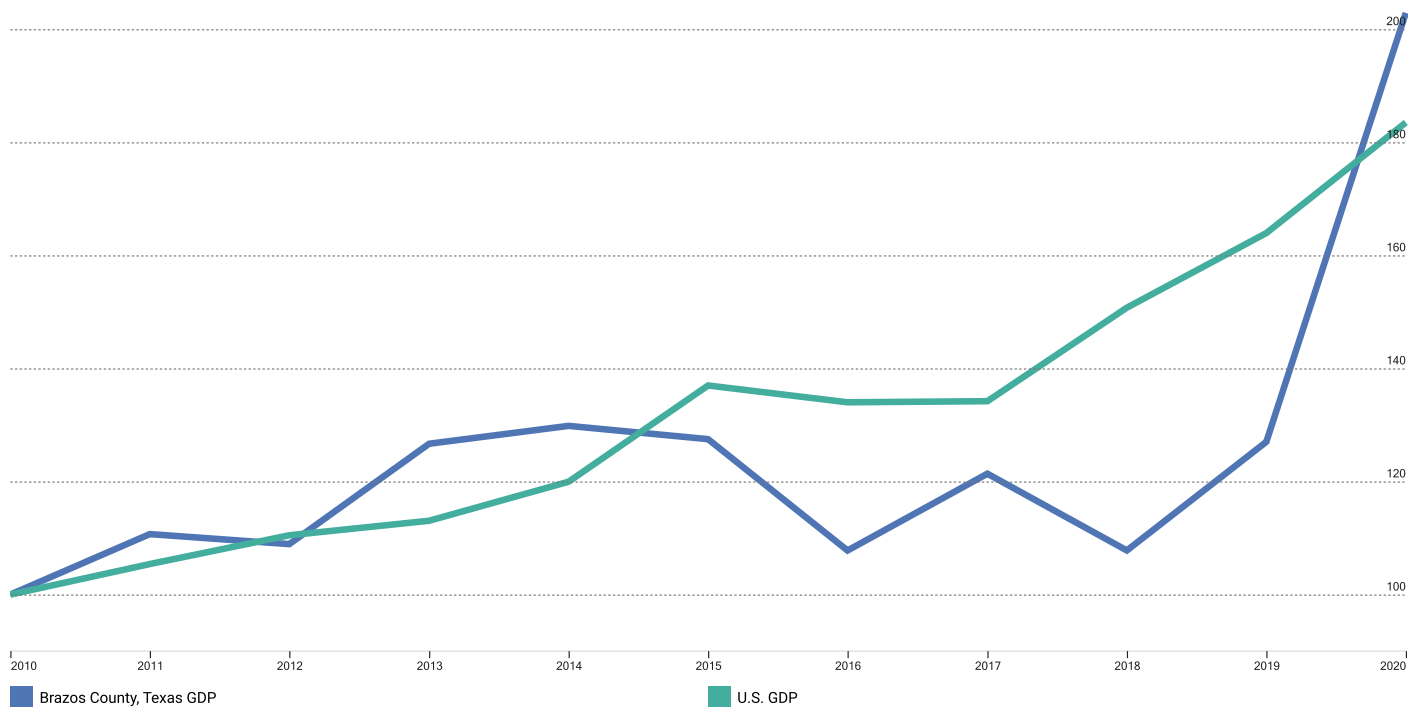
💡 New business formations are an important source of job creation in a regional economy, spurring innovation and competition, and driving productivity growth. Establishment data can provide an indicator of growth in businesses by counting each single location (such as a factory or a store) where business activity takes place, and with at least one employee.



# GDP & Productivity

In 2020, Research and Development in the Physical, Engineering, and Life Sciences produced \$83.9 million in GDP for Brazos County, Texas.

GDP: Indexed 2010 = 100



## 0.9 %

Industry Share of Total GDP /  
**0.8 %** in the nation



## 7.3 % ↑

Avg Ann % Change Last 10 Yrs /  
**6.3 %** in the nation



## \$164k

Output per Worker /  
**\$314k** in the nation



💡 Gross domestic product (GDP) is the most comprehensive measure of regional economic activity, and an industry's contribution to GDP is an important indicator of regional industry strength. It is a measure of total value-added to a regional economy in the form of labor income, proprietor's income, and business profits, among others. GDP values shown on this page are nominal GDP data.

💡 Growth in productivity (output per worker) leads to increases in wealth and higher average standards of living in a region.

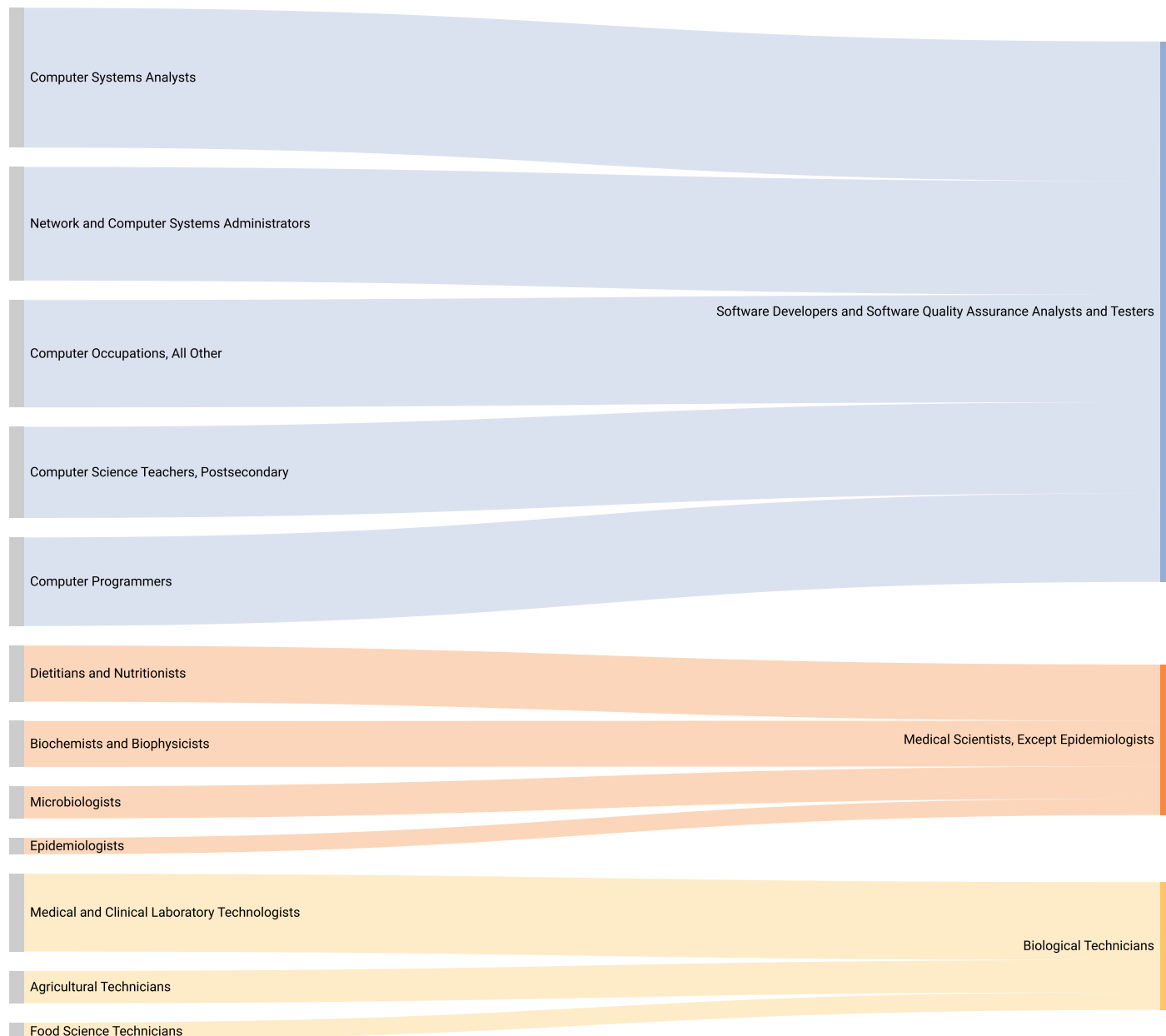
# Supply Chain: Top Suppliers


As of 2021Q3, Research and Development in the Physical, Engineering, and Life Sciences in Brazos County, Texas are estimated to make \$57.8 million in annual purchases from suppliers in the United States with about 33% or \$19.2 million of these purchases being made from businesses located in Brazos County, Texas.

6-digit Supplier Industries	Purchases from In-Region (\$M)	Purchases from Out-of-Region (\$M)
Offices of Lawyers	\$2.2	\$3.0
Residential Property Managers	\$2.3	\$1.7
Offices of Real Estate Agents and Brokers	\$1.4	\$1.7
Administrative Management and General Management Consulting Services	\$0.8	\$1.7
Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	\$0.6	\$1.8
Remaining Supplier Industries	\$12.0	\$28.6
<b>Total</b>	<b>\$19.2</b>	<b>\$38.6</b>

 Supplier-buyer networks can indicate local linkages between industries, regional capacity to support growth in an industry, and potential leakage of sales out of the region.

# Sector Strategy Pathways



 The graphics on this page illustrate relationships and potential movement (from left to right) between occupations that share similar skill sets. Developing career pathways as a strategy promotes industry employment growth and workforce engagement.

# Postsecondary Programs Linked to Research and Development in the Physical, Engineering, and Life Sciences

Program	Awards
<b>Texas A &amp; M University-College Station</b>	
Biochemistry	63
Bioengineering and Biomedical Engineering	224
Biomedical Sciences, General	710
Chemical Engineering	273
Electrical and Electronics Engineering	372
Engineering, General	91
Industrial Engineering	364
Manufacturing Engineering Technology/Technician	115
Mechanical Engineering	575
Ocean Engineering	68

Source: [JobsEQ®](#)

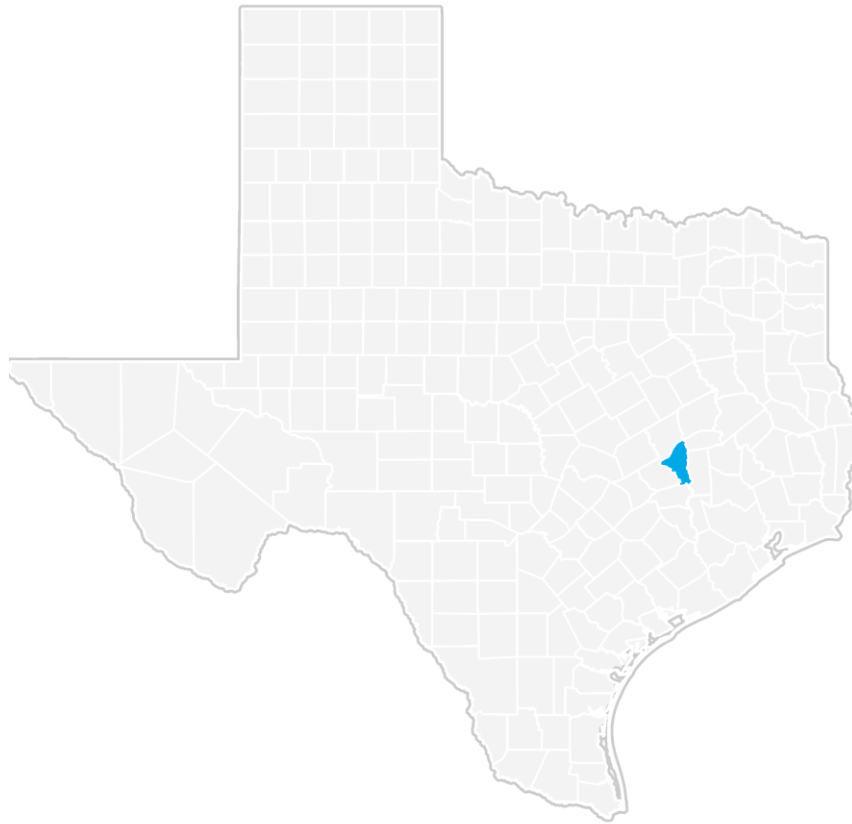


The number of graduates from postsecondary programs in the region identifies the pipeline of future workers as well as the training capacity to support industry demand.



Among postsecondary programs at schools located in Brazos County, Texas, the sampling above identifies those most linked to occupations relevant to Research and Development in the Physical, Engineering, and Life Sciences. For a complete list see JobsEQ®, <http://www.chmuraecon.com/jobseq>

# Brazos County, Texas Regional Map



# Data Notes

- Industry employment and wages (including total regional employment and wages) are as of 2021Q3 and are based upon BLS QCEW data, imputed by Chmura where necessary, and supplemented by additional sources including Census ZBP data. Employment forecasts are modeled by Chmura and are consistent with BLS national-level 10-year forecasts.
- Occupation employment is as of 2021Q3 and is based on industry employment and local staffing patterns calculated by Chmura and utilizing BLS OES data. Occupation wages are per the BLS OES data and are as of 2020.
- GDP is derived from BEA data and imputations by Chmura. Productivity (output per worker) is calculated by Chmura using industry employment and wages as well as GDP and BLS output data. Supply chain modeling including purchases by industry are developed by Chmura.
- Postsecondary awards are per the NCES and are for the 2019-2020 academic year.
- Establishment counts are per the BLS QCEW data.
- Figures may not sum due to rounding.

## FAQ

### What is (LQ) location quotient?

Location quotient is a measurement of concentration in comparison to the nation. An LQ of 1.00 indicates a region has the same concentration of an industry (or occupation) as the nation. An LQ of 2.00 would mean the region has twice the expected employment compared to the nation and an LQ of 0.50 would mean the region has half the expected employment in comparison to the nation.

### What is annual demand?

Annual demand is a of the sum of the annual projected growth demand and separation demand. Separation demand is the number of jobs required due to separations—labor force exits (including retirements) and turnover resulting from workers moving from one occupation into another. Note that separation demand does not include all turnover—it does not include when workers stay in the same occupation but switch employers. Growth demand is the increase or decrease of jobs expected due to expansion or contraction of the overall number of jobs.

### What is the difference between industry wages and occupation wages?

Industry wages and occupation wages are estimated via separate data sets, often the time periods being reported do not align, and wages are defined slightly differently in the two systems (for example, certain bonuses are included in the industry wages but not the occupation wages). It is therefore common that estimates of the average industry wages and average occupation wages in a region do not match exactly.