

# Academic Supply and Occupational Demand in Tennessee

## Workforce Needs and Degree Production

Annual Report  
January 15, 2016



Tennessee Higher Education Commission

# TENNESSEE HIGHER EDUCATION COMMISSION

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## EXECUTIVE SUMMARY

- **By 2025, higher education institutions in Tennessee will award many more postsecondary degrees.**
  - More degrees at all levels will be awarded. The most substantial growth will be in bachelor's degrees, followed by associate degrees and certificates.
  - Proprietary institutions will continue to award the largest share of credentials overall because they will award the greatest number of certificates. Public universities are projected to award the greatest number of bachelor's degrees annually, while community colleges will award the largest share of associate degrees.
  - Total degree production is expected to increase across all sectors in Tennessee, except at proprietary institutions; a 2.10 percent decrease in this sector is projected between AY 2014 and AY 2025.
  - Tennessee is projected to award 78,656 degrees in 2025, compared to 69,817 in 2014- a 12.66 percent increase in statewide degree production.
- **There is high demand for individuals trained in a variety of careers across the state.**
  - The most in-demand career fields include production, construction, transportation, banking and finance, and education. There is a deficit of individuals trained to work in these areas throughout Tennessee.
  - Occupations in these fields require all levels of postsecondary degrees. Many positions require a certificate or an associate degree.
  - Conversely, a number of career paths are oversupplied; more Tennesseans are trained in these areas than there are jobs available. These fields include nursing, law, religious activities, and social work.
- **Many higher education institutions in Tennessee offer academic programs that can meet the employment needs of these high-demand areas.**
  - Public, private, and proprietary institutions offer degree programs of all levels in areas related to these in-demand fields.
  - Opportunities for postsecondary training in these areas are available across the state and are not limited to specific geographic areas.



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## INTRODUCTION

This report is prepared pursuant to Tenn. Code Ann. § 49-7-112(b) (the “Skills for Jobs Act”),<sup>1</sup> which directs the Tennessee Higher Education Commission (THEC) to:

“...produce an annual report regarding state workforce need projections and credential production.”

This report is the result of collaboration between THEC, the Tennessee Department of Economic and Community Development, and the Tennessee Department of Labor and Workforce Development. Using data from 2006-2014, this report presents projections of degrees to be awarded from public, private, and proprietary<sup>2</sup> institutions in Tennessee through the year 2025. These estimates of degree production (i.e., supply) are linked to the needs of Tennessee’s workforce (i.e., demand) to determine whether the output of Tennessee’s higher education system is meeting the needs of employers across the state.

This report is divided into four sections:

- **Expected awards** presents projections of postsecondary certificates and degrees to be awarded by public, private, and proprietary institutions in Tennessee through 2025.
- **Workforce needs** identifies Tennessee’s most immediate workforce deficits and highlights the 25 most in-demand career fields across the state. This section also lists the 20 most over-supplied programs of study in Tennessee, for which there are substantially more postsecondary graduates than job opportunities.
- **Institutions offering programs in high-demand areas** lists the public, private, and proprietary institutions across Tennessee that offer degree programs in the top 25 high-demand occupational areas.
- **Conclusion, limitations, and recommendations** discusses what can be learned about Tennessee’s supply of labor and demand for particular career paths, outlines the limitations of supply and demand analyses, and proposes directions for future work in this area.

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<sup>1</sup> See **Appendix A**.

<sup>2</sup> Also known as “for-profit” institutions.



## METHODOLOGY

Projections of academic degree production and workforce demand were developed independently by THEC and the Tennessee Department of Labor and Workforce Development. These projections were then linked to analyze labor supply and workforce demand. The discussion below explains the methodology used to develop these projections and addresses important caveats for using these estimates.

### *Supply projections*

Postsecondary awards are projected through 2025.<sup>3</sup> **Table 1** presents the types of awards included in these projections. Concentrations and minors are excluded, as these are difficult to link to the education requirements of particular occupations.

**Table 1: Types of awards included in analysis<sup>4</sup>**

Awards of less than 1 academic year
Awards of at least 1 but less than 2 academic years
Associate degrees
Awards of at least 2 but less than 4 academic years
Bachelor's degrees

Public, private, and proprietary institutions in Tennessee that award postsecondary certificates, associate degrees, or bachelor's degrees comprise the sample for this analysis (number of institutions = 492). These institutions were compiled from THEC, the Tennessee Independent Colleges and Universities Association (TICUA), and the Integrated Postsecondary Education Data System (IPEDS). IPEDS is a federal dataset containing a breadth of information about higher education institutions, including student demographics and program offerings.

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<sup>3</sup> Data for projections of supply were provided by THEC, TICUA, and IPEDS. These projections are based on historical data for the years 2006-2014. Past trends in degree attainment are significantly related to future growth. If a particular degree shows growth between 2006 and 2014, for example, it is likely that the number of Tennesseans earning that degree will continue to increase in the future. A caveat, however, is that new degree programs in emerging fields may be difficult to project accurately, as historical data about these programs are limited.

<sup>4</sup> Only certificates, associate degrees, and bachelor's degrees— sub-baccalaureate and baccalaureate programs—are included in the analysis to better align this report's aims and conclusions with Tennessee's Drive to 55 initiative. The Drive to 55 seeks to increase Tennessee's postsecondary educational attainment rate, that is, the percentage of Tennesseans with a college degree or certificate, to 55 percent by 2025. For more information on the Drive to 55, see <http://driveto55.org/>.



### *Demand projections*

Projections of workforce demand were estimated by the Tennessee Department of Labor and Workforce Development using the Standard Occupation Classification (SOC) and the North American Industrial Classification systems (NAICS), as well as employer surveys.<sup>5</sup>

It is important to note that the linkage between educational requirements and occupations are most accurate for highly specialized fields, such as those requiring a specific certificate or an advanced degree. Conversely, many fields requiring a bachelor's degree are less clearly defined, as those who hold a bachelor's degree often have a number of diverse employment opportunities in a variety of fields.

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<sup>5</sup> The SOC system and the Bureau of Labor Statistics provide information about the education and training required for specific occupations across the state. These education and training requirements reflect what is typically observed for an employee in a given occupation. Certainly, exceptions exist. For example, an individual who holds a doctoral degree may be employed in a position that requires only a bachelor's degree.

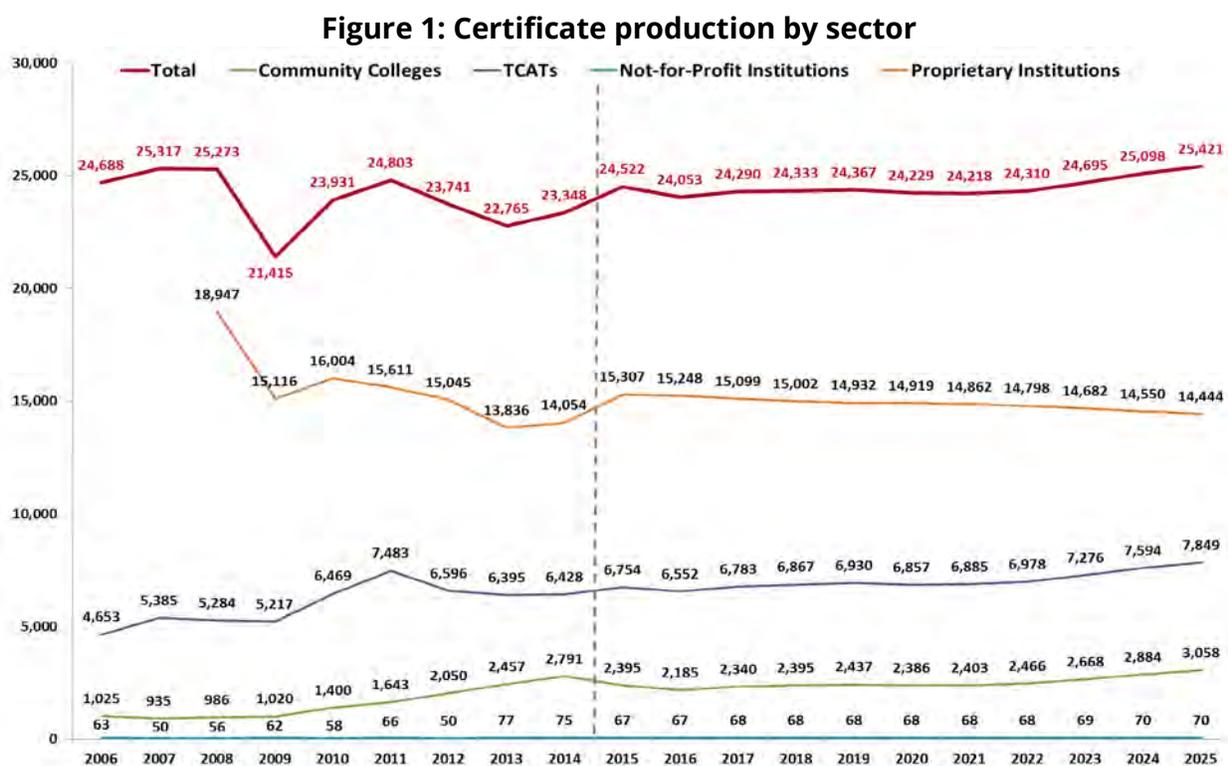


## EXPECTED AWARDS

This section examines projections of the supply of postsecondary certificates and degrees to be awarded by public, private, and proprietary institutions in Tennessee. This analysis forecasts various award levels by institutional sector through the year 2025.<sup>6</sup>

### Certificates

**Figure 1** shows the projections of certificates to be awarded by public, private, and proprietary institutions included in the sample. During the period of interest (AY 2015 – AY 2025), total certificate production is expected to increase slightly. In 2025, it is estimated that Tennessee will produce 25,421 certificates annually, compared to 23,348 in 2014.



Source: THEC. (2015). *Postsecondary attainment in the decade of decision: The master plan for Tennessee postsecondary education: 2015-2025*, (Appendix E, p. 52), Nashville, TN.

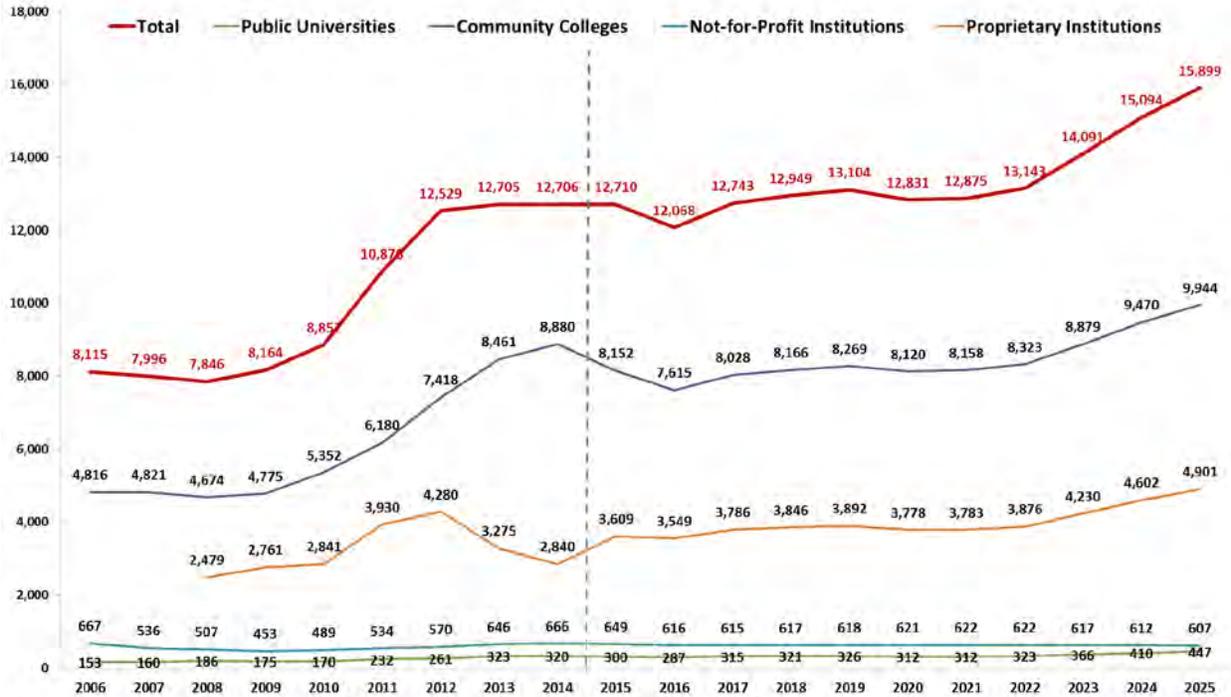
<sup>6</sup> For public and proprietary institutions, THEC used historical data from the Student Information System (SIS), the Division of Postsecondary School Authorization (DPSA), and IPEDS from academic year (AY) 2006 to AY 2014 and developed projections by institution and award level through AY 2025. For private institutions, THEC used historical supply data from IPEDS and TICUA from AY 2006 through AY 2014 and calculated projections by institutional sector through AY 2025.



Associate degrees

**Figure 2** displays the projections of associate degrees to be awarded by public, private, and proprietary institutions included in the sample. During the period of interest (AY 2015 – AY 2025), total associate degree production is expected to increase, continuing the historical upward trend. In 2025, it is expected that Tennessee will produce 15,899 associate degrees annually, compared to 12,706 in 2014.

**Figure 2: Associate degree production by sector**



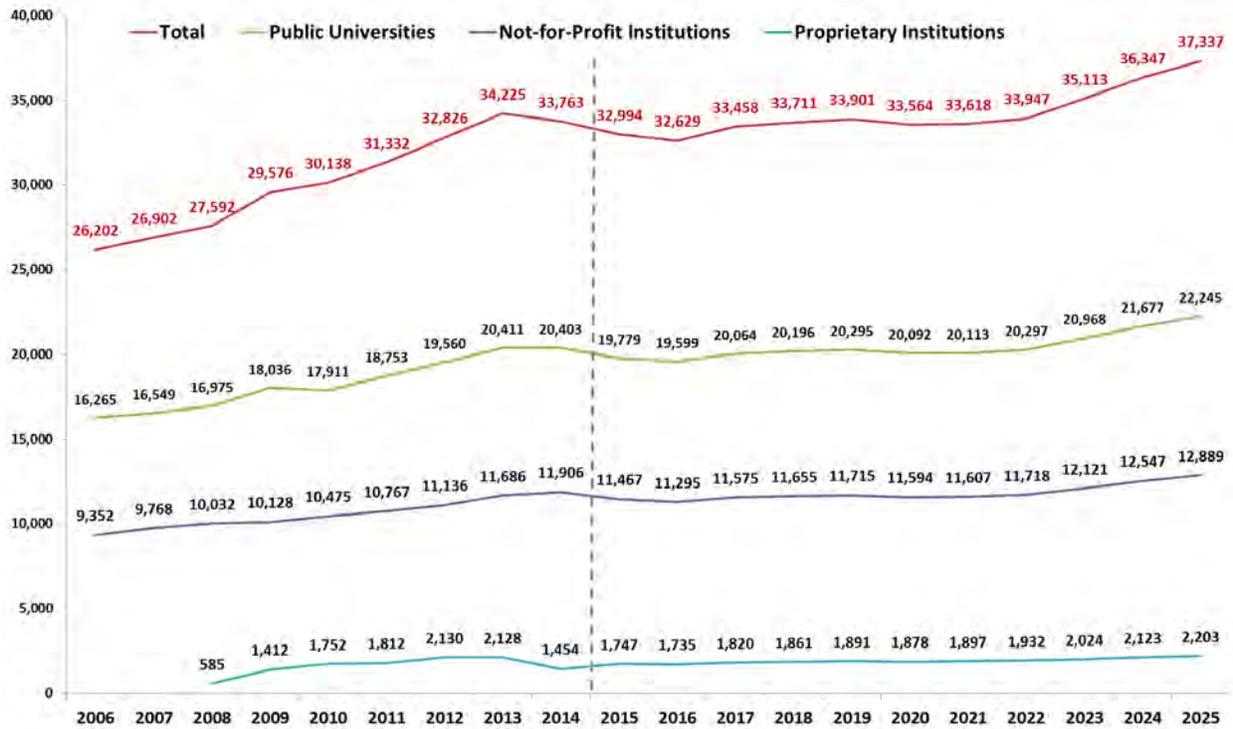
Source: THEC. (2015). *Postsecondary attainment in the decade of decision: The master plan for Tennessee postsecondary education: 2015-2025*, (Appendix D, p. 51), Nashville, TN.

Bachelor's degrees

**Figure 3** depicts the projections of bachelor's degrees to be awarded by public, private, and proprietary institutions included in the sample. During the period of interest (AY 2015 – AY 2025), total bachelor's degree production is expected to increase, continuing its gradual trend upward. In 2025, it is expected that Tennessee will produce 37,337 bachelor's degrees annually, compared to 33,763 in 2014.



**Figure 3: Bachelor's degree production by sector**



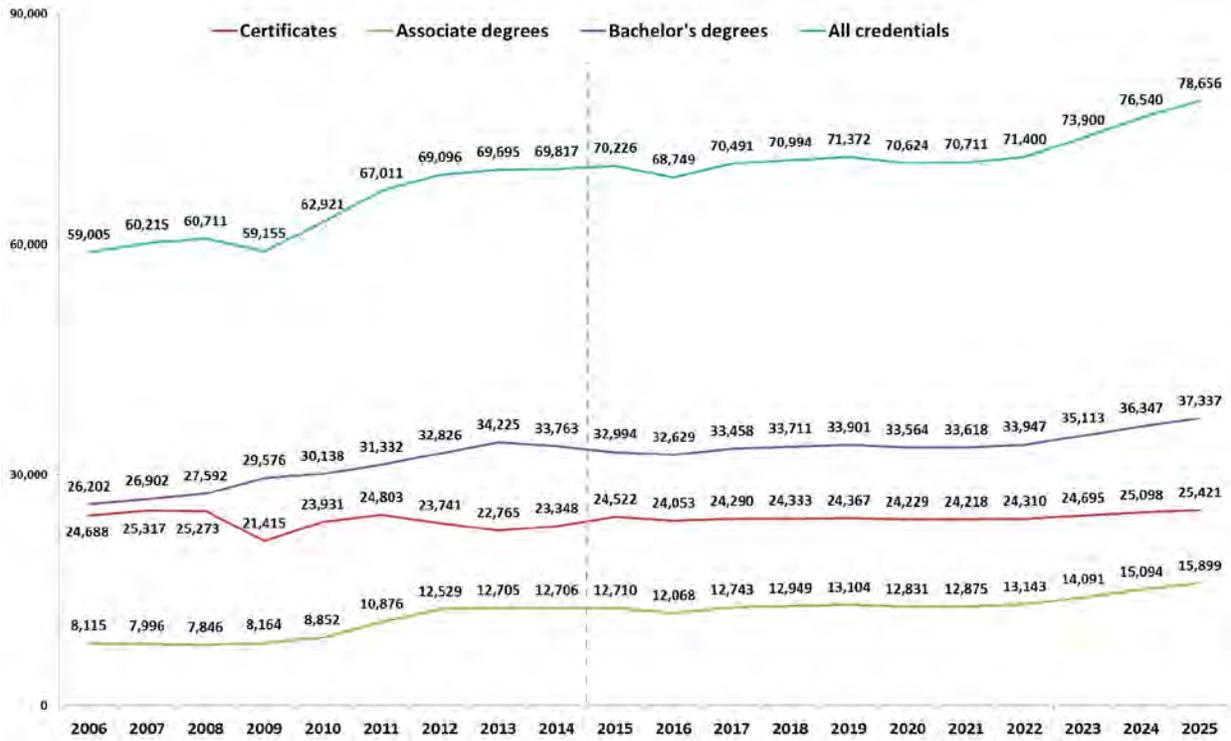
Source: THEC. (2015). *Postsecondary attainment in the decade of decision: The master plan for Tennessee postsecondary education: 2015-2025*, (Appendix C, p. 50), Nashville, TN.

*Total awards*

**Figure 4** shows the projections of total awards to be produced by public, private, and proprietary institutions included in the sample. During the period of interest (AY 2015 – AY 2025), total award production is expected to increase, continuing the historical upward trend. All types of credentials—certificates, associate degrees, and bachelor’s degrees—are expected to increase during this time. In 2025, it is expected that Tennessee will produce 78,656 degrees, compared to 69,817 in 2014. **Figure 5** shows the projections of total awards to be produced by sector.

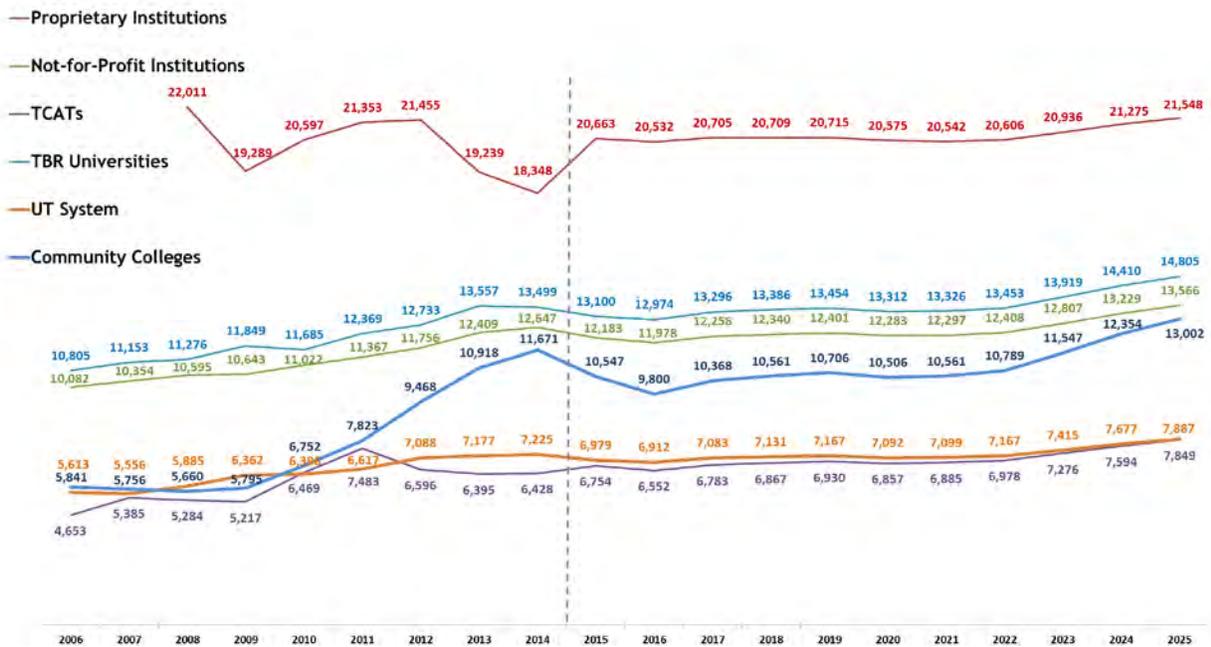


**Figure 4: Total award production by degree type**



Source: THEC, 2015.

**Figure 5: Total award production by sector**



Source: THEC. (2015). *Postsecondary attainment in the decade of decision: The master plan for Tennessee postsecondary education: 2015-2025*, (Figure 2, p. 14), Nashville, TN.



## Degree production by sector and type

Tables 2, 3, and 4 display the number of awards produced by public, private, and proprietary higher education institutions in Tennessee. They include historical supply data from AY 2008 through AY 2014 and projections of degree production through 2025. **Table 2** shows the number of certificates produced since AY 2008 and those projected through AY 2025. **Table 3** does the same for associate degrees, and **Table 4** does so for bachelor's degrees. Institutions are classified by type for each degree awarded. For example, as bachelor's degrees are not awarded at community colleges, such two-year institutions are not included in Table 4.

Continuing the historical trend, all award types at public, private, and proprietary institutions are projected to increase through 2025. The fastest growth will occur in bachelor's degrees (112.63 percent), followed by associate degrees (102.64 percent) and certificates (0.59 percent). In absolute numbers, bachelor's degrees will continue to be the dominant award type, followed by certificates, and then associate degrees. **Table 5** shows the total number of award types produced and projected. From 2008 to 2025, total awards in Tennessee are expected to grow by 29.56 percent.

**Table 2: Number of certificates produced and projected**

Institutional Type	Number of Awards														
	History				Forecast										
	2008	2010	2012	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Community Colleges	986	1,400	2,050	2,791	2,395	2,185	2,340	2,395	2,437	2,386	2,403	2,466	2,668	2,884	3,058
TCATs	5,284	6,469	6,596	6,428	6,754	6,552	6,783	6,867	6,930	6,857	6,885	6,978	7,276	7,594	7,849
For-Profit Institutions	18,947	16,004	15,045	14,054	15,307	15,248	15,099	15,002	14,932	14,919	14,862	14,798	14,682	14,550	14,444
Not-for-Profit Institutions	56	58	50	75	67	67	68	68	68	68	68	68	69	70	70
Total	25,273	23,931	23,741	23,348	24,522	24,053	24,290	24,333	24,367	24,229	24,218	24,310	24,695	25,098	25,421

Source: THEC, 2015.

**Table 3: Number of associate degrees produced and projected**

Institutional Type	Number of Awards														
	History				Forecast										
	2008	2010	2012	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Public Universities	186	170	261	320	300	287	315	321	326	312	312	323	366	410	447
Community Colleges	4,674	5,352	7,418	8,880	8,152	7,615	8,028	8,166	8,269	8,120	8,158	8,323	8,879	9,470	9,944
For-Profit Institutions	2,479	2,841	4,280	2,840	3,609	3,549	3,786	3,846	3,892	3,778	3,783	3,876	4,230	4,602	4,901
Not-for-Profit Institutions	507	489	570	666	649	616	615	617	618	621	622	622	617	612	607
Total	7,846	8,852	12,529	12,706	12,710	12,068	12,743	12,949	13,104	12,831	12,875	13,143	14,091	15,094	15,899

Source: THEC, 2015.

**Table 4: Number of bachelor's degrees produced and projected**

Institutional Type	Number of Awards														
	History				Forecast										
	2008	2010	2012	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Public Universities	16,975	17,911	19,560	20,403	19,779	19,599	20,064	20,196	20,295	20,092	20,113	20,297	20,968	21,677	22,245
For-Profit Institutions	585	1,752	2,130	1,454	1,747	1,735	1,820	1,861	1,891	1,878	1,897	1,932	2,024	2,123	2,203
Not-for-Profit Institutions	10,032	10,475	11,136	11,906	11,467	11,295	11,575	11,655	11,715	11,594	11,607	11,718	12,121	12,547	12,889
Total	17,560	19,663	21,690	21,857	32,994	32,629	33,458	33,711	33,901	33,564	33,618	33,947	35,113	36,347	37,337

Source: THEC, 2015.



**Table 5: Total degrees produced and projected**

Award Level	Number of Awards														
	History				Forecast										
	2008	2010	2012	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Certificates	25,273	23,931	23,741	23,348	24,522	24,053	24,290	24,333	24,367	24,229	24,218	24,310	24,695	25,098	25,421
Associate degrees	7,846	8,852	12,529	12,706	12,710	12,068	12,743	12,949	13,104	12,831	12,875	13,143	14,091	15,094	15,899
Bachelor's degrees	27,592	30,138	32,826	33,763	32,994	32,629	33,458	33,711	33,901	33,564	33,618	33,947	35,113	36,347	37,337
Total	60,711	62,921	69,096	69,817	70,226	68,749	70,491	70,994	71,372	70,624	70,711	71,400	73,900	76,540	78,656

Source: THEC, 2015.

**Table 6** displays the total degrees produced from AY 2008 to AY 2014 and projected through AY 2025 by sector, and, if applicable, by system. In 2025, it is projected that proprietary institutions will continue to award the largest number of credentials to Tennessee students, albeit at a declining rate. The number of degrees awarded by proprietary institutions in Tennessee is projected to decrease by 2.10 percent from AY 2008 to AY 2025. Conversely, award production at all other sectors is expected to increase: 129.71 percent at community colleges, 48.54 percent at Tennessee Colleges of Applied Technology, 34.02 percent at the University of Tennessee system, 31.30 percent at Tennessee Board of Regents universities, and 28.04 percent at private, not-for-profit institutions.

**Table 6: Total degrees produced and projected by sector**

Sector/System	Number of Awards														
	History				Forecast										
	2008	2010	2012	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Community Colleges	5,660	6,752	9,468	11,671	10,547	9,800	10,368	10,561	10,706	10,506	10,561	10,789	11,547	12,354	13,002
TCATs	5,284	6,469	6,596	6,428	6,754	6,552	6,783	6,867	6,930	6,857	6,885	6,978	7,276	7,594	7,849
TBR Universities	11,276	11,685	12,733	13,499	13,100	12,974	13,296	13,386	13,454	13,312	13,326	13,453	13,919	14,410	14,805
UT System	5,885	6,396	7,088	7,225	6,979	6,912	7,083	7,131	7,167	7,092	7,099	7,167	7,415	7,677	7,887
For-Profit Institutions	22,011	20,597	21,455	18,348	20,663	20,532	20,705	20,709	20,715	20,575	20,542	20,606	20,936	21,275	21,548
Not-for-Profit Institutions	10,595	11,022	11,756	12,647	12,183	11,978	12,258	12,340	12,401	12,283	12,297	12,408	12,807	13,229	13,566
Total	60,711	62,921	69,096	69,817	70,226	68,749	70,491	70,994	71,372	70,624	70,711	71,400	73,900	76,540	78,656

Source: THEC, 2015.

**Appendix B** presents the total count of certificate/diplomas, associate degrees, and bachelor's degrees awarded by proprietary institutions operating in Tennessee by program area. The majority of these awards are certificates and diplomas, followed closely by associate degrees. Students earning many of these certificates and degrees specialized in a small number of fields: health professions and related clinical sciences, transportation and materials moving services, mechanic and repair technology, and computer and information sciences and support services.



## WORKFORCE NEEDS

While Tennessee's higher education system is robust, workforce growth across a variety of job categories has outpaced degree production. **Table 7** presents the top 25 postsecondary programs of study for which employment opportunities are growing more rapidly than the supply of educated labor. Said differently, these programs produce fewer graduates than jobs available, so there is a need for Tennesseans to be trained in each of these areas. This list of programs was compiled by the Tennessee Department of Labor and Workforce Development.<sup>7</sup> These programs of study are offered at public, private, and proprietary institutions across the state and yield all levels of postsecondary awards. Additional information about the supply of graduates and demand for those trained in these programs can be seen in **Appendix C**.

Precision production and related fields constitute the largest share of the projected deficit in Tennessee's workforce. Approximately 6,270 jobs are expected to open annually in the production industry, and it is projected that only 1,717 individuals will earn the necessary credential to fulfill those jobs. This results in an *annual* deficit of 4,553 available jobs without qualified Tennesseans to fill them.

As the construction industry continues to grow throughout the state, thousands of job opportunities are expected over the next decade. This is the case not only for those trained in general construction, but also for those specializing in design, electrical, plumbing, and masonry. It is projected that Tennessee will face an *annual* shortage of 2,212 qualified workers for jobs in the construction industry throughout the next decade.

Additionally, those trained in banking and finance, legal assisting, and business analysis have many employment opportunities statewide. As Tennessee's economy grows, and more industries choose to enter and operate in the state, those who earn credentials in these fields will be invaluable resources to both new and existing businesses.

Other high, in-demand job areas include early education, transportation, and specific business services, such as human resources and marketing.

Conversely, Tennessee has a number of programs that are oversupplied in the workforce. **Table 8** presents the programs that graduate a larger number of students than there are jobs available, leading to a surplus of those trained in these areas. These degree programs include fields such as human services, religious activities, and social work, but also include highly-specialized programs, such as nursing, law, and pharmacy.

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<sup>7</sup> Please refer to [www.edutrendstn.com](http://www.edutrendstn.com) for more information about labor supply and workforce demand, high-demand occupations, and employee wages and salaries in Tennessee.



**Table 7: Programs of study with largest projected deficit in workforce preparation<sup>8</sup>**

Program of Study	Projected Annual Openings	Number of Completers	Projected Workforce Deficit	Median Salary
Precision Production Pathway	3,445	812	2,633	\$33,297
Communications Development	2,220	154	2,066	\$29,052
Truck, Bus, Rail, Water Transportation, and Heavy Equipment	2,080	322	1,758	\$41,461
Production Operations and Maintenance	2,650	905	1,745	\$40,421
Accounting Administrative Support	1,355	178	1,177	\$33,221
All Other Construction	1,235	208	1,027	\$37,454
Business Analysis	1,035	18	1,017	\$59,261
Banking and Finance	1,630	659	971	\$52,694
Teacher Training Services: Pre-K-Early Childhood Education	955	242	713	\$29,666
Elementary Teachers, Except Special Education	1,270	585	685	\$47,394
Lodging Pathway	750	94	656	\$26,570
Construction Pathway - Construction Electrical	765	299	466	\$48,526
Technical Design and Preconstruction	490	44	446	\$52,517
Human Resources	485	76	409	\$48,534
Marketing Research	295	0	295	\$49,739
Fire Fighting	300	46	254	\$42,762
Medical and Clinical Laboratory Technicians	310	99	211	\$34,959
Industrial Engineering	280	75	205	\$77,398
Travel and Tourism Pathway	195	1	194	\$27,881
Compliance Officers	185	0	185	\$57,731
Production Design	175	0	175	\$54,383
Construction Plumbing	185	39	146	\$42,758
Construction Masonry & Concrete	195	68	127	\$33,850
Legal Assisting	405	288	117	\$46,876
Revenue and Taxation	105	0	105	\$43,509
Note: Number of completers for AY 2013.				
Source: Tennessee Department of Labor and Workforce Development. (2015). <i>Tennessee workforce demand in the 16 education clusters</i> , (Table 1), Nashville, TN.				

<sup>8</sup> The programs of study in this table have occupations with annual average growth rates greater than zero, more than 10 annual openings per year, and a ratio of completers to annual average openings of 1.55 or less OR have placement rates of 90% or more. The occupations require more than short-term training. Among the programs of study fitting these criteria, those with the greatest gap between the number of openings and the number of program completers were selected. Other criteria used to select these programs of study included: 1) having 85 or more expected annual openings statewide per year and 2) average annual wages in 2014 greater than \$21,332, the 25th percentile of the wage distribution in the state.



**Table 8: Programs of study with a projected workforce surplus**

<b>Program of Study</b>	<b>Projected Annual Openings</b>	<b>Number of Completers</b>	<b>Workforce Surplus</b>
Licensed Practical Nurse (LPN)	1,025	1,475	450
Human Services	600	856	256
Religious Activities and Education	425	651	226
Construction Pathway - Construction Welding	460	665	205
Accounting	1,095	1,294	199
Radiation Therapy	25	202	177
Law	475	609	134
Network Systems	355	453	98
Medical Records Tech	245	334	89
Web/Multimedia Management, Programming	1,150	1,212	62
Emergency Medical Tech.	385	446	61
Civil Engineering	215	270	55
Respiratory Therapy	120	164	44
Dental Hygiene	185	228	43
Urban Planning	15	57	42
Social Work	415	456	41
Pharmacists	365	405	40
Physical Therapy Assistant	160	198	38
Dietician Assistance	20	50	30
All Other Engineers	120	146	26
Note: Number of completers for AY 2013.			
Source: Tennessee Department of Labor and Workforce Development, 2014.			



## INSTITUTIONS OFFERING PROGRAMS IN HIGH-DEMAND AREAS

The following section presents the academic programs<sup>9</sup> available at public, private, and proprietary institutions in Tennessee which produce graduates who are employable in the aforementioned high-demand areas.<sup>10</sup> A system identifier<sup>11</sup> and grand division locator are also provided to show the robust diversity of institutional sector and geographic span of these degree programs.

### a. Precision Production Pathway

Careers in this area include various positions in manufacturing. Typical education requirements for these occupations include moderate on-the-job training, work experience in a related area, and postsecondary vocational training.

Programs leading to careers in this area are available at the following institutions:

System	Institution	Program Cluster	Grand Division
TBR	Chattanooga State Community College	Precision Production Pathway	East
TBR	Northeast State Community College	Precision Production Pathway	East
TBR	TCAT Athens	Precision Production Pathway	East
TBR	TCAT Covington	Precision Production Pathway	West
TBR	TCAT Crossville	Precision Production Pathway	East
TBR	TCAT Crump	Precision Production Pathway	West
TBR	TCAT Dickson	Precision Production Pathway	Middle
TBR	TCAT Harriman	Precision Production Pathway	East
TBR	TCAT Hartsville	Precision Production Pathway	Middle
TBR	TCAT Hohenwald	Precision Production Pathway	Middle
TBR	TCAT Jacksboro	Precision Production Pathway	East
TBR	TCAT Jackson	Precision Production Pathway	West
TBR	TCAT Knoxville	Precision Production Pathway	East
TBR	TCAT Livingston	Precision Production Pathway	Middle
TBR	TCAT McKenzie	Precision Production Pathway	West
TBR	TCAT McMinnville	Precision Production Pathway	Middle
TBR	TCAT Memphis	Precision Production Pathway	West
TBR	TCAT Morristown	Precision Production Pathway	East
TBR	TCAT Murfreesboro	Precision Production Pathway	Middle
TBR	TCAT Nashville	Precision Production Pathway	Middle
TBR	TCAT Newbern	Precision Production Pathway	West
TBR	TCAT Oneida-Huntsville	Precision Production Pathway	East
TBR	TCAT Paris	Precision Production Pathway	West
TBR	TCAT Pulaski	Precision Production Pathway	Middle
TBR	TCAT Shelbyville	Precision Production Pathway	Middle
TBR	TCAT Whiteville	Precision Production Pathway	West
Proprietary	William Moore College of Technology	Precision Production Pathway	West

<sup>9</sup> These programs were identified by the Tennessee Department of Labor and Workforce Development as providing the necessary degree to enter a respective field and do not include post-baccalaureate degree programs (e.g., Master's or doctoral degrees). Additional institutions and degree programs may exist that prepare students to enter a respective field of work.

<sup>10</sup> Some occupations, such as construction, have multiple high-demand occupations within their field (e.g., electrical, plumbing, and masonry and concrete). These fields have been combined into one degree area due to their overlap in available programs and courses of study.

<sup>11</sup> Institutions are identified as part of the Tennessee Board of Regents (TBR), University of Tennessee (UT), or Tennessee Independent Colleges and Universities Association (TICUA) or are listed as Independent (private, not-for-profit) or Proprietary (private, for-profit).



## b. Communications Development

Careers in this field include corporate communications, public information officers, and marketing coordinators. These positions most often require a bachelor's degree.

Programs leading to careers in this area are available at the following institutions:

System	Institution	Program Cluster	Grand Division
TICUA	Belmont University	Communications Development	Middle
TICUA	Carson-Newman University	Communications Development	East
TICUA	Christian Brothers University	Communications Development	West
TICUA	Freed-Hardeman University	Communications Development	West
TICUA	King University	Communications Development	East
TICUA	Lee University	Communications Development	East
TICUA	Lipscomb University	Communications Development	Middle
TICUA	Southern Adventist University	Communications Development	East
UT	The University of Tennessee-Knoxville	Communications Development	East
TICUA	Trevecca Nazarene University	Communications Development	Middle
TICUA	Union University	Communications Development	West

## c. Truck, Bus, Rail, Water Transportation, and Heavy Equipment/Transportation

Careers in this area include truck drivers, bus drivers, locomotive engineers, ship engineers, boat operators, and pilots. Typical education requirements for these occupations include moderate on-the-job training, work experience in a related area, and postsecondary vocational training.

Programs leading to careers in this area are available at the following institutions:

System	Institution	Program Cluster	Grand Division
TBR	Chattanooga State Community College	Truck, Bus, Rail, Water Transportation, and Heavy Equipment	East
TBR	Middle Tennessee State University	Aviation Flight	Middle
Proprietary	Miller-Motte Technical College-Clarksville	Truck, Bus, Rail, Water Transportation, and Heavy Equipment	Middle
Proprietary	Miller-Motte Technical College-Madison	Truck, Bus, Rail, Water Transportation, and Heavy Equipment	Middle
TBR	TCAT Jackson	Truck, Bus, Rail, Water Transportation, and Heavy Equipment	West
TBR	TCAT Knoxville	Truck, Bus, Rail, Water Transportation, and Heavy Equipment	East
TBR	TCAT Memphis	Truck, Bus, Rail, Water Transportation, and Heavy Equipment	West
TBR	TCAT Nashville	Truck, Bus, Rail, Water Transportation, and Heavy Equipment	Middle
TBR	TCAT Ripley	Truck, Bus, Rail, Water Transportation, and Heavy Equipment	West
TBR	TCAT Shelbyville	Truck, Bus, Rail, Water Transportation, and Heavy Equipment	Middle



#### d. Production Operations and Maintenance

Programs leading to careers in Operations and Maintenance are available at various public, private, and proprietary institutions in Tennessee. These jobs typically include process and control room operators, field operators, instrumentation technicians, mechanics, and machinists.

Programs leading to careers in this area are available at the following institutions:

System	Institution	Program Cluster	Grand Division
TBR	Austin Peay State University	Production Operations & Maintenance	Middle
TBR	Chattanooga State Community College	Production Operations & Maintenance	East
TBR	Motlow State Community College	Production Operations & Maintenance	Middle
TBR	Pellissippi State Community College	Production Operations & Maintenance	East
TBR	Southwest Tennessee Community College	Production Operations & Maintenance	West
TBR	TCAT Athens	Production Operations & Maintenance	East
TBR	TCAT Covington	Production Operations & Maintenance	West
TBR	TCAT Crossville	Production Operations & Maintenance	East
TBR	TCAT Crump	Production Operations & Maintenance	West
TBR	TCAT Dickson	Production Operations & Maintenance	Middle
TBR	TCAT Elizabethton	Production Operations & Maintenance	East
TBR	TCAT Harriman	Production Operations & Maintenance	East
TBR	TCAT Hartsville	Production Operations & Maintenance	Middle
TBR	TCAT Hohenwald	Production Operations & Maintenance	Middle
TBR	TCAT Jackson	Production Operations & Maintenance	West
TBR	TCAT Knoxville	Production Operations & Maintenance	East
TBR	TCAT Livingston	Production Operations & Maintenance	Middle
TBR	TCAT McKenzie	Production Operations & Maintenance	West
TBR	TCAT McMinnville	Production Operations & Maintenance	Middle
TBR	TCAT Memphis	Production Operations & Maintenance	West
TBR	TCAT Morristown	Production Operations & Maintenance	East
TBR	TCAT Murfreesboro	Production Operations & Maintenance	Middle
TBR	TCAT Newbern	Production Operations & Maintenance	West
TBR	TCAT Paris	Production Operations & Maintenance	West
TBR	TCAT Pulaski	Production Operations & Maintenance	Middle
TBR	TCAT Shelbyville	Production Operations & Maintenance	Middle
TBR	TCAT Whiteville	Production Operations & Maintenance	West
TICUA	Vanderbilt University	Production Operations & Maintenance	Middle
Proprietary	William Moore College of Technology	Production Operations & Maintenance	West

#### e. Accounting Administrative Support

Careers in this area include bookkeeping, accounting, auditing, and payroll and medical billing. Entry into these careers typically requires moderate on-the-job training; however, there are many opportunities throughout Tennessee for postsecondary education in this area.



Programs leading to careers in this field are available at the following institutions:

System	Institution	Program Cluster	Grand Division
TBR	Chattanooga State Community College	Accounting Administrative Support	East
Proprietary	Daymar Institute-Clarksville	Accounting Administrative Support	Middle
Proprietary	Daymar Institute-Murfreesboro	Accounting Administrative Support	Middle
Proprietary	Daymar Institute-Nashville	Accounting Administrative Support	Middle
Proprietary	Miller-Motte Technical College-Clarksville	Accounting Administrative Support	Middle
TBR	Nashville State Community College	Accounting Administrative Support	Middle
Proprietary	National College-Nashville	Accounting Administrative Support	Middle
TBR	Northeast State Community College	Accounting Administrative Support	East
TBR	Pellissippi State Community College	Accounting Administrative Support	East
TBR	Southwest Tennessee Community College	Accounting Administrative Support	West
Proprietary	Strayer University-Tennessee	Accounting Administrative Support	West/Middle/East

#### **f. Construction/Electrical/Plumbing/Masonry & Concrete**

Careers in this area require a wide range of skills and craftsmanship knowledge. They include paving, carpentry, plumbing, masonry, electrical work, civil engineering, and construction management. Typical educational requirements for these careers range from on-the-job training and some postsecondary vocational training to an associate or bachelor's degree.

Programs leading to careers in this field are available at the following institutions:



System	Institution	Program Cluster	Grand Division
TBR	Chattanooga State Community College	Construction Pathway - Construction Electrical	East
TBR	Cleveland State Community College	All Other Construction	East
Proprietary	Kaplan Career Institute-Nashville	Construction Pathway - Construction Electrical	Middle
Proprietary	Miller-Motte Technical College-Madison	Construction Pathway - Construction Electrical	Middle
TBR	Nashville State Community College	Construction Pathway - Construction Electrical	Middle
TBR	Northeast State Community College	Construction Pathway - Construction Electrical	East
TBR	Southwest Tennessee Community College	Construction Pathway - Construction Electrical	West
TBR	Southwest Tennessee Community College	All Other Construction	West
TBR	TCAT Athens	Construction Pathway - Construction Electrical	East
TBR	TCAT Crossville	Construction Masonry & Concrete	East
TBR	TCAT Crossville	All Other Construction	East
TBR	TCAT Elizabethton	Construction Plumbing	East
TBR	TCAT Jackson	Construction Pathway - Construction Electrical	West
TBR	TCAT Jackson	All Other Construction	West
TBR	TCAT Knoxville	Construction Pathway - Construction Electrical	East
TBR	TCAT Livingston	All Other Construction	Middle
TBR	TCAT McMinnville	Construction Pathway - Construction Electrical	Middle
TBR	TCAT Memphis	Construction Masonry & Concrete	West
TBR	TCAT Memphis	All Other Construction	West
TBR	TCAT Morristown	Construction Pathway - Construction Electrical	East
TBR	TCAT Morristown	Construction Masonry & Concrete	East
TBR	TCAT Murfreesboro	Construction Masonry & Concrete	Middle
TBR	TCAT Nashville	Construction Pathway - Construction Electrical	Middle
TBR	TCAT Nashville	All Other Construction	Middle
TBR	TCAT Pulaski	All Other Construction	Middle
TBR	TCAT Ripley	Construction Pathway - Construction Electrical	West
TBR	TCAT Whiteville	Construction Pathway - Construction Electrical	West

### **g. Business Analysis/Marketing Research**

Careers in this area include business operations specialists, and budget, marketing, and management analysts. Many of these careers require a bachelor's or master's degree, which are available at most of Tennessee's public and private universities.

### **h. Banking and Finance/Revenue and Taxation**

Careers in this area typically require moderate on-the-job training in addition to postsecondary degrees. Undergraduate and graduate degrees in accounting and finance are suitable for this occupation. Additionally, bachelor's and graduate degrees in economics and business, offered by many institutions across the state, can lead to employment in banking and finance.

Programs leading to careers in this area are available at the following institutions:



<b>System</b>	<b>Institution</b>	<b>Program Cluster</b>	<b>Grand Division</b>
TICUA	Belmont University	Banking and Finance	Middle
TICUA	Carson-Newman University	Banking and Finance	East
TBR	East Tennessee State University	Banking and Finance	East
TICUA	King University	Banking and Finance	East
TICUA	Lipscomb University	Banking and Finance	Middle
TICUA	Maryville College	Banking and Finance	East
TBR	Middle Tennessee State University	Banking and Finance	Middle
TICUA	Rhodes College	Banking and Finance	West
TICUA	Sewanee-The University of the South	Banking and Finance	Middle
TICUA	Southern Adventist University	Banking and Finance	East
Proprietary	Strayer University-Tennessee	Banking and Finance	West/Middle/East
TBR	Tennessee State University	Banking and Finance	Middle
TBR	Tennessee Technological University	Banking and Finance	Middle
UT	The University of Tennessee-Chattanooga	Banking and Finance	East
UT	The University of Tennessee-Knoxville	Banking and Finance	East
UT	The University of Tennessee-Martin	Banking and Finance	West
TICUA	Union University	Banking and Finance	West
TBR	University of Memphis	Banking and Finance	West
TICUA	Vanderbilt University	Banking and Finance	Middle

### **i. Pre-K/Early Childhood Education**

Preschool and Kindergarten teachers are included in the Pre-K/Early Childhood Education career category. Vocational training or a bachelor's degree is required for a career in this field.

Programs leading to careers in this field are available at the following institutions:



System	Institution	Program Cluster	Grand Division
TICUA	Belmont University	Teacher Training Services- Pre-K-Early Childhood Education	Middle
TICUA	Carson-Newman University	Teacher Training Services- Pre-K-Early Childhood Education	East
TICUA	Christian Brothers University	Teacher Training Services- Pre-K-Early Childhood Education	West
TBR	East Tennessee State University	Teacher Training Services- Pre-K-Early Childhood Education	East
TICUA	Freed-Hardeman University	Teacher Training Services- Pre-K-Early Childhood Education	West
TICUA	Johnson University	Teacher Training Services- Pre-K-Early Childhood Education	East
TICUA	Le Moyne-Owen College	Teacher Training Services- Pre-K-Early Childhood Education	West
TICUA	Lee University	Teacher Training Services- Pre-K-Early Childhood Education	East
TBR	Middle Tennessee State University	Teacher Training Services- Pre-K-Early Childhood Education	Middle
TICUA	Southern Adventist University	Teacher Training Services- Pre-K-Early Childhood Education	East
TBR	TCAT Hohenwald	Teacher Training Services- Pre-K-Early Childhood Education	Middle
TBR	Tennessee State University	Teacher Training Services- Pre-K-Early Childhood Education	Middle
TBR	Tennessee Technological University	Teacher Training Services- Pre-K-Early Childhood Education	Middle
Independent	Tennessee Temple University	Teacher Training Services- Pre-K-Early Childhood Education	East
TICUA	Tennessee Wesleyan College	Teacher Training Services- Pre-K-Early Childhood Education	East
UT	The University of Tennessee-Chattanooga	Teacher Training Services- Pre-K-Early Childhood Education	East
TICUA	Trevecca Nazarene University	Teacher Training Services- Pre-K-Early Childhood Education	Middle
TICUA	Tusculum College	Teacher Training Services- Pre-K-Early Childhood Education	East
TICUA	Union University	Teacher Training Services- Pre-K-Early Childhood Education	West
TICUA	Vanderbilt University	Teacher Training Services- Pre-K-Early Childhood Education	Middle
TICUA	Welch College	Teacher Training Services- Pre-K-Early Childhood Education	Middle

#### **j. Elementary Teachers (excluding Special Education)**

Any education program that leads to grade K-6 licensure is included in the Elementary Education career category. A bachelor's degree or higher is required for a career in this field.

Programs leading to careers in this area are available at the following institutions:



System	Institution	Program Cluster	Grand Division
TICUA	Aquinas College	Elementary Teachers, Except Special Education	Middle
TICUA	Belmont University	Elementary Teachers, Except Special Education	Middle
TICUA	Bethel University	Elementary Teachers, Except Special Education	West
Independent	Bryan College-Dayton	Elementary Teachers, Except Special Education	East
TICUA	Carson-Newman University	Elementary Teachers, Except Special Education	East
TICUA	Cumberland University	Elementary Teachers, Except Special Education	Middle
TBR	East Tennessee State University	Elementary Teachers, Except Special Education	East
TICUA	Freed-Hardeman University	Elementary Teachers, Except Special Education	West
Independent	Hiwassee College	Elementary Teachers, Except Special Education	East
TICUA	Johnson University	Elementary Teachers, Except Special Education	East
TICUA	King University	Elementary Teachers, Except Special Education	East
TICUA	Lincoln Memorial University	Elementary Teachers, Except Special Education	East
TICUA	Lipscomb University	Elementary Teachers, Except Special Education	Middle
TICUA	Martin Methodist College	Elementary Teachers, Except Special Education	Middle
TBR	Northeast State Community College	Elementary Teachers, Except Special Education	East
Proprietary	South College	Elementary Teachers, Except Special Education	East
TICUA	Southern Adventist University	Elementary Teachers, Except Special Education	East
TBR	Tennessee State University	Elementary Teachers, Except Special Education	Middle
Independent	Tennessee Temple University	Elementary Teachers, Except Special Education	East
TICUA	Tennessee Wesleyan College	Elementary Teachers, Except Special Education	East
UT	The University of Tennessee-Chattanooga	Elementary Teachers, Except Special Education	East
TICUA	Trevecca Nazarene University	Elementary Teachers, Except Special Education	Middle
TICUA	Tusculum College	Elementary Teachers, Except Special Education	East
TICUA	Union University	Elementary Teachers, Except Special Education	West
TICUA	Vanderbilt University	Elementary Teachers, Except Special Education	Middle
TICUA	Welch College	Elementary Teachers, Except Special Education	Middle

### **k. Lodging Pathway/Travel and Tourism**

Individuals working in this field include hotel managers, restaurateurs, hospitality specialists, event planners, and the like. Programs leading to careers in this field are available at Pellissippi State Community College, Southwest Tennessee Community College, the University of Tennessee-Knoxville, and the University of Memphis.

### **l. Technical Design and Preconstruction/Production Design**

Careers in this area include wood model makers, pattern makers, and production specialists. Work experience in a related occupation or long-term on-the-job training is necessary for employment in production design. Additionally, Tennessee Technological University offers a Bachelor of Fine Arts degree with a concentration in Wood Working, which would prepare Tennesseans for careers in this area.

Programs leading to careers in this area are available at the following institutions:



System	Institution	Program Cluster	Grand Division
TBR	Cleveland State Community College	Technical Design & Preconstruction	East
Proprietary	ITT Technical Institute-Cordova	Technical Design & Preconstruction	West
Proprietary	ITT Technical Institute-Nashville	Technical Design & Preconstruction	Middle
TBR	Middle Tennessee State University	Technical Design & Preconstruction	Middle
TBR	Pellissippi State Community College	Technical Design & Preconstruction	East
TBR	Southwest Tennessee Community College	Technical Design & Preconstruction	West

### **m. Human Resources**

Careers in this category include human resource specialists and training and development specialists. Those who seek a career in human resource management typically earn a bachelor’s degree in business administration, or a Master’s degree in business administration. Degree programs specifically in Human Resources are available at the University of Memphis and at Vanderbilt University. However, bachelor’s programs in business administration—some of which offer specializations in human resources—are available at a variety of institutions across the state. These degrees would also qualify individuals to work in the field of human resources.

### **n. Fire Fighting**

Careers in this area include fire fighters, fire inspectors, and fire investigators. Educational requirements for this line of work typically involve on-the-job training or work experience in a related occupation. Academic programs of study are available at Chattanooga State Community College, Southwest Tennessee Community College, and Volunteer State Community College.

### **o. Medical and Clinical Laboratory Technicians**

Medical and clinical lab technicians can specialize in high-need areas such as phlebotomy, ultrasounds, or general laboratory work. Careers in this category require an associate degree, and specialized training is available at several universities throughout the state.

Programs leading to careers in this field are available at the following institutions:



System	Institution	Program Cluster	Grand Division
Proprietary	Anthem Career College-Memphis	Medical Imaging- Radiography	West
Proprietary	Anthem Career College-Nashville	Medical Imaging- Radiography	Middle
TBR	Austin Peay State University	Medical and Clinical Laboratory Technologists	Middle
TICUA	Baptist Memorial College of Health Sciences	Ultrasonic Technician	West
TICUA	Baptist Memorial College of Health Sciences	Medical Imaging- Radiography	West
TICUA	Belmont University	Medical and Clinical Laboratory Technologists	Middle
TBR	Chattanooga State Community College	Ultrasonic Technician	East
TBR	Cleveland State Community College	Science Technologies	East
TBR	Columbia State Community College	Science Technologies	Middle
Proprietary	Concorde Career College-Memphis	Medical Imaging- Radiography	West
TBR	Dyersburg State Community College	Science Technologies	West
Proprietary	Fortis Institute-Cookeville	Medical and Clinical Laboratory Technicians	Middle
Proprietary	Fortis Institute-Nashville	Medical and Clinical Laboratory Technicians	Middle
TBR	Jackson State Community College	Medical and Clinical Laboratory Technicians	West
TICUA	King University	Science Technologies	East
TICUA	Lincoln Memorial University	Medical and Clinical Laboratory Technologists	East
TBR	Nashville State Community College	Science Technologies	Middle
TBR	Northeast State Community College	Science Technologies	East
TBR	Roane State Community College	Science Technologies	East
Proprietary	South College	Medical Imaging- Radiography	East
Independent	Southern Adventist University	Medical and Clinical Laboratory Technologists	East
TBR	Southwest Tennessee Community College	Medical and Clinical Laboratory Technicians	West
TBR	Southwest Tennessee Community College	Science Technologies	West
TBR	TCAT Murfreesboro	Medical and Clinical Laboratory Technologists	Middle
TBR	TCAT Murfreesboro	Medical and Clinical Laboratory Technicians	Middle
UT	The University of Tennessee-Knoxville	Medical and Clinical Laboratory Technologists	East
TICUA	Trevecca Nazarene University	Medical and Clinical Laboratory Technologists	Middle
TBR	Volunteer State Community College	Ultrasonic Technician	Middle
TBR	Volunteer State Community College	Medical and Clinical Laboratory Technologists	Middle
TBR	Volunteer State Community College	Medical and Clinical Laboratory Technicians	Middle
TBR	Volunteer State Community College	Science Technologies	Middle

#### p. Industrial Engineering

Careers in this field require a minimum of a bachelor's degree in engineering. Several private and public institutions offer degrees in engineering including Tennessee Technological University and the University of Tennessee-Knoxville.

#### q. Compliance Officers

Careers in this area include compliance officers, financial examiners, and transportation inspectors. Educational requirements for these careers include long-term on-the-job training, work experience in a related occupation, or a bachelor's degree. There are currently no programs offered in Tennessee that train students for this specific career field. However, many compliance officers have a background in finance. Finance degrees are offered at the baccalaureate level at East Tennessee State University, Middle Tennessee State University, Tennessee Technological University, the University of Memphis, the



University of Tennessee-Knoxville and the University of Tennessee-Martin, as well as many of the state's private institutions.

#### r. Legal Assisting

Careers in this field include paralegals and administrative assistants who work in law offices. This position typically requires a certificate or an associate degree, which are offered by many community colleges across the state.

Programs leading to careers in this area are available at the following institutions:

System	Institution	Program Cluster	Grand Division
Proprietary	Anthem Career College-Memphis	Legal Assisting	West
Proprietary	Anthem Career College-Nashville	Legal Assisting	Middle
TICUA	Bethel University	Legal Assisting	West
Proprietary	Chattanooga College Medical Dental and Technical Careers	Legal Assisting	East
TBR	Chattanooga State Community College	Legal Assisting	East
Proprietary	Daymar Institute-Clarksville	Legal Assisting	Middle
Proprietary	Daymar Institute-Murfreesboro	Legal Assisting	Middle
Proprietary	Daymar Institute-Nashville	Legal Assisting	Middle
Independent	Hiwassee College	Legal Assisting	East
Proprietary	ITT Technical Institute-Chattanooga	Legal Assisting	East
Proprietary	ITT Technical Institute-Cordova	Legal Assisting	West
Proprietary	ITT Technical Institute-Johnson City	Legal Assisting	East
Proprietary	ITT Technical Institute-Knoxville	Legal Assisting	East
Proprietary	ITT Technical Institute-Nashville	Legal Assisting	Middle
Proprietary	Kaplan Career Institute-Nashville	Legal Assisting	Middle
TICUA	Lipscomb University	Legal Assisting	Middle
Proprietary	Miller-Motte Technical College-Clarksville	Legal Assisting	Middle
TBR	Nashville State Community College	Legal Assisting	Middle
TBR	Pellissippi State Community College	Legal Assisting	East
TBR	Roane State Community College	Legal Assisting	East
Proprietary	South College	Legal Assisting	East
TBR	Southwest Tennessee Community College	Legal Assisting	West
UT	The University of Tennessee-Chattanooga	Legal Assisting	East
TICUA	Vanderbilt University	Legal Assisting	Middle
TBR	Volunteer State Community College	Legal Assisting	Middle



## CONCLUSION, LIMITATIONS, AND RECOMMENDATIONS

### *Conclusion*

Projections of the supply of postsecondary degrees to be awarded indicate that all levels of certificates and degrees will increase through 2025. This growth is particularly dramatic for bachelor's degrees, while the number of associate degrees and certificates will also increase. THEC will monitor, and, if necessary, refine these degree projections as the implementation of the 2015-2025 *Master Plan for Tennessee Higher Education* continues.

Production, construction, transportation and logistics, education, and business and finance are career fields in great demand—there are more employment opportunities in these areas than skilled workers to fill them. Careers in these fields require all levels of postsecondary certificates and degrees, ranging from certificates earned in less than one year to doctoral degrees. Alternatively, certificates and degrees leading to jobs in nursing, law, religious activities, and social work are oversupplied, as the supply of trained Tennesseans far exceeds the number of jobs available.

### *Limitations*

Supply and demand analyses are useful for educators, employers, and policymakers at all levels. Those who produce such reports, however, acknowledge two underlying limitations:

Supply and demand analyses rely on historical data and assumptions about future economic conditions, as well as industry expansion or contraction. For this reason, projections are sometimes incorrect for various occupational fields, particularly emerging fields with limited historical data and those fields with high supply-to-demand ratios (oversupplied fields).

Also, the relationship between supply and demand is most direct at the sub-baccalaureate level (certificates and associate degrees) and specialized programs at the doctoral and professional level. For example, someone with a certificate in automotive repair or a medical specialization in Cardiology is much more likely than someone holding a bachelor's degree in English to hold a job that is *extremely specific* to their field of study. As such, it is more straightforward to link individuals with specialized degrees to specific employment areas. This is not true for those holding more versatile bachelor's and master's degrees, as graduates with these degrees are employable in a number of fields.

### *Recommendations*

Future discussions of degrees awarded and the demand for labor in particular areas would benefit from additional regional and county-level breakdowns, as opposed to exploring this issue on a statewide scale. In doing so, educators, employers, and policymakers can better



determine the education and workforce needs that are unique to a particular area, and can target funds and interventions accordingly.

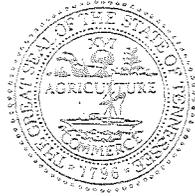
Further, because proprietary institutions are projected to award the greatest number of postsecondary credentials through the year 2025, future work in this area must more fully integrate information about proprietary institutions operating in Tennessee. Including more information about proprietary institutions, as well as the programs in high-demand areas offered at these institutions, will provide a more complete view of the number and type of degrees being awarded across Tennessee, particularly in high-demand areas.

Finally, data that are newly available to the Department of Labor and Workforce Development include information on employer certification requirements for tens of thousands of job openings currently listed on [jobs4tn.gov](http://jobs4tn.gov). Analysis of these data could better inform higher education institutions about current job requirements and refine program offerings to more closely match employer demand.



**APPENDIX A: Tennessee Code Annotated § 49-7-112**





# State of Tennessee

## PUBLIC CHAPTER NO. 88

HOUSE BILL NO. 566

By Representatives Love, Hardaway

Substituted for: Senate Bill No. 618

By Senators Tate, Finney, Ford, Bowling, Harper, Norris

AN ACT to amend Tennessee Code Annotated, Title 49, relative to workforce assessment.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE:

SECTION 1. Tennessee Code Annotated, Title 49, Chapter 7, Part 1, is amended by adding the following language as a new section:

49-7-1\_\_

(a) This section shall be known and may be cited as the "Skills for Jobs Act".

(b) To the extent practicable within available resources and subject to the availability of data currently collected by and accessible to state agencies, the Tennessee higher education commission, in consultation with the department of labor and any other entity the commission deems appropriate, shall produce an annual report regarding state workforce need projections and credential production. The report shall:

(1) Indicate the state's anticipated workforce needs and the number of degrees, certificates, and other credentials that public and private institutions of higher education, including schools authorized under the Postsecondary Authorization Act, compiled in chapter 7, part 20, expect to issue;

(2) To the extent provided by sources external to the commission, indicate the state's anticipated number of degrees, certificates, and other credentials that high school career and technical programs, apprenticeship programs, and other public or private workforce training programs expect to issue;

(3) Identify any workforce needs, including areas of specialization within a particular vocation, that may not be met by the education, training, and apprenticeship programs; and

(4) Identify institutions, public or private, that may meet projected workforce needs.

(c) The department of labor and workforce development shall provide data on the state's anticipated workforce needs and other information, as requested by the Tennessee higher education commission, that is necessary to produce the report under subsection (b) by October 1, 2013, and by October 1 of each year thereafter.

(d) The commission, by January 15, 2014, and by January 15 of each year thereafter, shall provide a copy of the report to the Education Committees of the House of Representatives and the Senate, the Business and Utilities Committee of the House of Representatives, the Commerce and Labor Committee of the Senate and the Governor. The

**HB 566**

commission shall send the report to the board of regents, the University of Tennessee board of trustees and the Tennessee Independent Colleges and Universities Association. The commission shall work with the department of education to provide the report to the state's public school districts and private elementary, middle, and high schools. The report may be provided electronically.

SECTION 2. This act shall take effect upon becoming a law, the public welfare requiring it.

HOUSE BILL NO. 566

PASSED: MARCH 21, 2013

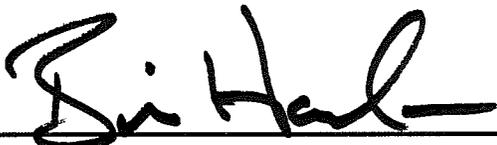


BETH HARWELL, SPEAKER  
HOUSE OF REPRESENTATIVES



RON RAMSEY  
SPEAKER OF THE SENATE

APPROVED this 8<sup>th</sup> day of April 2013



BILL HASLAM, GOVERNOR

## APPENDIX B: Awards by program and level for proprietary and not-for-profit institutions in Tennessee, FY 2013-14

	All Awards		Certificates and Diplomas		Associate Degrees		Bachelor's Degrees	
	Proprietary	Not-for-Profit	Proprietary	Not-for-Profit	Proprietary	Not-for-Profit	Proprietary	Not-for-Profit
<b>All Programs</b>	<b>17,524</b>	<b>2,258</b>	<b>12,809</b>	<b>1,183</b>	<b>2,676</b>	<b>147</b>	<b>1,151</b>	<b>273</b>
Administrative and Clerical Support	43	-	33	-	10	-	-	-
Aeronautics and Aviation	192	15	127	-	65	-	-	5
Agriculture Operations and Related Sciences	-	3	-	-	-	3	-	-
Bartending and Hospitality	465	-	462	-	-	-	-	-
Business, Management, Marketing, and Related Services	687	215	27	-	182	24	293	95
Communications, Journalism, and Related Fields	7	2	-	2	1	-	6	-
Computer and Information Sciences and Support Services	1,156	69	575	30	430	27	129	1
Construction Trades	704	298	565	298	134	-	5	-
Counseling/Social Work	86	48	-	-	-	-	-	6
Criminal Justice	224	54	1	-	140	40	76	14
Culinary Services	372	-	157	-	198	-	17	-
Education	327	387	-	9	20	-	77	16
Engineering	98	-	-	-	75	-	23	-
English Language and Literature/Letters	2	1	-	-	-	-	1	-
Finance, Accounting, and Economics	123	-	4	-	25	-	49	-
Health Professions and Related Criminal Sciences	6,093	688	4,776	636	1,034	34	137	10
History	5	-	-	-	-	-	5	-
Human Resources and Human Sciences	126	30	1	-	28	-	27	6
Law, Legal Services, and Legal Studies	93	-	5	-	71	-	14	-
Mechanic and Repair Technology	1,320	12	1,216	2	104	10	-	-
Medical Billing and Coding	234	65	200	65	30	-	4	-
Multi/Interdisciplinary Studies	6	5	-	-	1	-	5	1
Natural Resources and Research	1	-	-	-	-	-	1	-
Physical Sciences	5	-	-	-	-	-	5	-
Protective Services	24	9	-	9	5	-	13	-
Psychology	125	5	-	-	9	1	74	4
Public Administration and Services	27	3	-	-	-	-	-	-
Science Technologies/Technicians	28	-	21	-	7	-	-	-
Social Sciences	41	3	-	-	-	-	33	3
Taxation and Tax Preparation	421	-	419	-	-	-	-	-
Theological Studies and Religious Vocations	8	292	-	89	-	6	4	103
Transportation and Materials Moving Services	3,966	40	3,966	40	-	-	-	-
Visual and Performing Arts	488	2	230	-	107	-	151	2
Other	27	12	24	3	-	2	2	7

Source: THEC, 2014



**APPENDIX C: Supply and demand projections for the 25 highest-demand fields  
in Tennessee's workforce, prepared by the Tennessee Department of Labor  
and Workforce Development, 2015**



Cluster Grade = B  
 The outlook for this cluster is Very Good.  
 The growth rate is positive but not above the average for all occupations.  
 There are more job openings expected annually than there were training completers in a recent year.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Base Year: 2014  
 Projected Year: 2022  
 Cluster Code: 01.1120000  
 Cluster Title: Agribusiness and Operations

DEMAND DATA		Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
SOC CODE(S)	SOC TITLES(S)						
131021	Buyers and Purchasing Agents, Farm Products	230	240	5	0.5	\$53,314.00	Work experience in a related occupation
194011	Agricultural and Food Science Technicians	560	540	20	-0.5	\$29,046.00	Associate degree
194021	Biological Technicians	1,000	990	30	-0.1	\$36,524.00	Associate degree
*****	*****	340	350	10	0.4	\$43,096.00	Work experience in a related occupation
452041	Graders and Sorters, Agricultural Products	1,300	1,360	30	0.6	\$23,086.00	Work experience in a related occupation
<b>Totals:</b>		<b>3,430</b>	<b>3,480</b>	<b>95</b>	<b>0.2</b>		

SUPPLY DATA						
CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
010101	Agricultural Business and Management, General.			24	10	
010102	Agribusiness/Agricultural Business Operations.			34		
010199	Agricultural Business and Management, Other.			2		
<b>Totals:</b>				<b>60</b>	<b>10</b>	

**TOTAL SUPPLY:** 70  
**TOTAL DEMAND:** 95  
**SUPPLY/DEMAND RATIO:** .74

Area  
Tennessee  
Statewide

Projection Time (Years) = 8

Base Year: 2014  
Projected Year  
Employment: 2022

Average Occupational Growth Rate = 1.1

Cluster Grade = B  
The outlook for this cluster is Very Good.  
The growth rate is positive but not above the average for all occupations.  
There are more job openings expected annually than there were training completers in a recent year.

Cluster Code	Cluster Title
02.1220000	Technical Design & Preconstruction

**DEMAND DATA**

SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
119021	Construction Managers	11,260	11,770	235	0.6	\$76,037.00	Bachelor's degree
131051	Cost Estimators	2,058	2,303	97	1.4	\$55,330.00	Bachelor's degree
173022	Civil Engineering Technicians	1,100	1,170	30	0.8	\$49,917.00	Associate degree
474011	Construction and Building Inspectors	1,580	1,730	55	1.1	\$45,439.00	Work experience in a related occupation
<b>Totals:</b>		<b>15,998</b>	<b>16,973</b>	<b>417</b>	<b>0.7</b>		

**SUPPLY DATA**

CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
150101	Architectural Engineering Technology/Technician.	12				
150201	Civil Engineering Technology/Technician.	3				
522001	Construction Management.			29		
<b>Totals:</b>		<b>15</b>		<b>29</b>		
<b>TOTAL SUPPLY:</b>		<b>44</b>				
<b>TOTAL DEMAND:</b>		<b>417</b>				
<b>SUPPLY/DEMAND RATIO:</b>		<b>.11</b>				

**Cluster Grade = A**  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Base Year: 2014  
 Projected Year: 2022  
 Cluster Code: 02.2100000  
 Cluster Title: Construction Pathway - Construction Electrical

DEMAND DATA							
SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
472111	Electricians	11,350	12,360	340	1.1	\$46,784.00	Long-term on-the-job training
473013	Helpers--Electricians	1,820	2,160	75	2.2	\$28,787.00	Short-term on-the-job training
474021	Elevator Installers and Repairers	230	260	5	1.5	\$69,186.00	Long-term on-the-job training
492095	Electrical and Electronics Repairers, Powerhouse,	680	760	25	1.4	\$72,328.00	Post-secondary vocational training
492098	Security and Fire Alarm Systems Installers	1,240	1,560	65	2.9	\$40,358.00	Post-secondary vocational training
499012	Control and Valve Installers and Repairers, Except	680	700	25	0.4	\$46,433.00	Moderate-term on-the-job training
499051	Electrical Power-Line Installers and Repairers	3,320	3,650	155	1.2	\$66,927.00	Long-term on-the-job training
499052	Telecommunications Line Installers and Repairers	1,880	2,150	80	1.7	\$36,431.00	Long-term on-the-job training
<b>Totals:</b>		<b>21,200</b>	<b>23,600</b>	<b>770</b>	<b>1.3</b>		

SUPPLY DATA						
CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
460302	Electrician.	157	21			
4603AH	Electrical I					27
4603BH	Residential Electricity II					41
470110	Security System Installation, Repair, and Inspection Technol		1			
<b>Totals:</b>		<b>157</b>	<b>22</b>			<b>68</b>

<b>TOTAL SUPPLY:</b>	<b>247</b>
<b>TOTAL DEMAND:</b>	<b>770</b>
<b>SUPPLY/DEMAND RATIO:</b>	<b>.32</b>

**Cluster Grade = A**  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Base Year: 2014  
 Projected Year: 2022  
 Cluster Code: 02.2200000  
 Cluster Title: Construction Pathway - Construction Masonry & Concrete

DEMAND DATA							
SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
472021	Brickmasons and Blockmasons	980	1,360	60	4.2	\$40,163.00	Long-term on-the-job training
472022	Stonemasons	100	110		1.2	\$34,159.00	Long-term on-the-job training
472044	Tile and Marble Setters	500	500	10	0.0	\$32,885.00	Long-term on-the-job training
472051	Cement Masons and Concrete Finishers	2,220	2,730	90	2.6	\$31,820.00	Long-term on-the-job training
473011	Helpers--Brickmasons, Blockmasons, Stonemasons, an	430	620	30	4.7	\$26,166.00	Short-term on-the-job training
499045	Refractory Materials Repairers, Except Brickmasons	90	110	5	2.5	\$45,136.00	Moderate-term on-the-job training
<b>Totals:</b>		<b>4,320</b>	<b>5,430</b>	<b>195</b>	<b>2.9</b>		

SUPPLY DATA						
CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
460101	Mason/Masonry.	20				
4601AH	Masonry I					10
4601BH	Masonry II					1
460402	Concrete Finishing/Concrete Finisher.	10				
4604DH	Concrete I					8
<b>Totals:</b>		<b>30</b>				<b>19</b>

<b>TOTAL SUPPLY:</b>	<b>49</b>
<b>TOTAL DEMAND:</b>	<b>195</b>
<b>SUPPLY/DEMAND RATIO:</b>	<b>.25</b>

Cluster Grade = B  
 The outlook for this cluster is Very Good.  
 The growth rate is positive but not above the average for all occupations.  
 There are more job openings expected annually than there were training completers in a recent year.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Base Year: 2014  
 Projected Year: 2022  
 Cluster Code: 02.2300000  
 Cluster Title: Construction Pathway - Construction Plumbing

DEMAND DATA		Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
SOC CODE(S)	SOC TITLES(S)						
472151	Pipelayers	1,740	1,920	45	1.2	\$32,821.00	Moderate-term on-the-job training
472152	Plumbers, Pipefitters, and Steamfitters	6,780	7,220	140	0.8	\$45,859.00	Long-term on-the-job training
<b>Totals:</b>		<b>8,520</b>	<b>9,140</b>	<b>185</b>	<b>0.9</b>		
SUPPLY DATA		No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon	
CIP CODE(S)	CIP TITLE(S)						
460502	Pipefitting/Pipefitter and Sprinkler Fitter.	17					
4605AH	Plumbing I					18	
4605BH	Plumbing II					1	
<b>Totals:</b>		<b>17</b>				<b>19</b>	
<b>TOTAL SUPPLY:</b>		<b>36</b>					
<b>TOTAL DEMAND:</b>		<b>185</b>					
<b>SUPPLY/DEMAND RATIO:</b>		<b>.19</b>					

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Cluster Code: 02.2700000  
 Cluster Title: All Other Construction

Base Year: 2014  
 Projected Year: 2022  
 Employment:

Cluster Grade = A  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

DEMAND DATA		Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
471011	Supervisors of Construction and Extraction Workers	9,400	10,270	210	1.1	\$50,343.00	Work experience in a related occupation
472041	Carpet Installers	300	300	5	0.0	\$33,238.00	Moderate-term on-the-job training
472042	Floor Layers, Except Carpet, Wood, and Hard Tiles	190	200	5	0.6	\$35,153.00	Moderate-term on-the-job training
472043	Floor Sanders and Finishers	140	140		0.0	\$22,527.00	Moderate-term on-the-job training
472053	Terrazzo Workers and Finishers	40	50		2.8		Long-term on-the-job training
472071	Paving, Surfacing, and Tamping Equipment Operators	1,730	1,920	50	1.3	\$31,872.00	Moderate-term on-the-job training
*****	*****	30	40		3.7		Moderate-term on-the-job training
472073	Operating Engineers and Other Construction Equipme	4,710	5,380	185	1.7	\$36,166.00	Moderate-term on-the-job training
472081	Drywall and Ceiling Tile Installers	1,240	1,200	10	-0.4	\$33,987.00	Moderate-term on-the-job training
472082	Tapers	190	180		-0.7	\$35,091.00	Moderate-term on-the-job training
472121	Glaziers	850	1,030	40	2.4	\$31,493.00	Long-term on-the-job training
472131	Insulation Workers, Floor, Ceiling, and Wall	510	540	10	0.7	\$30,351.00	No category defined
472132	Insulation Workers, Mechanical	500	640	25	3.1	\$35,154.00	No category defined
472141	Painters, Construction and Maintenance	4,420	4,620	90	0.6	\$30,901.00	Moderate-term on-the-job training
472142	Paperhangers	50	50		0.0	\$23,483.00	Moderate-term on-the-job training
472161	Plasterers and Stucco Masons	350	430	10	2.6	\$33,885.00	Long-term on-the-job training
472171	Reinforcing Iron and Rebar Workers	220	270	10	2.6	\$35,849.00	Long-term on-the-job training
472181	Roofers	2,580	3,070	115	2.2	\$32,541.00	Moderate-term on-the-job training
472211	Sheet Metal Workers	4,390	5,020	160	1.7	\$37,387.00	Moderate-term on-the-job training
472221	Structural Iron and Steel Workers	1,090	1,200	50	1.2	\$40,810.00	Long-term on-the-job training
474031	Fence Erectors	240	320	15	3.7	\$27,765.00	Moderate-term on-the-job training
474041	Hazardous Materials Removal Workers	960	1,050	30	1.1	\$42,438.00	Moderate-term on-the-job training
474051	Highway Maintenance Workers	2,880	3,000	55	0.5	\$27,204.00	Moderate-term on-the-job training
474071	Septic Tank Servicers and Sewer Pipe Cleaners	690	790	25	1.7	\$32,478.00	Moderate-term on-the-job training
474099	Construction and Related Workers, All Other	450	450	10	0.0	\$37,096.00	No category defined
475021	Earth Drillers, Except Oil and Gas	310	340	10	1.2	\$42,031.00	Moderate-term on-the-job training
*****	*****	220	170	5	-3.2	\$25,859.00	Moderate-term on-the-job training
537021	Crane and Tower Operators	750	890	45	2.2	\$42,129.00	Moderate-term on-the-job training
537031	Dredge Operators	80	100	5	2.8	\$36,110.00	Moderate-term on-the-job training
537032	Excavating and Loading Machine and Dragline Operat	1,340	1,580	40	2.1	\$34,329.00	Moderate-term on-the-job training
<b>Totals:</b>		<b>40,850</b>	<b>45,240</b>	<b>1,215</b>	<b>1.3</b>		

SUPPLY DATA		No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
460415	Building Construction Technology.	15				
4604EH						1
469999	Construction Trades, Other.	90	36			
4699CH	Construction Core					13
<b>Totals:</b>		<b>105</b>	<b>36</b>			<b>14</b>

**TOTAL SUPPLY:** 155  
**TOTAL DEMAND:** 1,215  
**SUPPLY/DEMAND RATIO:** .13

**Cluster Grade = A**  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Base Year: 2014  
 Projected Year: 2022  
 Cluster Code: 04.2120000  
 Cluster Title: Accounting Administrative Support

DEMAND DATA							
SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
433021	Billing and Posting Clerks	11,610	13,500	445	1.9	\$31,217.00	Short-term on-the-job training
433031	Bookkeeping, Accounting, and Auditing Clerks	33,710	37,320	760	1.3	\$33,780.00	Moderate-term on-the-job training
433051	Payroll and Timekeeping Clerks	3,860	4,320	140	1.4	\$36,365.00	Short-term on-the-job training
439111	Statistical Assistants	240	270	10	1.5	\$35,335.00	Moderate-term on-the-job training
<b>Totals:</b>		<b>49,420</b>	<b>55,410</b>	<b>1,355</b>	<b>1.4</b>		
SUPPLY DATA							
CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon	
510714	Medical Insurance Specialist/Medical Biller.	16					
520302	Accounting Technology/Technician and Bookkeeping.	80	82				
<b>Totals:</b>		<b>96</b>	<b>82</b>				
<b>TOTAL SUPPLY:</b>		<b>178</b>					
<b>TOTAL DEMAND:</b>		<b>1,355</b>					
<b>SUPPLY/DEMAND RATIO:</b>		<b>.13</b>					

Area  
Tennessee  
Statewide

Projection Time (Years) = 8  
Average Occupational Growth Rate = 1.1

Base Year: 2014  
Projected Year: 2022

Cluster Grade = B  
The outlook for this cluster is Very Good.  
The growth rate is positive but not above the average for all occupations.  
There are more job openings expected annually than there were training completers in a recent year.

Cluster Code: 04.3000000  
Cluster Title: Human Resources

**DEMAND DATA**

SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
131071	Human Resources, Training, and Labor Relations Spe	6,800	7,440	200	1.1	\$49,517.00	Bachelor's degree
131075	Labor Relations Specialists	620	640	15	0.4	\$51,103.00	No category defined
131141	Compensation, Benefits & Job Analysis Specialists	1,270	1,380	35	1.0	\$50,001.00	Bachelor's degree
131151	Training and Development Specialists	4,530	5,100	150	1.5	\$53,399.00	Bachelor's degree
434161	Human Resources Assistants, Except Payroll and Tim	2,820	2,930	85	0.5	\$36,421.00	Short-term on-the-job training
<b>Totals:</b>		<b>16,040</b>	<b>17,490</b>	<b>485</b>	<b>1.1</b>		

**SUPPLY DATA**

CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
521003	Organizational Behavior Studies.				40	
521005	Human Resources Development.				1	
521207	Knowledge Management.			35		
<b>Totals:</b>				<b>35</b>	<b>41</b>	

**TOTAL SUPPLY:** 76  
**TOTAL DEMAND:** 485  
**SUPPLY/DEMAND RATIO:** .16

**Cluster Grade = A**  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Base Year: 2014  
 Projected Year: 2022  
 Cluster Code: 04.4000000  
 Cluster Title: Business Analysis

DEMAND DATA		Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
SOC CODE(S)	SOC TITLES(S)						
131111	Management Analysts	8,410	9,810	300	1.9	\$72,352.00	Work experience, plus bachelor's degree
131199	Business Operations Specialists, All Other	11,790	13,190	335	1.4	\$54,362.00	No category defined
132031	Budget Analysts	700	770	35	1.2	\$63,789.00	Bachelor's degree
152031	Operations Research Analysts	1,350	1,680	70	2.8	\$63,748.00	Master's degree
<b>Totals:</b>		<b>22,250</b>	<b>25,450</b>	<b>740</b>	<b>1.7</b>		

SUPPLY DATA		No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
CIP CODE(S)	CIP TITLE(S)					
	There is no supply data available.					
<b>Totals:</b>						
<b>TOTAL SUPPLY:</b>		<b>0</b>				
<b>TOTAL DEMAND:</b>		<b>740</b>				
<b>SUPPLY/DEMAND RATIO:</b>		<b>.00</b>				

**Cluster Grade = A**  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Base Year: 2014  
 Projected Year: 2022  
 Cluster Code: 04.500000  
 Cluster Title: Communications Development

DEMAND DATA		Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
SOC CODE(S)	SOC TITLES(S)						
273031	Public Relations Specialists	2,670	2,940	70	1.2	\$49,456.00	Bachelor's degree
434051	Customer Service Representatives	51,820	57,850	2,150	1.4	\$28,388.00	Moderate-term on-the-job training
<b>Totals:</b>		<b>54,490</b>	<b>60,790</b>	<b>2,220</b>	<b>1.4</b>		

SUPPLY DATA						
CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
090900	Public Relations, Advertising, and Applied Communication.			28		
090901	Organizational Communication, General.			7		
090902	Public Relations/Image Management.			98		
090905	Health Communication.			1		
090908	Technical and Scientific Communication.			1		
090999	Public Relations, Advertising, and Applied Communication, Ot			11		
520501	Business/Corporate Communications.			8		
<b>Totals:</b>				<b>154</b>		

**TOTAL SUPPLY:** 154  
**TOTAL DEMAND:** 2,220  
**SUPPLY/DEMAND RATIO:** .07

**Cluster Grade = A**  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Base Year: 2014  
 Projected Year: 2022  
 Cluster Code: 05.1170000  
 Cluster Title: Elementary Teachers, Except Special Education

DEMAND DATA		Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
SOC CODE(S)	SOC TITLES(S)						
252021	Elementary School Teachers, Except Special Educati	27,100	32,510	1,270	2.3	\$47,394.00	Bachelor's degree
<b>Totals:</b>		<b>27,100</b>	<b>32,510</b>	<b>1,270</b>	<b>2.3</b>		

SUPPLY DATA		No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
CIP CODE(S)	CIP TITLE(S)					
131202	Elementary Education and Teaching.		12	381	192	
<b>Totals:</b>			<b>12</b>	<b>381</b>	<b>192</b>	

**TOTAL SUPPLY:** 585  
**TOTAL DEMAND:** 1,270  
**SUPPLY/DEMAND RATIO:** .46

**Cluster Grade = A**  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Base Year: 2014  
 Projected Year: 2022  
 Cluster Code: 05.2110000  
 Cluster Title: Teacher Training Services- Pre-K-Early Childhood Education

DEMAND DATA		Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
SOC CODE(S)	SOC TITLES(S)						
252011	Preschool Teachers, Except Special Education	9,120	12,820	715	4.3	\$23,766.00	Bachelor's degree
252012	Kindergarten Teachers, Except Special Education	4,350	5,270	235	2.4	\$47,515.00	Bachelor's degree
<b>Totals:</b>		<b>13,470</b>	<b>18,090</b>	<b>950</b>	<b>3.8</b>		

SUPPLY DATA		No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
CIP CODE(S)	CIP TITLE(S)					
131210	Early Childhood Education and Teaching.	13	4	217	8	
<b>Totals:</b>		<b>13</b>	<b>4</b>	<b>217</b>	<b>8</b>	

**TOTAL SUPPLY:** 242  
**TOTAL DEMAND:** 950  
**SUPPLY/DEMAND RATIO:** .25

**Cluster Grade = B**  
 The outlook for this cluster is Very Good.  
 The growth rate is positive but not above the average for all occupations.  
 There are more job openings expected annually than there were training completers in a recent year.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Base Year: 2014  
 Projected Year: 2022  
 Cluster Code: 06.3110000  
 Cluster Title: Banking and Finance

DEMAND DATA							
SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
113031	Financial Managers	13,250	14,500	400	1.1	\$86,814.00	Work experience, plus bachelor's degree
131031	Claims Adjusters, Examiners, and Investigators	4,300	4,810	160	1.4	\$55,768.00	Long-term on-the-job training
131032	Insurance Appraisers, Auto Damage	110	110	5	0.0	\$60,225.00	Long-term on-the-job training
131131	Fundraisers	840	1,060	45	3.0	\$46,642.00	No category defined
131161	Market Research Analysts & Marketing Specialists	3,270	4,095	148	2.9	\$49,739.00	Bachelor's degree
132041	Credit Analysts	1,350	1,490	50	1.2	\$54,114.00	Bachelor's degree
132051	Financial Analysts	2,750	3,160	115	1.8	\$67,685.00	Bachelor's degree
132053	Insurance Underwriters	1,590	1,750	60	1.2	\$61,900.00	Bachelor's degree
132071	Credit Counselors	400	480	15	2.3	\$33,036.00	Bachelor's degree
132072	Loan Officers	6,280	6,680	165	0.8	\$53,286.00	Bachelor's degree
132099	Financial Specialists, All Other	1,640	1,850	40	1.5	\$55,462.00	Bachelor's degree
193011	Economists	70	80		1.7	\$79,620.00	Bachelor's degree
193022	Survey Researchers	120	170	10	4.5	\$19,522.00	Bachelor's degree
251011	Business Teachers, Postsecondary	2,050	2,220	50	1.0	\$65,723.00	Doctor's degree
251063	Economics Teachers, Postsecondary	270	280	5	0.5	\$69,205.00	Doctor's degree
413021	Insurance Sales Agents	8,820	8,300	205	-0.8	\$40,618.00	Bachelor's degree
<b>Totals:</b>		<b>47,110</b>	<b>51,035</b>	<b>1,473</b>	<b>1.0</b>		

SUPPLY DATA						
CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
010103	Agricultural Economics.				10	
450601	Economics, General.			402	39	
450604	Development Economics and International Development.				32	
450605	International Economics.			4		
450699	Economics, Other.			5		
520601	Business/Managerial Economics.			128	15	
520803	Banking and Financial Support Services.				4	
521302	Business Statistics.			5	15	
<b>Totals:</b>				<b>544</b>	<b>115</b>	

**TOTAL SUPPLY:** 659  
**TOTAL DEMAND:** 1,473  
**SUPPLY/DEMAND RATIO:** .45

**Cluster Grade = A**  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

Area  
 Tennessee  
 Statewide

Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1

Base Year: 2014  
 Projected Year: 2022  
 Employment:

Cluster Code: **07.7120000**  
 Cluster Title: **Compliance Officers**

**DEMAND DATA**

SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
131041	Compliance Officers	4,420	4,940	145	1.4	\$54,827.00	Long-term on-the-job training
132061	Financial Examiners	430	460	15	0.8	\$83,022.00	Bachelor's degree
536051	Transportation Inspectors	480	560	25	1.9	\$59,109.00	Work experience in a related occupation
<b>Totals:</b>		<b>5,330</b>	<b>5,960</b>	<b>185</b>	<b>1.4</b>		

**SUPPLY DATA**

CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
	There is no supply data available.					

**Totals:**

<b>TOTAL SUPPLY:</b>	<b>0</b>
<b>TOTAL DEMAND:</b>	<b>185</b>
<b>SUPPLY/DEMAND RATIO:</b>	<b>.00</b>

Cluster Grade = B  
 The outlook for this cluster is Very Good.  
 The growth rate is positive but not above the average for all occupations.  
 There are more job openings expected annually than there were training completers in a recent year.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Base Year: 2014  
 Projected Year: 2022  
 Cluster Code: 07.7140000  
 Cluster Title: Revenue and Taxation

DEMAND DATA		Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
SOC CODE(S)	SOC TITLES(S)						
132081	Tax Examiners and Collectors, and Revenue Agents	1,340	1,520	70	1.6	\$48,323.00	Bachelor's degree
435041	Meter Readers, Utilities	1,350	1,370	35	0.2	\$34,532.00	Short-term on-the-job training
<b>Totals:</b>		<b>2,690</b>	<b>2,890</b>	<b>105</b>	<b>0.9</b>		

SUPPLY DATA		No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
CIP CODE(S)	CIP TITLE(S)					
	There is no supply data available.					

**Totals:**

TOTAL SUPPLY: 0  
 TOTAL DEMAND: 105  
 SUPPLY/DEMAND RATIO: .00

Area  
Tennessee  
Statewide

Projection Time (Years) = 8

Base Year: 2014  
Projected Year  
Employment: 2022

Average Occupational Growth Rate = 1.1

Cluster Grade = B  
The outlook for this cluster is Very Good.  
The growth rate is positive but not above the average for all occupations.  
There are more job openings expected annually than there were training completers in a recent year.

Cluster Code

Cluster Title

07.7150000

Eligibility Interviewers, Government Programs

**DEMAND DATA**

SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
434061	Eligibility Interviewers, Government Programs	3,600	3,790	95	0.6	\$33,920.00	Moderate-term on-the-job training
<b>Totals:</b>		<b>3,600</b>	<b>3,790</b>	<b>95</b>	<b>0.6</b>		

**SUPPLY DATA**

CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
	There is no supply data available.					
<b>Totals:</b>						
<b>TOTAL SUPPLY:</b>		<b>0</b>				
<b>TOTAL DEMAND:</b>		<b>95</b>				
<b>SUPPLY/DEMAND RATIO:</b>		<b>.00</b>				

**Cluster Grade = A**  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Base Year: 2014  
 Projected Year: 2022  
 Cluster Code: 08.1260000  
 Cluster Title: Physicians and Surgeons

DEMAND DATA		Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
291061	Anesthesiologists	620	760	30	2.6	\$194,394.00	Doctor's degree
291062	Family and General Practitioners	1,570	1,720	55	1.1	\$158,883.00	Doctor's degree
291063	Internists, General	890	1,000	35	1.5	\$187,393.00	Doctor's degree
291064	Obstetricians and Gynecologists	390	450	15	1.8	\$190,804.00	Doctor's degree
291065	Pediatricians, General	440	500	20	1.6	\$175,893.00	Doctor's degree
291066	Psychiatrists	280	310	10	1.3	\$190,677.00	Doctor's degree
291067	Surgeons	1,080	1,310	55	2.4	\$192,815.00	Doctor's degree
291069	Physicians and Surgeons, All Other	7,520	9,230	400	2.6	\$192,806.00	Doctor's degree
<b>Totals:</b>		<b>12,790</b>	<b>15,280</b>	<b>620</b>	<b>2.2</b>		

SUPPLY DATA		No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
511201	Medicine (MD).				421	
511401	Medical Scientist (MS, PhD).				11	
511901	Osteopathic Medicine/Osteopathy (DO).				132	
<b>Totals:</b>					<b>564</b>	

**TOTAL SUPPLY:** 564  
**TOTAL DEMAND:** 620  
**SUPPLY/DEMAND RATIO:** .91

Cluster Grade = U  
 The growth rate is negative (declining employment), OR  
 Fewer than 11 job openings are expected annually, OR  
 Supply and demand analysis is impossible because no  
 training programs were reported in this geographic area.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Cluster Code: 08.1320000  
 Cluster Title: Pharmacy Assisting

Base Year: 2014  
 Projected Year: 2022  
 Employment:

DEMAND DATA							
SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
292052	Pharmacy Technicians	12,170	15,050	475	2.7	\$28,641.00	Moderate-term on-the-job training
319095	Pharmacy Aides	1,330	1,560	55	2.0	\$21,080.00	Short-term on-the-job training
<b>Totals:</b>		<b>13,500</b>	<b>16,610</b>	<b>530</b>	<b>2.6</b>		
SUPPLY DATA							
CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon	
510805	Pharmacy Technician/Assistant.	453	58				
<b>Totals:</b>		<b>453</b>	<b>58</b>				
<b>TOTAL SUPPLY:</b>		<b>511</b>					
<b>TOTAL DEMAND:</b>		<b>530</b>					
<b>SUPPLY/DEMAND RATIO:</b>		<b>.96</b>					

**Cluster Grade = A**  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

Area  
 Tennessee  
 Statewide

Projection Time (Years) = 8

Base Year: 2014  
 Projected Year  
 Employment: 2022

Average Occupational Growth Rate = 1.1

Cluster Code

Cluster Title

08.2110000

Ultrasonic Technician

**DEMAND DATA**

SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
292032	Diagnostic Medical Sonographers	1,550	2,110	90	3.9	\$60,618.00	Associate degree
<b>Totals:</b>		<b>1,550</b>	<b>2,110</b>	<b>90</b>	<b>3.9</b>		

**SUPPLY DATA**

CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
510910	Diagnostic Medical Sonography/Sonographer and Ultrasound Tec	11		8		
<b>Totals:</b>		<b>11</b>		<b>8</b>		

<b>TOTAL SUPPLY:</b>	<b>19</b>
<b>TOTAL DEMAND:</b>	<b>90</b>
<b>SUPPLY/DEMAND RATIO:</b>	<b>.21</b>

**Cluster Grade = A**  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Base Year: 2014  
 Projected Year: 2022  
 Cluster Code: 08.2190000  
 Cluster Title: Medical Imaging- Radiography

DEMAND DATA		Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
SOC CODE(S)	SOC TITLES(S)						
292034	Radiologic Technologists and Technicians, includin	5,140	6,000	175	2.0	\$48,855.00	Associate degree
292035	Magnetic Resonance Imaging Technologists	1,000	1,160	35	1.9	\$58,508.00	Associate degree
<b>Totals:</b>		<b>6,140</b>	<b>7,160</b>	<b>210</b>	<b>1.9</b>		
SUPPLY DATA		No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon	
CIP CODE(S)	CIP TITLE(S)						
510911	Radiologic Technology/Science - Radiographer.	46	67	15			
<b>Totals:</b>		<b>46</b>	<b>67</b>	<b>15</b>			
<b>TOTAL SUPPLY:</b>		<b>128</b>					
<b>TOTAL DEMAND:</b>		<b>210</b>					
<b>SUPPLY/DEMAND RATIO:</b>		<b>.61</b>					

Cluster Grade = B  
 The outlook for this cluster is Very Good.  
 The growth rate is positive but not above the average for all occupations.  
 There are more job openings expected annually than there were training completers in a recent year.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Base Year: 2014  
 Projected Year: 2022  
 Cluster Code: 08.2210000  
 Cluster Title: Medical and Clinical Laboratory Technologists

DEMAND DATA							
SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
292011	Medical and Clinical Laboratory Technologists	4,260	4,650	160	1.1	\$58,114.00	Bachelor's degree
<b>Totals:</b>		<b>4,260</b>	<b>4,650</b>	<b>160</b>	<b>1.1</b>		
SUPPLY DATA							
CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon	
511002	Cytotechnology/Cytotechnologist.				5		
511005	Clinical Laboratory Science/Medical Technology/Technologist.			45			
511099	Clinical/Medical Laboratory Science and Allied Professions,	56					
<b>Totals:</b>		<b>56</b>		<b>45</b>	<b>5</b>		
<b>TOTAL SUPPLY:</b>		<b>106</b>					
<b>TOTAL DEMAND:</b>		<b>160</b>					
<b>SUPPLY/DEMAND RATIO:</b>		<b>.66</b>					

**Cluster Grade = A**  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

Area  
 Tennessee  
 Statewide

Projection Time (Years) = 8

Base Year: 2014  
 Projected Year  
 Employment: 2022

Average Occupational Growth Rate = 1.1

Cluster Code

Cluster Title

08.2220000

Medical and Clinical Laboratory Technicians

**DEMAND DATA**

SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
292012	Medical and Clinical Laboratory Technicians	6,280	7,460	310	2.2	\$34,959.00	Associate degree
<b>Totals:</b>		<b>6,280</b>	<b>7,460</b>	<b>310</b>	<b>2.2</b>		

**SUPPLY DATA**

CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
510802	Clinical/Medical Laboratory Assistant.	8				
511001	Blood Bank Technology Specialist.	17				
511004	Clinical/Medical Laboratory Technician.		74			
<b>Totals:</b>		<b>25</b>	<b>74</b>			

<b>TOTAL SUPPLY:</b>	<b>99</b>
<b>TOTAL DEMAND:</b>	<b>310</b>
<b>SUPPLY/DEMAND RATIO:</b>	<b>.32</b>

**Cluster Grade = A**  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

Area  
 Tennessee  
 Statewide

Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1

Base Year: 2014  
 Projected Year Employment: 2022

Cluster Code: **09.2000000**  
 Cluster Title: **Lodging Pathway**

**DEMAND DATA**

SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
119081	Lodging Managers	1,560	1,580	50	0.2	\$44,086.00	Work experience in a related occupation
131121	Meeting, Convention, and Event Planners	1,140	1,490	60	3.4	\$37,135.00	Bachelor's degree
371011	First-Line Supervisors of Housekeeping and Janitor	4,240	4,770	165	1.5	\$31,658.00	Work experience in a related occupation
391021	First-Line Supervisors of Personal Service Workers	4,510	4,770	110	0.7	\$30,073.00	Work experience in a related occupation
396011	Baggage Porters and Bellhops	520	560	20	0.9	\$19,612.00	Short-term on-the-job training
396012	Concierges	460	540	20	2.0	\$22,124.00	Work experience in a related occupation
434081	Hotel, Motel, and Resort Desk Clerks	5,370	5,940	325	1.3	\$18,815.00	Short-term on-the-job training
<b>Totals:</b>		<b>17,800</b>	<b>19,650</b>	<b>750</b>	<b>1.2</b>		

**SUPPLY DATA**

CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
520901	Hospitality Administration/Management, General.				3	
520904	Hotel/Motel Administration/Management.	4	20	67		
<b>Totals:</b>		<b>4</b>	<b>20</b>	<b>67</b>	<b>3</b>	

**TOTAL SUPPLY:** 94  
**TOTAL DEMAND:** 750  
**SUPPLY/DEMAND RATIO:** .13

Area  
Tennessee  
Statewide

Projection Time (Years) = 8

Base Year: 2014  
Projected Year  
Employment: 2022

Average Occupational Growth Rate = 1.1

Cluster Grade = B  
The outlook for this cluster is Very Good.  
The growth rate is positive but not above the average for all occupations.  
There are more job openings expected annually than there were training completers in a recent year.

Cluster Code  
**09.300000**

Cluster Title  
**Travel and Tourism Pathway**

**DEMAND DATA**

SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
397011	Tour Guides and Escorts	1,910	1,960	100	0.3	\$20,173.00	Moderate-term on-the-job training
397012	Travel Guides	80	70	5	-1.7		Post-secondary vocational training
413041	Travel Agents	830	610	15	-3.8	\$36,127.00	Post-secondary vocational training
434181	Reservation and Transportation Ticket Agents and T	1,220	1,730	80	4.5	\$36,175.00	Short-term on-the-job training
<b>Totals:</b>		<b>4,040</b>	<b>4,370</b>	<b>200</b>	<b>1.0</b>		

**SUPPLY DATA**

CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
	There is no supply data available.					

**Totals:**

<b>TOTAL SUPPLY:</b>	<b>0</b>
<b>TOTAL DEMAND:</b>	<b>200</b>
<b>SUPPLY/DEMAND RATIO:</b>	<b>.00</b>

**Cluster Grade = A**  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Base Year: 2014  
 Projected Year: 2022  
 Cluster Code: 12.4110000  
 Cluster Title: Legal Assisting

DEMAND DATA							
SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
231022	Arbitrators, Mediators, and Conciliators	80	80		0.0	\$56,018.00	Work experience, plus bachelor's degree
232011	Paralegals and Legal Assistants	4,870	7,100	355	4.8	\$47,907.00	Associate degree
232093	Title Examiners, Abstractors, and Searchers	520	670	25	3.2	\$34,691.00	Moderate-term on-the-job training
232099	Legal Support Workers, All Other	650	760	25	2.0	\$44,400.00	No category defined
<b>Totals:</b>		<b>6,120</b>	<b>8,610</b>	<b>405</b>	<b>4.4</b>		

SUPPLY DATA						
CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
220000	Legal Studies, General.			25		
220001	Pre-Law Studies.			2		
220205	Banking, Corporate, Finance, and Securities Law (LL.M., J.S.				2	
220302	Legal Assistant/Paralegal.	19	197	16		
300501	Peace Studies and Conflict Resolution.			6	21	
<b>Totals:</b>		<b>19</b>	<b>197</b>	<b>49</b>	<b>23</b>	

**TOTAL SUPPLY:** 288  
**TOTAL DEMAND:** 405  
**SUPPLY/DEMAND RATIO:** .71

Area  
Tennessee  
Statewide

Projection Time (Years) = 8  
Average Occupational Growth Rate = 1.1

Base Year: 2014  
Projected Year: 2022

Cluster Grade = B  
The outlook for this cluster is Very Good.  
The growth rate is positive but not above the average for all occupations.  
There are more job openings expected annually than there were training completers in a recent year.

Cluster Code: 12.4140000  
Cluster Title: Fire Fighting

**DEMAND DATA**

SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
331021	First-Line Supervisors of Fire Fighting and Preven	1,690	1,820	85	0.9	\$53,198.00	Work experience in a related occupation
332011	Firefighters	5,390	5,840	200	1.0	\$37,471.00	Long-term on-the-job training
*****	*****	270	270	10	0.0	\$51,391.00	Post-secondary vocational training
*****	*****	90	100	5	1.3	\$66,200.00	Bachelor's degree
<b>Totals:</b>		<b>7,440</b>	<b>8,030</b>	<b>300</b>	<b>1.0</b>		

**SUPPLY DATA**

CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
430203	Fire Science/Fire-fighting.	29	17			
<b>Totals:</b>		<b>29</b>	<b>17</b>			

**TOTAL SUPPLY:** 46  
**TOTAL DEMAND:** 300  
**SUPPLY/DEMAND RATIO:** .15

Area: Tennessee  
 Statewide  
 Cluster Code: 13.100000  
 Cluster Title: Precision Production Pathway  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1

Base Year: 2014  
 Projected Year: 2022  
 Employment:

Cluster Grade = B  
 The outlook for this cluster is Very Good.  
 The growth rate is positive but not above the average for all occupations.  
 There are more job openings expected annually than there were training completers in a recent year.

DEMAND DATA		Estimated	Projected	Average Annual	Average	Annual Median Salary	Usual Education Requirements
SOC CODE(S)	SOC TITLES(S)	Employment	Employment	Openings	Annual Growth (%)		
499069	Precision Instrument and Equipment Repairers, All	400	440	15	1.2	\$39,738.00	Long-term on-the-job training
511011	First-Line Supervisors of Production and Operating	15,050	15,410	255	0.3	\$50,341.00	Work experience in a related occupation
512041	Structural Metal Fabricators and Fitters	2,130	2,350	110	1.2	\$32,460.00	Moderate-term on-the-job training
512091	Fiberglass Laminators and Fabricators	760	800	20	0.6	\$28,645.00	Moderate-term on-the-job training
512092	Team Assemblers	51,100	58,360	1,720	1.7	\$29,505.00	Moderate-term on-the-job training
513021	Butchers and Meat Cutters	2,900	2,880	70	-0.1	\$27,619.00	Long-term on-the-job training
514011	Computer-Controlled Machine Tool Operators, Metal	2,600	3,210	145	2.7	\$35,373.00	Long-term on-the-job training
514012	Computer Numerically Controlled Machine Tool Prog	430	570	30	3.6	\$45,319.00	Long-term on-the-job training
514021	Extruding and Drawing Machine Setters, Operators,	1,640	1,590	30	-0.4	\$28,093.00	Moderate-term on-the-job training
514022	Forging Machine Setters, Operators, and Tenders, M	660	670	15	0.2	\$30,386.00	Moderate-term on-the-job training
514023	Rolling Machine Setters, Operators, and Tenders, M	1,080	1,130	25	0.6	\$36,596.00	Moderate-term on-the-job training
514032	Drilling and Boring Machine Tool Setters, Operator	420	390	10	-0.9	\$32,504.00	Moderate-term on-the-job training
514033	Grinding, Lapping, Polishing, and Buffing Machine	1,630	1,600	40	-0.2	\$33,409.00	Moderate-term on-the-job training
514034	Lathe and Turning Machine Tool Setters, Operators,	810	780	15	-0.5	\$34,997.00	Moderate-term on-the-job training
514035	Milling and Planing Machine Setters, Operators, an	550	560	10	0.2	\$33,436.00	Moderate-term on-the-job training
514041	Machinists	8,780	10,060	360	1.7	\$38,732.00	Long-term on-the-job training
514051	Metal-Refining Furnace Operators and Tenders	900	1,020	25	1.6	\$38,387.00	Moderate-term on-the-job training
514061	Model Makers, Metal and Plastic	150	180	5	2.3	\$23,305.00	Moderate-term on-the-job training
*****	*****	30	30	0.0	0.0	\$41,880.00	Moderate-term on-the-job training
514081	Multiple Machine Tool Setters, Operators, and Tend	2,440	2,510	55	0.4	\$30,158.00	Moderate-term on-the-job training
514111	Tool and Die Makers	2,620	3,000	65	1.7	\$45,895.00	Long-term on-the-job training
514191	Heat Treating Equipment Setters, Operators, and Te	520	540	10	0.5	\$34,968.00	Moderate-term on-the-job training
514192	Layout Workers, Metal and Plastic	280	290	5	0.4	\$35,606.00	Moderate-term on-the-job training
514194	Tool Grinders, Filers, and Sharpeners	160	170	5	0.8	\$31,220.00	Moderate-term on-the-job training
*****	*****	280	330	10	2.1	\$27,932.00	Moderate-term on-the-job training
516061	Textile Bleaching and Dyeing Machine Operators and	370	390	10	0.7	\$27,471.00	Moderate-term on-the-job training
*****	*****	50	50	0.0	0.0	\$28,687.00	Long-term on-the-job training
516093	Upholsterers	1,660	1,620	45	-0.3	\$24,382.00	Long-term on-the-job training
517011	Cabinetmakers and Bench Carpenters	1,470	1,460	10	-0.1	\$28,538.00	Long-term on-the-job training
517021	Furniture Finishers	110	110	0.0	0.0	\$24,527.00	Long-term on-the-job training
517041	Sawing Machine Setters, Operators, and Tenders, Wo	1,270	1,350	45	0.8	\$24,390.00	Moderate-term on-the-job training
517042	Woodworking Machine Setters, Operators, and Tender	1,980	1,940	10	-0.3	\$21,968.00	Moderate-term on-the-job training
517099	Woodworkers, All Other	1,050	1,050	35	0.0	\$21,242.00	Moderate-term on-the-job training
518012	Power Distributors and Dispatchers	130	130	5	0.0	\$63,263.00	Long-term on-the-job training
518013	Power Plant Operators	550	590	20	0.9	\$79,563.00	Long-term on-the-job training
518021	Stationary Engineers and Boiler Operators	720	720	20	0.0	\$54,323.00	Long-term on-the-job training
519022	Grinding and Polishing Workers, Hand	670	680	20	0.2	\$27,593.00	Moderate-term on-the-job training
519071	Jewelers and Precious Stone and Metal Workers	440	390	10	-1.5	\$33,335.00	Post-secondary vocational training
519082	Medical Appliance Technicians	240	300	15	2.8	\$29,854.00	Long-term on-the-job training
519083	Ophthalmic Laboratory Technicians	850	1,010	50	2.2	\$25,713.00	Moderate-term on-the-job training
519122	Painters, Transportation Equipment	830	910	25	1.2	\$35,933.00	Moderate-term on-the-job training
519194	Etchers and Engravers	120	110	5	-1.1	\$34,557.00	Long-term on-the-job training
519195	Molders, Shapers, and Casters, Except Metal and Pl	1,850	1,620	60	-1.6	\$29,051.00	Moderate-term on-the-job training
<b>Totals:</b>		<b>112,680</b>	<b>123,300</b>	<b>3,435</b>	<b>1.1</b>		

SUPPLY DATA		No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
410301	Chemical Technology/Technician.	4				
410303	Chemical Process Technology.	216				
480501	Machine Tool Technology/Machinist.	61	21			
480503	Machine Shop Technology/Assistant.	140	238			
480507	Tool and Die Technology/Technician.	16				
480510	Computer Numerically Controlled (CNC) Machinist Technology/CNC M	11	4			
480511	Metal Fabricator.	19				
4805AH	Principles of Machining and Manufacturing					31
4805CH	Manufacturing Applications					25
4805JH						9
4805KH						17
<b>Totals:</b>		<b>467</b>	<b>263</b>			<b>82</b>
<b>TOTAL SUPPLY:</b>		<b>812</b>				
<b>TOTAL DEMAND:</b>		<b>3,435</b>				
<b>SUPPLY/DEMAND RATIO:</b>		<b>.24</b>				

**Cluster Grade = A**  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Base Year: 2014  
 Projected Year: 2022  
 Cluster Code: 13.2100000  
 Cluster Title: Prod. Design, Ops, and Maint. Pathway -- Prod.

DEMAND DATA		Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
SOC CODE(S)	SOC TITLES(S)						
131051	Cost Estimators	1,552	1,737	73	1.4	\$55,330.00	Bachelor's degree
517031	Model Makers, Wood	70	70		0.0	\$22,909.00	Moderate-term on-the-job training
517032	Patternmakers, Wood	90	100	5	1.3	\$22,362.00	Moderate-term on-the-job training
<b>Totals:</b>		<b>1,712</b>	<b>1,907</b>	<b>78</b>	<b>1.4</b>		
SUPPLY DATA		No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon	
CIP CODE(S)	CIP TITLE(S)						
	There is no supply data available.						
<b>Totals:</b>							
<b>TOTAL SUPPLY:</b>		<b>0</b>					
<b>TOTAL DEMAND:</b>		<b>78</b>					
<b>SUPPLY/DEMAND RATIO:</b>		<b>.00</b>					

Area  
Tennessee  
Statewide

Projection Time (Years) = 8

Base Year: 2014  
Projected Year  
Employment: 2022

Average Occupational Growth Rate = 1.1

Cluster Grade = B  
The outlook for this cluster is Very Good.  
The growth rate is positive but not above the average for all occupations.  
There are more job openings expected annually than there were training completers in a recent year.

Cluster Code  
13.2200000

Cluster Title  
Prod. Design, Ops, and Maint. Path -- Operations & Maint.

**DEMAND DATA**

SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
131023	Purchasing Agents, exc. Wholesale, Retail & Farm.	4,040	4,350	110	0.9	\$51,086.00	Bachelor's degree
472011	Boilermakers	500	500	20	0.0		Long-term on-the-job training
491011	First-Line Supervisors of Mechanics, Installers, a	9,850	10,470	335	0.8	\$55,548.00	Work experience in a related occupation
499011	Mechanical Door Repairers	570	560	20	-0.2	\$31,433.00	Moderate-term on-the-job training
499031	Home Appliance Repairers	860	880	30	0.3	\$30,058.00	Long-term on-the-job training
499041	Industrial Machinery Mechanics	6,410	7,480	315	1.9	\$51,328.00	Long-term on-the-job training
499043	Maintenance Workers, Machinery	3,660	3,880	75	0.7	\$42,075.00	Long-term on-the-job training
499044	Millwrights	980	1,090	30	1.3	\$46,862.00	Long-term on-the-job training
499061	Camera and Photographic Equipment Repairers	20	20		0.0	\$53,161.00	Moderate-term on-the-job training
499062	Medical Equipment Repairers	1,200	1,530	75	3.1	\$40,094.00	Moderate-term on-the-job training
499063	Musical Instrument Repairers and Tuners	270	250	10	-1.0	\$31,507.00	Long-term on-the-job training
*****	*****	20	10		-8.3		Long-term on-the-job training
499071	Maintenance and Repair Workers, General	31,210	33,620	880	0.9	\$35,737.00	Post-secondary vocational training
499091	Coin, Vending, and Amusement Machine Servicers and	580	620	10	0.8	\$29,852.00	Moderate-term on-the-job training
499094	Locksmiths and Safe Repairers	500	640	35	3.1	\$31,404.00	Moderate-term on-the-job training
512022	Electrical and Electronic Equipment Assemblers	4,030	4,160	65	0.4	\$26,363.00	Short-term on-the-job training
512023	Electromechanical Equipment Assemblers	720	780	15	1.0	\$31,518.00	Short-term on-the-job training
516063	Textile Knitting and Weaving Machine Setters, Oper	500	550	15	1.2	\$25,101.00	Long-term on-the-job training
516064	Textile Winding, Twisting, and Drawing Out Machine	1,060	730	15	-4.6	\$25,900.00	Moderate-term on-the-job training
516091	Extruding and Forming Machine Setters, Operators,	480	390	10	-2.6	\$39,443.00	Moderate-term on-the-job training
518091	Chemical Plant and System Operators	1,350	1,140	50	-2.1	\$48,771.00	Long-term on-the-job training
519011	Chemical Equipment Operators and Tenders	2,410	2,220	80	-1.0	\$44,015.00	Moderate-term on-the-job training
519061	Inspectors, Testers, Sorters, Samplers, and Weighe	13,000	14,340	450	1.2	\$31,282.00	Moderate-term on-the-job training
<b>Totals:</b>		<b>84,220</b>	<b>90,210</b>	<b>2,645</b>	<b>0.9</b>		

**SUPPLY DATA**

CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
150401	Biomedical Technology/Technician.	9				
150403	Electromechanical Technology/Electromechanical Engineering T	50				
1504AH						1
150607	Plastics Engineering Technology/Technician.	10				
1506BH						32
470000	Mechanics and Repairers, General.		6			
470303	Industrial Mechanics and Maintenance Technology.	496	169			
470399	Heavy/Industrial Equipment Maintenance Technologies, Other.	12	22			
479999	Mechanic and Repair Technologies/Technicians, Other.	9				
520205	Operations Management and Supervision.	62			27	
<b>Totals:</b>		<b>648</b>	<b>197</b>		<b>27</b>	<b>33</b>

**TOTAL SUPPLY:** 905  
**TOTAL DEMAND:** 2,645  
**SUPPLY/DEMAND RATIO:** .34

**Cluster Grade = A**  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Base Year: 2014  
 Projected Year: 2022  
 Cluster Code: 14.5000000  
 Cluster Title: Marketing Research

DEMAND DATA							
SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
131161	Market Research Analysts & Marketing Specialists	3,270	4,095	148	2.9	\$49,739.00	Bachelor's degree
<b>Totals:</b>		<b>3,270</b>	<b>4,095</b>	<b>148</b>	<b>2.9</b>		

SUPPLY DATA						
CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
	There is no supply data available.					
<b>Totals:</b>						
<b>TOTAL SUPPLY:</b>		<b>0</b>				
<b>TOTAL DEMAND:</b>		<b>148</b>				
<b>SUPPLY/DEMAND RATIO:</b>		<b>.00</b>				

Cluster Grade = B  
 The outlook for this cluster is Very Good.  
 The growth rate is positive but not above the average for all occupations.  
 There are more job openings expected annually than there were training completers in a recent year.

Area  
 Tennessee  
 Statewide

Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1

Base Year: 2014  
 Projected Year Employment: 2022

Cluster Code: 15.1160000  
 Cluster Title: Industrial Engineering

**DEMAND DATA**

SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
172112	Industrial Engineers	7,260	7,800	280	0.9	\$77,398.00	Bachelor's degree
<b>Totals:</b>		<b>7,260</b>	<b>7,800</b>	<b>280</b>	<b>0.9</b>		

**SUPPLY DATA**

CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
143501	Industrial Engineering.			35	40	
<b>Totals:</b>				<b>35</b>	<b>40</b>	

<b>TOTAL SUPPLY:</b>	<b>75</b>
<b>TOTAL DEMAND:</b>	<b>280</b>
<b>SUPPLY/DEMAND RATIO:</b>	<b>.27</b>

**Cluster Grade = A**  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Base Year: 2014  
 Projected Year: 2022  
 Cluster Code: 15.3160000  
 Cluster Title: Science Technologies

DEMAND DATA		Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
SOC CODE(S)	SOC TITLES(S)						
194041	Geological and Petroleum Technicians	140	140	5	0.0	\$52,659.00	Associate degree
194091	Environmental Science and Protection Technicians,	940	1,120	60	2.2	\$40,700.00	Associate degree
194099	Life, Physical, and Social Science Technicians, Al	990	1,170	60	2.1	\$42,709.00	Associate degree
<b>Totals:</b>		<b>2,070</b>	<b>2,430</b>	<b>125</b>	<b>2.0</b>		

SUPPLY DATA		No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
CIP CODE(S)	CIP TITLE(S)					
419999	Science Technologies/Technicians, Other.	4	81			
<b>Totals:</b>		<b>4</b>	<b>81</b>			

**TOTAL SUPPLY:** 85  
**TOTAL DEMAND:** 125  
**SUPPLY/DEMAND RATIO:** .68

**Cluster Grade = A**  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

Area  
 Tennessee  
 Statewide

Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1

Base Year: 2014  
 Projected Year Employment: 2022

Cluster Code: **16.110000** Cluster Title: **Aviation Flight**

**DEMAND DATA**

SOC CODE(S)	SOC TITLES(S)	Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
531011	Aircraft Cargo Handling Supervisors	300	340	10	1.6	\$66,823.00	Work experience in a related occupation
532011	Airline Pilots, Copilots, and Flight Engineers	460	730	45	5.9	\$98,827.00	Bachelor's degree
532012	Commercial Pilots	450	500	20	1.3	\$75,246.00	Post-secondary vocational training
532021	Air Traffic Controllers	630	740	40	2.0	\$123,395.00	Long-term on-the-job training
*****	*****	380	360	15	-0.7		Short-term on-the-job training
*****	*****	270	560	40	9.5		Moderate-term on-the-job training
<b>Totals:</b>		<b>2,490</b>	<b>3,230</b>	<b>170</b>	<b>3.3</b>		

**SUPPLY DATA**

CIP CODE(S)	CIP TITLE(S)	No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
490101	Aeronautics/Aviation/Aerospace Science and Technology, Gener			125		
490104	Aviation/Airway Management and Operations.				10	
<b>Totals:</b>				<b>125</b>	<b>10</b>	

**TOTAL SUPPLY: 135**  
**TOTAL DEMAND: 170**  
**SUPPLY/DEMAND RATIO: .79**

**Cluster Grade = A**  
 The outlook for this cluster is Excellent.  
 The GROWTH rate is above the average for all occupations across the state.  
 There are more job openings expected annually than there were training completers in a recent year.

Area: Tennessee Statewide  
 Projection Time (Years) = 8  
 Average Occupational Growth Rate = 1.1  
 Base Year: 2014  
 Projected Year: 2022  
 Cluster Code: 16.130000  
 Cluster Title: Truck, Bus, Rail, Water Transportation, and Heavy Equipment

DEMAND DATA		Estimated Employment	Projected Employment	Average Annual Openings	Average Annual Growth (%)	Annual Median Salary	Usual Education Requirements
SOC CODE(S)	SOC TITLES(S)						
*****	*****	300	330	10	1.2	\$36,668.00	Moderate-term on-the-job training
531031	First-Line Supervisors of Transportation and Mater	4,480	4,920	175	1.2	\$53,867.00	Work experience in a related occupation
533011	Ambulance Drivers and Attendants, Except Emergency	350	490	25	4.3	\$21,579.00	Moderate-term on-the-job training
533021	Bus Drivers, Transit and Intercity	2,920	3,560	130	2.5	\$31,334.00	Moderate-term on-the-job training
533032	Heavy and Tractor-Trailer Truck Drivers	54,400	60,400	1,610	1.3	\$38,675.00	Moderate-term on-the-job training
534021	Railroad Brake, Signal, and Switch Operators	860	950	35	1.3	\$46,841.00	Work experience in a related occupation
*****	*****	30	30		0.0		Moderate-term on-the-job training
535021	Captains, Mates, and Pilots of Water Vessels	1,270	1,400	70	1.2	\$93,617.00	Moderate-term on-the-job training
*****	*****	360	380	15	0.7	\$59,568.00	Post-secondary vocational training
*****	*****	120	140	5	1.9	\$38,611.00	Moderate-term on-the-job training
<b>Totals:</b>		<b>65,090</b>	<b>72,600</b>	<b>2,075</b>	<b>1.4</b>		

SUPPLY DATA		No of Certs	No of Assoc	No of Bach	No of Grads	No of SecCon
CIP CODE(S)	CIP TITLE(S)					
490205	Truck and Bus Driver/Commercial Vehicle Operation.	322				
<b>Totals:</b>		<b>322</b>				

**TOTAL SUPPLY:** 322  
**TOTAL DEMAND:** 2,075  
**SUPPLY/DEMAND RATIO:** .16