

PENNSYLVANIA'S STATE SYSTEM OF HIGHER EDUCATION



CALU



CLARION  
UNIVERSITY



MANSFIELD  
UNIVERSITY

Millersville  
University



SlipperyRock  
University

WCU  
WEST CHESTER  
UNIVERSITY

East Stroudsburg University's

# WORKFORCE CHARACTERISTICS TECHNICAL REPORT

A report for Pennsylvania's  
State System of Higher Education

2016



Pennsylvania's  
**STATE SYSTEM**  
of Higher Education

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## GLOSSARY OF TERMS

The following descriptions provide a point of reference to understand terminology as well as the types of data and analysis undertaken in this study, reflecting historic and contemporary narratives.

**Industry Change:** A measure of the change in employment within an industry, used to identify whether an industry is growing or declining, as well as the rate of change. Projected changes lay out expectations of growth/decline for specific industries.

**Job Postings:** The number of unique (de-duplicated) online postings for a job in a given occupation.

**Location Quotient:** A comparative statistic used to calculate the relative employment concentration of a given industry or occupation against the average employment of the industry in a larger geography (for example, countrywide). Industries with a higher location quotient (usually greater than 1.2) indicate that the region has a comparative advantage or specialization in the production of that good or service or has a high degree of specialization within its workforce. For example, in Silicon Valley, we would expect the concentration of computer programming occupations to be greater than the rest of the US, giving rise to the conclusion that Silicon Valley has a comparative advantage in the computer programming workforce.

**New and Replacement Jobs:** A demand-side estimate of the number of job openings in an occupation that result from new job growth as well as replacement demand. Replacement demand comprises occupation job leavers based on separations, retirement, and death.

**Occupation Jobs:** A measure of employment within an occupation category, used to identify which occupations have been growing or declining, as well as the rate of change. Projected changes lay out expectations of growth/decline for specific occupation categories.

**State System Learner Capture Rate:** The percentage of State System enrolled learners from a specific county that are attending a given Pennsylvania State System university. State System universities typically capture a higher proportion of State System enrolled learners from counties in proximity to the institution.

**State System Learner Share:** Represents the contribution of learners from a defined geographic area that are enrolled in a State System university.

**Sub-regions:** A geographic area within Pennsylvania defined for more focused workforce and education gap analyses. Sub-regions were determined primarily on Partnerships for Regional Economic Performance (PREP) boundaries. PREP is Pennsylvania's network of business assistance partners designed to help companies start, grow, and prosper. Please refer to Appendix A for mapping of the Sub-regions and PREP boundaries.

## ACRONYMS USED

**ACS:** American Community Survey

**BLS:** Bureau of Labor Statistics

**EMSI:** Economic Modeling Specialists International

**CEW:** Center on Education and the Workforce (Georgetown University)

**IPEDS:** Integrated Postsecondary Education Data System

**LAUS:** Local Area Unemployment Statistics

**LEHD:** Longitudinal Employment and Housing Dynamics

**NCES:** National Center for Education Statistics

**OES:** Occupational Employment Statistics

**O\*NET:** Occupational Network

**PUMS:** Public Use Microdata Sample

**QCEW:** Quarterly Census of Employment and Wages

**SAIPE:** Small Area Income and Poverty Estimates

**USDOE:** US Department of Education

**USDOL:** US Department of Labor

# 1. INTRODUCTION

Pennsylvania’s State System of Higher Education (State System) comprises 14 universities, four branch campuses, multiple regional centers and the McKeever Environmental Learning Center.<sup>1</sup> The universities are located in rural, suburban, and small-town settings around Pennsylvania. The State System’s two educational hubs (with locations in Harrisburg, the Dixon University Center, and Philadelphia, State System @ Center City) offer academic programs through a consortium of public and private colleges and universities. Per Act 188 of 1982, the State System’s mission “is the provision of instruction for undergraduate and graduate students to and beyond the master’s degree in the liberal arts and sciences, and in the applied fields, including the teaching profession.” In doing so, the State System’s purpose is “to provide high quality education at the lowest possible cost to students.”<sup>2</sup> Analysis and understanding of the economy and workforce the State System supports, as well as future demands for talent advances the State System’s mission and philosophy—a key component of this report. Further, it enables effective and targeted strategies and decision-making, grounded in data-driven evidence.

Like all institutions of higher education, the State System’s universities face challenges in their effort to identify and quantify program needs for Pennsylvania residents and businesses that demand talent. They must account for the changing economic and workforce dynamics within the region they support, such as industry and occupation growth/decline, as well as the changing quality of the area’s workforce. Furthermore, as technology progresses, a growing need to address increasingly complex and specialized occupational tasks requires additional customization to education. As a result, education institutions are increasingly called upon to incorporate relevant courses that meet the needs of students and businesses in their service area—a departure from traditional supply-based education towards a more employer demand-driven model.

A fundamental challenge for any higher education system is to first understand the characteristics of the economy and workforce it supports. This study and

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1 One of the State System’s entities, System-wide Functions and Services, is primarily located at the Dixon University Center in Harrisburg and includes: System-wide shared administrative services; System leadership functions of the Chancellor and Board of Governors; some System-wide initiatives and grants managed on behalf of the universities; and the academic, student, and facilities support for the multi-university sites in Harrisburg and Philadelphia.

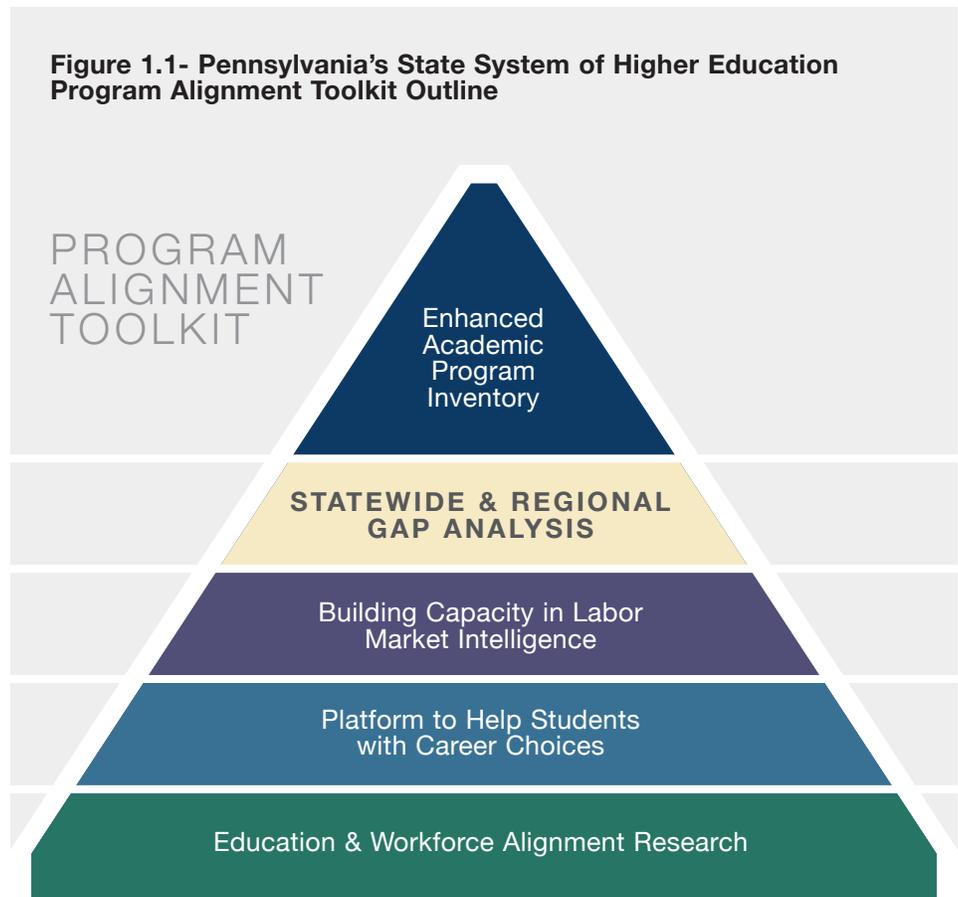
2 Source: The State System’s Economic and Employment Impact on the Commonwealth of Pennsylvania – released April 15, 2015.

the broader set of deliverables under the State System’s Supply/Demand Gap Analysis Project—hereinafter, Gap Analysis Project—will assist universities and education planners by providing an infrastructure of resources for internal planning, as well as external engagement. Understanding key economic aspects of the geography helps to better align policy and strategic direction in order to continue supporting the talent needs of Pennsylvania.

## 1.1 Pennsylvania’s State System of Higher Education Gap Analysis Project

In a fast-changing economic and social environment that is also experiencing rising costs for higher education, institutions are increasingly called upon to align their programs to the changing needs of the economy.

In response to improving career outcomes for its learners, Pennsylvania’s State System of Higher Education (State System) has produced a Program Alignment Toolkit—a central clearinghouse for key academic planning



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information, developed in response to the State System's Strategic Plan "Rising to the Challenge 2020." The Program Alignment Toolkit helps provide multiple perspectives of how higher education can connect to the state's economy and lead to career success for students. A key component of this toolkit is the development of a statewide and regional gap analysis. Other high impact strategies that are a part of the State System's Program Alignment Toolkit are presented in Figure 1.1. The ultimate goal of this plan is to assist the State System's fourteen universities to increase their individual and collective impact on Pennsylvania's economy.

## **1.2 Goal of the Workforce Characteristics Report**

The State System's Gap Analysis Project produced both a Workforce Characteristics Report and a Supply/Demand Gap Analysis Report for both the state and five sub-regions. The Workforce Characteristics Report contains a set of economic, workforce, demographic, and socio-economic information to contextualize the supply/demand gap analysis. The Supply/Demand Gap Analysis Report for Pennsylvania and its sub-regions provides a data-driven perspective of employer demand (new and replacement jobs by occupation in the state) and higher education supply (degree production by major program). The data sources utilized for the State System's Gap Analysis Project are diverse including Bureau of Labor Statistics (BLS), U.S. Census Bureau, American Community Survey (ACS), System Research Office, National Center for Education Statistics (NCES, Integrated Postsecondary Education Data System), IMPLAN (Input/Output Model), and Economic Modeling Specialists International (EMSI). Ultimately, the reports generated from this project will assist the State System universities with strategic engagement, program development and evaluation, student engagement, and marketing.

The intentions of this Workforce Characteristics Report are fourfold.

- First, it provides a baseline reporting structure to evaluate workforce characteristics at the state level and sub-region level within Pennsylvania, which can be repeated in the future.
- Second, it identifies sub-regions within Pennsylvania that will be used to conduct regionally specific analysis in subsequent reports.
- Third, it builds on CEW's State System degree production report. The Workforce Characteristics Report is a data-driven analysis and discussion of trends in Pennsylvania's economy, including projections of industry and occupational employment, key skilled high demand occupations, and changes in socio-economic characteristics.

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- Finally, this report creates the foundation to construct the State System's Gap Analysis reports for the state and its regions and complements the content of the supply/demand gap analysis reports.

While the main body of this report provides a high level summary, the Appendices provide an abundance of information for those seeking additional detail. Appendix A provides a map of the state sub-region boundaries along with PREP and WIA boundaries. Appendix B provides detail on the employment and enrollment by each county in Pennsylvania. Appendix C provides nearly 300 detailed industry employment projections for the region along with a measure of competitiveness for each industry. Lastly, Appendix D provides a description of occupation levels and employment projections for over 400 detailed occupations.

## 2. PENNSYLVANIA'S STATE SYSTEM LEARNER ORIGIN

This section provides an overview of where State System learners come from within Pennsylvania. It is then compared to where Pennsylvania's workforce is employed. This information is combined with other relevant economic data to define sub-regions as well as university workforce regions—adding valuable geographic granularity to the State System's program alignment toolkit.

Pennsylvania's total four year institution enrollment in 2013 was approximately 618,700 learners. Of this, the Pennsylvania State System of Higher Education comprised 112,225 enrolled learners—of which almost 90% were Pennsylvania residents.<sup>3</sup> Based on analysis of the workforce size and the origin of learners, some counties within the Commonwealth appear to provide a higher or lower share of learners to the State System compared to other counties—indicating that learners in some counties are more prone to attending a State System university, compared to other counties. The map below (Figure 2.1) illustrates workforce size and the origin of Pennsylvania resident learners enrolled in Pennsylvania's State System of Higher Education. Counties that exceeded +/-1% difference of learners to workforce are found in Table 2.1 and Table 2.2. For example, Chester County provides a higher percentage of State System learners, compared to its workforce size, whereas Philadelphia County provides a low percentage of learners.

**Table 2.1 – Counties with Higher Share of State System Learners vs. Workforce**

County	State System Students from County	% of State System Students from PA	County Workforce	% of PA Workforce	Difference in Share
Chester	5,996	6.2%	272,270	4.3%	1.9%
Erie	3,469	3.6%	134,343	2.1%	1.5%
Monroe	2,532	2.6%	79,673	1.2%	1.4%

Source: Pennsylvania's State System of Higher Education Research Office, Bureau of Labor Statistics

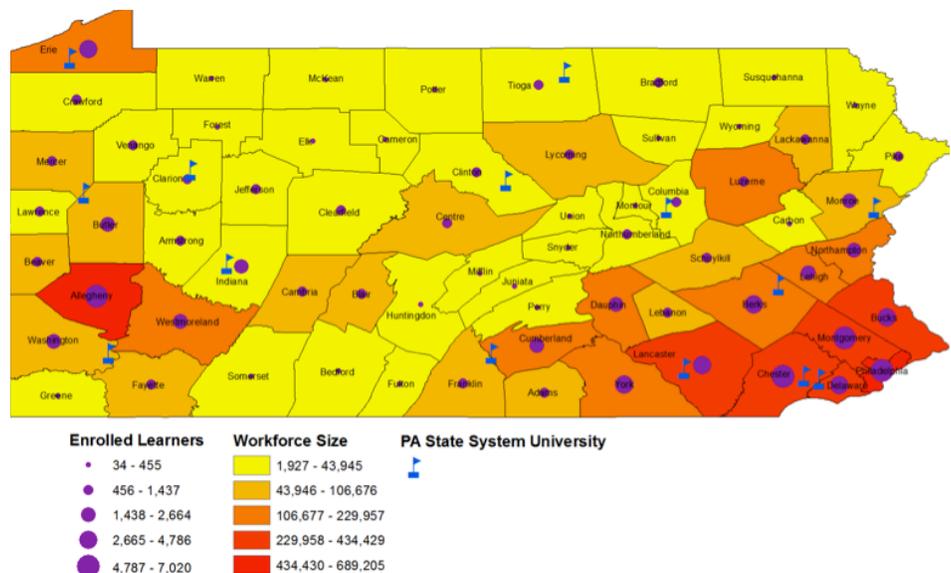
<sup>3</sup> Based on Fall 2013 enrollment.

**Table 2.2 – Counties with Lower Share of State System Learners vs. Workforce**

County	State System Students from County	% of State System Students from PA	County Workforce	% of PA Workforce	Difference in Share
Montgomery	5,401	5.6%	434,429	6.8%	-1.2%
Allegheny	7,020	7.3%	644,822	10.1%	-2.8%
Philadelphia	5,263	5.5%	689,205	10.8%	-5.3%

Source: Pennsylvania's State System of Higher Education Research Office, Bureau of Labor Statistics

**Figure 2.1 – State System Learner Origin and Workforce Size County**

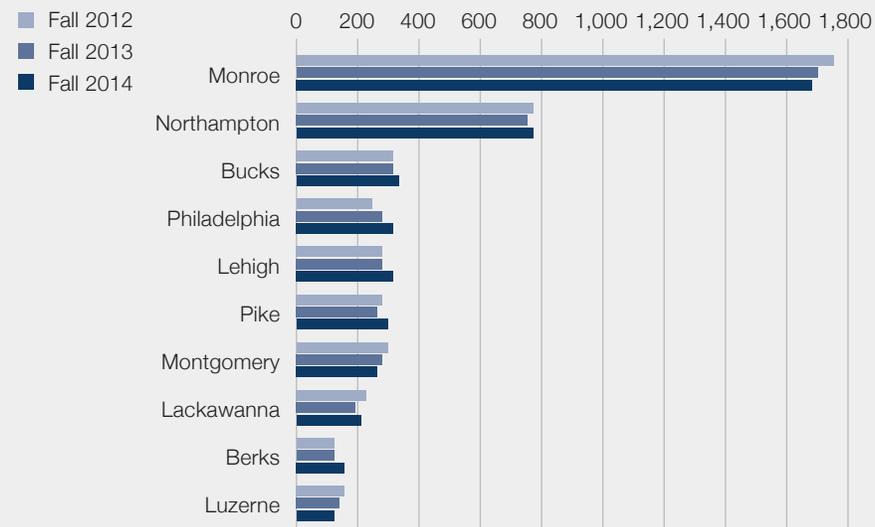


Source: Pennsylvania's State System of Higher Education, Oxford Economics mapping

## 2.1 East Stroudsburg University's Learner Origin

East Stroudsburg University learners, originally from Pennsylvania, come from nearly every county in the state. The vast majority of learners, however, come from counties that are in the southeast region. The top 10 learner enrollment counties account for about 85% of resident enrollment in East Stroudsburg University. Figure 2.2 shows the Pennsylvania resident fall enrollment numbers between 2012 and 2014 for the top 10 counties. Table 2.3 provides enrollment detail for the top 10 counties.

**Figure 2.2 – East Stroudsburg University Learner Enrollment by County**



Source: Pennsylvania's State System of Higher Education

**Table 2.3 East Stroudsburg University Learner Enrollment by County**

County	Fall 2012	Fall 2013	Fall 2014
Monroe	1,760	1,713	1,684
Northampton	770	750	770
Bucks	316	323	329
Philadelphia	239	274	309
Lehigh	281	280	308
Pike	275	271	298
Montgomery	300	276	260
Lackawanna	231	201	203
Berks	126	128	152
Luzerne	154	149	127

Source: Pennsylvania's State System of Higher Education

### 3. SUMMARY OF EAST STROUDSBURG UNIVERSITY WORKFORCE REGION

Located in Monroe County, Pennsylvania, East Stroudsburg University (ESU) supports the northeastern region of Pennsylvania’s State System of Higher Education. It provides a breadth of degree programs and serves a student population of about 6,800 learners, of which about 77% are Pennsylvania residents.<sup>4</sup>

The following sections outline the supporting data used to select ESU’s Pennsylvania workforce region—defined as Monroe, Northampton, Lackawanna, Pike, Carbon, Wayne, and Lehigh counties. Subsequent sections provide a brief analysis of economic, workforce, demographic and socio-economic information. The purpose of providing this analysis is to gain better insight into how the workforce region has changed over the past several years, as well as projections of how the area will continue to change over the next several years.

#### A BRIEF NOTE ON DEVELOPING THE WORKFORCE REGION

Part of the geographic research and analysis involves central place theory—a geographical theory that seeks to explain the location and connectedness of economic activity. More specifically, this research seeks to quantify the interconnectedness of local economies surrounding the State System universities. This is measured by workforce commuting and economic activity (i.e. industry production, supply chains, sales, etc.). An additional aspect involves the geographic connection between the university’s learners. The university’s ability to draw learners from the surrounding region helps contextualize the geographic footprint of the institution.

The full details of this process are described in Appendix A.

<sup>4</sup> Based on Average Fall Enrollment 2012-2014.

### 3.1 Defining East Stroudsburg University’s Workforce Region

The main factors used to identify the university-specific workforce region involved evaluation of commuting patterns, learner capture rate, and economic activity (business demand and household demand). The aim is to identify the workforce region that surrounds the university and is consequently supported by the university, while also being inclusive of less populated rural counties. A workforce region is defined as: a labor market area or an economically integrated region within which residents can find jobs within a reasonable commuting distance or can change their employment without changing their place of residence.<sup>5</sup>

The counties in the region were identified using a multi-step process. Table 3.1 provides a shortened snapshot of two iterations, with the final selection of counties highlighted in green.<sup>6</sup>

When taken in the context of regional economic activity, about 57% of regional demand for goods and services are produced by businesses located within the region. This indicates that regional business activity is locally contained. Similarly, 85% of household demand is satisfied by local production, meaning that households are not traveling outside the region to purchase goods or services to consume.

**Table 3.1- East Stroudsburg Workforce Region Commuting Patterns, Learner Capture Rate, and Economic Activity**

County Combination	Job Share of People Living in the Region	Job Share of People Employed in the Region	Business Demand	Household Demand	Learner Capture Rate
Monroe, Northampton	0.48	0.61	0.52	0.78	0.48
Monroe, Northampton, Lackawanna	0.51	0.66	0.55	0.81	0.52
Monroe, Northampton, Lackawanna, Pike, Carbon, Wayne, Lehigh	0.58	0.78	0.57	0.85	0.66

Sources: US Census - LEHD, Minnesota IMPLAN Group, Pennsylvania’s State System of Higher Education

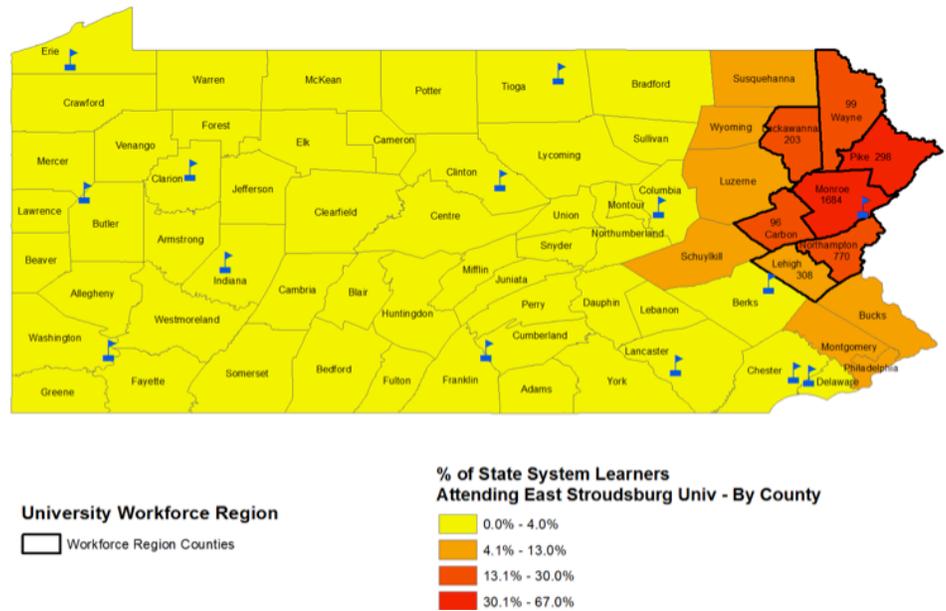
5 Bureau of Labor Statistics: Labor Market Area.

6 As mentioned in the methodology, no threshold values were explicitly set for each region. Rather the iterations sought to reasonably optimize each factor to meet the criteria for defining an economic area—recognizing the primary driving factor is workforce commuting.

The majority of ESU workforce region residents also work in the region (58%). This reflects a very strong centralized connection between workers and economic activity in a region that has more than 491,000 jobs. Additionally, learners at ESU originate from nearby surrounding counties. When looking at the percentage of learners attending State System universities, 66% (the capture rate) of State System learners in ESU's workforce region attend ESU.

Figure 3.1 illustrates learner capture rates for ESU's workforce region. This provides a strong indication of whether State System learners within the region ultimately attend ESU. Counties highlighted in yellow indicate that learners enrolled in a State System University are not generally going to ESU, whereas counties highlighted in dark orange or red indicate that ESU has a relatively high capture rate of State System enrolled learners.

**Figure 3.1 – East Stroudsburg Workforce Region Learner Origin by Percent of Total State System Student Population**



Source: Pennsylvania's State System of Higher Education and Oxford Economics tabulations

# 4. LABOR MARKET OF EAST STROUDSBURG UNIVERSITY'S WORKFORCE REGION

The following sections provide a brief analysis of economic, workforce, demographic and socio-economic information. The purpose of providing this analysis is to gain better insight into how East Stroudsburg University's workforce region has changed over the past several years, as well as projections of how the region will continue to change over the next several years. Table 4.1 provides a high level comparative summary of key workforce and economic indicators between East Stroudsburg University's workforce region and Pennsylvania.

**Table 4.1 – Summary of ESU's Workforce Region and Pennsylvania Workforce Characteristics**

<b>Workforce Characteristic</b>	<b>ESU Workforce Region</b>	<b>Pennsylvania</b>	<b>Source</b>
Population	1.1 million	12.7 million	2009-2013 American Community Survey 5-Year Estimates
Employed	491,000	5.6 million	2014 BLS Quarterly Census of Employment and Wages
Unemployed	38,500	370,000	2014 BLS Local Area Unemployment Statistics
Unemployment Rate	6.4%	5.8%	2014 BLS Local Area Unemployment Statistics
Poverty Rate	12.7%	13.7%	2013 Census Small Area Income and Poverty Estimates
Business Establishments	28,200	347,000	2014 BLS Quarterly Census of Employment and Wages
Educational Attainment (25+ Population with Bachelor's or Higher)	24.4%	27.4%	2009-2013 American Community Survey 5-Year Estimates
Bachelor's or Higher Completions	9,200	137,000	Integrated Postsecondary Education Data System 3-Year Average AY2010-11 to AY2012-13
Projected Jobs 2024	544,000	6.2 million	Oxford Economics Projections 2024

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The analysis in the following sections is broken into three key sections, namely:

**1. Industries** – an evaluation of historic and current changes in sector employment, as well as top employers in the state.

**2. Occupations** – an evaluation of historic and projected changes in occupations, as well as more detailed analysis of key skilled occupations that align to university education.

- Top Skilled Occupations: largest skilled employed occupations and new & replacement job demand.
- Key Skilled High Demand Occupations: five key skilled occupations and new & replacement job demand.
- Job Posting Analytics: analysis of job postings vs. hires for five key skilled high demand occupations.
- Industry Staffing Patterns: industry employment breakdown for five key skilled high demand occupations.
- Key Occupational Profiles: regional demographic profile for five key skilled high demand occupations.

**3. Demographics and Socio-economic Indicators** – an evaluation of the demographic profile of the population of East Stroudsburg University’s workforce region. Also, a brief analysis of three key socio-economic indicators—educational attainment, unemployment, and poverty.

Each section is designed to provide additional context to the economic environment for the universities to consider broader aspects of strategic vision and program planning. Each section also provides the data-driven preparation for the next phase of research—namely the Supply/Demand Gap Analysis Report.

## **4.1 Employment Projections**

Currently, the industry and occupation employment projections available from Pennsylvania’s Department of Labor and Industry reflect the time period from 2012–2022 and therefore do not incorporate much of the post-recession recovery that has taken place between 2012 and 2014. In order to capture recovery and reflect current employment data, the State System used 4-digit NAICS (industry) and 5-digit SOC (occupation) projections to 2024 at the county level for Pennsylvania. The projections incorporate Quarterly Census of Employment and Wages (QCEW) data through 2014, and therefore contain the most recent employment data that further reflects the economic recovery.

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See Appendix C for 4-digit industry projections and Appendix D for 5-digit occupation projections.

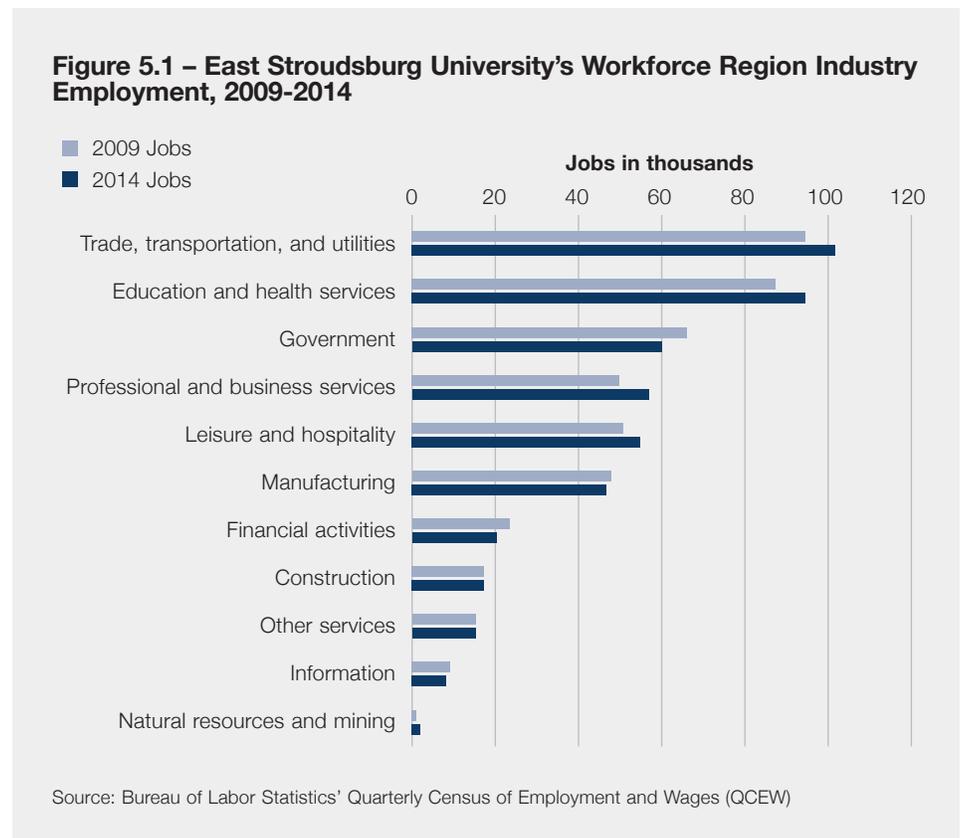
Oxford Economics, a premier economic modeling and consulting firm, produced the projections. By updating projections, Oxford Economics provided insight into new job growth which better measures occupational demand over the next 10 years.

The next section provides an analysis of industries in East Stroudsburg University's workforce region with a focus on the post-recession recovery period 2009 to 2014, as well as top employers in the region.

# 5. INDUSTRIES IN EAST STROUDSBURG UNIVERSITY'S WORKFORCE REGION

Over the five years of 2009 to 2014, East Stroudsburg University's (ESU) workforce region experienced job growth in many service-based sectors. Sectors such as education and health services; professional and business services; and trade, transportation, and utilities added a combined 21,000 new jobs between 2009 and 2014. Government experienced the largest nominal employment loss, while other job losses occurred within information and financial activities. Overall, the economy added about 14,100 jobs during the recovery period, 2009 to 2014. This growth reflects the recovery period for Pennsylvania from one of the worst recessions since the Great Depression—the Great Recession which lasted from 2007 to 2009.

Figure 5.1 illustrates historic and current employment, while Table 5.1 provides data on broad industry categories by employment, growth, and percent change.



**Table 5.1 – East Stroudsburg University’s Workforce Region Industry Employment, 2009-2014**

Industry Employment	2009 Jobs	2014 Jobs	Absolute Change 09-14	% Change 09-14
<b>Total, all industries</b>	<b>464,948</b>	<b>479,147</b>	<b>14,199</b>	<b>3.1%</b>
Trade, transportation, and utilities	95,009	102,322	7,313	7.7%
Education and health services	88,189	94,683	6,494	7.4%
Government	66,578	60,653	-5,925	-8.9%
Professional and business services	49,731	56,848	7,117	14.3%
Leisure and hospitality	50,690	55,092	4,402	8.7%
Manufacturing	47,835	46,980	-855	-1.8%
Financial activities	23,107	20,784	-2,323	-10.1%
Construction	17,320	17,253	-67	-0.4%
Other services	15,794	15,262	-532	-3.4%
Information	9,167	7,708	-1,459	-15.9%
Natural resources and mining	1,531	1,565	34	2.2%

Source: Bureau of Labor Statistics’ Quarterly Census of Employment and Wages (QCEW)

## 5.1 Top Employers in East Stroudsburg University’s Workforce Region

Amongst the top employers within ESU’s workforce region, education and health service establishments comprise a majority of the list. Other top employers in the region include federal, state, and local government as well several retail and hospitality establishments.

Major employers in ESU’s workforce region are listed in Table 5.2 on the next page.

While this section focused on the places where people in ESU’s workforce region work, the next section builds a perspective of occupational employment. This perspective describes the types of jobs people have in ESU’s workforce region and identifies the skills and characteristics of those people.

**Table 5.2: Top Employers in East Stroudsburg University's Workforce Region**

<b>Establishment Name</b>
Air Products and Chemicals
Allied Services Foundation
Amazon.com
Aventis Pasteur
Bethlehem Area School District
Blue Ridge Cable Technologies
Community Medical Center
Delaware Valley School District
Federal Government
Gnaden Huetten Memorial Hospital
Kovatch Partners
Lehigh University
Lehigh Valley Hospital Center
Northampton County
Pocono Medical Center
Saint Luke's Hospital
Sands Bethworks Gaming
Scranton School District
Split Rock Resort
State Government
Wallenpaupack Area School District
Wal-Mart
Wayne County Commissioners
Wayne County Memorial Hospital
Woodloch Pines

Source: Pennsylvania Department of Labor and Industry Quarterly Census of Employment and Wages (QCEW)

# 6. OCCUPATIONS IN EAST STROUDSBURG UNIVERSITY'S WORKFORCE REGION

The workforce within the region can be evaluated from many different angles in order to build a deeper profile of the qualities and attributes of workers. The next five sub-sections provide insight into the qualities of ESU's workforce region, answering questions such as:

- What are the largest skilled occupations employed within the region?
- What are the key skilled high demand occupations that typically align to university-level education?
- Within the key skilled high demand occupations what is the current market demand in terms of jobs postings and hires?
- What sectors typically employ the key skilled high demand occupations?
- What type of demographic is typically found in key skilled high demand occupations?

Each perspective provides data-driven content for the universities to consider when engaging businesses, learners and program planners.

## 6.1 Skilled Occupations

The O\*NET program is the nation's primary source of occupational information. Essential to the project is the O\*NET database, containing information on hundreds of standardized and occupation-specific descriptors.<sup>7</sup>

For this analysis a "skilled" occupation is defined as an occupation in O\*NET Job Zones Three, Four, or Five. A Job Zone is a group of occupations that are similar in how much education people need to do the work, how much related experience people need to do the work, and how much on-the-job training people need to do the work.<sup>8</sup>

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<sup>7</sup> <http://www.onetcenter.org/overview.html>

<sup>8</sup> <https://www.onetonline.org/help/online/zones>

Most occupations in Job Zone Three require training in vocational schools, related on-the-job experience, or an associate's degree. Most occupations in Job Zone Four require a four-year bachelor's degree, but some do not. Most occupations in Job Zone Five require graduate school. For example, they may require a master's degree, and some require a Ph.D., M.D., or J.D. (law degree). For a more detailed description of O\*NET Job Zones and training requirements see Appendix D.

For the five key skilled high demand occupations, over 50% of those employed have attained an associate's degree or higher and are generally associated with university-level education.

## **6.2 Top Skilled Occupations in East Stroudsburg University's Workforce Region**

Top skilled occupations in the region are driven by industry composition. Medical centers employ a cadre of health professionals, while enterprise management companies employ a range of business professionals. Given the dominating presence of trade, transportation and utilities; education and health services; and manufacturing establishments in ESU's workforce region, top skilled occupations include: teachers, nurses, sales representatives, managers, and assistants. Figure 6.1 and Table 6.1 highlight the top 20 skilled occupations in the region, 10-year job growth projections, and new and replacement jobs.<sup>9</sup>

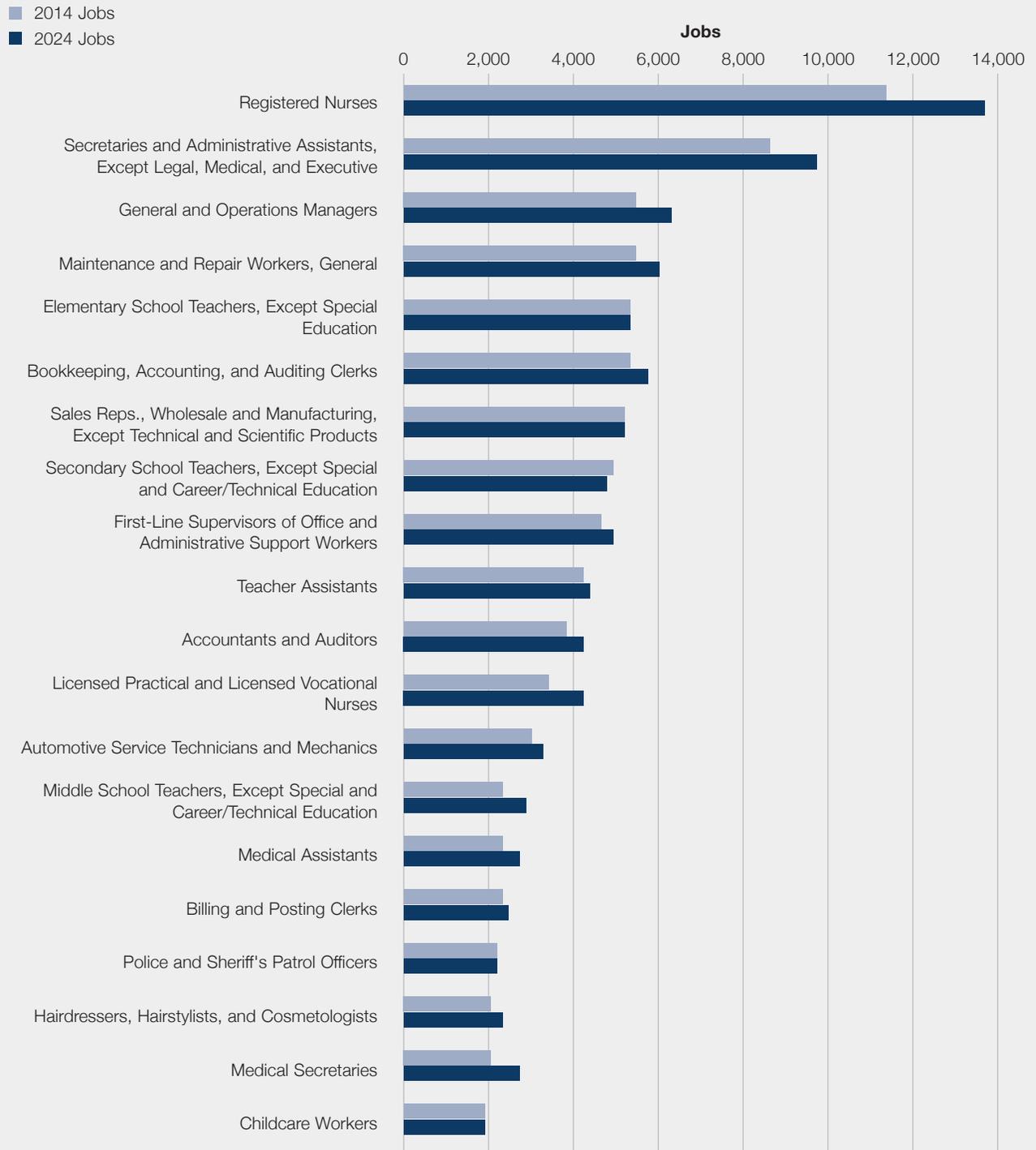
An important aspect to distinguish skilled occupations, in this sub-section, is that post-secondary education is not necessarily a pre-requisite for employment. However, a high percentage of those employed in the skilled occupation have a post-secondary education.

The next section provides a more narrow view of skilled occupations, focusing specifically on occupations that align to university-level education and have high demand for new and replacement jobs.

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<sup>9</sup> New and replacement job change takes into account demand for occupations based on: industry growth (new jobs), occupation productivity, workforce ageing, migration and other factors that would contribute to new and replacement job openings.

**Figure 6.1 – Largest Skilled Occupations in ESU’s Workforce Region and Projections, 2014-2024**



Source: BLS (QCEW and OES); Pennsylvania Department of Labor & Industry; Oxford Economics Projections

**Table 6.1 – Largest Skilled Occupations in ESU’s Workforce Region and Projections, 2014-2024**

<b>SOC Code</b>	<b>Occupation Title</b>	<b>2014 Jobs</b>	<b>2024 Jobs</b>	<b>10-year New and Replacement Demand</b>
29-1141	Registered Nurses	11,387	13,759	4,678
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	8,703	9,750	2,178
11-1021	General and Operations Managers	5,473	6,366	1,868
49-9071	Maintenance and Repair Workers, General	5,463	6,008	1,749
25-2021	Elementary School Teachers, Except Special Education	5,439	5,369	1,298
43-3031	Bookkeeping, Accounting, and Auditing Clerks	5,349	5,850	1,029
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	5,291	5,202	1,141
25-2031	Secondary School Teachers, Except Special and Career/Technical Education	5,021	4,855	1,544
43-1011	First-Line Supervisors of Office and Administrative Support Workers	4,658	4,920	1,378
25-9041	Teacher Assistants	4,301	4,476	1,244
13-2011	Accountants and Auditors	3,927	4,276	1,656
29-2061	Licensed Practical and Licensed Vocational Nurses	3,470	4,213	1,660
49-3023	Automotive Service Technicians and Mechanics	3,015	3,345	1,207
25-2022	Middle School Teachers, Except Special and Career/Technical Education	2,414	2,881	1,073
31-9092	Medical Assistants	2,339	2,730	860
43-3021	Billing and Posting Clerks	2,285	2,504	681
33-3051	Police and Sheriff’s Patrol Officers	2,224	2,159	733
39-5012	Hairdressers, Hairstylists, and Cosmetologists	2,098	2,355	850
43-6013	Medical Secretaries	2,092	2,699	851
39-9011	Childcare Workers	1,969	1,932	552

Source: BLS (QCEW and OES); Pennsylvania Department of Labor & Industry; Oxford Economics Projections

## 6.3 Key Skilled High Demand Occupations Aligning to University-level Education

Occupation demand can represent different perspectives of employment need. One perspective evaluates demand due to growth of new jobs. It also represents the need for replacement jobs. When combined, new and replacement job projections provide a more realistic perspective of labor demand.

To support the occupational demand for new and replacement jobs, this analysis also evaluates real-time job posting data. By measuring the number of unique job postings for a specific job title, which is then translated into an occupation classification, it is possible to gauge real-time demand—another perspective of employment need. The number of unique postings provides guidance on real-time changes in occupations that companies may be seeking to hire. As with all datasets, job posting data have caveats. Discrepancies between postings and actual hires can be challenging to measure—wherein a job posting may not result in a hire for one occupation, but another job posting for a different occupation may result in multiple hires.<sup>10</sup>

This section looks at both perspectives—occupation demand using projections of new and replacement jobs as well as real-time job postings—in order to draw specific insight into occupation demand within ESU’s workforce region.

### 6.3.1 New and Replacement Demand for Key Skilled High Demand Occupations

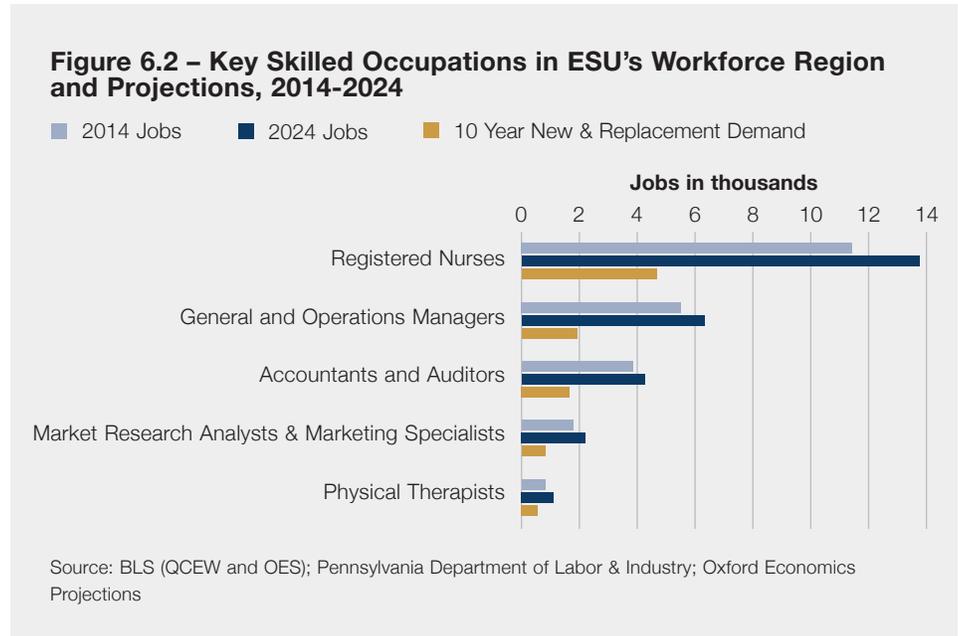
Many skilled occupations exist in Pennsylvania. Demand for new and replacement jobs for key skilled high demand occupations that tie more closely to university-level programs are typically determined by the sheer size of the employment within the occupation and the demographic characteristics of those who are currently employed—specifically age. For example, Pennsylvania businesses employ approximately 54,400 accountants and auditors. Projections indicate that new employment for accountants and auditors will increase to about 60,000 by 2024—5,600 new jobs in 10 years. However, 47% of the employed accountants and auditors are over the age of 45, meaning that many of the currently employed accountants and auditors will likely retire over the next 10 years. This retirement will drive up the need to replace outgoing

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<sup>10</sup> When evaluating jobs postings, a specific caveat focuses on net openings and jobs filled (i.e. openings that result in an opportunity for a new entrant, rather than normal job turn wherein a worker moves to a different company in the region and their vacant job is filled by yet another incumbent worker at another company).

accountants and auditors with new workers—hence the reason we see nearly 23,700 new and replacement jobs (5,600 new and 18,100 replacement) for the occupation over the next 10 years.<sup>11</sup>

Figure 6.2 and Table 6.2 outline the five key skilled high demand occupations for new and replacement jobs over the next 10 years, specifically: registered nurses, accountants and auditors, general and operations managers, market research analysts and marketing specialists, and physical therapists.<sup>12</sup>



**Table 6.2 – Key Skilled Occupations in ESU’s Workforce Region and Projections, 2014-2024**

SOC Code	Occupation Title	2014 Jobs	2024 Jobs	10 Year New & Replacement Demand
29-1141	Registered Nurses	11,387	13,759	4,678
11-1021	General and Operations Managers	5,473	6,366	1,868
13-2011	Accountants and Auditors	3,927	4,276	1,656
13-1161	Market Research Analysts and Marketing Specialists	1,768	2,270	785
29-1123	Physical Therapists	866	1,146	525

Source: BLS (QCEW and OES); Pennsylvania Department of Labor & Industry; Oxford Economics Projections

11 Retirement is only one of the metrics factored into new and replacement jobs. Other metrics include out-migration and death.  
 12 Teachers (elementary and secondary) were found in the top skilled high demand occupations. However, the analysis focuses on private sector jobs and opportunities.

While this section focused on 10-year new and replacement demand, the next section highlights the importance of current demand using real-time job posting analytics.

### 6.3.2 Real-Time Job Postings for Key Skilled High Demand Occupations

Analysis of job postings for key skilled high demand occupations generally supports the findings from Section 6.3.1. Between July 2014 and July 2015 approximately 1,500 unique (de-duplicated) job postings appeared in ESU's Workforce Region for the top five key skilled high demand occupations (registered nurses, accountants and auditors, general and operations managers, market research analysts and marketing specialists, and physical therapists). Sizable job postings include: registered nurses (956 unique postings per month), and general and operations managers (194 unique postings per month).

Table 6.3 provides details on the average monthly job postings and the estimated average monthly hires between July 2014 and July 2015 for the key skilled occupations.

Job posting analytics also provide insight into the skills and certifications that employers seek from qualified job candidates. Individuals seeking jobs in the key skilled high demand occupations would increase their competitiveness by demonstrating skill proficiency and/or certifications. The following lists specific unique skills or certifications for each occupation that employers demand.

**Table 6.3 – Job Postings and Hires for Key Skilled High Demand Occupations in Pennsylvania**

<b>Occupation</b>	<b>Average Monthly Postings (Jul 2014 - Jul 2015)</b>	<b>Estimated Average Monthly Hires (Jul 2014 - Jul 2015)</b>	<b>Ratio of Postings to Hires</b>
Registered Nurses	956	443	2.2
General and Operations Managers	194	315	0.6
Physical Therapists	168	50	3.4
Accountants and Auditors	160	181	0.9
Market Research Analysts and Marketing Specialists	45	85	0.5

Source: Economic Modeling Specialists International (EMSI)

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### **Registered Nurses**

*Unique skills:* acute care, surgery, schedule/record keeping

*Certifications:* Cardiopulmonary Resuscitation (CPR), Basic Life Support (BLS), Advanced Life Support (ALS), Registered Nurse (RN) license

### **Accountants and Auditors**

*Unique skills:* audits, finance, Generally Accepted Accounting Principles (GAAP)

*Certifications:* Certified Public Accountant (CPA)

### **Physical Therapists**

*Unique skills:* physical therapy, rehabilitation services, injuries, plan of care

*Certifications:* accreditation, licenses to practice, current CPR certification

### **Market Research Analysts and Marketing Specialists**

*Unique skills:* product marketing, product management, marketing concepts, market analysis, social media, product development, presentations

*Certifications:* Six Sigma, Project Management Professional (PMP)

### **General and Operations Managers**

*Unique skills:* inventory management, payroll, recruiting/staffing, budgeting, meetings/presentations

*Certifications:* Six Sigma, Project Management Professional (PMP)

This list of skills and certifications do not encompass the entirety of skills and certifications that may be required for different industry sectors and job functions. However, these skills reflect the general online job posting minimum qualifications for those seeking to apply to one of the occupations.

The next section builds a broader sense of which industry sectors typically employ each of the top five skilled high demand occupations.

## 6.4 Industry Staffing Patterns for Key Skilled High Demand Occupations in East Stroudsburg University's Workforce Region

Understanding which industries employ key skilled occupations is helpful when engaging businesses as well as communicating programs and potential career opportunities to learners. Also knowing the industries that predominately employ certain occupations can help align program planning.

The following tables show the staffing patterns for the key skilled high demand occupations by identifying the top five industries that employ each respective key skilled high demand occupation within the region. For each occupation, the table contains:

- The number of the occupation jobs in each respective industry in 2014 (e.g. general medical and surgical hospitals employ over 6,098 registered nurses);
- The percent of the occupation's employment in the region that is employed in the industry (e.g. the 6,098 registered nurses employed in general medical and surgical hospitals represent nearly 54% of the total registered nurse workforce in the region);
- The percent of the industry sector's employment that is made up of the occupation (e.g. the 6,098 registered nurses make up about 27% of employment within general medical and surgical hospitals).

### Staffing Patterns for Registered Nurses Employed in ESU's Workforce Region

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
General Medical and Surgical Hospitals	6,098	53.6%	27.2%
Offices of Physicians	1,103	9.7%	9.4%
Nursing Care Facilities (Skilled Nursing Facilities)	928	8.2%	9.9%
Home Health Care Services	773	6.8%	21.0%
Outpatient Care Centers	621	5.5%	15.9%

Source: Bureau of Labor Statistics – OES & QCEW Annual Data

### Staffing Patterns for General and Operations Managers Employed in ESU's Workforce Region

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
Management of Companies and Enterprises	314	5.7%	2.7%
Restaurants and Other Eating Places	134	2.5%	0.5%
Other Amusement and Recreation Industries	124	2.3%	2.0%
Warehousing and Storage	109	2.0%	0.9%
Business, Professional, Labor, Political, and Similar Organizations	105	1.9%	4.5%

Source: Bureau of Labor Statistics – OES & QCEW Annual Data

### Staffing Patterns for Accountants and Auditors Employed in ESU's Workforce Region

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
Accounting, Tax Preparation, Bookkeeping, and Payroll Services	728	18.5%	38.6%
Management of Companies and Enterprises	590	15.0%	5.0%
Insurance Carriers	151	3.9%	2.4%
Executive, Legislative, and Other General Government Support	96	2.4%	0.8%
Management, Scientific, and Technical Consulting Services	89	2.3%	3.0%

Source: Bureau of Labor Statistics – OES & QCEW Annual Data

### Staffing Patterns for Market Research Analysts and Marketing Specialists Employed in ESU's Workforce Region

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
Management of Companies and Enterprises	236	13.4%	2.0%
Management, Scientific, and Technical Consulting Services	179	10.1%	6.0%
Insurance Carriers	96	5.4%	1.5%
Other Professional, Scientific, and Technical Services	95	5.4%	4.8%
Computer Systems Design and Related Services	54	3.0%	2.0%

Source: Bureau of Labor Statistics – OES & QCEW Annual Data

## Staffing Patterns for Physical Therapists Employed in ESU's Workforce Region

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
Offices of Other Health Practitioners	347	40.1%	10.4%
General Medical and Surgical Hospitals	198	22.8%	0.9%
Home Health Care Services	108	12.4%	2.9%
Nursing Care Facilities (Skilled Nursing Facilities)	70	8.1%	0.7%
Offices of Physicians	44	5.1%	0.4%

Source: Bureau of Labor Statistics – OES & QCEW Annual Data

The above data establishes the top sectors where the key skilled high demand occupations are employed. However, to further place the perspective of these occupation profiles, it is important to consider the types of people who generally fill these roles. The next section contains a demographic profile for people from Pennsylvania who work in these key skilled occupations.

### 6.5 Key Skilled High Demand Occupational Profiles

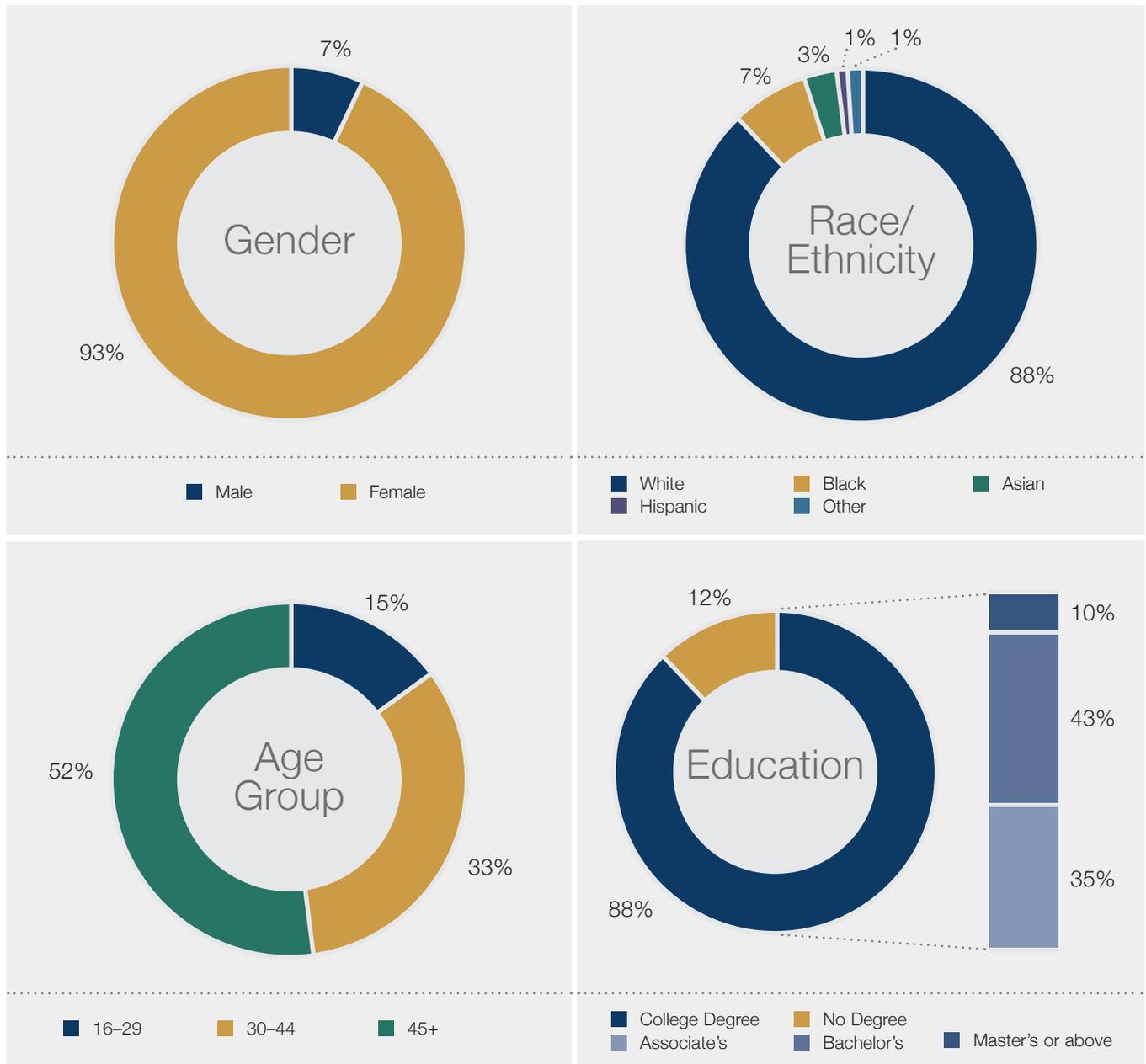
In addition to understanding the industries that employ key skilled high demand occupations, another lens to view key skilled high demand occupations focuses on the characteristics of those employed. The following section outlines the demographics for people from Pennsylvania who work in these key skilled occupations by showing each occupation's composition by gender, race/ethnicity, age, and education. This lends further insight into who generally works in the career and answers questions such as:

- Are women or men typically found in the occupation?
- Do certain races/ethnicities occupy larger shares of the occupation?
- What is the age distribution of the occupation?
- What is the educational attainment of workers in the occupation?

For comparative purposes, the demographic composition for the entire population of ESU's workforce region is further described in Section 7 of the report.

## REGISTERED NURSES IN PENNSYLVANIA

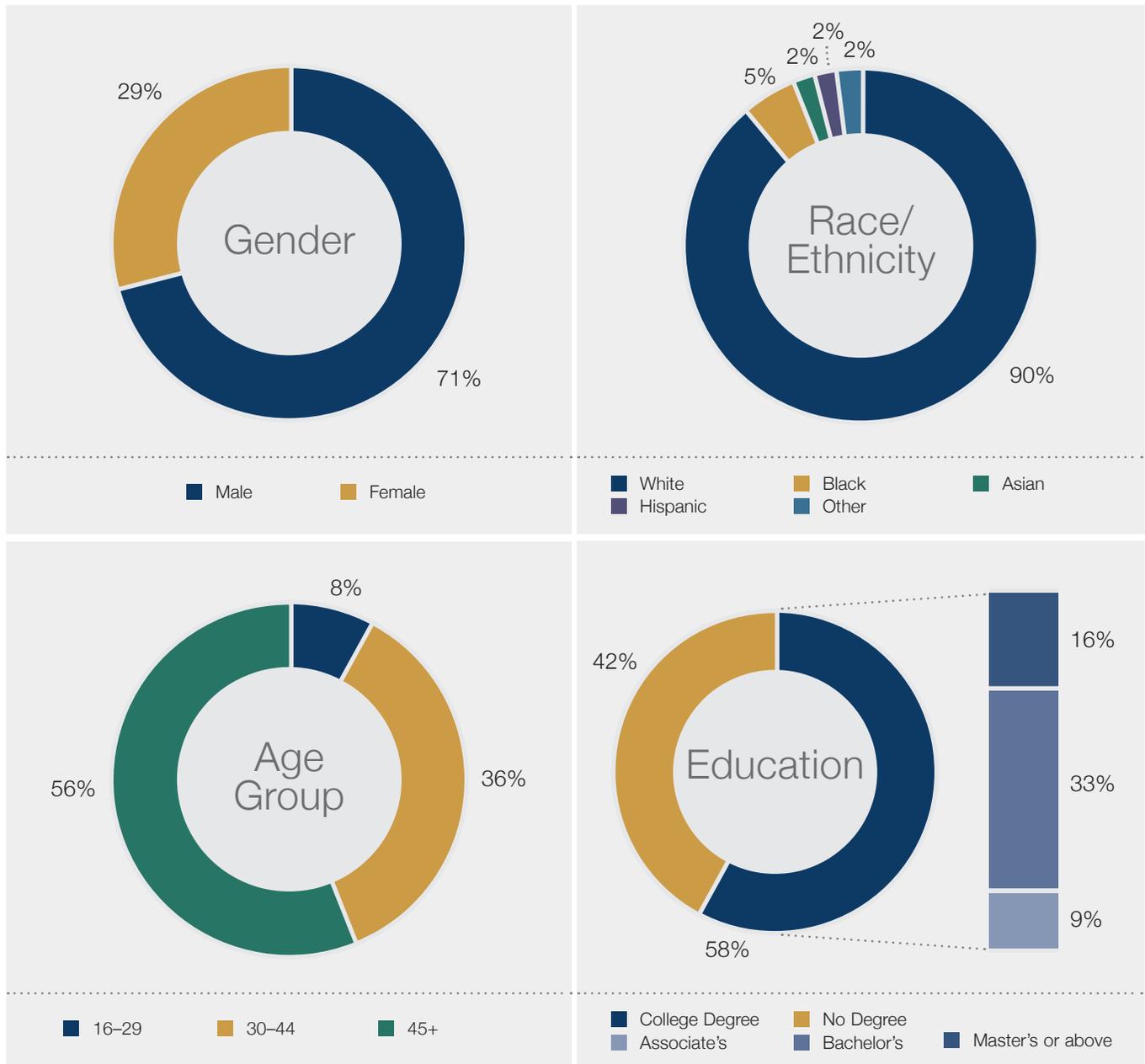
The demographic profile of registered nurses is largely dominated by white females. Age distribution indicates that registered nurses are a more mature cohort of workers (45 years and older), which can put increasing pressure on replacement jobs due to retirements over the next 10 years. Nearly 90% of registered nurses have an associate's degree or higher indicating that this is a highly educated occupation.



Source: U.S. Census - American Community Survey (ACS) 2009-2013 5-year file

## GENERAL AND OPERATIONS MANAGERS IN PENNSYLVANIA

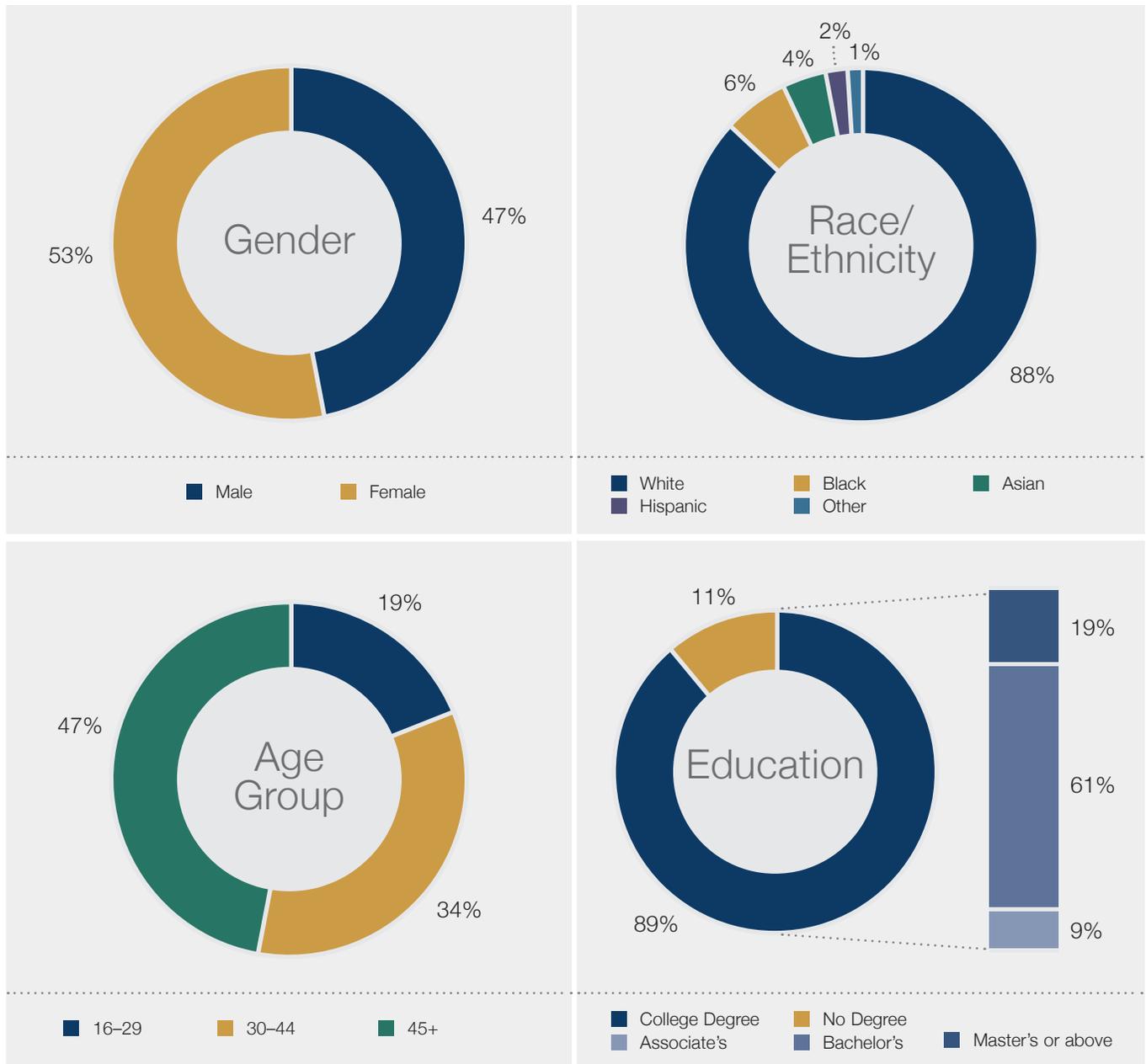
General and operations managers are typically male, though females occupy almost 30% of the employed population. The majority of those in this occupation are white. This occupation is represented by a more mature cohort of workers (45 years and older), though mid-career workers also occupy a significant proportion of the employment. Nearly 60% of general and operations managers have an associate's degree or higher.



Source: U.S. Census - American Community Survey (ACS) 2009-2013 5-year file

## ACCOUNTANTS AND AUDITORS IN PENNSYLVANIA

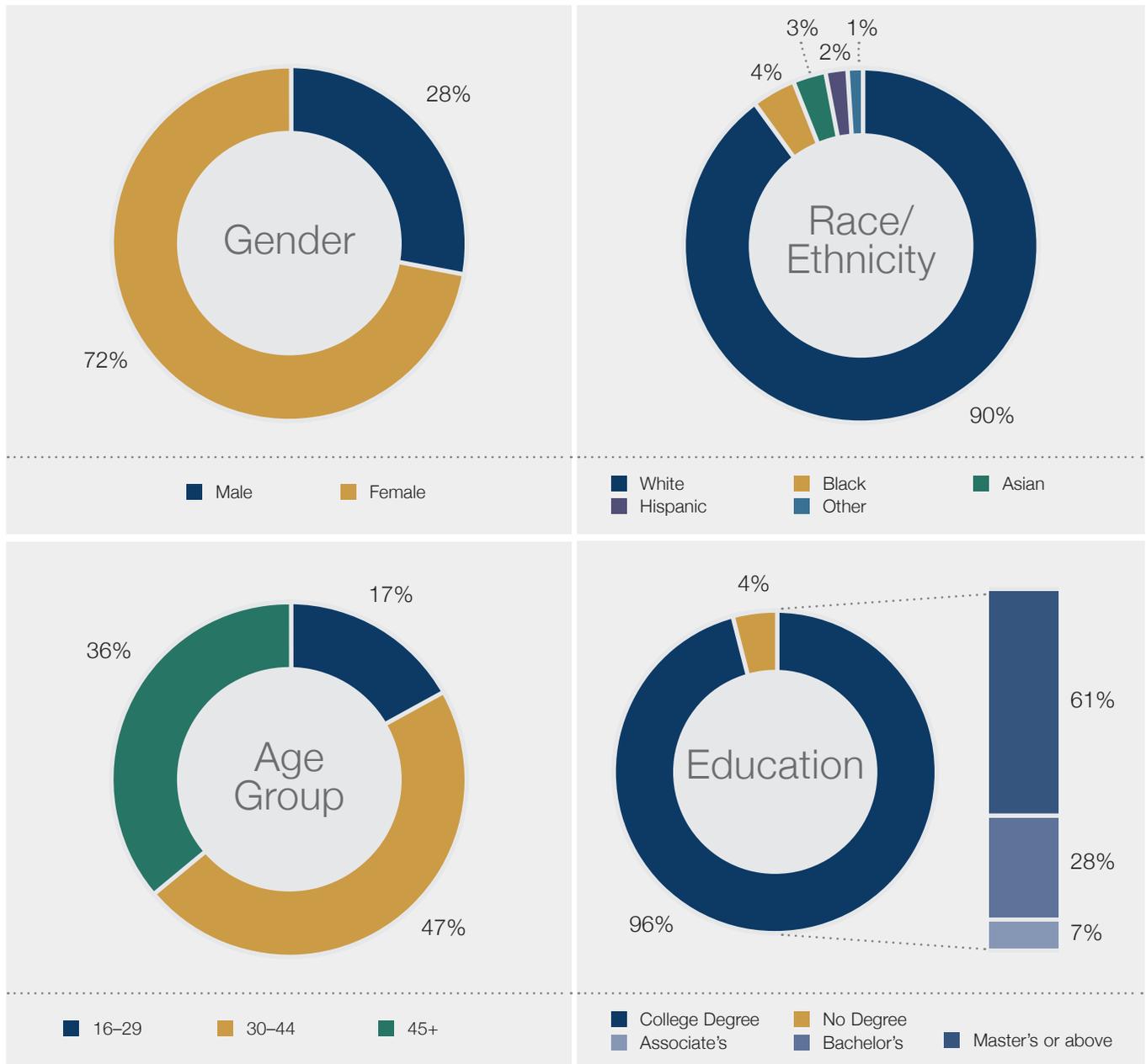
Accountants and auditors are fairly equally split between male and female, though a slightly higher percent of employed accountants and auditors are female. A high proportion of white individuals are found in the occupation. Additionally, the age distribution is fairly even between entry-level and mature workers, indicating that the occupation provides good opportunities for first destinations of recent college graduates. Nearly 90% of accountants and auditors have an associate's degree or higher indicating that this is a highly educated occupation.



Source: U.S. Census - American Community Survey (ACS) 2009-2013 5-year file

## PHYSICAL THERAPISTS IN PENNSYLVANIA

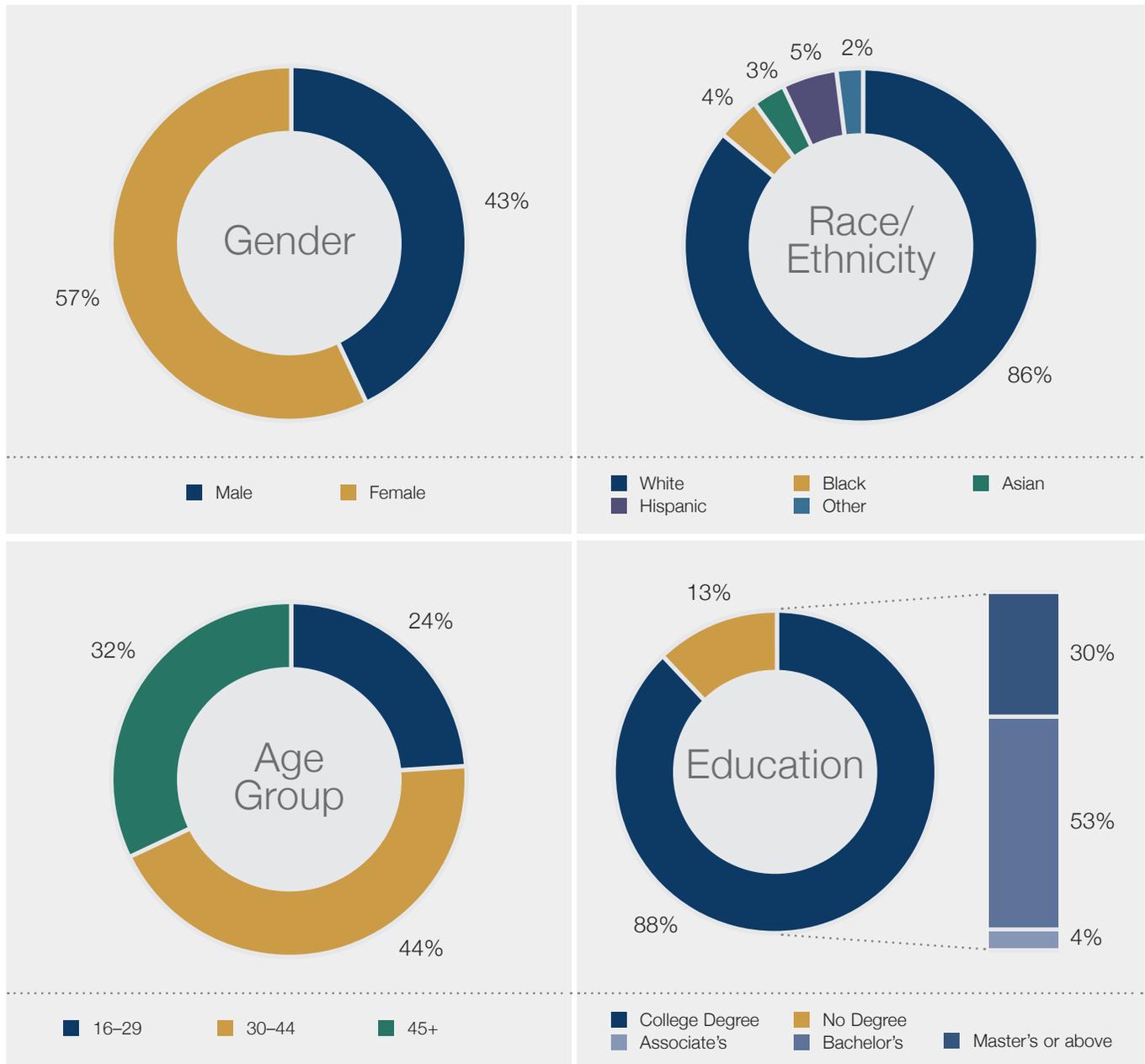
Physical therapists are typically female, though males make up almost 30% of the employed population. The majority of those in this occupation are white. The age distribution of this occupation is represented by mostly mid-career workers (ages 30-44), though older workers also make up a large portion of the occupation. Over 95% of physical therapists have an associate's degree or higher indicating that this is a highly educated occupation.



Source: U.S. Census - American Community Survey (ACS) 2009-2013 5-year file

# MARKET RESEARCH ANALYSTS AND MARKETING SPECIALISTS IN PENNSYLVANIA

Market research analysts and marketing specialists indicate a larger proportion of females within the occupation compared to males. The race/ethnicity distribution within the occupation is predominately white. Additionally, the age distribution of the occupation, tends to favor a younger demographic. More than two thirds of the employed market research analysts and marketing specialists are under 45 years old. Nearly 90% of market research analysts and marketing specialists have an associate's degree or higher indicating that this is a highly educated occupation.



Source: U.S. Census - American Community Survey (ACS) 2009-2013 5-year file

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The final section of this report explores ESU's workforce region demographic and socio-economic characteristics. While not tied to a specific occupation, the analysis further contextualizes the region's population and workforce.

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## **7. DEMOGRAPHIC AND SOCIO-ECONOMIC INDICATORS OF EAST STROUDSBURG UNIVERSITY'S WORKFORCE REGION**

This section provides further information about the demographic and socio-economic composition of ESU's Workforce Region in order to better understand the characteristics of the population. An additional focus evaluates changes in age cohorts for university-age residents.

Analysis of three socio-economic indicators—education, unemployment, and poverty—also provides insight into the segment of the population that may be considered economically disadvantaged. Areas with high proportions of economically disadvantaged learners may require additional considerations in education and financial support.

### **7.1 Demographics of East Stroudsburg University's Workforce Region**

The ESU workforce region has a population of about 1.1 million people. As shown in Figure 7.1, females make up a slightly larger share of the population compared to males. Figure 7.2 illustrates that the majority of the region is represented by a White demographic, with Hispanics representing the next largest group, followed by Blacks.

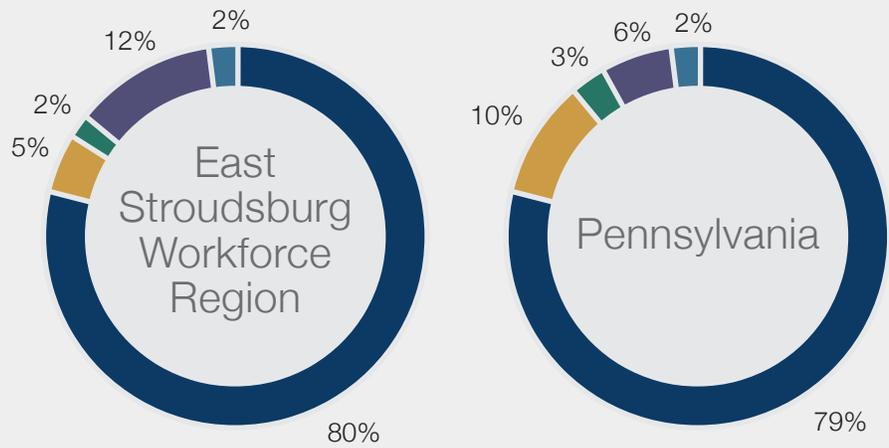
Fall 2014 data from the State System Research Office indicates that approximately 83% (90,966) of learners within the State System are traditional students—ages 18- to 22-year-old high school graduates—and 17% (18,640) are adult learners. A view of the change in population by age demographic indicates a diminishing number in the traditional age cohort and a growing rate of adults aged 25 to 34 years old. As illustrated in figure 7.3, the 10 to 19 year old cohort population declined by nearly 8,000 people between 2010 and 2014—a 5% decline. Conversely, the 25-34 year old cohort increased over 7%, or 9,800 people, over the same time period. This demographic shift presents an opportunity to incorporate a broader university recruitment strategy.

**Figure 7.1 – East Stroudsburg University’s Workforce Region Population and Gender Distribution**



Source: U.S. Census - ACS

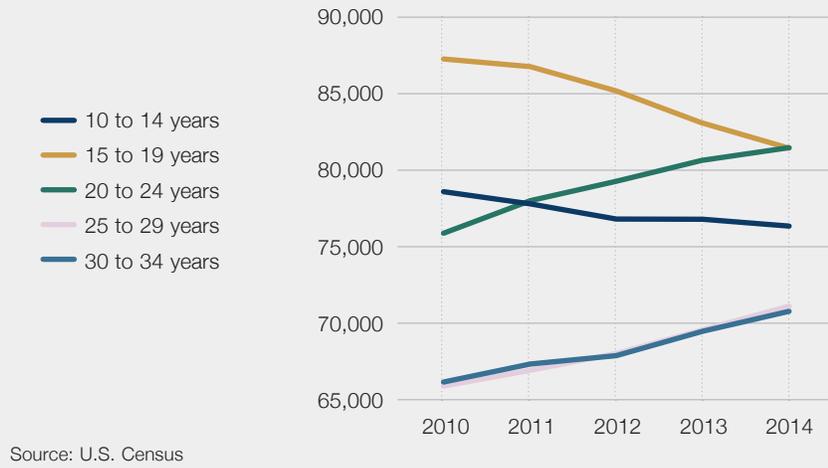
**Figure 7.2 – East Stroudsburg University’s Workforce Region Race/Ethnicity Composition**



■ White   
 ■ Black   
 ■ Asian   
 ■ Hispanic   
 ■ Other

Source: U.S. Census - American Community Survey (ACS) 2009-2013 5-year file

**Figure 7.3 – East Stroudsburg University’s Workforce Region Changes in Population of Age Cohorts**



The next sub-section further explores the shifting socio-economic characteristics in ESU’s workforce region by identifying three inter-related variables.

## 7.2 Socio-economic Indicators of East Stroudsburg University’s Workforce Region

This final section outlines three key socio-economic variables—educational attainment, poverty, and unemployment. Poverty data provides understanding on relative income inequality within an area. If poverty rates decline, then the standard of living, social inclusion, and equality of opportunity are typically considered to be increasing. Economic opportunities are often linked with access to jobs and training. Regions with high unemployment indicate the population is unable to find work or is not adequately trained to perform work in the jobs available within the region.

### 7.2.1 Educational Attainment in East Stroudsburg University’s Workforce Region

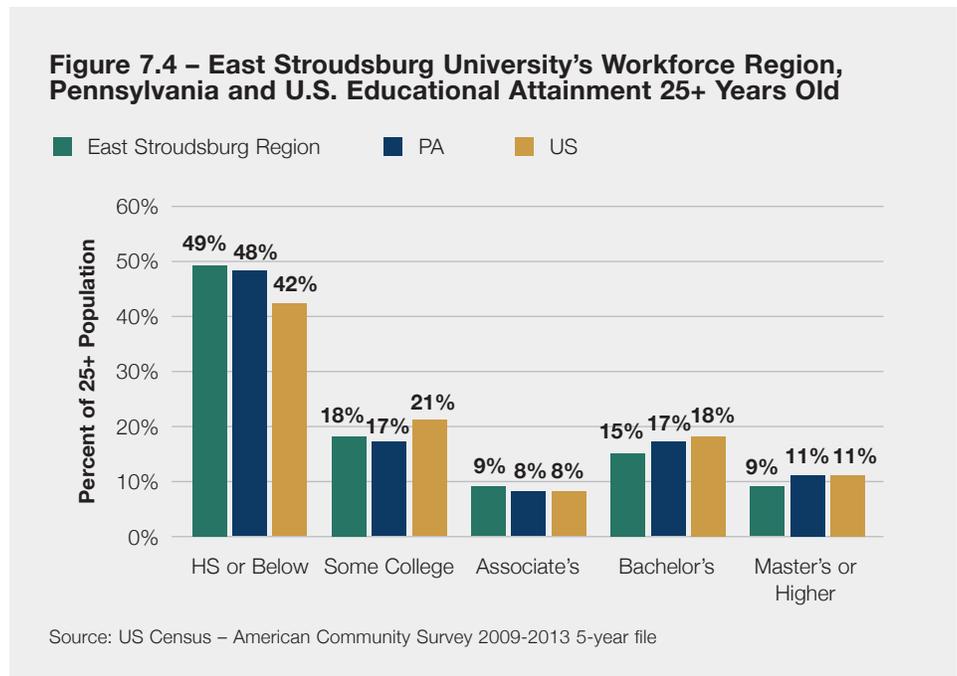
The levels of educational attainment of a population indicate several characteristics in an economy. Areas with better educated workers earn higher wages, are more productive and can typically adjust more quickly to changing economic conditions. Additionally, an educated workforce is less likely to be

unemployed, require social assistance, and more likely to lead a healthier lifestyle—aspects that bolster value in an economy.<sup>13, 14</sup>

A view of educational attainment in ESU’s workforce region indicates that more than half (51%) of those over 25 years old have had some post-secondary education or higher. Some college is defined by ACS as having some college, but less than one year or one or more years of college credit, but no degree. This is below the national average of 58% of the population having had at least some post-secondary education or higher.

When comparing degree completion, ESU’s workforce region is near the national average for the proportion of the population with an associate’s degree and below the national average for the proportion of the population with a bachelor’s degree and master’s degrees or higher.

Figure 7.4 compares the educational attainment of the 25 years and older population in the U.S., Pennsylvania, and ESU’s workforce region.



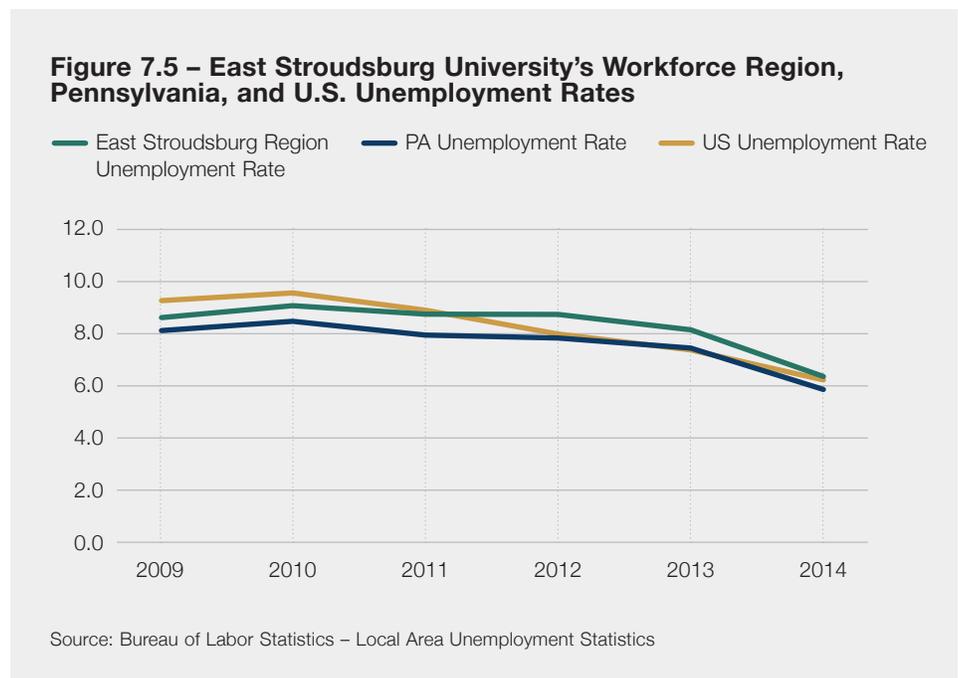
13 Feinstein et. al. (2006), “The effects of education on health: Concepts, evidence and policy implications: A review for the OECD Center for Educational Research and Innovation (CERI)”, unpublished manuscript, OECD, Paris.

14 Mitra, Dana (2011), “Pennsylvania’s Best Investment: The Social and Economic Benefits of Public Education.” Report published for the Education Law Center.

## 7.2.2 Unemployment and Poverty in East Stroudsburg University's Workforce Region

ESU's workforce region unemployment rate—6.4% in 2014—has trended closely with the state and national unemployment rate since 2009 but remains above the state and national average. This suggests that opportunities for dislocated workers in the region on average are roughly worse compared to the rest of the nation.

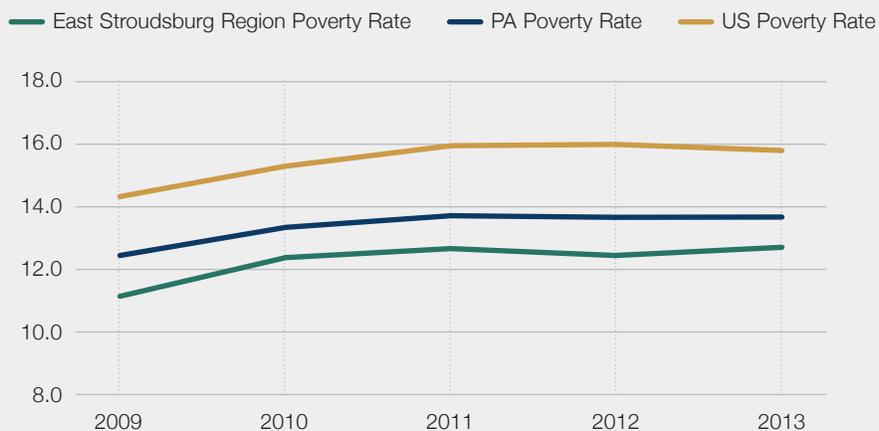
Figure 7.5 shows the convergence of the unemployment rates of ESU's workforce region, Pennsylvania, and the U.S. from 2009 to 2014.



In ESU's workforce region, the poverty rate trended upward since 2009 but declined slightly from 2011 to 2012. The region's poverty rate is below the state poverty rate and the U.S. average.<sup>15</sup> Given the lower poverty rate compared with the nation, there is an underlying assumption that the compensation associated with the jobs in ESU's workforce region may be higher than the national average.

<sup>15</sup> Poverty estimates are based on U.S. Census Bureau's Small Area Income and Poverty Estimates data series. Calculations comprise the total number of individuals (all ages) in the geography, divided by the number of individuals (all ages) that are classified as being in poverty.

**Figure 7.6 – East Stroudsburg University’s Workforce Region, Pennsylvania, and U.S. Poverty Rates**



Source: U.S. Census – Small Area Income & Poverty Estimates (SAIPE)

Figure 7.6 compares the poverty rates of ESU's workforce region, Pennsylvania, and the U.S. from 2009 to 2013.

When unemployment and poverty are evaluated together, a significant decline in unemployment to pre-recession levels, coupled with a small uptick in the poverty rate, suggests an underlying cause that is contributing to marginally increased poverty rates. This cause may be associated with the quality of new jobs that have emerged since the recession, which have done little to abate poverty rates, despite decreasing unemployment.

Although the poverty rate indicates an overall small increasing trend, the unemployment rate shows a decreasing trend, meaning a larger proportion of the workforce is either employed or is no longer seeking employment.

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## 8. NEXT STEPS

This report sets the foundation for program planning by accomplishing three key tasks:

- Defining the university's workforce region.
- Describing key economic, workforce, and demographic attributes in the regional economy.
- Forecasting the demand for skilled occupations.

The next steps for research to support Pennsylvania's State System of Higher Education Program Alignment Toolkit are the development of an education supply and workforce demand gap analysis. Key data-driven aspects in the gap analysis research include:

- Development of an education program to occupation crosswalk.
- Analysis of completion data from the State System institutions as well as other institutions in the university's workforce region.
- Comparison of the occupation forecasts against the recent completions of education programs.
- Identification of programs that may require expansion or development, as well as programs that indicate a potential surplus of talent within the region.

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# DATA SOURCES

Bureau of Labor Statistics (BLS):

- QCEW - Quarterly Census of Employment & Wages (Bureau of Labor Statistics) - <http://www.bls.gov/cew/>
- OES – Occupational Employment Statistics (Bureau of Labor Statistics) - <http://www.bls.gov/oes/>
- LAUS – Local Area Unemployment Statistics (Bureau of Labor Statistics) - <http://www.bls.gov/lau/>

U.S. Census Bureau (Census):

- LEHD – Longitudinal Employer-Household Dynamics - <http://lehd.census.gov/>
- ACS – American Community Survey - <http://www.census.gov/acs/www/>
- SAIPE – Small Area Income and Poverty Estimates - <http://www.census.gov/did/www/saipe/>

National Center for Education Statistics (NCES):

- IPEDS – Integrated Postsecondary Education Data System (National Center for Education Statistics) - <https://nces.ed.gov/ipeds/>

Pennsylvania Department of Labor and Industry (PADLI):

- CWIA – Center for Workforce Information & Analysis (PA Department of Labor & Industry) – [www.paworkstats.pa.gov](http://www.paworkstats.pa.gov)

O\*NET Resource Center (O\*NET)

- Job Zones [www.onetonline.org/help/online/zones](http://www.onetonline.org/help/online/zones)

Economic Modeling Specialists International (EMSI)

# APPENDIX A: METHODOLOGY FOR IDENTIFYING STATE SYSTEM UNIVERSITY WORKFORCE REGIONS

## Introduction

Economic and workforce analysis is best undertaken at a geographic level that reflects how the economic market operates. In order to effectively analyze a relevant market area, a systematic approach to define the geography should be completed. This report provides a university-specific workforce characteristics analysis based on a defined workforce region. The following outlines the methodology for identifying university workforce regions.

A workforce region is defined as: a labor market area or an economically integrated region within which residents can find jobs within a reasonable commuting distance or can change their employment without changing their place of residence.<sup>16</sup> When determining a workforce region, there is no universal approach.<sup>17</sup> Given the target audience for the workforce region—State System universities—the context used to define the region should reflect multiple regional characteristics that the universities are tasked to support, while still conforming to the broader definition of what is often called a functional economic market area (FEMA). A FEMA is best described as an area that contains key economic markets. These economic markets best reflect drivers of the local economy such as the workforce and inter-industry business activity. For the purposes of this analysis, three drivers are measured in order to best define workforce regions, specifically:

- 1. Workforce flows** (primary input) - measured through commuting patterns.
- 2. Learner origin** (secondary input) - measured by the proportion of state system learners from a given county who are attending the university.
- 3. Economic activity** (secondary input) - measured through inter-industry

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<sup>16</sup> Bureau of Labor Statistics: Labor Market Area.

<sup>17</sup> *Functional Economic Market Areas: An economic note*. Communities and Local Government. February 2010. <http://webarchive.nationalarchives.gov.uk/20120919132719/http://www.communities.gov.uk/documents/localgovernment/pdf/1469713.pdf>

exchange within the region and consumer purchasing activity within the region using an input-output model.

Further information on each of the measurements is detailed later.

## Geographic Consideration

In order to define regions for State System universities, county-level data provide the best units of economic and workforce information. As such, county groupings serve as the best structure for describing the regions.

However, no one county is identical. Each county has different industry and workforce structures, as well as different learner populations. Additionally, some universities are located in areas that are near large metropolitan areas, while other universities are not. Therefore, a blanket approach of setting threshold primary driver values when defining a workforce region for each university would ultimately favor universities located near large metropolitan areas. In order to allow for broader geographic coverage, three specific considerations were taken into account:

### **1. Percent of commuters working and/or living in the workforce region.**

Specifically, small population counties that contain a State System university do not contain a large workforce. Furthermore, the commuting flows of the workforce may seemingly favor the county containing the State System University. However, if a reasonable proportion of in commuters and out commuters (generally 10% or more) are traveling to work in contiguous counties, then these counties were included in the workforce region of the university.<sup>18</sup>

### **2. Inclusiveness of counties in Pennsylvania.** The State System seeks to include all counties as part of the Rising to the Challenge Strategy. However, given the small population and workforce counties that exist across Pennsylvania, combined with many State System universities located within geographic proximity of these small counties, a second criterion of learner “capture rate” is used. The capture rate is simply the proportion of State System enrolled learners within a county that are attending a given

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<sup>18</sup> The contiguous region approach employs the U.S. Department of Labor, Bureau of Labor Statistics’ (BLS) Small Labor Market Areas’ criteria to designating a labor market area. However, the 25% threshold set by the BLS was relaxed in order to adhere to an additional criterion of inclusiveness, wherein every county in Pennsylvania is assigned to at least one university. To meet this criteria, the proportion of county-level State System learner enrollment within PA attending the university was also included to identify a contiguous geographic area that captures both labor shed and county-level learner enrollment density (i.e. a percentage of State System learners from within the county and nearby counties that are attending the university—a “capture rate”).

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State System university. For example, about 75% of State System enrolled learners from Erie County attend Edinboro University. Therefore Edinboro's capture rate for Erie County is 75%.

**3. Level of inter-industry exchange and ability to satisfy household demand for goods and services.** To provide additional context to regional economic activity and ensure that a final regional description can be considered a functional economic market area (FEMA), input-output modeling is used. In short, an input-output model is an inter-industry accounting framework, wherein a proportion of demand for inputs by one industry is satisfied through the production of an output by another industry within a supply chain. Regions with well-developed supply chains and integrated markets typically retain a higher proportion inter-industry trade, thus reducing the level of economic leakage. Similarly, the ability for a region's businesses to satisfy the demand for household consumption reduces economic leakage. This analysis considers both inter-industry exchange (called "output supply/demand") and household consumption (called "household supply/demand").

## Process

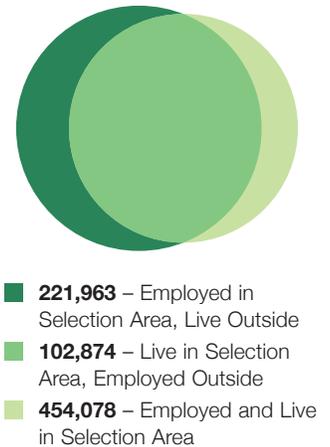
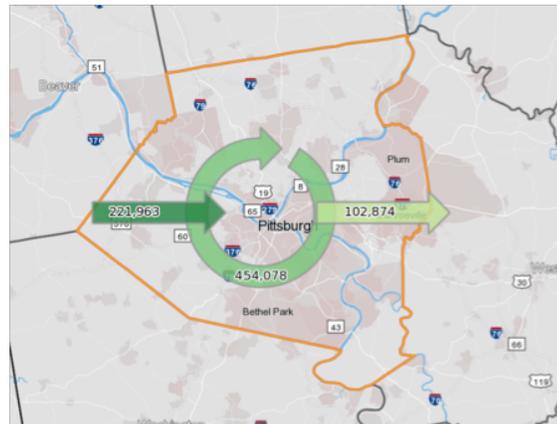
Given the workforce/commute, learner and economic variances that exist within the different geographies across Pennsylvania, an iterative process is used to define the workforce region. This multiple step, iterative process seeks to maximize the primary driver value (workforce flows), while adhering to the guiding principles of a functional economic area. It also ensures that each county in Pennsylvania is assigned to at least one university workforce region— from which the secondary driver values (learner capture rate and economic activity) were used. The process can be broken into the following steps for each driver:

### Workforce Flows:

Defined by commuting patterns, workforce flows represent the flow of workers into and out of the region. The following two illustrations for Allegheny County provide better understanding of commuting flows. The map indicates the commuting flow of workers. In short, 454,000 people who live in the county also work in the county. Additionally, almost 222,000 workers commute into Allegheny County for work, while nearly 103,000 county residents commute outside of Allegheny for their jobs.

When these numbers are converted into percentages, we find that

## Inflow/Outflow Job Counts in 2013



Source: U.S. Census Bureau – Longitudinal Employment and Housing Dynamics 2013

67% of people who work in Allegheny county live in Allegheny County  $((454,078+221,963)/454,078 = 67.2\%)$ . This is represented by the darker green circle and center shaded area of the Venn diagram. Another way to describe this is that more than 30% of the jobs in Allegheny County are filled by workers outside of the county (i.e. in commuters).

Additionally, we find that 81.5% of people who live in Allegheny County work in the county  $((454,078+102,874)/454,078 = 81.5\%)$ . This is represented by the lighter green circle and center shaded area of the Venn diagram. Another way to describe this is less than 20% of Allegheny County's employed residents commute outside of the county for their job (i.e. out commuters).

When defining the workforce region for a University, the analysis begins with the county that the University is located, followed by:

- Identification of the top counties (by percent) of in commuters, using a cut-off of 10%.
- Identification of the top counties (by percent) of out commuters, using a cut-off of 10%.

The counties identified in these initial steps were carried forward to the next set of criterion (i.e. inclusiveness and proportion of learner capture rates).

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### **Learner Capture Rates and Inclusiveness:**

Characterized by the proportion of State System enrolled learners from a given Pennsylvania county who are attending a given State System university, the learner capture rate indicates how well the university is providing education to learners within a geographic proximity. This second set of criteria helps to shape the regional backdrop of learners supported within a contiguous area around the university. Not to be confused with the headcount of where a University's learners are coming from, this analysis is specifically designed to broaden the contiguous region to help ensure inclusiveness of other counties (many of which are often low population areas).

Counties were selected based on two criteria for learner origin. First, to evaluate each county, we consider the total number of State System learners who come from each respective county. We sum all students enrolled in the State System for each county and then calculate the share of students going to each State System university. Although a particular county may not contribute a large proportion of total State System students, this method ensured inclusiveness based upon each respective county's relative contribution. Second, to consider the university perspective, we calculate where the majority of learners come from within Pennsylvania for each respective university. This ensured that Chester County, for example, was included as part of Millersville's workforce region even though a majority of learners in Chester County do not attend Millersville University. Greater weight was given to the first criteria to ensure inclusiveness of all counties. Note that counties must be contiguous in order to conform to the definition of a workforce region.

### **Economic Activity and Concentration:**

Concurrently, we measured the economic activity of the region using supply/demand ratios for businesses and households. After each workforce region was defined using the criteria for commuting and learner origin, the gross commodity demand was calculated for that region using IMPLAN. Gross commodity demand is the total demand for supply chain products and services by businesses in the region. The Output Supply/Demand ratio represents the percent of industry demand for supply chain products and services that are satisfied by businesses in the region. The Household Supply/Demand ratio represents the percent of household demand for goods and services that are satisfied by businesses in the region. For example, when defining Bloomsburg University's workforce region several county combinations were evaluated. The fourth iteration included Columbia, Montour, Luzerne, and Northumberland. The supply/demand ratios for businesses and households were 54% and

84% respectively. In the fifth iteration, Northampton was added to the region. Although this did increase the learner origin measure (marginally), it actually reduced the supply/demand ratios for businesses and households to 53% and 79% respectively. This indicated that Northampton was not as connected to the region economically as the other counties and it was not included in the workforce region as a result.

**Table A.1 – State System Workforce Region by University**

<b>University</b>	<b>Counties</b>
Bloomsburg University	Columbia, Montour, Luzerne, Northumberland, Union, Sullivan, Snyder, Schuylkill
California University	Washington, Allegheny, Fayette, Westmoreland, Greene
Cheyney University	Chester, Delaware, Philadelphia, Montgomery
Clarion University	Clarion, Armstrong, Butler, Venango, Jefferson, Forest, Elk, Allegheny
East Stroudsburg University	Monroe, Northampton, Lackawanna, Pike, Wayne, Carbon, Lehigh
Edinboro University	Erie, Crawford, Warren, McKean
Indiana University	Indiana, Allegheny, Westmoreland, Cambria, Armstrong, Blair, Bedford, Somerset, Jefferson
Kutztown University	Berks, Lehigh, Montgomery, Northampton, Schuylkill, Chester, Bucks
Lock Haven University	Clinton, Lycoming, Centre, Clearfield, Cameron, Mifflin, Juniata
Mansfield University	Tioga, Bradford, Potter, Susquehanna, Wyoming
Millersville University	Lancaster, Dauphin, Chester, York, Lebanon
Shippensburg University	Cumberland, Franklin, Dauphin, York, Perry, Huntingdon, Fulton, Adams
Slippery Rock University	Butler, Allegheny, Mercer, Lawrence, Beaver, Westmoreland
West Chester University	Chester, Delaware, Philadelphia, Montgomery, Bucks

Source: Oxford Economics modeling and tabulations

# APPENDIX B: PENNSYLVANIA STATE AND COUNTY ENROLLMENT AND EMPLOYMENT

County	Fall 2014 Enrollment in East Stroudsburg University	2014 QCEW Employment
Adams	6	34,139
Allegheny	9	683,111
Armstrong	0	17,582
Beaver	1	52,811
Bedford	1	15,397
Berks	152	166,792
Blair	3	58,233
Bradford	8	24,568
Bucks	329	250,889
Butler	2	84,472
Cambria	1	53,915
Cameron	0	2,015
Carbon	96	16,974
Centre	2	67,147
Chester	94	240,469
Clarion	0	13,586
Clearfield	3	29,938
Clinton	1	13,043
Columbia	12	24,974
Crawford	0	31,113
Cumberland	22	126,939
Dauphin	43	176,004
Delaware	126	216,261
Elk	1	14,994
Erie	3	124,095
Fayette	1	39,979
Forest	0	2,053
Franklin	6	56,715
Fulton	0	4,807
Greene	0	14,844
Huntingdon	1	12,343

<b>County</b>	<b>Fall 2014 Enrollment in East Stroudsburg University</b>	<b>2014 QCEW Employment</b>
Indiana	0	32,653
Jefferson	0	15,435
Juniata	2	6,146
Lackawanna	203	97,259
Lancaster	36	225,673
Lawrence	0	29,500
Lebanon	23	48,869
Lehigh	308	180,757
Luzerne	127	140,329
Lycoming	11	53,197
McKean	2	15,770
Mercer	0	48,028
Mifflin	4	15,544
Monroe	1,684	52,933
Montgomery	260	472,655
Montour	1	15,578
Northampton	770	105,825
Northumberland	11	27,985
Perry	5	7,661
Philadelphia	309	640,987
Pike	298	10,748
Potter	1	5,291
Schuylkill	57	50,049
Snyder	1	15,522
Somerset	0	24,398
Sullivan	0	1,772
Susquehanna	29	9,281
Tioga	2	12,973
Union	6	16,597
Venango	0	19,251
Warren	1	15,031
Washington	1	86,961
Wayne	99	14,651
Westmoreland	3	132,312
Wyoming	16	10,181
York	57	172,145
<b>Total Pennsylvania</b>	<b>5,250</b>	<b>5,643,676</b>

Source: Enrollment- Pennsylvania State System of Higher Education, Employment- BLS QCEW

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# APPENDIX C: INDUSTRY PROJECTIONS 2014-2024 FOR EAST STROUDSBURG UNIVERSITY'S WORKFORCE REGION

A common measure of industry competitiveness is through the use of a location quotient statistic. Location quotients (LQ) provide a relative perspective on local comparative advantages in specific industry classifications by comparing employment within a local or state economy to a larger geographic area (e.g. nation). On its own, the analysis achieves little. However, when evaluated jointly with the employment data and growth, one gains a sense of the industry sectors that might benefit from efforts to align educational opportunities with economic development (i.e. industries that State System universities may consider engaging in larger conversations about aligning employer and educational needs).

To interpret results, LQs equal to 1 indicate that the area's industry concentration is equal the national concentration of the same industry. Industries with a higher location quotient (usually greater than 1.2) indicate that an area has a relatively higher concentration of jobs in the sector and therefore concludes that the area has a comparative advantage or specialization in the production of that good or service, compared to the national average. Note: High employment industries do not necessarily result in large location quotients, as this is a comparative statistic. The following table provides the industry LQs at the 4-digit NAICS level in ESU's workforce region. Included in the table are the number of jobs in 2014 and the projected job growth/decline in 2024.

NAICS Code	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
<b>Total</b>	<b>All Industries</b>	<b>490,739</b>	<b>544,051</b>	<b>10.9%</b>	<b>1.0</b>
1111	Oilseed and Grain Farming	59	68	15.3%	0.3
1112	Vegetable and Melon Farming	62	63	1.6%	0.2
1113	Fruit and Tree Nut Farming	80	91	13.8%	0.1
1114	Greenhouse, Nursery, and Floriculture Production	356	395	11.0%	0.7
1119	Other Crop Farming	15	17	13.3%	0.1
1121	Cattle Ranching and Farming	88	92	4.5%	0.2
1122	Hog and Pig Farming	12	10	-16.7%	0.1
1123	Poultry and Egg Production	58	62	6.9%	0.4
1124	Sheep and Goat Farming	3	3	0.0%	0.5
1125	Aquaculture	16	15	-6.3%	0.7
1129	Other Animal Production	17	16	-5.9%	0.3
1131	Timber Tract Operations	8	10	25.0%	0.3
1132	Forest Nurseries and Gathering of Forest Products	10	12	20.0%	1.2
1133	Logging	33	22	-33.3%	0.2
1142	Hunting and Trapping	4	5	25.0%	0.6
1151	Support Activities for Crop Production	38	33	-13.2%	0.0
1152	Support Activities for Animal Production	17	15	-11.8%	0.2
1153	Support Activities for Forestry	11	13	18.2%	0.2
2111	Oil and Gas Extraction	48	52	8.3%	0.1
2121	Coal Mining	16	20	25.0%	0.1
2123	Nonmetallic Mineral Mining and Quarrying	535	512	-4.3%	1.7
2131	Support Activities for Mining	107	136	27.1%	0.1
2211	Electric Power Generation, Transmission and Distribution	832	794	-4.6%	0.5
2212	Natural Gas Distribution	128	128	0.0%	0.3
2213	Water, Sewage and Other Systems	901	995	10.4%	1.2
2361	Residential Building Construction	1,972	2,487	26.1%	0.8
2362	Nonresidential Building Construction	1,729	2,072	19.8%	0.7
2371	Utility System Construction	1,974	2,725	38.0%	1.2
2372	Land Subdivision	128	164	28.1%	0.8
2373	Highway, Street, and Bridge Construction	1,032	1,321	28.0%	0.7
2379	Other Heavy and Civil Engineering Construction	31	37	19.4%	0.1
2381	Foundation, Structure, and Building Exterior Contractors	2,139	2,614	22.2%	0.8
2382	Building Equipment Contractors	5,272	6,554	24.3%	0.8
2383	Building Finishing Contractors	1,671	1,703	1.9%	0.7
2389	Other Specialty Trade Contractors	2,747	3,626	32.0%	1.3
3111	Animal Food Manufacturing	281	249	-11.4%	1.4

NAICS Code	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
3112	Grain and Oilseed Milling	87	96	10.3%	0.4
3113	Sugar and Confectionery Product Manufacturing	856	950	11.0%	3.4
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	380	301	-20.8%	0.6
3115	Dairy Product Manufacturing	273	222	-18.7%	0.6
3116	Animal Slaughtering and Processing	585	682	16.6%	0.3
3117	Seafood Product Preparation and Packaging	16	22	37.5%	0.1
3118	Bakeries and Tortilla Manufacturing	779	777	-0.3%	0.7
3119	Other Food Manufacturing	1,172	1,331	13.6%	1.7
3121	Beverage Manufacturing	1,989	2,469	24.1%	2.8
3122	Tobacco Manufacturing	72	86	19.4%	1.5
3131	Fiber, Yarn, and Thread Mills	33	25	-24.2%	0.3
3132	Fabric Mills	253	255	0.8%	1.3
3133	Textile and Fabric Finishing and Fabric Coating Mills	93	77	-17.2%	0.8
3141	Textile Furnishings Mills	40	28	-30.0%	0.2
3149	Other Textile Product Mills	205	153	-25.4%	0.9
3151	Apparel Knitting Mills	53	54	1.9%	1.1
3152	Cut and Sew Apparel Manufacturing	1,191	771	-35.3%	2.9
3159	Apparel Accessories and Other Apparel Manufacturing	59	48	-18.6%	1.4
3169	Other Leather and Allied Product Manufacturing	13	16	23.1%	0.3
3211	Sawmills and Wood Preservation	164	201	22.6%	0.5
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	140	182	30.0%	0.5
3219	Other Wood Product Manufacturing	1,026	1,323	28.9%	1.4
3221	Pulp, Paper, and Paperboard Mills	137	114	-16.8%	0.4
3222	Converted Paper Product Manufacturing	1,555	1,460	-6.1%	1.6
3231	Printing and Related Support Activities	1,235	1,086	-12.1%	0.8
3241	Petroleum and Coal Products Manufacturing	251	268	6.8%	0.6
3251	Basic Chemical Manufacturing	922	981	6.4%	1.8
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	362	389	7.5%	1.1
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	36	42	16.7%	0.3
3254	Pharmaceutical and Medicine Manufacturing	2,445	2,867	17.3%	2.4
3255	Paint, Coating, and Adhesive Manufacturing	121	133	9.9%	0.6
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	510	537	5.3%	1.4
3259	Other Chemical Product and Preparation Manufacturing	411	457	11.2%	1.4
3261	Plastics Product Manufacturing	3,268	3,288	0.6%	1.7
3262	Rubber Product Manufacturing	183	200	9.3%	0.4
3271	Clay Product and Refractory Manufacturing	36	45	25.0%	0.3

NAICS Code	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
3272	Glass and Glass Product Manufacturing	282	327	16.0%	1.0
3273	Cement and Concrete Product Manufacturing	1,265	1,387	9.6%	2.0
3274	Lime and Gypsum Product Manufacturing	8	10	25.0%	0.2
3279	Other Nonmetallic Mineral Product Manufacturing	608	594	-2.3%	2.4
3311	Iron and Steel Mills and Ferroalloy Manufacturing	688	703	2.2%	2.1
3312	Steel Product Manufacturing from Purchased Steel	65	73	12.3%	0.3
3313	Alumina and Aluminum Production and Processing	174	222	27.6%	0.8
3314	Nonferrous Metal (except Aluminum) Production and Processing	309	345	11.7%	1.4
3315	Foundries	1,053	1,266	20.2%	2.3
3321	Forging and Stamping	278	280	0.7%	0.8
3322	Cutlery and Handtool Manufacturing	218	273	25.2%	1.6
3323	Architectural and Structural Metals Manufacturing	1,508	1,832	21.5%	1.2
3324	Boiler, Tank, and Shipping Container Manufacturing	347	352	1.4%	1.0
3325	Hardware Manufacturing	22	28	27.3%	0.3
3326	Spring and Wire Product Manufacturing	68	85	25.0%	0.4
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	1,188	1,233	3.8%	0.9
3328	Coating, Engraving, Heat Treating, and Allied Activities	285	314	10.2%	0.6
3329	Other Fabricated Metal Product Manufacturing	1,361	1,384	1.7%	1.3
3331	Agriculture, Construction, and Mining Machinery Manufacturing	480	529	10.2%	0.5
3332	Industrial Machinery Manufacturing	590	674	14.2%	1.5
3333	Commercial and Service Industry Machinery Manufacturing	257	263	2.3%	0.8
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	266	285	7.1%	0.6
3335	Metalworking Machinery Manufacturing	154	146	-5.2%	0.2
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	261	324	24.1%	0.7
3339	Other General Purpose Machinery Manufacturing	678	714	5.3%	0.7
3341	Computer and Peripheral Equipment Manufacturing	102	118	15.7%	0.2
3342	Communications Equipment Manufacturing	213	239	12.2%	0.6
3343	Audio and Video Equipment Manufacturing	69	67	-2.9%	1.0
3344	Semiconductor and Other Electronic Component Manufacturing	866	866	0.0%	0.7
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	638	594	-6.9%	0.5
3346	Manufacturing and Reproducing Magnetic and Optical Media	190	151	-20.5%	3.1
3351	Electric Lighting Equipment Manufacturing	86	87	1.2%	0.5
3353	Electrical Equipment Manufacturing	1,266	1,094	-13.6%	2.5
3359	Other Electrical Equipment and Component Manufacturing	694	705	1.6%	1.5
3361	Motor Vehicle Manufacturing	1,301	1,230	-5.5%	1.8

NAICS Code	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
3362	Motor Vehicle Body and Trailer Manufacturing	393	478	21.6%	0.8
3363	Motor Vehicle Parts Manufacturing	365	396	8.5%	0.2
3364	Aerospace Product and Parts Manufacturing	385	444	15.3%	0.2
3369	Other Transportation Equipment Manufacturing	296	353	19.3%	2.6
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing	650	682	4.9%	0.8
3372	Office Furniture (including Fixtures) Manufacturing	521	653	25.3%	1.4
3379	Other Furniture Related Product Manufacturing	107	114	6.5%	0.9
3391	Medical Equipment and Supplies Manufacturing	2,439	2,339	-4.1%	2.2
3399	Other Miscellaneous Manufacturing	2,748	2,611	-5.0%	2.8
4231	Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers	1,887	2,064	9.4%	1.6
4232	Furniture and Home Furnishing Merchant Wholesalers	269	304	13.0%	0.7
4233	Lumber and Other Construction Materials Merchant Wholesalers	1,395	1,656	18.7%	1.9
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers	1,345	1,139	-15.3%	0.6
4235	Metal and Mineral (except Petroleum) Merchant Wholesalers	149	167	12.1%	0.3
4236	Household Appliances and Electrical and Electronic Goods Merchant Wholesalers	1,166	1,057	-9.3%	1.0
4237	Hardware, and Plumbing and Heating Equipment and Supplies Merchant Wholesalers	880	992	12.7%	1.0
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	1,676	1,958	16.8%	0.7
4239	Miscellaneous Durable Goods Merchant Wholesalers	451	441	-2.2%	0.4
4241	Paper and Paper Product Merchant Wholesalers	657	609	-7.3%	1.5
4242	Drugs and Druggists' Sundries Merchant Wholesalers	404	491	21.5%	0.6
4243	Apparel, Piece Goods, and Notions Merchant Wholesalers	252	265	5.2%	0.5
4244	Grocery and Related Product Merchant Wholesalers	3,111	3,595	15.6%	1.2
4245	Farm Product Raw Material Merchant Wholesalers	35	40	14.3%	0.1
4246	Chemical and Allied Products Merchant Wholesalers	218	203	-6.9%	0.5
4247	Petroleum and Petroleum Products Merchant Wholesalers	297	338	13.8%	0.8
4248	Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers	454	575	26.7%	0.7
4249	Miscellaneous Nondurable Goods Merchant Wholesalers	770	711	-7.7%	0.7
4251	Wholesale Electronic Markets and Agents and Brokers	2,964	3,262	10.1%	0.9
4411	Automobile Dealers	5,123	5,769	12.6%	1.2
4412	Other Motor Vehicle Dealers	419	487	16.2%	0.8
4413	Automotive Parts, Accessories, and Tire Stores	1,979	2,112	6.7%	1.0
4421	Furniture Stores	584	572	-2.1%	0.8
4422	Home Furnishings Stores	579	608	5.0%	0.7
4431	Electronics and Appliance Stores	1,466	1,456	-0.7%	0.8

NAICS Code	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
4441	Building Material and Supplies Dealers	3,839	3,925	2.2%	1.0
4442	Lawn and Garden Equipment and Supplies Stores	515	496	-3.7%	1.0
4451	Grocery Stores	12,780	13,187	3.2%	1.3
4452	Specialty Food Stores	1,048	1,062	1.3%	1.3
4453	Beer, Wine, and Liquor Stores	711	754	6.0%	1.3
4461	Health and Personal Care Stores	4,106	4,083	-0.6%	1.1
4471	Gasoline Stations	3,422	3,363	-1.7%	1.1
4481	Clothing Stores	4,259	3,976	-6.6%	1.1
4482	Shoe Stores	822	908	10.5%	1.1
4483	Jewelry, Luggage, and Leather Goods Stores	627	596	-4.9%	1.3
4511	Sporting Goods, Hobby, and Musical Instrument Stores	1,941	2,188	12.7%	1.0
4512	Book Stores and News Dealers	319	287	-10.0%	1.0
4521	Department Stores	4,847	4,154	-14.3%	1.0
4529	Other General Merchandise Stores	5,461	5,884	7.7%	0.9
4531	Florists	278	202	-27.3%	1.2
4532	Office Supplies, Stationery, and Gift Stores	1,179	1,044	-11.5%	1.1
4533	Used Merchandise Stores	396	471	18.9%	0.7
4539	Other Miscellaneous Store Retailers	1,434	1,594	11.2%	1.3
4541	Electronic Shopping and Mail-Order Houses	1,548	1,941	25.4%	1.3
4542	Vending Machine Operators	85	71	-16.5%	0.6
4543	Direct Selling Establishments	1,051	1,042	-0.9%	2.2
4811	Scheduled Air Transportation	109	100	-8.3%	0.1
4812	Nonscheduled Air Transportation	88	79	-10.2%	0.7
4831	Deep Sea, Coastal, and Great Lakes Water Transportation	4	5	25.0%	0.0
4832	Inland Water Transportation	40	53	32.5%	0.4
4841	General Freight Trucking	5,072	6,572	29.6%	1.5
4842	Specialized Freight Trucking	1,005	1,140	13.4%	0.6
4851	Urban Transit Systems	895	1,017	13.6%	1.1
4852	Interurban and Rural Bus Transportation	101	96	-5.0%	1.3
4853	Taxi and Limousine Service	201	222	10.4%	0.7
4854	School and Employee Bus Transportation	1,589	1,632	2.7%	1.8
4855	Charter Bus Industry	311	358	15.1%	2.9
4859	Other Transit and Ground Passenger Transportation	183	199	8.7%	0.5
4862	Pipeline Transportation of Natural Gas	8	8	0.0%	0.1
4869	Other Pipeline Transportation	240	295	22.9%	8.4
4871	Scenic and Sightseeing Transportation, Land	9	8	-11.1%	0.2
4879	Scenic and Sightseeing Transportation, Other	2	2	0.0%	0.2

NAICS Code	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
4881	Support Activities for Air Transportation	162	198	22.2%	0.2
4882	Support Activities for Rail Transportation	182	248	36.3%	1.6
4883	Support Activities for Water Transportation	1	1	0.0%	0.0
4884	Support Activities for Road Transportation	626	889	42.0%	1.6
4885	Freight Transportation Arrangement	485	645	33.0%	0.7
4889	Other Support Activities for Transportation	84	89	6.0%	0.7
4911	Postal Service	2,491	1,831	-26.5%	1.2
4921	Couriers and Express Delivery Services	1,897	1,940	2.3%	1.0
4922	Local Messengers and Local Delivery	83	89	7.2%	0.4
4931	Warehousing and Storage	12,338	15,409	24.9%	4.6
5111	Newspaper, Periodical, Book, and Directory Publishers	2,125	1,646	-22.5%	1.4
5112	Software Publishers	138	165	19.6%	0.1
5121	Motion Picture and Video Industries	753	770	2.3%	0.6
5122	Sound Recording Industries	7	8	14.3%	0.1
5151	Radio and Television Broadcasting	554	467	-15.7%	0.7
5171	Wired Telecommunications Carriers	2,116	2,143	1.3%	1.0
5172	Wireless Telecommunications Carriers (except Satellite)	282	286	1.4%	0.5
5179	Other Telecommunications	194	173	-10.8%	0.7
5182	Data Processing, Hosting, and Related Services	1,532	1,939	26.6%	1.5
5191	Other Information Services	688	817	18.8%	0.5
5221	Depository Credit Intermediation	6,497	6,310	-2.9%	1.1
5222	Nondepository Credit Intermediation	912	952	4.4%	0.4
5223	Activities Related to Credit Intermediation	514	503	-2.1%	0.5
5231	Securities and Commodity Contracts Intermediation and Brokerage	520	636	22.3%	0.3
5232	Securities and Commodity Exchanges	5	6	20.0%	0.2
5239	Other Financial Investment Activities	741	855	15.4%	0.5
5241	Insurance Carriers	6,373	6,315	-0.9%	1.5
5242	Agencies, Brokerages, and Other Insurance Related Activities	2,598	3,032	16.7%	0.7
5311	Lessors of Real Estate	1,286	1,426	10.9%	0.6
5312	Offices of Real Estate Agents and Brokers	586	536	-8.5%	0.6
5313	Activities Related to Real Estate	1,025	1,236	20.6%	0.5
5321	Automotive Equipment Rental and Leasing	565	658	16.5%	0.8
5322	Consumer Goods Rental	498	576	15.7%	0.9
5323	General Rental Centers	146	175	19.9%	1.0
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing	119	136	14.3%	0.2
5331	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)	17	19	11.8%	0.2

NAICS Code	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
5411	Legal Services	2,509	2,590	3.2%	0.6
5412	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	1,886	1,995	5.8%	0.5
5413	Architectural, Engineering, and Related Services	3,657	4,372	19.6%	0.7
5414	Specialized Design Services	299	369	23.4%	0.7
5415	Computer Systems Design and Related Services	2,745	3,672	33.8%	0.4
5416	Management, Scientific, and Technical Consulting Services	2,968	3,150	6.1%	0.7
5417	Scientific Research and Development Services	1,172	1,365	16.5%	0.5
5418	Advertising, Public Relations, and Related Services	837	891	6.5%	0.5
5419	Other Professional, Scientific, and Technical Services	1,968	2,380	20.9%	0.9
5511	Management of Companies and Enterprises	11,768	13,097	11.3%	1.5
5611	Office Administrative Services	194	200	3.1%	0.1
5612	Facilities Support Services	907	1,128	24.4%	1.8
5613	Employment Services	14,056	20,225	43.9%	1.1
5614	Business Support Services	3,329	3,076	-7.6%	1.1
5615	Travel Arrangement and Reservation Services	1,310	1,249	-4.7%	1.8
5616	Investigation and Security Services	2,376	3,126	31.6%	0.8
5617	Services to Buildings and Dwellings	6,939	7,267	4.7%	1.0
5619	Other Support Services	2,297	3,224	40.4%	2.1
5621	Waste Collection	1,024	1,192	16.4%	1.7
5622	Waste Treatment and Disposal	303	417	37.6%	0.7
5629	Remediation and Other Waste Management Services	613	752	22.7%	1.3
6111	Elementary and Secondary Schools	28,512	27,712	-2.8%	1.0
6112	Junior Colleges	2,954	3,299	11.7%	1.1
6113	Colleges, Universities, and Professional Schools	10,140	10,527	3.8%	1.0
6114	Business Schools and Computer and Management Training	51	53	3.9%	0.2
6115	Technical and Trade Schools	218	308	41.3%	0.4
6116	Other Schools and Instruction	904	950	5.1%	0.7
6117	Educational Support Services	151	233	54.3%	0.3
6211	Offices of Physicians	11,680	12,183	4.3%	1.3
6212	Offices of Dentists	3,388	3,810	12.5%	1.1
6213	Offices of Other Health Practitioners	3,335	4,321	29.6%	1.2
6214	Outpatient Care Centers	3,901	5,300	35.9%	1.4
6215	Medical and Diagnostic Laboratories	1,722	2,041	18.5%	1.9
6216	Home Health Care Services	3,685	5,080	37.9%	0.8
6219	Other Ambulatory Health Care Services	2,127	2,692	26.6%	2.0
6221	General Medical and Surgical Hospitals	22,425	25,493	13.7%	1.1
6222	Psychiatric and Substance Abuse Hospitals	1,084	1,467	35.3%	1.3

NAICS Code	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
6223	Specialty (except Psychiatric and Substance Abuse) Hospitals	756	903	19.4%	0.8
6231	Nursing Care Facilities (Skilled Nursing Facilities)	9,355	10,147	8.5%	1.5
6232	Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	4,711	5,847	24.1%	1.9
6233	Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	5,502	7,257	31.9%	1.8
6239	Other Residential Care Facilities	458	506	10.5%	0.7
6241	Individual and Family Services	7,374	9,535	29.3%	0.9
6242	Community Food and Housing, and Emergency and Other Relief Services	505	634	25.5%	0.9
6243	Vocational Rehabilitation Services	1,056	1,225	16.0%	0.8
6244	Child Day Care Services	3,846	4,670	21.4%	1.3
7111	Performing Arts Companies	232	296	27.6%	0.6
7112	Spectator Sports	355	433	22.0%	0.7
7113	Promoters of Performing Arts, Sports, and Similar Events	508	672	32.3%	1.1
7114	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	22	21	-4.5%	0.3
7115	Independent Artists, Writers, and Performers	84	110	31.0%	0.5
7121	Museums, Historical Sites, and Similar Institutions	554	715	29.1%	0.7
7131	Amusement Parks and Arcades	847	859	1.4%	1.2
7132	Gambling Industries	598	695	16.2%	0.6
7139	Other Amusement and Recreation Industries	6,273	7,691	22.6%	1.3
7211	Traveler Accommodation	10,123	11,875	17.3%	1.5
7212	RV (Recreational Vehicle) Parks and Recreational Camps	1,055	1,145	8.5%	5.0
7213	Rooming and Boarding Houses	41	44	7.3%	0.8
7223	Special Food Services	4,718	4,968	5.3%	2.1
7224	Drinking Places (Alcoholic Beverages)	1,054	1,108	5.1%	0.8
7225	Restaurants and Other Eating Places	29,259	32,926	12.5%	0.8
8111	Automotive Repair and Maintenance	3,037	3,400	12.0%	1.0
8112	Electronic and Precision Equipment Repair and Maintenance	159	153	-3.8%	0.4
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	699	751	7.4%	1.0
8114	Personal and Household Goods Repair and Maintenance	228	230	0.9%	0.9
8121	Personal Care Services	3,176	3,553	11.9%	1.4
8122	Death Care Services	570	664	16.5%	1.2
8123	Drycleaning and Laundry Services	1,301	1,273	-2.2%	1.2
8129	Other Personal Services	503	595	18.3%	0.5
8131	Religious Organizations	961	885	-7.9%	1.4
8132	Grantmaking and Giving Services	235	237	0.9%	0.5

NAICS Code	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
8133	Social Advocacy Organizations	316	349	10.4%	0.4
8134	Civic and Social Organizations	1,900	1,923	1.2%	1.3
8139	Business, Professional, Labor, Political, and Similar Organizations	2,337	2,671	14.3%	1.5
8141	Private Households	170	156	-8.2%	0.2
9211	Executive, Legislative, and Other General Government Support	12,001	11,900	-0.8%	1.1
9221	Justice, Public Order, and Safety Activities	2,520	2,800	11.1%	0.4
9231	Administration of Human Resource Programs	333	381	14.4%	0.1
9241	Administration of Environmental Quality Programs	424	436	2.8%	0.4
9251	Administration of Housing Programs, Urban Planning, and Community Development	448	422	-5.8%	1.5
9261	Administration of Economic Programs	308	287	-6.8%	0.1
9281	National Security and International Affairs	3,076	2,567	-16.5%	1.5

Source: Bureau of Labor Statistics, Occupational Employment Statistics (OES), Pennsylvania Department of Labor & Industry, Oxford Economics Projections

# APPENDIX D: OCCUPATION PROJECTIONS 2014- 2024 FOR EAST STROUDSBURG UNIVERSITY'S WORKFORCE REGION

For this analysis a “skilled” occupation is defined as an occupation in O\*NET Job Zones<sup>19</sup> Three, Four or Five. Most occupations in Job Zone Three require training in vocational schools, related on-the-job experience, or an associate’s degree.

The O\*NET program is the nation’s primary source of occupational information. Central to the project is the O\*NET database, containing information on hundreds of standardized and occupation-specific descriptors. The database, which is available to the public at no cost, is continually updated by surveying a broad range of workers from each occupation.<sup>20</sup>

## **JOB ZONE ONE: Little or No Preparation Needed**

- *Education* – Some of these occupations may require a high school diploma or GED certificate.
- *Related Experience* – Little or no previous work-related skill, knowledge, or experience is needed for these occupations. For example, a person can become a waiter or waitress even if he/she has never worked before.
- *Job Training* – Employees in these occupations need anywhere from a few days to a few months of training. Usually, an experienced worker could show you how to do the job.
- *Job Zone Examples* – These occupations involve following instructions and helping others. Examples include taxi drivers, amusement and recreation attendants, counter and rental clerks, nonfarm animal caretakers, continuous mining machine operators, and waiters/waitresses.

## **JOB ZONE TWO: Some Preparation Needed**

- *Education* – These occupations usually require a high school diploma.

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<sup>19</sup> <https://www.onetonline.org/help/online/zones>

<sup>20</sup> <http://www.onetcenter.org/overview.html>

- *Related Experience* – Some previous work-related skill, knowledge, or experience is usually needed. For example, a teller would benefit from experience working directly with the public.
- *Job Training* – Employees in these occupations need anywhere from a few months to one year of working with experienced employees. A recognized apprenticeship program may be associated with these occupations.
- *Job Zone Examples* – These occupations often involve using your knowledge and skills to help others. Examples include sheet metal workers, forest fire fighters, customer service representatives, physical therapist aides, salespersons (retail), and tellers.

### **JOB ZONE THREE: Medium Preparation Needed**

- *Education* – Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree.
- *Related Experience* – Previous work-related skill, knowledge, or experience is required for these occupations. For example, an electrician must have completed three or four years of apprenticeship or several years of vocational training, and often must have passed a licensing exam, in order to perform the job.
- *Job Training* – Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers. A recognized apprenticeship program may be associated with these occupations.
- *Job Zone Examples* – These occupations usually involve using communication and organizational skills to coordinate, supervise, manage, or train others to accomplish goals. Examples include food service managers, electricians, agricultural technicians, legal secretaries, occupational therapy assistants, and medical assistants.

### **JOB ZONE FOUR: Considerable Preparation Needed**

- *Education* – Most of these occupations require a four-year bachelor's degree, but some do not.
- *Related Experience* – A considerable amount of work-related skill, knowledge, or experience is needed for these occupations. For example, an accountant must complete four years of college and work for several years in accounting to be considered qualified.

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- *Job Training* – Employees in these occupations usually need several years of work-related experience, on-the-job training, and/or vocational training.
  - *Job Zone Examples* – Many of these occupations involve coordinating, supervising, managing, or training others. Examples include accountants, sales managers, database administrators, teachers, chemists, art directors, and cost estimators.

### **JOB ZONE FIVE: Extensive Preparation Needed**

- *Education* – Most of these occupations require graduate school. For example, they may require a master's degree, and some require a Ph.D., M.D., or J.D. (law degree).
- *Related Experience* – Extensive skill, knowledge, and experience are needed for these occupations. Many require more than five years of experience. For example, surgeons must complete four years of college and an additional five to seven years of specialized medical training to be able to do their job.
- *Job Training* – Employees may need some on-the-job training, but most of these occupations assume that the person will already have the required skills, knowledge, work-related experience, and/or training.
- *Job Zone Examples* – These occupations often involve coordinating, training, supervising, or managing the activities of others to accomplish goals. Very advanced communication and organizational skills are required. Examples include librarians, lawyers, sports medicine physicians, wildlife biologists, school psychologists, surgeons, treasurers, and controllers.

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
<b>Total</b>	<b>All Occupations</b>	<b>NA</b>	<b>490,738</b>	<b>544,050</b>	<b>10.9%</b>	<b>193,381</b>
11-1011	Chief Executives	5	916	931	1.6%	232
11-1021	General and Operations Managers	4	5,473	6,366	16.3%	1,868
11-1031	Legislators	4	167	137	-18.0%	14
11-2011	Advertising and Promotions Managers	4	53	44	-17.0%	9
11-2021	Marketing Managers	4	435	482	10.8%	141
11-2022	Sales Managers	4	878	889	1.3%	200
11-2031	Public Relations and Fundraising Managers	4	122	116	-4.9%	20
11-3011	Administrative Services Managers	3	681	695	2.1%	118
11-3021	Computer and Information Systems Managers	4	766	978	27.7%	323
11-3031	Financial Managers	4	1,172	1,151	-1.8%	196
11-3051	Industrial Production Managers	4	525	506	-3.6%	102
11-3061	Purchasing Managers	4	166	154	-7.2%	26
11-3071	Transportation, Storage, and Distribution Managers	4	372	454	22.0%	174
11-3111	Compensation and Benefits Managers	4	59	50	-15.3%	9
11-3121	Human Resources Managers	4	302	374	23.8%	150
11-3131	Training and Development Managers	4	73	92	26.0%	38
11-9021	Construction Managers	4	432	564	30.6%	195
11-9031	Education Administrators, Preschool and Childcare Center/Program	4	177	204	15.3%	75
11-9032	Education Administrators, Elementary and Secondary School	5	749	681	-9.1%	179
11-9033	Education Administrators, Postsecondary	5	401	394	-1.7%	107
11-9039	Education Administrators, All Other	5	55	65	18.2%	26
11-9041	Architectural and Engineering Managers	5	388	422	8.8%	135
11-9051	Food Service Managers	3	545	603	10.6%	169
11-9061	Funeral Service Managers	3	42	46	9.5%	16
11-9071	Gaming Managers	3	10	12	20.0%	4
11-9081	Lodging Managers	3	199	230	15.6%	117
11-9111	Medical and Health Services Managers	5	1,185	1,314	10.9%	417
11-9121	Natural Sciences Managers	5	115	127	10.4%	41
11-9131	Postmasters and Mail Superintendents	3	97	57	-41.2%	6
11-9141	Property, Real Estate, and Community Association Managers	4	230	284	23.5%	114
11-9151	Social and Community Service Managers	4	425	491	15.5%	164
11-9161	Emergency Management Directors	4	33	29	-12.1%	1
11-9199	Managers, All Other	4	636	696	9.4%	199

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
13-1011	Agents and Business Managers of Artists, Performers, and Athletes	4	15	12	-20.0%	3
13-1021	Buyers and Purchasing Agents, Farm Products	4	41	44	7.3%	13
13-1022	Wholesale and Retail Buyers, Except Farm Products	3	396	373	-5.8%	85
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	4	1,131	1,208	6.8%	319
13-1031	Claims Adjusters, Examiners, and Investigators	4	1,080	1,091	1.0%	332
13-1032	Insurance Appraisers, Auto Damage	3	61	79	29.5%	40
13-1041	Compliance Officers	4	844	983	16.5%	314
13-1051	Cost Estimators	4	754	887	17.6%	389
13-1071	Human Resources Specialists	4	1,794	2,265	26.3%	854
13-1075	Labor Relations Specialists	4	656	626	-4.6%	163
13-1081	Logisticians	4	502	632	25.9%	197
13-1111	Management Analysts	4	1,431	1,648	15.2%	455
13-1121	Meeting, Convention, and Event Planners	4	282	377	33.7%	138
13-1131	Fundraisers	4	180	229	27.2%	90
13-1141	Compensation, Benefits, and Job Analysis Specialists	4	297	284	-4.4%	53
13-1151	Training and Development Specialists	4	863	991	14.8%	299
13-1161	Market Research Analysts and Marketing Specialists	4	1,768	2,270	28.4%	785
13-1199	Business Operations Specialists, All Other	4	1,348	1,388	3.0%	200
13-2011	Accountants and Auditors	4	3,927	4,276	8.9%	1,656
13-2021	Appraisers and Assessors of Real Estate	4	122	138	13.1%	35
13-2031	Budget Analysts	4	144	143	-0.7%	60
13-2041	Credit Analysts	4	182	219	20.3%	91
13-2051	Financial Analysts	4	784	893	13.9%	315
13-2052	Personal Financial Advisors	4	373	491	31.6%	187
13-2053	Insurance Underwriters	4	422	435	3.1%	177
13-2061	Financial Examiners	4	118	117	-0.8%	37
13-2071	Credit Counselors	4	146	210	43.8%	96
13-2072	Loan Officers	3	991	1,121	13.1%	405
13-2081	Tax Examiners and Collectors, and Revenue Agents	3	327	290	-11.3%	95
13-2082	Tax Preparers	3	114	101	-11.4%	22
13-2099	Financial Specialists, All Other	4	296	293	-1.0%	37
15-1111	Computer and Information Research Scientists	5	13	14	7.7%	3
15-1121	Computer Systems Analysts	4	1,624	2,194	35.1%	858
15-1122	Information Security Analysts	4	177	222	25.4%	72
15-1131	Computer Programmers	4	864	1,040	20.4%	459

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
15-1132	Software Developers, Applications	4	1,475	1,980	34.2%	716
15-1133	Software Developers, Systems Software	4	641	639	-0.3%	77
15-1134	Web Developers	3	291	379	30.2%	135
15-1141	Database Administrators	4	384	463	20.6%	159
15-1142	Network and Computer Systems Administrators	4	1,193	1,168	-2.1%	180
15-1143	Computer Network Architects	4	273	317	16.1%	87
15-1151	Computer User Support Specialists	3	1,944	2,460	26.5%	864
15-1152	Computer Network Support Specialists	4	417	429	2.9%	91
15-1199	Computer Occupations, All Other	4	534	659	23.4%	219
15-2011	Actuaries	4	114	140	22.8%	62
15-2031	Operations Research Analysts	5	194	229	18.0%	80
15-2041	Statisticians	5	124	187	50.8%	106
17-1011	Architects, Except Landscape and Naval	4	175	222	26.9%	110
17-1012	Landscape Architects	4	55	75	36.4%	37
17-1021	Cartographers and Photogrammetrists	4	16	18	12.5%	6
17-1022	Surveyors	4	98	130	32.7%	57
17-2011	Aerospace Engineers	4	69	94	36.2%	43
17-2021	Agricultural Engineers	4	6	8	33.3%	4
17-2031	Biomedical Engineers	4	72	62	-13.9%	9
17-2041	Chemical Engineers	4	148	169	14.2%	65
17-2051	Civil Engineers	4	810	997	23.1%	408
17-2061	Computer Hardware Engineers	4	97	95	-2.1%	18
17-2071	Electrical Engineers	4	505	580	14.9%	200
17-2072	Electronics Engineers, Except Computer	4	248	234	-5.6%	48
17-2081	Environmental Engineers	5	216	276	27.8%	123
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	4	84	94	11.9%	36
17-2112	Industrial Engineers	4	762	749	-1.7%	245
17-2131	Materials Engineers	4	81	99	22.2%	48
17-2141	Mechanical Engineers	4	753	785	4.2%	317
17-2151	Mining and Geological Engineers, Including Mining Safety Engineers	4	18	18	0.0%	7
17-2161	Nuclear Engineers	4	97	120	23.7%	56
17-2171	Petroleum Engineers	4	6	7	16.7%	3
17-2199	Engineers, All Other	4	264	363	37.5%	152
17-3011	Architectural and Civil Drafters	4	297	349	17.5%	124
17-3012	Electrical and Electronics Drafters	3	106	91	-14.2%	3
17-3013	Mechanical Drafters	3	295	290	-1.7%	60

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
17-3019	Drafters, All Other	3	16	20	25.0%	6
17-3021	Aerospace Engineering and Operations Technicians	4	8	9	12.5%	3
17-3022	Civil Engineering Technicians	3	142	179	26.1%	72
17-3023	Electrical and Electronics Engineering Technicians	3	328	291	-11.3%	44
17-3024	Electro-Mechanical Technicians	3	38	36	-5.3%	9
17-3025	Environmental Engineering Technicians	4	80	95	18.8%	36
17-3026	Industrial Engineering Technicians	3	160	172	7.5%	52
17-3027	Mechanical Engineering Technicians	3	142	184	29.6%	76
17-3029	Engineering Technicians, Except Drafters, All Other	3	274	390	42.3%	184
17-3031	Surveying and Mapping Technicians	3	91	123	35.2%	52
19-1012	Food Scientists and Technologists	4	29	40	37.9%	22
19-1013	Soil and Plant Scientists	5	10	13	30.0%	7
19-1021	Biochemists and Biophysicists	5	74	120	62.2%	69
19-1022	Microbiologists	5	59	83	40.7%	44
19-1023	Zoologists and Wildlife Biologists	5	18	19	5.6%	6
19-1029	Biological Scientists, All Other	5	30	31	3.3%	11
19-1031	Conservation Scientists	4	40	45	12.5%	18
19-1032	Foresters	4	21	22	4.8%	7
19-1041	Epidemiologists	5	10	10	0.0%	1
19-1042	Medical Scientists, Except Epidemiologists	5	430	545	26.7%	219
19-1099	Life Scientists, All Other	5	13	16	23.1%	5
19-2012	Physicists	5	14	13	-7.1%	2
19-2021	Atmospheric and Space Scientists	4	6	5	-16.7%	0
19-2031	Chemists	4	459	599	30.5%	288
19-2032	Materials Scientists	5	32	36	12.5%	13
19-2041	Environmental Scientists and Specialists, Including Health	4	170	214	25.9%	98
19-2042	Geoscientists, Except Hydrologists and Geographers	4	61	62	1.6%	23
19-2043	Hydrologists	4	11	11	0.0%	3
19-2099	Physical Scientists, All Other	5	25	21	-16.0%	1
19-3011	Economists	5	36	38	5.6%	14
19-3022	Survey Researchers	5	191	195	2.1%	65
19-3031	Clinical, Counseling, and School Psychologists	5	463	511	10.4%	188
19-3039	Psychologists, All Other	5	35	42	20.0%	17
19-3041	Sociologists	5	8	7	-12.5%	4
19-3051	Urban and Regional Planners	5	127	125	-1.6%	59

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
19-3091	Anthropologists and Archeologists	5	2	3	50.0%	1
19-3093	Historians	5	7	6	-14.3%	0
19-3099	Social Scientists and Related Workers, All Other	4	38	39	2.6%	9
19-4011	Agricultural and Food Science Technicians	3	14	12	-14.3%	4
19-4021	Biological Technicians	4	325	376	15.7%	158
19-4031	Chemical Technicians	3	348	431	23.9%	194
19-4041	Geological and Petroleum Technicians	4	14	19	35.7%	12
19-4051	Nuclear Technicians	3	63	74	17.5%	39
19-4061	Social Science Research Assistants	4	45	56	24.4%	32
19-4091	Environmental Science and Protection Technicians, Including Health	4	109	140	28.4%	80
19-4092	Forensic Science Technicians	4	12	12	0.0%	5
19-4093	Forest and Conservation Technicians	3	29	32	10.3%	17
19-4099	Life, Physical, and Social Science Technicians, All Other	3	163	195	19.6%	101
21-1011	Substance Abuse and Behavioral Disorder Counselors	5	642	699	8.9%	240
21-1012	Educational, Guidance, School, and Vocational Counselors	5	1,003	1,030	2.7%	263
21-1013	Marriage and Family Therapists	5	86	98	14.0%	31
21-1014	Mental Health Counselors	5	911	1,005	10.3%	343
21-1015	Rehabilitation Counselors	5	571	711	24.5%	300
21-1019	Counselors, All Other	5	79	82	3.8%	21
21-1021	Child, Family, and School Social Workers	4	1,201	1,343	11.8%	423
21-1022	Healthcare Social Workers	5	657	832	26.6%	328
21-1023	Mental Health and Substance Abuse Social Workers	5	844	1,047	24.1%	440
21-1029	Social Workers, All Other	5	86	100	16.3%	34
21-1091	Health Educators	4	220	269	22.3%	109
21-1092	Probation Officers and Correctional Treatment Specialists	4	331	334	0.9%	110
21-1093	Social and Human Service Assistants	4	1,744	2,016	15.6%	793
21-1094	Community Health Workers	4	77	83	7.8%	26
21-1099	Community and Social Service Specialists, All Other	4	116	129	11.2%	41
21-2011	Clergy	5	184	201	9.2%	61
21-2021	Directors, Religious Activities and Education	4	170	188	10.6%	94
21-2099	Religious Workers, All Other	4	46	35	-23.9%	5
23-1011	Lawyers	5	1,448	1,584	9.4%	383
23-1012	Judicial Law Clerks	5	95	98	3.2%	22

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
23-1021	Administrative Law Judges, Adjudicators, and Hearing Officers	5	58	60	3.4%	14
23-1022	Arbitrators, Mediators, and Conciliators	5	21	26	23.8%	8
23-1023	Judges, Magistrate Judges, and Magistrates	5	22	19	-13.6%	2
23-2011	Paralegals and Legal Assistants	3	584	716	22.6%	231
23-2091	Court Reporters	3	84	90	7.1%	28
23-2093	Title Examiners, Abstractors, and Searchers	3	183	216	18.0%	74
23-2099	Legal Support Workers, All Other	3	58	63	8.6%	16
25-1011	Business Teachers, Postsecondary	5	393	465	18.3%	131
25-1021	Computer Science Teachers, Postsecondary	5	193	235	21.8%	72
25-1022	Mathematical Science Teachers, Postsecondary	5	270	294	8.9%	64
25-1031	Architecture Teachers, Postsecondary	5	44	53	20.5%	16
25-1032	Engineering Teachers, Postsecondary	5	207	247	19.3%	71
25-1041	Agricultural Sciences Teachers, Postsecondary	5	29	25	-13.8%	1
25-1042	Biological Science Teachers, Postsecondary	5	301	320	6.3%	64
25-1043	Forestry and Conservation Science Teachers, Postsecondary	5	10	8	-20.0%	0
25-1051	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	5	61	68	11.5%	16
25-1052	Chemistry Teachers, Postsecondary	5	127	143	12.6%	36
25-1053	Environmental Science Teachers, Postsecondary	5	22	22	0.0%	3
25-1054	Physics Teachers, Postsecondary	5	82	102	24.4%	32
25-1061	Anthropology and Archeology Teachers, Postsecondary	5	24	23	-4.2%	2
25-1062	Area, Ethnic, and Cultural Studies Teachers, Postsecondary	5	34	37	8.8%	8
25-1063	Economics Teachers, Postsecondary	5	90	105	16.7%	29
25-1064	Geography Teachers, Postsecondary	5	25	28	12.0%	7
25-1065	Political Science Teachers, Postsecondary	5	83	86	3.6%	16
25-1066	Psychology Teachers, Postsecondary	5	205	230	12.2%	56
25-1067	Sociology Teachers, Postsecondary	5	136	158	16.2%	43
25-1069	Social Sciences Teachers, Postsecondary, All Other	5	34	43	26.5%	13
25-1071	Health Specialties Teachers, Postsecondary	5	540	575	6.5%	116
25-1072	Nursing Instructors and Teachers, Postsecondary	5	282	298	5.7%	59
25-1081	Education Teachers, Postsecondary	5	284	295	3.9%	54
25-1082	Library Science Teachers, Postsecondary	5	25	29	16.0%	8
25-1111	Criminal Justice and Law Enforcement Teachers, Postsecondary	5	52	57	9.6%	13
25-1112	Law Teachers, Postsecondary	5	45	51	13.3%	13

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
25-1113	Social Work Teachers, Postsecondary	5	49	47	-4.1%	6
25-1121	Art, Drama, and Music Teachers, Postsecondary	5	403	492	22.1%	149
25-1122	Communications Teachers, Postsecondary	5	124	139	12.1%	34
25-1123	English Language and Literature Teachers, Postsecondary	5	416	443	6.5%	89
25-1124	Foreign Language and Literature Teachers, Postsecondary	5	154	172	11.7%	41
25-1125	History Teachers, Postsecondary	5	127	145	14.2%	38
25-1126	Philosophy and Religion Teachers, Postsecondary	5	112	126	12.5%	31
25-1191	Graduate Teaching Assistants	5	108	128	18.5%	37
25-1192	Home Economics Teachers, Postsecondary	5	8	7	-12.5%	0
25-1193	Recreation and Fitness Studies Teachers, Postsecondary	5	83	87	4.8%	16
25-1194	Vocational Education Teachers, Postsecondary	3	412	440	6.8%	89
25-1199	Postsecondary Teachers, All Other	5	345	416	20.6%	122
25-2011	Preschool Teachers, Except Special Education	3	1,306	1,742	33.4%	811
25-2012	Kindergarten Teachers, Except Special Education	4	568	551	-3.0%	157
25-2021	Elementary School Teachers, Except Special Education	4	5,439	5,369	-1.3%	1,298
25-2022	Middle School Teachers, Except Special and Career/Technical Education	4	2,414	2,881	19.3%	1,073
25-2023	Career/Technical Education Teachers, Middle School	4	60	71	18.3%	29
25-2031	Secondary School Teachers, Except Special and Career/Technical Education	4	5,021	4,855	-3.3%	1,544
25-2032	Career/Technical Education Teachers, Secondary School	4	435	393	-9.7%	99
25-2051	Special Education Teachers, Preschool	4	63	75	19.0%	23
25-2052	Special Education Teachers, Kindergarten and Elementary School	4	1,032	1,041	0.9%	243
25-2053	Special Education Teachers, Middle School	4	362	343	-5.2%	64
25-2054	Special Education Teachers, Secondary School	4	750	756	0.8%	188
25-2059	Special Education Teachers, All Other	4	24	28	16.7%	7
25-3011	Adult Basic and Secondary Education and Literacy Teachers and Instructors	4	123	110	-10.6%	13
25-3021	Self-Enrichment Education Teachers	3	606	576	-5.0%	99
25-3097	Teachers and Instructors, All Other, Except Substitute Teachers	3	424	498	17.5%	146
25-3098	Substitute Teachers	3	1,595	1,448	-9.2%	186
25-4011	Archivists	5	23	27	17.4%	10
25-4012	Curators	5	34	45	32.4%	20

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
25-4013	Museum Technicians and Conservators	4	38	51	34.2%	23
25-4021	Librarians	5	450	447	-0.7%	108
25-4031	Library Technicians	4	230	236	2.6%	135
25-9011	Audio-Visual and Multimedia Collections Specialists	4	19	20	5.3%	5
25-9021	Farm and Home Management Advisors	5	3	3	0.0%	0
25-9031	Instructional Coordinators	5	326	369	13.2%	71
25-9041	Teacher Assistants	3	4,301	4,476	4.1%	1,244
25-9099	Education, Training, and Library Workers, All Other	4	78	80	2.6%	10
27-1011	Art Directors	4	88	94	6.8%	31
27-1012	Craft Artists	2	3	3	0.0%	0
27-1013	Fine Artists, Including Painters, Sculptors, and Illustrators	3	26	27	3.8%	9
27-1014	Multimedia Artists and Animators	4	31	31	0.0%	8
27-1019	Artists and Related Workers, All Other	4	9	7	-22.2%	0
27-1021	Commercial and Industrial Designers	4	73	59	-19.2%	8
27-1022	Fashion Designers	3	38	25	-34.2%	3
27-1023	Floral Designers	2	184	117	-36.4%	28
27-1024	Graphic Designers	4	727	703	-3.3%	206
27-1025	Interior Designers	4	103	140	35.9%	78
27-1026	Merchandise Displayers and Window Trimmers	3	238	257	8.0%	88
27-1027	Set and Exhibit Designers	5	18	22	22.2%	9
27-2011	Actors	2	91	112	23.1%	57
27-2012	Producers and Directors	4	202	208	3.0%	94
27-2021	Athletes and Sports Competitors	2	66	82	24.2%	41
27-2022	Coaches and Scouts	4	652	655	0.5%	210
27-2023	Umpires, Referees, and Other Sports Officials	3	33	33	0.0%	10
27-2031	Dancers	3	7	7	0.0%	2
27-2032	Choreographers	4	15	16	6.7%	6
27-2041	Music Directors and Composers	3	95	74	-22.1%	13
27-2042	Musicians and Singers	3	86	79	-8.1%	26
27-2099	Entertainers and Performers, Sports and Related Workers, All Other	3	6	6	0.0%	0
27-3011	Radio and Television Announcers	3	92	76	-17.4%	27
27-3012	Public Address System and Other Announcers	2	17	22	29.4%	10
27-3022	Reporters and Correspondents	4	136	97	-28.7%	32
27-3031	Public Relations Specialists	4	703	699	-0.6%	104
27-3041	Editors	4	324	265	-18.2%	46

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
27-3042	Technical Writers	4	95	102	7.4%	36
27-3043	Writers and Authors	4	124	114	-8.1%	21
27-3091	Interpreters and Translators	4	74	84	13.5%	22
27-3099	Media and Communication Workers, All Other	4	27	23	-14.8%	1
27-4011	Audio and Video Equipment Technicians	3	150	178	18.7%	60
27-4012	Broadcast Technicians	3	45	36	-20.0%	5
27-4014	Sound Engineering Technicians	3	26	24	-7.7%	5
27-4021	Photographers	3	155	135	-12.9%	26
27-4031	Camera Operators, Television, Video, and Motion Picture	3	43	37	-14.0%	3
27-4032	Film and Video Editors	3	28	27	-3.6%	4
27-4099	Media and Communication Equipment Workers, All Other	3	16	13	-18.8%	0
29-1011	Chiropractors	5	105	140	33.3%	58
29-1021	Dentists, General	5	369	428	16.0%	151
29-1022	Oral and Maxillofacial Surgeons	5	14	14	0.0%	4
29-1023	Orthodontists	5	10	13	30.0%	5
29-1029	Dentists, All Other Specialists	5	9	9	0.0%	2
29-1031	Dietitians and Nutritionists	5	285	305	7.0%	58
29-1041	Optometrists	5	122	152	24.6%	71
29-1051	Pharmacists	5	1,114	1,226	10.1%	406
29-1061	Anesthesiologists	5	158	162	2.5%	49
29-1062	Family and General Practitioners	5	643	685	6.5%	221
29-1063	Internists, General	5	98	95	-3.1%	21
29-1064	Obstetricians and Gynecologists	5	35	44	25.7%	17
29-1065	Pediatricians, General	5	36	47	30.6%	18
29-1066	Psychiatrists	5	86	94	9.3%	32
29-1067	Surgeons	5	208	267	28.4%	114
29-1069	Physicians and Surgeons, All Other	5	1,470	1,546	5.2%	461
29-1071	Physician Assistants	5	490	533	8.8%	139
29-1081	Podiatrists	5	42	59	40.5%	34
29-1122	Occupational Therapists	5	502	664	32.3%	240
29-1123	Physical Therapists	5	866	1,146	32.3%	525
29-1124	Radiation Therapists	3	71	65	-8.5%	8
29-1125	Recreational Therapists	4	120	140	16.7%	49
29-1126	Respiratory Therapists	3	437	519	18.8%	145
29-1127	Speech-Language Pathologists	5	398	519	30.4%	179
29-1128	Exercise Physiologists	5	30	40	33.3%	14

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
29-1129	Therapists, All Other	4	34	49	44.1%	19
29-1131	Veterinarians	5	200	299	49.5%	171
29-1141	Registered Nurses	3	11,387	13,759	20.8%	4,678
29-1151	Nurse Anesthetists	5	207	225	8.7%	61
29-1161	Nurse Midwives	5	15	20	33.3%	8
29-1171	Nurse Practitioners	5	369	458	24.1%	156
29-1181	Audiologists	5	51	63	23.5%	23
29-1199	Health Diagnosing and Treating Practitioners, All Other	5	43	37	-14.0%	4
29-2011	Medical and Clinical Laboratory Technologists	4	898	1,026	14.3%	400
29-2012	Medical and Clinical Laboratory Technicians	3	979	1,166	19.1%	466
29-2021	Dental Hygienists	3	926	1,145	23.7%	470
29-2031	Cardiovascular Technologists and Technicians	3	268	346	29.1%	119
29-2032	Diagnostic Medical Sonographers	3	239	295	23.4%	90
29-2033	Nuclear Medicine Technologists	3	93	107	15.1%	27
29-2034	Radiologic Technologists	3	957	1,108	15.8%	299
29-2035	Magnetic Resonance Imaging Technologists	3	135	176	30.4%	62
29-2041	Emergency Medical Technicians and Paramedics	3	1,291	1,573	21.8%	708
29-2051	Dietetic Technicians	2	285	390	36.8%	139
29-2052	Pharmacy Technicians	3	1,298	1,457	12.2%	309
29-2053	Psychiatric Technicians	3	134	174	29.9%	68
29-2054	Respiratory Therapy Technicians	3	44	42	-4.5%	2
29-2055	Surgical Technologists	3	320	432	35.0%	142
29-2056	Veterinary Technologists and Technicians	3	305	433	42.0%	160
29-2057	Ophthalmic Medical Technicians	3	110	147	33.6%	50
29-2061	Licensed Practical and Licensed Vocational Nurses	3	3,470	4,213	21.4%	1,660
29-2071	Medical Records and Health Information Technicians	3	737	903	22.5%	364
29-2081	Opticians, Dispensing	3	276	352	27.5%	171
29-2091	Orthotists and Prosthetists	5	49	57	16.3%	13
29-2092	Hearing Aid Specialists	3	13	14	7.7%	3
29-2099	Health Technologists and Technicians, All Other	3	211	277	31.3%	82
29-9011	Occupational Health and Safety Specialists	4	179	208	16.2%	82
29-9012	Occupational Health and Safety Technicians	3	34	45	32.4%	20
29-9091	Athletic Trainers	5	114	158	38.6%	77
29-9099	Healthcare Practitioners and Technical Workers, All Other	4	74	70	-5.4%	15
31-1011	Home Health Aides	2	4,016	5,156	28.4%	2,245

<b>SOC Code</b>	<b>Occupation Title</b>	<b>Job Zone</b>	<b>2014</b>	<b>2024</b>	<b>% Change 2014-2024</b>	<b>New and Replacement Jobs</b>
31-1013	Psychiatric Aides	2	160	193	20.6%	74
31-1014	Nursing Assistants	2	7,138	8,364	17.2%	2,668
31-1015	Orderlies	2	204	233	14.2%	69
31-2011	Occupational Therapy Assistants	3	204	273	33.8%	132
31-2012	Occupational Therapy Aides	3	46	72	56.5%	39
31-2021	Physical Therapist Assistants	3	375	520	38.7%	246
31-2022	Physical Therapist Aides	2	175	215	22.9%	81
31-9011	Massage Therapists	3	207	275	32.9%	89
31-9091	Dental Assistants	3	1,272	1,431	12.5%	438
31-9092	Medical Assistants	3	2,339	2,730	16.7%	860
31-9093	Medical Equipment Preparers	2	165	208	26.1%	74
31-9094	Medical Transcriptionists	3	384	325	-15.4%	46
31-9095	Pharmacy Aides	2	137	120	-12.4%	16
31-9096	Veterinary Assistants and Laboratory Animal Caretakers	3	181	188	3.9%	44
31-9097	Phlebotomists	3	549	701	27.7%	279
31-9099	Healthcare Support Workers, All Other	3	133	122	-8.3%	11
33-1011	First-Line Supervisors of Correctional Officers	3	107	114	6.5%	48
33-1012	First-Line Supervisors of Police and Detectives	3	235	292	24.3%	135
33-1021	First-Line Supervisors of Fire Fighting and Prevention Workers	3	64	74	15.6%	39
33-1099	First-Line Supervisors of Protective Service Workers, All Other	3	165	208	26.1%	93
33-2011	Firefighters	3	396	414	4.5%	137
33-2021	Fire Inspectors and Investigators	3	19	18	-5.3%	5
33-3011	Bailiffs	2	17	14	-17.6%	2
33-3012	Correctional Officers and Jailers	3	1,313	1,229	-6.4%	322
33-3021	Detectives and Criminal Investigators	3	219	231	5.5%	69
33-3041	Parking Enforcement Workers	2	36	39	8.3%	17
33-3051	Police and Sheriff's Patrol Officers	3	2,224	2,159	-2.9%	733
33-3052	Transit and Railroad Police	3	6	5	-16.7%	1
33-9011	Animal Control Workers	2	16	17	6.3%	5
33-9021	Private Detectives and Investigators	3	118	108	-8.5%	35
33-9031	Gaming Surveillance Officers and Gaming Investigators	2	32	40	25.0%	23
33-9032	Security Guards	2	3,343	4,260	27.4%	1,853
33-9091	Crossing Guards	1	411	373	-9.2%	62
33-9092	Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	2	491	560	14.1%	424

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
33-9093	Transportation Security Screeners	2	103	105	1.9%	30
33-9099	Protective Service Workers, All Other	2	299	356	19.1%	271
35-1011	Chefs and Head Cooks	3	498	551	10.6%	152
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	2	2,730	3,123	14.4%	1,231
35-2011	Cooks, Fast Food	1	782	737	-5.8%	126
35-2012	Cooks, Institution and Cafeteria	2	1,855	1,866	0.6%	396
35-2014	Cooks, Restaurant	2	3,758	5,024	33.7%	2,139
35-2015	Cooks, Short Order	1	666	779	17.0%	277
35-2021	Food Preparation Workers	1	3,526	3,316	-6.0%	905
35-3011	Bartenders	2	2,598	2,884	11.0%	1,381
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	1	12,367	14,382	16.3%	7,328
35-3022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	1	1,172	1,129	-3.7%	712
35-3031	Waiters and Waitresses	1	9,199	10,657	15.8%	6,327
35-3041	Food Servers, Nonrestaurant	1	1,311	1,537	17.2%	649
35-9011	Dining Room and Cafeteria Attendants and Bartender Helpers	1	1,560	1,720	10.3%	915
35-9021	Dishwashers	1	2,121	2,162	1.9%	1,070
35-9031	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	1	1,343	1,501	11.8%	1,242
35-9099	Food Preparation and Serving Related Workers, All Other	1	118	151	28.0%	101
37-1011	First-Line Supervisors of Housekeeping and Janitorial Workers	2	647	702	8.5%	234
37-1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	3	277	290	4.7%	45
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	2	8,151	8,411	3.2%	2,130
37-2012	Maids and Housekeeping Cleaners	2	4,616	5,302	14.9%	1,864
37-2019	Building Cleaning Workers, All Other	2	33	29	-12.1%	2
37-2021	Pest Control Workers	2	155	191	23.2%	85
37-3011	Landscaping and Groundskeeping Workers	1	3,301	3,682	11.5%	1,343
37-3012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	2	45	39	-13.3%	6
37-3013	Tree Trimmers and Pruners	2	265	333	25.7%	159
37-3019	Grounds Maintenance Workers, All Other	2	8	7	-12.5%	1
39-1011	Gaming Supervisors	2	69	83	20.3%	51
39-1012	Slot Supervisors	2	4	5	25.0%	2
39-1021	First-Line Supervisors of Personal Service Workers	3	664	879	32.4%	347

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
39-2011	Animal Trainers	2	13	14	7.7%	7
39-2021	Nonfarm Animal Caretakers	1	320	382	19.4%	111
39-3011	Gaming Dealers	2	303	372	22.8%	222
39-3012	Gaming and Sports Book Writers and Runners	2	7	9	28.6%	5
39-3019	Gaming Service Workers, All Other	2	4	5	25.0%	1
39-3021	Motion Picture Projectionists	2	30	30	0.0%	18
39-3031	Ushers, Lobby Attendants, and Ticket Takers	2	400	486	21.5%	333
39-3091	Amusement and Recreation Attendants	1	1,584	1,914	20.8%	1,230
39-3092	Costume Attendants	2	8	9	12.5%	6
39-3093	Locker Room, Coatroom, and Dressing Room Attendants	2	93	93	0.0%	50
39-3099	Entertainment Attendants and Related Workers, All Other	2	46	48	4.3%	29
39-4021	Funeral Attendants	2	156	189	21.2%	83
39-4031	Morticians, Undertakers, and Funeral Directors	3	94	123	30.9%	57
39-5011	Barbers	3	59	61	3.4%	20
39-5012	Hairdressers, Hairstylists, and Cosmetologists	3	2,098	2,355	12.2%	850
39-5092	Manicurists and Pedicurists	2	286	302	5.6%	45
39-5093	Shampoosers	2	122	126	3.3%	25
39-5094	Skincare Specialists	3	102	94	-7.8%	2
39-6011	Baggage Porters and Bellhops	2	108	125	15.7%	58
39-6012	Concierges	3	81	97	19.8%	38
39-7011	Tour Guides and Escorts	3	101	112	10.9%	65
39-7012	Travel Guides	3	16	15	-6.3%	9
39-9011	Childcare Workers	3	1,969	1,932	-1.9%	552
39-9021	Personal Care Aides	2	4,642	6,950	49.7%	2,927
39-9031	Fitness Trainers and Aerobics Instructors	3	1,100	1,375	25.0%	467
39-9032	Recreation Workers	4	1,288	1,550	20.3%	416
39-9041	Residential Advisors	3	569	757	33.0%	474
39-9099	Personal Care and Service Workers, All Other	3	107	97	-9.3%	19
41-1011	First-Line Supervisors of Retail Sales Workers	2	4,064	4,165	2.5%	1,016
41-1012	First-Line Supervisors of Non-Retail Sales Workers	4	755	710	-6.0%	67
41-2011	Cashiers	1	13,977	13,272	-5.0%	5,868
41-2012	Gaming Change Persons and Booth Cashiers	2	18	21	16.7%	19
41-2021	Counter and Rental Clerks	1	1,311	1,428	8.9%	503
41-2022	Parts Salespersons	2	956	1,089	13.9%	419
41-2031	Retail Salespersons	2	18,611	19,508	4.8%	7,653
41-3011	Advertising Sales Agents	3	415	344	-17.1%	99

<b>SOC Code</b>	<b>Occupation Title</b>	<b>Job Zone</b>	<b>2014</b>	<b>2024</b>	<b>% Change 2014-2024</b>	<b>New and Replacement Jobs</b>
41-3021	Insurance Sales Agents	4	1,111	1,130	1.7%	356
41-3031	Securities, Commodities, and Financial Services Sales Agents	4	635	628	-1.1%	170
41-3041	Travel Agents	3	451	361	-20.0%	146
41-3099	Sales Representatives, Services, All Other	4	2,439	3,003	23.1%	1,264
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	4	717	682	-4.9%	124
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	4	5,291	5,202	-1.7%	1,141
41-9011	Demonstrators and Product Promoters	2	132	142	7.6%	50
41-9012	Models	1	8	10	25.0%	4
41-9021	Real Estate Brokers	4	82	66	-19.5%	1
41-9022	Real Estate Sales Agents	3	495	512	3.4%	100
41-9031	Sales Engineers	4	207	221	6.8%	59
41-9041	Telemarketers	2	763	598	-21.6%	200
41-9091	Door-to-Door Sales Workers, News and Street Vendors, and Related Workers	2	11	9	-18.2%	0
41-9099	Sales and Related Workers, All Other	3	180	176	-2.2%	30
43-1011	First-Line Supervisors of Office and Administrative Support Workers	3	4,658	4,920	5.6%	1,378
43-2011	Switchboard Operators, Including Answering Service	2	507	412	-18.7%	85
43-2021	Telephone Operators	2	26	21	-19.2%	4
43-3011	Bill and Account Collectors	2	1,159	1,033	-10.9%	265
43-3021	Billing and Posting Clerks	2	2,285	2,504	9.6%	681
43-3031	Bookkeeping, Accounting, and Auditing Clerks	3	5,349	5,850	9.4%	1,029
43-3041	Gaming Cage Workers	2	25	32	28.0%	20
43-3051	Payroll and Timekeeping Clerks	2	655	668	2.0%	170
43-3061	Procurement Clerks	3	231	208	-10.0%	67
43-3071	Tellers	2	1,985	1,742	-12.2%	921
43-3099	Financial Clerks, All Other	2	106	119	12.3%	49
43-4011	Brokerage Clerks	3	136	146	7.4%	62
43-4021	Correspondence Clerks	2	51	53	3.9%	19
43-4031	Court, Municipal, and License Clerks	3	194	196	1.0%	35
43-4041	Credit Authorizers, Checkers, and Clerks	3	114	94	-17.5%	4
43-4051	Customer Service Representatives	2	9,270	10,423	12.4%	3,954
43-4061	Eligibility Interviewers, Government Programs	3	695	670	-3.6%	126
43-4071	File Clerks	2	465	428	-8.0%	98
43-4081	Hotel, Motel, and Resort Desk Clerks	2	1,534	1,783	16.2%	1,180

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
43-4111	Interviewers, Except Eligibility and Loan	2	743	854	14.9%	274
43-4121	Library Assistants, Clerical	2	359	362	0.8%	168
43-4131	Loan Interviewers and Clerks	3	588	681	15.8%	179
43-4141	New Accounts Clerks	2	92	97	5.4%	41
43-4151	Order Clerks	2	908	894	-1.5%	310
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	3	571	532	-6.8%	132
43-4171	Receptionists and Information Clerks	2	3,766	3,781	0.4%	1,058
43-4181	Reservation and Transportation Ticket Agents and Travel Clerks	2	47	39	-17.0%	6
43-4199	Information and Record Clerks, All Other	2	254	196	-22.8%	15
43-5011	Cargo and Freight Agents	2	79	74	-6.3%	22
43-5021	Couriers and Messengers	2	250	211	-15.6%	18
43-5031	Police, Fire, and Ambulance Dispatchers	2	268	275	2.6%	92
43-5032	Dispatchers, Except Police, Fire, and Ambulance	2	681	839	23.2%	371
43-5041	Meter Readers, Utilities	2	101	93	-7.9%	33
43-5051	Postal Service Clerks	2	310	240	-22.6%	65
43-5052	Postal Service Mail Carriers	2	1,226	933	-23.9%	414
43-5053	Postal Service Mail Sorters, Processors, and Processing Machine Operators	2	570	338	-40.7%	7
43-5061	Production, Planning, and Expediting Clerks	3	1,174	1,267	7.9%	423
43-5071	Shipping, Receiving, and Traffic Clerks	2	2,632	2,635	0.1%	788
43-5081	Stock Clerks and Order Fillers	2	8,035	8,274	3.0%	3,046
43-5111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	2	303	358	18.2%	133
43-6011	Executive Secretaries and Executive Administrative Assistants	3	1,894	1,816	-4.1%	228
43-6012	Legal Secretaries	3	639	682	6.7%	170
43-6013	Medical Secretaries	3	2,092	2,699	29.0%	851
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	3	8,703	9,750	12.0%	2,178
43-9011	Computer Operators	3	324	318	-1.9%	80
43-9021	Data Entry Keyers	2	925	846	-8.5%	244
43-9022	Word Processors and Typists	2	586	461	-21.3%	43
43-9031	Desktop Publishers	3	64	46	-28.1%	4
43-9041	Insurance Claims and Policy Processing Clerks	3	940	914	-2.8%	279
43-9051	Mail Clerks and Mail Machine Operators, Except Postal Service	2	521	447	-14.2%	127
43-9061	Office Clerks, General	2	10,961	11,066	1.0%	2,629
43-9071	Office Machine Operators, Except Computer	2	305	270	-11.5%	87

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43-9081	Proofreaders and Copy Markers	4	44	35	-20.5%	3
43-9111	Statistical Assistants	4	43	42	-2.3%	11
43-9199	Office and Administrative Support Workers, All Other	3	384	470	22.4%	198
45-1011	First-Line Supervisors of Farming, Fishing, and Forestry Workers	3	16	15	-6.3%	4
45-2011	Agricultural Inspectors	2	29	25	-13.8%	8
45-2041	Graders and Sorters, Agricultural Products	1	23	26	13.0%	9
45-2091	Agricultural Equipment Operators	2	15	18	20.0%	9
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	1	85	71	-16.5%	21
45-2093	Farmworkers, Farm, Ranch, and Aquacultural Animals	1	42	42	0.0%	17
45-2099	Agricultural Workers, All Other	1	1	1	0.0%	0
45-4011	Forest and Conservation Workers	3	14	15	7.1%	4
45-4021	Fallers	1	3	2	-33.3%	0
45-4022	Logging Equipment Operators	1	23	23	0.0%	10
45-4023	Log Graders and Scalers	3	4	5	25.0%	1
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	3	1,285	1,616	25.8%	488
47-2011	Boilermakers	3	67	92	37.3%	61
47-2021	Brickmasons and Blockmasons	2	250	339	35.6%	115
47-2022	Stonemasons	3	34	32	-5.9%	0
47-2031	Carpenters	2	2,510	2,903	15.7%	762
47-2041	Carpet Installers	2	135	161	19.3%	60
47-2042	Floor Layers, Except Carpet, Wood, and Hard Tiles	2	33	28	-15.2%	2
47-2044	Tile and Marble Setters	2	79	88	11.4%	22
47-2051	Cement Masons and Concrete Finishers	2	462	564	22.1%	158
47-2053	Terrazzo Workers and Finishers	2	7	6	-14.3%	0
47-2061	Construction Laborers	2	2,593	3,495	34.8%	1,530
47-2071	Paving, Surfacing, and Tamping Equipment Operators	2	164	187	14.0%	58
47-2072	Pile-Driver Operators	2	3	3	0.0%	1
47-2073	Operating Engineers and Other Construction Equipment Operators	2	1,454	1,700	16.9%	667
47-2081	Drywall and Ceiling Tile Installers	2	129	101	-21.7%	3
47-2082	Tapers	2	39	41	5.1%	8
47-2111	Electricians	3	1,709	2,240	31.1%	996
47-2121	Glaziers	2	115	141	22.6%	64
47-2131	Insulation Workers, Floor, Ceiling, and Wall	2	49	57	16.3%	18

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
47-2132	Insulation Workers, Mechanical	2	33	46	39.4%	18
47-2141	Painters, Construction and Maintenance	2	426	441	3.5%	105
47-2142	Paperhangers	2	11	9	-18.2%	0
47-2151	Pipelayers	2	102	120	17.6%	44
47-2152	Plumbers, Pipefitters, and Steamfitters	3	1,156	1,388	20.1%	443
47-2161	Plasterers and Stucco Masons	1	31	36	16.1%	6
47-2171	Reinforcing Iron and Rebar Workers	2	21	22	4.8%	5
47-2181	Roofers	2	346	396	14.5%	183
47-2211	Sheet Metal Workers	2	364	410	12.6%	124
47-2221	Structural Iron and Steel Workers	2	137	163	19.0%	78
47-3011	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	2	82	90	9.8%	17
47-3012	Helpers--Carpenters	2	72	102	41.7%	40
47-3013	Helpers--Electricians	2	118	183	55.1%	88
47-3014	Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	1	15	14	-6.7%	3
47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	2	91	101	11.0%	24
47-3016	Helpers--Roofers	2	33	45	36.4%	20
47-3019	Helpers, Construction Trades, All Other	2	21	24	14.3%	6
47-4011	Construction and Building Inspectors	3	386	497	28.8%	217
47-4021	Elevator Installers and Repairers	3	31	30	-3.2%	9
47-4031	Fence Erectors	2	89	95	6.7%	31
47-4041	Hazardous Materials Removal Workers	3	192	260	35.4%	136
47-4051	Highway Maintenance Workers	2	863	854	-1.0%	158
47-4061	Rail-Track Laying and Maintenance Equipment Operators	2	4	5	25.0%	2
47-4071	Septic Tank Servicers and Sewer Pipe Cleaners	1	129	149	15.5%	62
47-4099	Construction and Related Workers, All Other	3	42	42	0.0%	5
47-5011	Derrick Operators, Oil and Gas	1	4	5	25.0%	3
47-5012	Rotary Drill Operators, Oil and Gas	2	14	18	28.6%	14
47-5013	Service Unit Operators, Oil, Gas, and Mining	2	10	12	20.0%	9
47-5021	Earth Drillers, Except Oil and Gas	2	84	109	29.8%	63
47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters	2	18	20	11.1%	7
47-5041	Continuous Mining Machine Operators	1	11	11	0.0%	5
47-5042	Mine Cutting and Channeling Machine Operators	2	15	14	-6.7%	5
47-5051	Rock Splitters, Quarry	1	54	53	-1.9%	20
47-5061	Roof Bolters, Mining	2	1	2	100.0%	1
47-5071	Roustabouts, Oil and Gas	1	33	42	27.3%	25

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
47-5081	Helpers--Extraction Workers	2	29	38	31.0%	24
47-5099	Extraction Workers, All Other	2	1	2	100.0%	1
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	3	1,301	1,506	15.8%	575
49-2011	Computer, Automated Teller, and Office Machine Repairers	3	325	329	1.2%	108
49-2021	Radio, Cellular, and Tower Equipment Installers and Repairers	3	26	27	3.8%	5
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	3	443	452	2.0%	123
49-2091	Avionics Technicians	3	24	27	12.5%	11
49-2092	Electric Motor, Power Tool, and Related Repairers	3	72	67	-6.9%	16
49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	3	27	25	-7.4%	4
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	3	260	242	-6.9%	55
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	3	50	49	-2.0%	14
49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	3	11	12	9.1%	4
49-2097	Electronic Home Entertainment Equipment Installers and Repairers	3	37	30	-18.9%	11
49-2098	Security and Fire Alarm Systems Installers	3	196	250	27.6%	102
49-3011	Aircraft Mechanics and Service Technicians	3	61	59	-3.3%	24
49-3021	Automotive Body and Related Repairers	2	597	715	19.8%	275
49-3022	Automotive Glass Installers and Repairers	2	78	91	16.7%	38
49-3023	Automotive Service Technicians and Mechanics	3	3,015	3,345	10.9%	1,207
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	3	1,127	1,412	25.3%	571
49-3041	Farm Equipment Mechanics and Service Technicians	3	48	40	-16.7%	11
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	3	249	300	20.5%	137
49-3043	Rail Car Repairers	2	68	95	39.7%	55
49-3051	Motorboat Mechanics and Service Technicians	3	26	31	19.2%	11
49-3052	Motorcycle Mechanics	3	90	112	24.4%	54
49-3053	Outdoor Power Equipment and Other Small Engine Mechanics	2	120	131	9.2%	42
49-3091	Bicycle Repairers	2	38	33	-13.2%	13
49-3092	Recreational Vehicle Service Technicians	2	31	33	6.5%	15
49-3093	Tire Repairers and Changers	2	268	239	-10.8%	78
49-9011	Mechanical Door Repairers	2	40	40	0.0%	15
49-9012	Control and Valve Installers and Repairers, Except Mechanical Door	3	50	56	12.0%	24

<b>SOC Code</b>	<b>Occupation Title</b>	<b>Job Zone</b>	<b>2014</b>	<b>2024</b>	<b>% Change 2014-2024</b>	<b>New and Replacement Jobs</b>
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	3	1,072	1,294	20.7%	550
49-9031	Home Appliance Repairers	3	152	130	-14.5%	45
49-9041	Industrial Machinery Mechanics	3	1,147	1,375	19.9%	603
49-9043	Maintenance Workers, Machinery	3	358	407	13.7%	113
49-9044	Millwrights	3	95	126	32.6%	54
49-9045	Refractory Materials Repairers, Except Brickmasons	2	6	5	-16.7%	2
49-9051	Electrical Power-Line Installers and Repairers	3	283	360	27.2%	199
49-9052	Telecommunications Line Installers and Repairers	2	643	681	5.9%	294
49-9062	Medical Equipment Repairers	3	186	223	19.9%	102
49-9063	Musical Instrument Repairers and Tuners	3	43	45	4.7%	19
49-9064	Watch Repairers	3	8	7	-12.5%	2
49-9069	Precision Instrument and Equipment Repairers, All Other	3	15	12	-20.0%	2
49-9071	Maintenance and Repair Workers, General	3	5,463	6,008	10.0%	1,749
49-9091	Coin, Vending, and Amusement Machine Servicers and Repairers	2	143	134	-6.3%	31
49-9092	Commercial Divers	3	36	36	0.0%	14
49-9094	Locksmiths and Safe Repairers	2	26	26	0.0%	8
49-9095	Manufactured Building and Mobile Home Installers	2	19	24	26.3%	14
49-9096	Riggers	2	26	35	34.6%	16
49-9098	Helpers--Installation, Maintenance, and Repair Workers	2	378	429	13.5%	171
49-9099	Installation, Maintenance, and Repair Workers, All Other	2	294	377	28.2%	129
51-1011	First-Line Supervisors of Production and Operating Workers	2	2,158	2,245	4.0%	520
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	2	93	101	8.6%	38
51-2021	Coil Winders, Tapers, and Finishers	2	66	45	-31.8%	1
51-2022	Electrical and Electronic Equipment Assemblers	2	858	816	-4.9%	163
51-2023	Electromechanical Equipment Assemblers	2	225	192	-14.7%	24
51-2031	Engine and Other Machine Assemblers	2	159	147	-7.5%	48
51-2041	Structural Metal Fabricators and Fitters	3	403	426	5.7%	222
51-2091	Fiberglass Laminators and Fabricators	2	46	47	2.2%	15
51-2092	Team Assemblers	2	3,334	3,419	2.5%	858
51-2099	Assemblers and Fabricators, All Other	2	643	903	40.4%	378
51-3011	Bakers	2	775	777	0.3%	248
51-3021	Butchers and Meat Cutters	2	584	525	-10.1%	114
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	1	156	146	-6.4%	35

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
51-3023	Slaughterers and Meat Packers	1	110	122	10.9%	53
51-3091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	2	40	44	10.0%	18
51-3092	Food Batchmakers	2	493	508	3.0%	223
51-3093	Food Cooking Machine Operators and Tenders	2	142	126	-11.3%	31
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	3	630	814	29.2%	403
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	3	53	54	1.9%	17
51-4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	2	380	396	4.2%	153
51-4022	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	2	68	71	4.4%	27
51-4023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	2	138	131	-5.1%	38
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	2	676	729	7.8%	183
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2	59	44	-25.4%	8
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2	436	438	0.5%	171
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2	142	147	3.5%	57
51-4035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	3	85	100	17.6%	45
51-4041	Machinists	3	1,406	1,648	17.2%	656
51-4051	Metal-Refining Furnace Operators and Tenders	2	102	114	11.8%	43
51-4052	Pourers and Casters, Metal	2	81	94	16.0%	45
51-4061	Model Makers, Metal and Plastic	3	6	5	-16.7%	1
51-4062	Patternmakers, Metal and Plastic	3	41	50	22.0%	25
51-4071	Foundry Mold and Coremakers	2	76	80	5.3%	28
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	2	589	547	-7.1%	107
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2	760	794	4.5%	301
51-4111	Tool and Die Makers	3	239	261	9.2%	67
51-4121	Welders, Cutters, Solderers, and Brazers	3	1,173	1,421	21.1%	630
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	2	145	166	14.5%	78
51-4191	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	2	81	79	-2.5%	23
51-4192	Layout Workers, Metal and Plastic	2	12	14	16.7%	4
51-4193	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	2	113	117	3.5%	43

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
51-4194	Tool Grinders, Filers, and Sharpeners	2	29	27	-6.9%	7
51-4199	Metal Workers and Plastic Workers, All Other	2	126	179	42.1%	81
51-5111	Prepress Technicians and Workers	3	130	84	-35.4%	11
51-5112	Printing Press Operators	3	607	507	-16.5%	99
51-5113	Print Binding and Finishing Workers	2	173	160	-7.5%	48
51-6011	Laundry and Dry-Cleaning Workers	1	958	1,036	8.1%	421
51-6021	Pressers, Textile, Garment, and Related Materials	1	161	157	-2.5%	33
51-6031	Sewing Machine Operators	1	617	416	-32.6%	101
51-6041	Shoe and Leather Workers and Repairers	2	8	11	37.5%	10
51-6051	Sewers, Hand	2	900	772	-14.2%	76
51-6052	Tailors, Dressmakers, and Custom Sewers	3	137	136	-0.7%	39
51-6061	Textile Bleaching and Dyeing Machine Operators and Tenders	2	36	30	-16.7%	22
51-6062	Textile Cutting Machine Setters, Operators, and Tenders	2	76	55	-27.6%	25
51-6063	Textile Knitting and Weaving Machine Setters, Operators, and Tenders	2	92	82	-10.9%	57
51-6064	Textile Winding, Twisting, and Drawing Out Machine Setters, Operators, and Tenders	2	49	38	-22.4%	18
51-6091	Extruding and Forming Machine Setters, Operators, and Tenders, Synthetic and Glass Fibers	2	54	40	-25.9%	6
51-6092	Fabric and Apparel Patternmakers	3	23	11	-52.2%	0
51-6093	Upholsterers	2	79	92	16.5%	53
51-6099	Textile, Apparel, and Furnishings Workers, All Other	2	52	49	-5.8%	9
51-7011	Cabinetmakers and Bench Carpenters	2	358	404	12.8%	195
51-7021	Furniture Finishers	1	81	101	24.7%	67
51-7031	Model Makers, Wood	3	7	7	0.0%	1
51-7032	Patternmakers, Wood	3	9	11	22.2%	3
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	2	189	261	38.1%	158
51-7042	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	2	321	429	33.6%	182
51-7099	Woodworkers, All Other	2	4	4	0.0%	0
51-8011	Nuclear Power Reactor Operators	3	19	21	10.5%	10
51-8012	Power Distributors and Dispatchers	3	41	46	12.2%	21
51-8013	Power Plant Operators	2	117	108	-7.7%	45
51-8021	Stationary Engineers and Boiler Operators	3	241	277	14.9%	141
51-8031	Water and Wastewater Treatment Plant and System Operators	3	467	493	5.6%	223
51-8091	Chemical Plant and System Operators	2	178	177	-0.6%	108
51-8092	Gas Plant Operators	3	22	22	0.0%	12

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
51-8093	Petroleum Pump System Operators, Refinery Operators, and Gaugers	2	237	294	24.1%	183
51-8099	Plant and System Operators, All Other	2	27	29	7.4%	14
51-9011	Chemical Equipment Operators and Tenders	2	520	569	9.4%	329
51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	2	238	275	15.5%	146
51-9021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	2	155	160	3.2%	68
51-9022	Grinding and Polishing Workers, Hand	1	89	104	16.9%	47
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	2	585	663	13.3%	306
51-9031	Cutters and Trimmers, Hand	2	44	33	-25.0%	3
51-9032	Cutting and Slicing Machine Setters, Operators, and Tenders	2	222	191	-14.0%	31
51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	2	252	251	-0.4%	99
51-9051	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	2	44	45	2.3%	20
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	2	1,725	1,813	5.1%	536
51-9071	Jewelers and Precious Stone and Metal Workers	3	77	63	-18.2%	7
51-9081	Dental Laboratory Technicians	2	213	241	13.1%	143
51-9082	Medical Appliance Technicians	3	205	184	-10.2%	82
51-9083	Ophthalmic Laboratory Technicians	2	141	130	-7.8%	52
51-9111	Packaging and Filling Machine Operators and Tenders	2	1,765	1,832	3.8%	607
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	2	299	341	14.0%	120
51-9122	Painters, Transportation Equipment	2	125	126	0.8%	38
51-9123	Painting, Coating, and Decorating Workers	2	81	76	-6.2%	18
51-9141	Semiconductor Processors	2	36	35	-2.8%	15
51-9151	Photographic Process Workers and Processing Machine Operators	2	89	62	-30.3%	9
51-9191	Adhesive Bonding Machine Operators and Tenders	2	38	38	0.0%	13
51-9192	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	2	49	54	10.2%	19
51-9193	Cooling and Freezing Equipment Operators and Tenders	2	23	19	-17.4%	4
51-9194	Etchers and Engravers	2	53	58	9.4%	23
51-9195	Molders, Shapers, and Casters, Except Metal and Plastic	2	215	198	-7.9%	81
51-9196	Paper Goods Machine Setters, Operators, and Tenders	2	540	503	-6.9%	96
51-9197	Tire Builders	2	17	19	11.8%	9

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
51-9198	Helpers--Production Workers	2	1,976	2,304	16.6%	832
51-9199	Production Workers, All Other	2	358	457	27.7%	189
53-1011	Aircraft Cargo Handling Supervisors	2	19	19	0.0%	5
53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	2	736	870	18.2%	366
53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	2	769	941	22.4%	402
53-2012	Commercial Pilots	3	80	75	-6.3%	28
53-2021	Air Traffic Controllers	3	35	34	-2.9%	17
53-2022	Airfield Operations Specialists	3	5	4	-20.0%	2
53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	2	178	234	31.5%	94
53-3021	Bus Drivers, Transit and Intercity	2	895	1,017	13.6%	371
53-3022	Bus Drivers, School or Special Client	2	1,833	1,951	6.4%	581
53-3031	Driver/Sales Workers	2	1,807	1,960	8.5%	498
53-3032	Heavy and Tractor-Trailer Truck Drivers	2	6,889	8,608	25.0%	3,169
53-3033	Light Truck or Delivery Services Drivers	2	3,161	3,042	-3.8%	481
53-3041	Taxi Drivers and Chauffeurs	1	649	724	11.6%	206
53-3099	Motor Vehicle Operators, All Other	2	92	116	26.1%	48
53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers	2	18	13	-27.8%	3
53-5011	Sailors and Marine Oilers	2	40	53	32.5%	39
53-5021	Captains, Mates, and Pilots of Water Vessels	3	3	3	0.0%	2
53-5031	Ship Engineers	3	1	1	0.0%	1
53-6011	Bridge and Lock Tenders	1	10	8	-20.0%	3
53-6021	Parking Lot Attendants	2	380	478	25.8%	320
53-6031	Automotive and Watercraft Service Attendants	1	198	221	11.6%	86
53-6041	Traffic Technicians	3	5	6	20.0%	3
53-6051	Transportation Inspectors	3	21	19	-9.5%	6
53-6061	Transportation Attendants, Except Flight Attendants	2	93	89	-4.3%	19
53-6099	Transportation Workers, All Other	2	22	25	13.6%	13
53-7011	Conveyor Operators and Tenders	2	80	80	0.0%	30
53-7021	Crane and Tower Operators	3	127	159	25.2%	82
53-7032	Excavating and Loading Machine and Dragline Operators	2	103	120	16.5%	33
53-7051	Industrial Truck and Tractor Operators	2	3,326	4,170	25.4%	1,935
53-7061	Cleaners of Vehicles and Equipment	2	1,020	1,151	12.8%	462
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	2	12,135	15,678	29.2%	7,916
53-7063	Machine Feeders and Offbearers	2	505	499	-1.2%	124
53-7064	Packers and Packagers, Hand	2	3,302	4,014	21.6%	1,753

<b>SOC Code</b>	<b>Occupation Title</b>	<b>Job Zone</b>	<b>2014</b>	<b>2024</b>	<b>% Change 2014-2024</b>	<b>New and Replacement Jobs</b>
53-7071	Gas Compressor and Gas Pumping Station Operators	2	6	6	0.0%	4
53-7072	Pump Operators, Except Wellhead Pumpers	2	55	57	3.6%	34
53-7073	Wellhead Pumpers	2	6	7	16.7%	5
53-7081	Refuse and Recyclable Material Collectors	2	538	595	10.6%	231
53-7111	Mine Shuttle Car Operators	2	1	1	0.0%	0
53-7121	Tank Car, Truck, and Ship Loaders	2	49	52	6.1%	22
53-7199	Material Moving Workers, All Other	2	38	61	60.5%	35

Source: Bureau of Labor Statistics, Occupational Employment Statistics (OES), O\*NET OnLine, Pennsylvania Department of Labor & Industry, Oxford Economics Projections

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# ABOUT THE STATE SYSTEM'S GAP ANALYSIS PROJECT

The Workforce Characteristics Report was produced through a multi-organization collaboration that consisted of Pennsylvania's State System of Higher Education Office of the Chancellor, Oxford Economics USA Inc., and Georgetown University's Center on Education and the Workforce. Oxford Economics completed the analysis and research work for this report, under the guidance of The State System's Office of the Chancellor, the team sought feedback and insight from senior administration and representatives from each of the 14 State System Universities. The team also drew on insight and feedback from subject matter experts involved in labor market intelligence and education program alignment.

The modeling and results presented here are based on information provided by third parties, upon which Oxford Economics has relied in producing its report and forecasts in good faith. Any subsequent revision or update of those data will affect the assessments and projections shown.

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