



# EXECUTIVE MEMO

Key Findings from Pennsylvania's State System's Workforce Needs Assessment, 2016–2026

## BACKGROUND

Pennsylvania's State System for Higher Education recently completed its Workforce Needs Assessment 2016-2026, a component of the State System's Workforce Intelligence Toolkit. As a comprehensive and detailed evaluation of occupation demand and education supply across the Commonwealth, the Workforce Needs Assessment evaluated five distinct sub-regions, 14 university-specific workforce regions, the Tri-State Energy Region, and two university center regions. A key goal of the Workforce Needs Assessment is to assist university leadership and education planners by providing an infrastructure of resources for internal planning and external engagement with policymakers, businesses, and students. In driving toward this goal, the Workforce Needs Assessment identified:

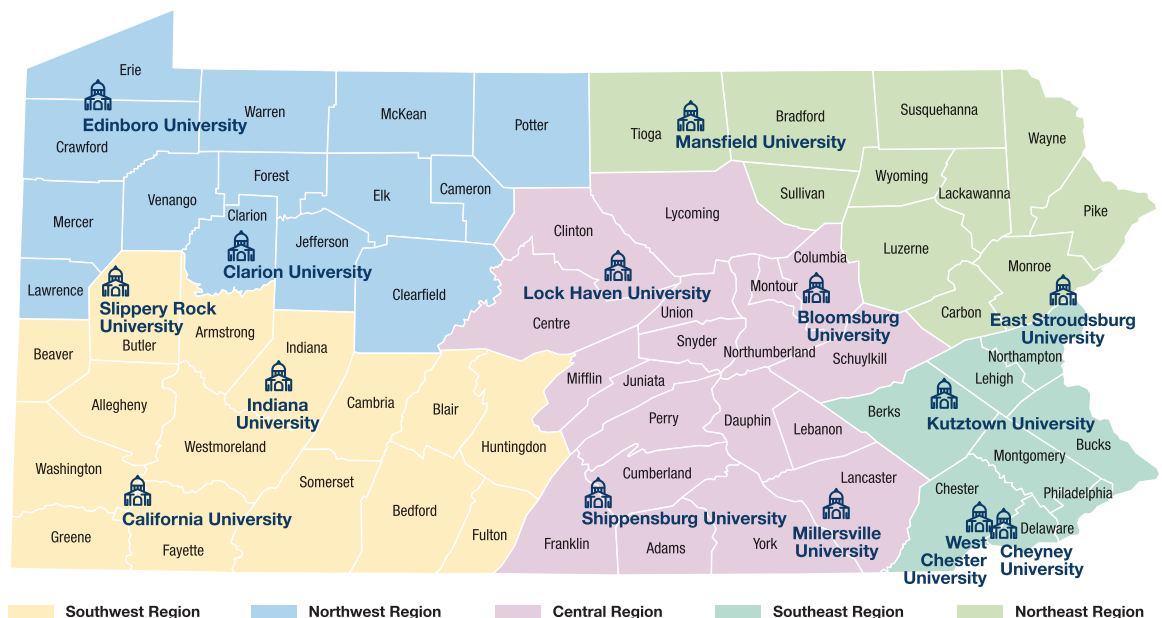
- Current and emerging workforce needs of Pennsylvania's 350,000 employers;
- Supply of skilled talent pipeline from the state's 400 postsecondary education institutions; and

- Supply/demand gaps across Pennsylvania's 500 skilled occupations.

Of the 6.3 million jobs Pennsylvania is projected to have in 2026, 54 percent will require some amount of post-secondary education preparation; these are termed as "skilled occupations." The skilled jobs demand highlights the increasing importance of postsecondary degree holders in the Commonwealth's workforce. According to the 2012–2016 American Community Survey (ACS), 37 percent (3.3 million residents) of Pennsylvania's population has a college degree while an additional 16 percent (1.4 million residents) has some college, but no degree.

The Workforce Needs Assessment conducted in-depth research on industries, occupations, completions, and crosswalk connections to produce the gap analysis results. The assessment was intended to clarify the role of higher education in Pennsylvania's workforce. The following sections highlight the respective findings for each component of the Workforce Needs Assessment.

### MAP OF PENNSYLVANIA STATE SYSTEM UNIVERSITIES & SUB-REGIONS



## GAP ANALYSIS HIGHLIGHTS

The Workforce Needs Assessment analyzed 500 skilled occupations and highlighted 186 occupations where there is projected to be a talent demand gap across Pennsylvania—meaning the supply of post-secondary degree graduates in relevant programs does not meet the demands by employers. These figures are presented on an annualized basis for the 10-year period 2016 to 2026, i.e., the average annual supply of graduates, the average annual demand for new and replacement jobs within an occupation, and the average annual gap.

The largest projected **annual talent demand gaps** in Pennsylvania were found within a variety of occupations:

- The 186 skilled occupation demand gaps combined for an annual average of 19,500;
- High-skill (Job Zones 4 and 5) occupation demand gaps combined for an annual average of 4,600;
- Middle-skill (Job Zone 3) occupation demand gaps combined for an annual average of 14,900;
- STEM-H occupation demand gaps combined for an annual average of 5,300;
- Business and finance occupation demand gaps combined for an annual average of 1,900; and
- Pennsylvania's high priority occupations (HPOs) demand gaps combined for an annual average of 14,700;

Moreover, 77 skilled occupations were identified as having a gap at a specific degree level. An additional 222 skilled occupations were in balance, meaning the ratio of program completions per job opening was less than three, but greater than or equal to one.

Finally, a total of 10 occupations showed projected supply surpluses—meaning there are projected to be more than or equal to three program completers per job opening for a matched occupation.

## DEGREE-TO-OCCUPATION CONNECTIONS

The Workforce Needs Assessment combined various sources to strengthen the educational-occupational crosswalk that is foundational to the Needs Assessment. By reviewing these new sources, new connections were realized. Five crosswalks were combined to provide more connections than any one source alone. In fact, using the five crosswalks together generated over 7,000 connections. Utilizing the new connections, gap analysis results are able to be presented for every skilled occupation at each degree level: associate's, bachelor's, and graduate. The crosswalks include three conceptual crosswalks (NCES, CWIA, and Application of Detailed Work Activity) and two real-world outcome crosswalks (ACS and EMSI). Additionally, the Bureau of Labor Statistics (BLS) minimum education requirements were used to account for "upskilling" in occupations.

### 2016-2026 PA Gap Analysis Highlights

# 186

Skilled occupations  
with a talent  
demand gap

# 19,500

Annual average  
demand gap for  
skilled occupations

# 1,900

Annual  
average Business  
and Financial  
demand gap

# 5,300

Annual average  
STEM-H  
demand gap

# 14,700

Annual  
average HPO  
demand gap

# 7,000

Connections  
between occupations  
and programs

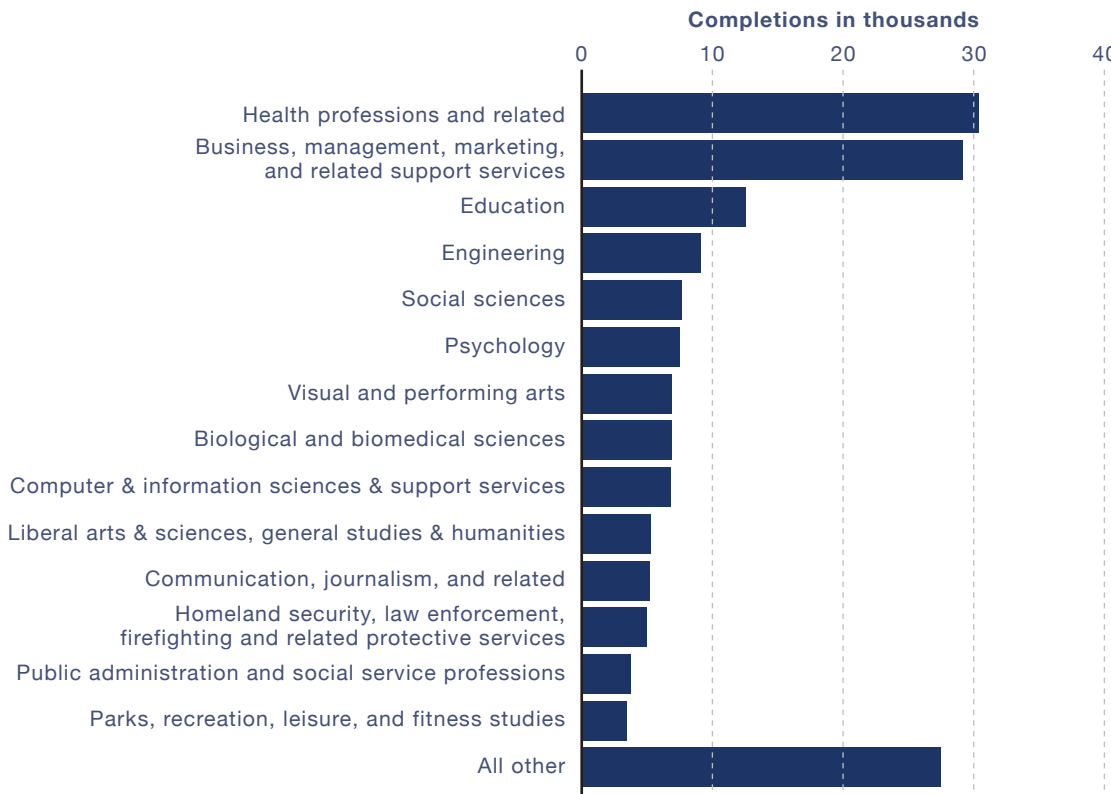
# PENNSYLVANIA'S EDUCATION SUPPLY

Pennsylvania is home to many postsecondary institutions, offering a range of degree programs. As reported by the National Center for Education Statistics (NCES), there are approximately 400 postsecondary education institutions in the Commonwealth with over 800,000 enrolled students. From 2014 to 2016, these institutions graduated, on average, 165,000 students with an associate's degree or higher. The top major fields of study included health professions and related programs; business, management, marketing, and related support services; and education.

## HOW DOES THE STATE SYSTEM CONTRIBUTE?

Pennsylvania's State System of Higher Education enrolls approximately one in five students enrolled in four-year institutions in the state; this number has remained steady for the past several academic years. As a result, the State System is a large contributor to the total number of degree completions, supplying an average of 25,400 program completers from 2014 to 2016. In fact, the State System produced approximately one in five of the total bachelor's degrees and one in nine of the graduate degrees in the state.

## PENNSYLVANIA'S PROGRAM COMPLETIONS, 2014-2016 ANNUAL AVERAGE



Source: NCES Integrated Postsecondary Education Data System

**PA Education Supply Highlights 2014-2016 Average**

**400**

Postsecondary institutions

**27,300**

Associate's degrees awarded

**93,300**

Bachelor's degrees awarded

**44,500**

Graduate degrees awarded

**30,200**

Completers in health professions and related programs

**25,400**

State System degree completions

# PENNSYLVANIA'S INDUSTRY PROJECTIONS TO 2026

Pennsylvania is projected to add nearly 300,000 new jobs to its economy over the next 10 years, and employment is projected to grow 4.9 percent between 2016 and 2026. Service-providing sectors will drive the employment increase, accounting for a majority of the projected growth in the state, while some sectors, such as manufacturing, are projected to decline partially due to shifts toward automation.

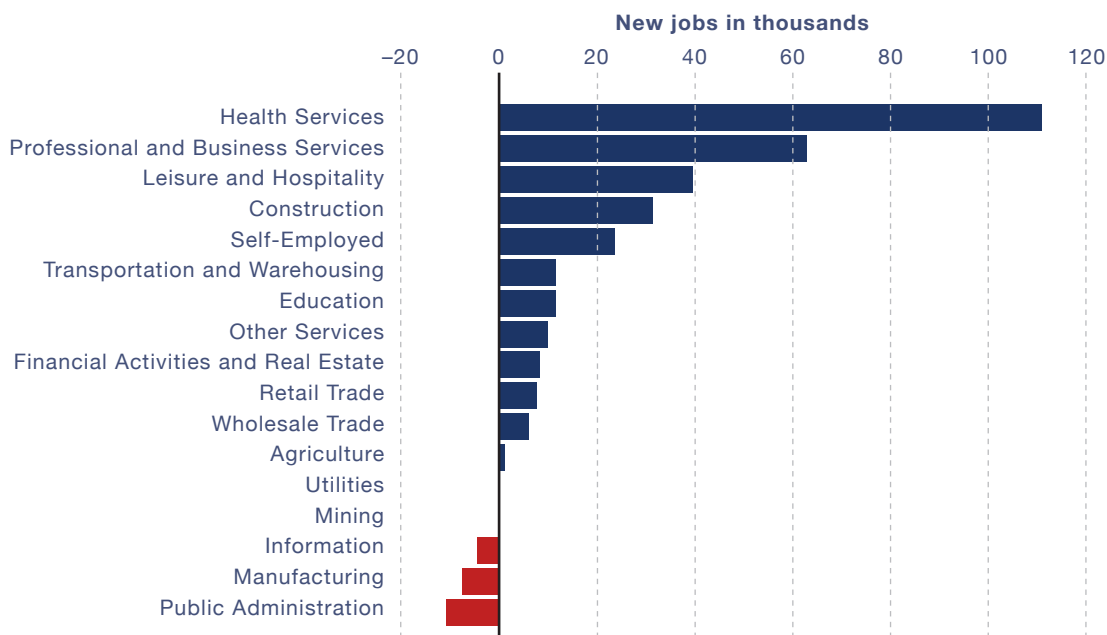
## WHAT THIS MEANS FOR PENNSYLVANIA'S HIGHER EDUCATION SECTOR

Service-providing industries require many skilled workers with postsecondary degrees in industries such as education and health services, financial and real estate activities, professional and business services, and leisure and hospitality.

Some details about the projected growth in Pennsylvania are as follows:

- The largest growth sectors include health services (110,700 new jobs), professional and business services (62,700 new jobs), and leisure and hospitality (39,300 new jobs).
- Pennsylvania's growth is being bolstered by fast-growing industries, projected to grow by more than 20 percent over the next 10 years. These industries include: utility system construction (34%), specialty hospitals (31%), facilities support services (24%), outpatient care centers (24%), and other financial investment activities (23%).

## PENNSYLVANIA'S INDUSTRY PROJECTIONS, 2016-2026



**2016-2026  
PA Industry  
Projection  
Highlights**

**300,000**  
New jobs by 2026

**110,700**  
New jobs in  
health services

**31%**  
Growth in specialty  
hospitals

**62,700**  
New jobs in  
professional and  
business services

**34%**  
Growth in utility  
system construction

**31,200**  
New jobs in  
construction

# PENNSYLVANIA'S OCCUPATIONS PROJECTIONS TO 2026

The projected industry growth translates into new demand for the occupations employed within each respective sector. When combined with the demand to replace those who will exit the labor force, total jobs openings to 2026 are expected to be 3.2 million.

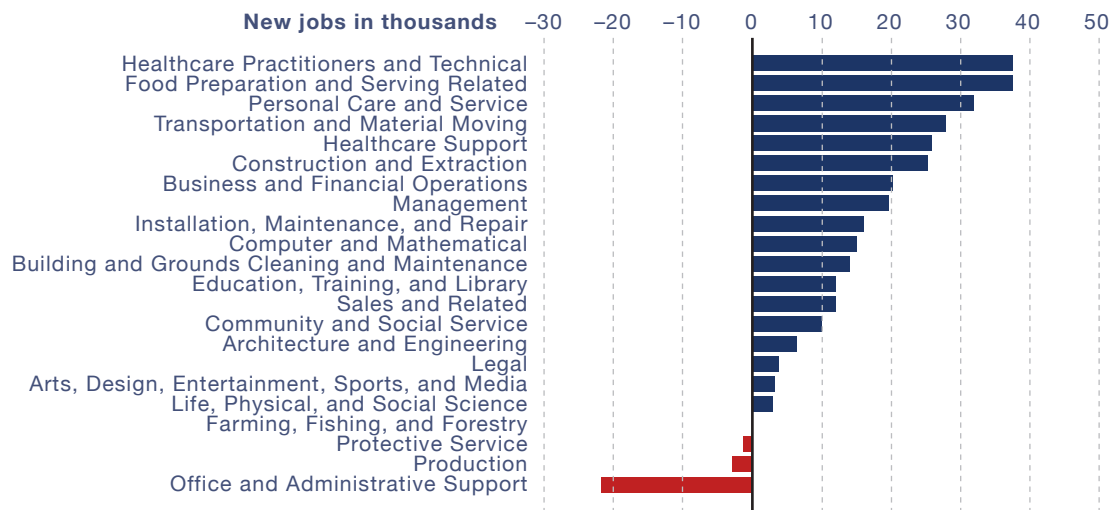
## WHAT THIS MEANS FOR PENNSYLVANIA'S HIGHER EDUCATION SECTOR

Pennsylvania will see strong demand for skilled workers, amounting to 1.4 million between 2016 and 2026. Skilled jobs are projected to grow at a faster rate of 6 percent compared to low-skilled jobs, which are projected to grow by 4 percent.

Jobs	2016	2026	% Growth
Skilled	3,231,078	3,416,989	6%
Low Skilled	2,820,216	2,932,015	4%
<b>Total</b>	<b>6,051,295</b>	<b>6,349,004</b>	<b>5%</b>

- STEM jobs show expected growth of 9 percent and health practitioner and technical and health support occupations are projected add nearly 63,500 new jobs for 11 percent growth. Self-employed occupations are projected to grow by 8 percent.
- The largest growth occupations will include personal care aides (19,500), combined food preparation and serving workers (18,600), registered nurses (15,500), and laborers and freight, stock, and material movers (10,100).
- Occupations projected to see rapid growth include: wind turbine service technicians (84 percent), statisticians (30 percent), mathematicians (29 percent), genetic counselors (27 percent), physician assistants (26 percent), and software developers, applications (26 percent).

## PENNSYLVANIA'S OCCUPATION PROJECTIONS, 2016-2026



**2016-2026 PA Occupation Projection Highlights**

**1.4 million**  
Skilled job demand to 2026

**186,000**  
New skilled jobs

**6%**  
Growth in skilled jobs

**9%**  
Growth in STEM jobs

**11%**  
Growth in health practitioner & technical and health support occupations

**8%**  
Growth in self-employed jobs to 2026



## ADDITIONAL FINDINGS AND RESOURCES

The goal of the Workforce Needs Assessment is to serve as a key tool to improve program planning, increase return on investment to learners and Pennsylvania, and to increase the efficiency and productivity of higher education and training institutions. This updated content can be found on the State System Workforce Needs Assessment landing page and will help to inform and guide the development of the State System's Workforce Needs Assessment. The landing page provides greater detail of the Workforce Needs Assessment analysis and findings, including information on:

- Top skilled occupations showing the highest excess demand gaps;
- Middle-skilled occupation gaps;
- Top STEM-H occupations with highest levels of excess employer demand;
- Business and financial occupation gaps;
- Healthcare practitioners and technical occupation gaps; and
- Top skilled occupation supply surpluses.

In addition to the gap findings, the results will be presented with new resources that help to contextualize the changing

economic landscape in Pennsylvania. These resources include:

- Risk of automation;
- Alignment with the Gig economy;
- Identification of high priority and STEM-H occupations;
- Education and experience requirements; and
- Average annual pay.

To see the detailed gap results for all skilled occupations and view all resources, visit the State System's EdHub at <https://analytics.oei.passhe.edu/StateSystemEdHub/#/>

## COLLABORATION

Thanks to the collaboration among all of the contributors to Pennsylvania's Workforce Needs Assessment, the analysis has allowed for several engagements that contributed to:

- Governor Wolf's Middle-Class Taskforce
- Inter-sector data team: PA Departments of Education, Community & Economic Development, Governor's Policy Office, Labor & Industry

